USIBWC Riparian Habitat Restoration

MONITORING NOTES AND PHOTOGRAPHS

SUMMER 2021

U.S. Section International Boundary and Water Commission

Elizabeth Verdecchia

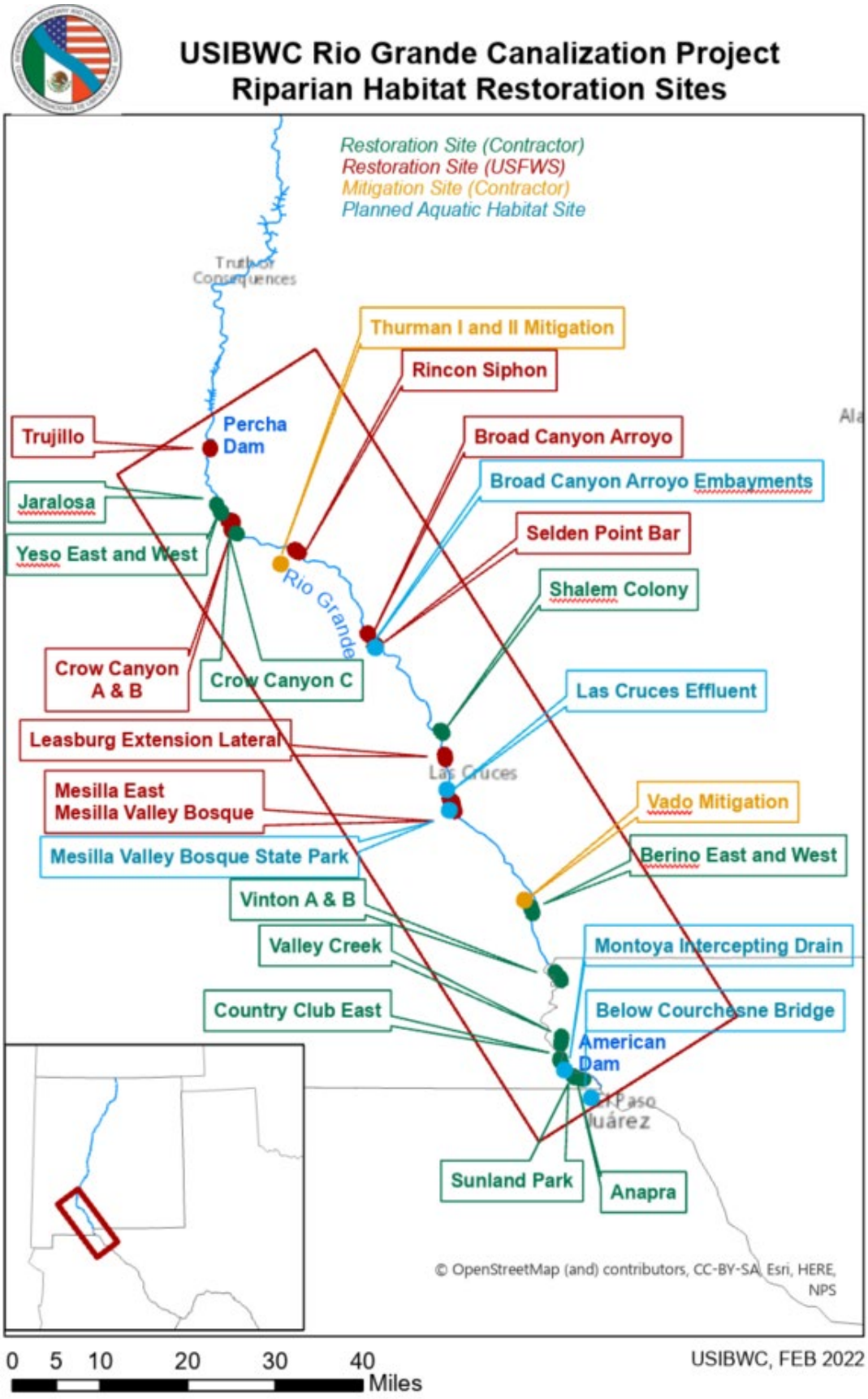
April 20, 2022

BACKGROUND

The U.S. Section, International Boundary and Water Commission (USIBWC) signed a *Record of Decision (ROD) for River Management Alternatives of the Rio Grande Canalization Project (RGCP)* in 2009. The ROD committed the USIBWC to implementing over 550 acres of riparian habitat restoration along the Rio Grande in southern New Mexico and west Texas. Through interagency agreements and commercial contracts, USIBWC has implemented 22 sites on 509 acres, with various habitat target types, starting in 2011. Some sites also target the development of habitat (dense shrub) for the endangered southwestern willow flycatcher or woodland for the threatened yellow billed cuckoo.

This document summarizes conditions of the restoration sites in summer of 2021, ten years after initial implementation of the first sites. The purpose is intended to document qualitative progress of the restoration sites to determine future maintenance and/or improvement requirements. This monitoring is not a rigorous biological monitoring effort. Monitoring was conducted by USIBWC Natural Resources Specialist Elizabeth Verdecchia. Monitoring included collecting photographs, measuring depth to groundwater from a network of 55 shallow groundwater monitoring wells, and collecting basic biologic data such as relative abundance of native and nonnative species and survival rates of certain plantings, as well as any notable observations. U.S. Fish and Wildlife Service has additional monitoring notes for the nine sites that they have been assisting USIBWC to implement under an interagency agreement. Sites are listed from southernmost first, going north.

Additional information on the related projects can be found at the RGCP website: https://ibwc.gov/EMD/Project_Documentation.html.


USIBWC Rio Grande Canalization Project
Riparian Habitat Restoration Sites
Restoration Site (Contractor)
Restoration Site (USFWS)
Mitigation Site (Contractor)
Planned Aquatic Habitat Site
Truth or Consequences
Thurman I and II Mitigation
Rincon Siphon
Trujillo
Percha Dam
Broad Canyon Arroyo
Broad Canyon Arroyo Embayments
Jaralosa
Yeso East and West
Selden Point Bar
Rio Grande
Shalem Colony
Crow Canyon A & B
Crow Canyon C
Las Cruces Effluent
Leasburg Extension Lateral
Las Cruces
Mesilla East
Mesilla Valley Bosque
Vado Mitigation
Mesilla Valley Bosque State Park
Berino East and West
Vinton A & B
Valley Creek
Montoya Intercepting Drain
Country Club East
Below Courchesne Bridge
American Dam
El Paso
Juárez
Sunland Park
Anapra
© OpenStreetMap (and) contributors, CC-BY-SA, Esri, HERE, NPS
0 5 10 20 30 40
Miles
USIBWC, FEB 2022

ANAPRA BRIDGE RESTORATION SITE

The northern portion of the Anapra site has more coyote willows and larger mesquite. Orange sign damaged south of bridge. There are lots of young saltcedar resprouts, with moderate to high abudncance of saltcedar throughout. Minimal survival of cottonwood (about 20%), but better survival of Gooddings. Some sediment piles and saltcedar debris still present.

Wells had water around 4 feet below the surface. Both had sand and roots. Failed sonde pulled out.

A sediment pile is still remaining.

One of IDEALS' photo point T-posts (right). Some saltcedar regrowth. Willows expanding along bank. Plantings are not tall or vigorous except for the ash in the middle that was planted previously by the City of Sunland Park.

Although shrub survival is generally low, this four-winged saltbush is happy.

Well 1 surrounded by brush and willows.

New signs post stay on trail. This sign is at the end of the Anapra site, facing the No Mow Zone outside of the active restoration site, where saltcedar is abundant.

PROPOSED AQUATIC HABITAT SITE - MONTOYA INTERCEPTING DRAIN

Site visit with USIBWC divisions (Construction, Environmental, and Legal) to discuss the proposed aquatic habitat project and new culvert at this location. Site is wet and has cattails and wetland vegetation, along with mature saltcedar.

Saltcedar present along the banks and cattails in the bottom of the Montoya Intercepting Drain opposite the City of Sunland Park riverpark.

SUNLAND PARK RESTORATION SITE

Site is large and has much variability within the site. The patch targeted for flycatcher habitat at the middle portion near the river has excellent density and survival of planted coyote and Gooddings willows. Gooddings was estimated to be 88% surviving. Cottonwoods had much less success, with overall average success of 35%, although success was highly variable within plots (plot 1 – 69%; plot 2 – 36%; plot 3 – 17%). Quail observed.

Grasses are green where a contractor requested permission to put water from dewatering activities for construction across the levee in Sunland Park.

USIBWC crews assisted with mastication of the debris piles but the crews did not spread the mulch throughout the site in order to avoid damage to plantings and native grasses.

Area of high Gooddings willow survival and a mix of native and exotic shrubs

Area of targeted flycatcher habitat near the river, where contractors had planted transplanted island willows in trenches. These willows were transplanted with the rootball, and their survival was near 100%, with density unlike pole plantings.

Coyote and Goddings willows covered with funastrum vine at Sunland Park. Many willows appear to be surviving the attack.

The middle of the site had minimal success with cottonwoods.

Well 3 was surrounded by a field of brush.

COUNTRY CLUB EAST

Site has very low saltcedar, with only sporadic individuals and some resprouts. Mesquite is about 20% cover in the floodplain, with large mature bushes. Floodplain also has high abundance of sacaton grass and moderate abundance of false indigo. In easternmost swale, bullrushes are present in the swale. Swales also filled with Bermuda grass. Coyote willows have 100% cover along banks. USIBWC crews piled sediment just south of the Country Club East restoration site which has invited recreational users.

Survival rate of Gooddings willows near well 2 (one plot) is 67%. Average survival of cottonwoods across four plots is 52%. The four plots had extremely variable survival rates, but swales were significantly higher (plot 1 east of well 3 – 15%; plot 2 near photo point – 30%; plot 3 swale near well 2 – 81%; plot 4 northernmost swale – 88%). Long stem shrubs also had extremely variable survival from zero to 85% (plot 1 near well 3 – 25%; plot 2 east of swale – 0%; plot 3 floodplain in between wells 2 and 3 – 44%; plot 4 near well 2 – 85%). Groundwater levels were relatively shallow (about 4 to 6 feet) with well 2 showing shallowest water depth.

USIBWC's sediment piles immediately south of the site.

Variable shrub mortality

Constructed swale

Another constructed swale being used by ATVs

Variable tree survival

Some cottonwoods are thriving

High water bank cut

Bullrushes (high water plants) popping up in the construction swales

Cottonwoods (and some saltcedar) in the swale depressions

High shrub mortality in the upland shrub planting areas

Plantings near well 2 and mature willows along bank

VALLEY CREEK

Shrub areas were overgrown with weeds and were purposely not being mowed by the City of El Paso to avoid damage. Swath approximately 5-feet wide was mowed along the walking trail and along the levee slopes. Recent construction work had tracks near the sites. Cottonwoods on north side exhibited average 56% survival.

Site of northernmost plot for cottonwood survival estimates, north of well 1, where plantings had only 45% survival.

Site just south of well 2, where survival of cottonwoods was greater (70%), as was the vigor of the trees. Future plantings could focus on the southern stretch of the site.

Desert willow blooming in the shrub area around the concrete benches.

VINTON B

Site is targeted for riparian woodland and many of the cottonwoods are thriving, with most being around 8 feet tall. Mesquite is in high abundance, with large stands. Shrubs are abundant. Saltcedar is in very low abundance, with only a few sporadic individuals and an estimated cover of 1%. Cottonwoods overall had high survival (85%) with plot 1 near well 2 were nearly 94% surviving, and the second plot had 79% survival. Debris piles are still here, so the USIBWC crews did not reach this site. Large mature, flowering saltcedar stands in small No Mow Zone south of site, near Vinton Bridge. Site has evidence of recreation vehicles frequently passing through the site.


Shrubs had mixed survival.

Vandalism of sign near Vinton Bridge. Mature saltcedars in the No Mow Zone immediately south of the site.

ATV/vehicle tracks up the landside of the west levee past the Vinton Bridge.

The southern end of the Vinton B site has large dense mesquite stands. Planted cottonwoods in the foreground.

A frequently used road traverses right through the site.

The dirt road led to a makeshift boat ramp and had recent campfire remains and trash.

Debris piles still present at Vinton B

View of Vinton B from well 1

VINTON A

Site has high abundance of sacaton grasses. Overall survival of cottonwoods was good (72%), although varied by location, with one area by well 2 exhibiting 81% survival, and another area further south 60%. Long stem shrubs also had variable success rates, with the first plot having 53% survival but the second site have 100% mortality. Debris piles still here.

At well 2, large mesquites, some cottonwoods, and grassland.

Grassland at well 2.

Shrubs in foreground, cottonwoods in background at plot 1.

Overview near Well 1.

Cottonwood plantings are doing well at this location.

BERINO EAST

The planted trees, particularly the trenched trees, have survived well, although needs additional plantings to meet dense shrub conditions for flycatcher. Bee boxes have been installed long the levee road. Site has moderate percent cover of native grasses (such as sacaton) and nonnative plants such as large saltcedar (approx. 10% cover) and kochia.

Native grasses in the floodplain with sporadic weeds, and willows along the bank.

Overview of southern portion of site from levee. Native coyote willows on bank, shrubs and grassland in floodplain.

Trenched trees are surviving well.

Trenched trees surviving well.

Trenched willows on northern end of site.

BERINO WEST

Site has stands of large mesquite (estimated 30% cover), especially near well 1. Plantings from 2015 restoration planting efforts appear to be surviving well. Some Gooddings willows were at least 20 feet tall. Site has sporadic, mature saltcedar and could benefit from retreatment.

Berino West Mitigation Site just south of Berino West Restoration Site.

Plantings at the southern end of Berino West.

Mesquite and grasses at Well 1.


Plantings between Well 1 and Well 2.

Overview of site from levee, looking south

Overview of site from levee, looking north.

MESILLA EAST

Mesilla East is covered under the USFWS monitoring. USIBWC conducted a site visit during the June 2021 irrigation event. This site may be able to support additional plantings because water level is shallow (about 4 feet).

View looking north at Well 3 (southern side of site).

Irrigation water is reaching this small Gooddings willow in Irrigation Cell 2.

Irrigation cell 2.

Coyote willows along the bank in the middle of the site appear to be struggling due to lack of water in the river.

Grasses and shrubs near well 1 (middle of site).

A phragmites stand along the river on the northern end of the site.

Planted cottonwoods and Gooddings willows thriving near Well 2 at the north end of the site.

Plantings near Well 2.

LEASBURG EXTENSION LATERAL WASTEWAY #8

Site was during irrigation training on June 7, 2021. Continued issues with illicit recreational use.

USIBWC and USFWS conduct a hands-on training for irrigating the WW8 site. Here the crews gather at the turnout at the site to discuss logistics of operating the gate and coordinating with the irrigation district.

Gooddings willows, cottonwoods, and mesquite with underbrush near well 1.

Earthen v-ditch to convey irrigation water around the site (dry, left, and full, right).

Trees at Well 2.

Younger cottonwood plantings amongst older plantings and native brush in the second irrigation cell.

Willows sprouting from offshoot roots after several fires impacted the site. Site is recovering nicely after the fires, with increased density of willows as a result.

Dense young willow shoots.

Irrigation water being conveyed through the site via the earthen v-ditch.

Trees at well 1.

USFWS's Joe Alvarez stands by some of the first trees planted at the site in 2011.

Trees at Well 1 being irrigated.

EBID hydrotech measures the flow entering the site in order to calculate the volume of irrigation water received.

Evidence of frequent recreational use, including campfires, vehicle tracks, and trash.

SHALEM COLONY RESTORATION SITE

Shalem Colony had minimal plantings and minimal work. This is a narrow site that USIBWC crews traditionally left unmowed due to limited room to manueaver mowers, and the site developed mature mesquite forests. In 2019, USIBWC contractors removed some saltcedar and planted less than 100 plantings. The site has frequent recreational visitors, including trash and vandalism of the new posted sign.

Trash and flowering salcedar by the road immediately outside of the Shalem Colony site.

Inside the site, there are some young resprouts of saltcedar along the levee toe road.

Vandalism of the new sign.

The southern end of the site has campfire evidence and a frequently used dirt road.

BROAD CANYON ARROYO RESTORATION SITE

Broad Canyon Arroyo site is composed of several subtypes, including a terrace along the Rio Grande with willows, upland floodplain, the area along the Broad Canyon Arroyo, and the mouth of the arroyo. The plantings along the arroyo are highly successful, with the exception of the trees at the flatter portion towards the confluence with the Rio Grande. This area is proposed for excavation of embayments in future aquatic habitat projects.

The wetland vegetation at the mouth of the arroyo.

Planted willows along the terrace along the Rio Grande at Well 1 (hills are on opposite bank).

Planted willows along the terrace along the Rio Grande at Well 2 (hills are on opposite bank).

Planted willows along the terrace along the Rio Grande at Well 2 (hills are on opposite bank).

Upland portion of the Broad Canyon Arroyo site is unsuccessful at various restoration efforts. Planted cottonwoods over the years have had 100% mortality likely due to deep groundwater, salinity and clays. Efforts at native seeding have also not been successful.

On the flip side, the arroyo portion of this site is highly successful. This photo shows the willows along the arroyo near the mouth, as well as backwater conditions that create wetland conditions.

Unsuccessful plantings at the flat portion of the arroyo floodplain just upstream of the confluence with the Rio Grande. USFWS placed cages around each tree to prevent beaver damage. The USIBWC is proposing to excavate an embayment at this area where plantings have been unsuccessful but backwater conditions would create embayments for aquatic habitat.

Successful plantings in the more upland portion of the arroyo.

SELDEN POINT BAR RESTORATION SITE

There is no access to this site during irrigation season when there is water in the river. Observations were made from the opposite bank.

Selden Point Bar from the opposite bank

Some saltcedar along the bank and unsuccessful tree plantings within the site. Further back, before the railroad, cattails cover the site indicating water is shallow.

The southern portion of the site supports native willows and some successful tree plantings.

RINCON SIPHON RESTORATION SITE (Parcels A through D)

Rincon Siphon is essentially four different sites: C on the north side of the river which USIBWC used to use as a sediment disposal site within the floodplain but along the river collects sediment from Garcia Arroyo that supports flycatcher habitat; B (and A riverside portion) on the north side which have potential for flycatcher habitat; B upland on the north side is a mesquite forest that used to be an agricultural lease that was eventually left fallow; and D which is a narrow strip of floodplain within the levee on the south (west) bank, used to be mowed regularly, and has frequent illicit recreational access.

Rincon Siphon D was overbanking during the site visit on June 16, 2021. The ground water level at D is very shallow (1-2 feet below surface during irrigation season), and there are bullrushes throughout the floodplain near well 4.

Rincon Siphon D just north of the Rincon Siphon captured overbank flows at the beginning of irrigation season in June 2021.

Successful transplanted island willows at the southern end of Rincon Siphon D. There were about 5 rows of willows planted via trenches in 2019. The bankline is where the taller saltcedar is in the background.

Closeup of successful transplanted willows.

Campfire with trash that led to a burn at this site, killing shrubs, planted trees, and mesquite.

View of delta at Rincon Siphon C where mature willows where flycatchers were breeding were harvested and moved to the opposite bank. This “slimming” of the island delta was a pilot project to see if narrowing island habitat for flycatchers would minimize impacts to the birds.

USFWS collecting groundwater levels at Well 4.

Successful trench plantings at Rincon Siphon D near well 4.

Bullrushes, and a saltcedar resprout, in the floodplain near well 4.

Burned mesquite trees in the No Mow Zone north of Rincon Siphon D.

At Rincon Siphon A, plantings near the river are showing success.

Path created right through the site by USIBWC contracted crews to haul sediment out of the river in 2020. In June 2021, USIBWC and USFWS discussed the possibility of keeping this path to have a designated place for equipment and avoid future damage to plantings.

At Rincon Siphon A, the groundwater is so shallow that the ground surface is wet. Here the Gooddings willows are thriving.

Mesquite forest in Rincon Siphon B.

CROW CANYON B RESTORATION SITE

Crow Canyon B site visit occurred on June 16, 2021 during the irrigation with USFWS and USIBWC. The site is immediately upstream of the Hatch Siphon, which acts as a grade control structure and elevates the groundwater levels just above the siphon. The willows near the siphon usually have had flycatcher territories over the past ten years. The ground was fairly saturated, so the team determined that the irrigation should be cut short so that the water could be used at another site.

Earthen v-ditch conveying irrigation water from Garfield Canal upstream through the site.

Irrigation v-ditch in the foreground, with the river bank willows in the background. The willows are very dense and provide flycatcher habitat, usually with territories. The willows are coming back after a dry year.

Treated saltcedar among native grasses (foreground), Gooddings willow (left) and several Gooddings and cottonwoods plantings in the floodplain, with native willows along the banks (background).

Young Coyote willows are spreading into the floodplain (left, middle). Here there are cottonwood and Gooddings plantings with coyotes growing around them. One treated saltcedar bush is returning but may not survive after treatment.

Scrub shrub habitat in the upper portion of the floodplain near the levees, with mesquite, saltbush, baccharus, and sacaton grasses.

CROW CANYON A RESTORATION SITE

Crow Canyon A was an old river meander that was cut off with the construction of the Rio Grande levees. In general, plantings at this site have had minimal success. Despite being an old meander, groundwater depth remains higher than other sites (7 to 8 feet during irrigation season, and 9 to 10 feet outside of irrigation season). USFWS did conduct some saltcedar retreatments over the years, but the site could use more saltcedar maintenance.

A planted longstem shrub that is surviving

Overview of upland scrub shrub habitat at Well 1.

Overview of upland scrub shrub habitat at Well 1, looking north. Flowering saltcedar should be retreated.

Upland habitat at Well 3, including flowering yucca.

Overview of old resaca, as noted by the cottonwoods.

Old resaca, as noted by the cottonwoods.

Upland scrub shrub habitat in foreground, transitioning to grassland, transitioning to riparian habitat along the bank (background). Hills are on the opposite bank.

CROW CANYON C RESTORATION SITE

Crow Canyon C is a terrace just downstream of the Hatch Siphon. The southern end is highly successful and can be considered as future flycatcher habitat. The northern portion has less vigorous plantings but still successful.

Dense coyote willows near the siphon at Crow Canyon C.

Northern end of site. Plantings are not as tall or vigorous but most Gooddings are still surviving. There are a few visible cottonwood mortalities in this area.

Successful cottonwood and Gooddings willow plantings in the middle of the site.

View towards the river at Crow Canyon C, at well 3.

View from above on the ridge, looking down towards the plantings north of Well 3.

View from the ridge looking south to the dense willows and more vigorous plantings in the southern end of the site.

YESO EAST RESTORATION SITE

Yeso East was another old river meander. The northern end of the site continues to be the most successful area of the site, with cottonwoods thriving. USIBWC has irrigated this site at the northern end for the past three years, and cottonwoods have responded extremely well. Some cottonwoods are 20 feet tall. The site visit to Yeso East occurred on June 10, 2021 during the irrigation event. Observed horny toad and egrets.

Overview from the levee of northern end of site being irrigated.

USFWS and USIBWC crews met at the site during the irrigation to discuss logistics of irrigations. Here, the water spills from the new culvert off of the Palmer Lateral into the excavated trench into the site.

View of the irrigation canal from the pipe towards the site.

EBID built a turnout at Palmer Lateral in 2019 to irrigate the Yeso East site.

Thriving cottonwoods enjoying their drink.

Cottonwoods in the northern part being irrigated.

The berm around the trees is visible in the foreground. Cottonwoods in the background are at least two feet tall (USIBWC's crew for scale).

View at Well 1 during the irrigation.

Plantings at the end of bermed area, where water may not reach due to sandy soils that soak up the water on its way to this point. These plantings are not as tall or vigorous.

Plantings outside of the irrigation berm.

Planted wolfberry longstem shrub.

View at Well 3 in the middle of the site.

View of the middle of the site, near Well 3. Some plantings are struggling here.

A row of happy cottonwoods near the levee at the southern end of the site, near Well 2.

View at Well 2 at the end of the old resaca. Sparse vegetation; few plantings survived here.

JARALOSA RESTORATION SITE

Jaralosa was also an old river meander. The site did not have as much plantings as other sites, as the target was open woodland. Contractors constructed swales here for plantings, but mortality after the first couple years was high. There are still plantings that are surviving, including longstem shrubs, cottonwoods, and Gooddings willows. Saltcedar has also returned. However, the site has primarily become a mesquite forest.

Overview of dense, mesquite forest from the levee road

One excavated swale has little cover, although this Gooddings willow is surviving.

Site conditions appear harsh, as evidenced by the dead old cottonwood in the background. However, numerous cottonwood and Gooddings willow plantings are still hanging in there in this constructed swale. The plantings at this site are not vigours but surviving.

Mesquite forest near Well 1.

Saltcedar returning amongst the mesquites.

Well 3 is nearly lost in a thicket of mesquite bushes.

View towards the river at Well 2, inside the old resaca.

YESO WEST RESTORATION SITE

This site is an inset floodplain on the west bank of the Rio Grande. The 2009 Conceptual Restoration Plan originally had this as aquatic habitat; however, this was modified to be a dense riparian shrub habitat for flycatchers that would inundate with high flows. A high, fast monsoon flow shortly after initial planting in 2017 wiped out most of the trees planted here; no replants were done to avoid reoccurrence of loss of plantings due to high flows.

Access is tricky and lengthy from the west floodplain, with some access roads being occasionally wiped out by monsoon flows. Most site visits are conducted during non-irrigation season when it is possible to cross the river on foot from Yeso East. This site visit on June 10, 2021 was qualitative observations from the east bank at the southern end of Yeso East. The Yeso West site appears to be a mix of wetland and willow habitat. Saltcedar should be retreated at this site.

Willows along the bank of the northern portion of the terrace.

Willows along the bank in the middle of the terrace, with the bare slope visible behind the willows. The slope used to be mature monotypic saltcedar when the site work began in 2017.

Wetland vegetation and cattails at the bank cut. Willows are visible behind the cattails.

South of the bankcut, willows and baccharus grow along the bank, with coyote willow visible behind that, and saltcedar resprouts at the base of the slope.

TRUJILLO RESTORATION SITE

Site visit was conducted on June 10, 2021 during the irrigation event. Trujillo is a small USIBWC tract (14 acres) adjacent to the Trujillo Arroyo that was acquired for USIBWC to deposit sediment from the arroyo. The northern portion of the site has been, and is still being, used for placement of sediment that USIBWC excavates from the arroyo. A road cuts through the site between the river and the site, running parallel to the river. The road is frequently used and has gravel. USIBWC uses it for access to the arroyo. The wells are placed near the road and therefore are all accessible. The site is also adjacent to the Trujillo Lateral, and in 2019 EBID constructed a turnout off the Lateral to irrigate this site.

Southern portion of the site is considerably lower elevation and has flycatcher habitat, with occasional migratory flycatchers or cuckoo detections.

Willows that USFWS planted via trench (right) near the river (background).

Willows and young cottonwoods planted along the river.

View of well 1 and trench planted willows along the bank. The road is between the well and the river.

Dense baccharus and willows at Well 3.


Dense baccharus and willows near Well 3.

Saltcedar at the northern middle portion of the site.

Earthen v-ditch that conveys water upstream of the turnout, prior to water reaching it.

Irrigation water is starting to come down the v-ditch. USIBWC and USFWS staff discuss logistics of irrigation.

Irrigation berm on the right and willows on the left.

Willows at the culvert where water enters the site.

Cottonwood and willow plantings in the middle of the site near the access road.

Overview of site from the Trujillo Lateral, looking towards the middle of the site.

Overview from the Trujillo Lateral, looking north. In the distance is the spoil pile from the Trujillo Arroyo. Also visible is the white USIBWC truck on the road near the river.

Trujillo Arroyo, where USIBWC had contemplated excavating a terrace on the south bank as part of the Aquatic Habitat EA.

Spoil pile in the northern end of the site is about 30 feet high. This portion of the site is unrestorable and should be excluded from the site. The EA considered excavating this as part of the arroyo terracing, but costs and logistics to remove such a pile is cost prohibitive.