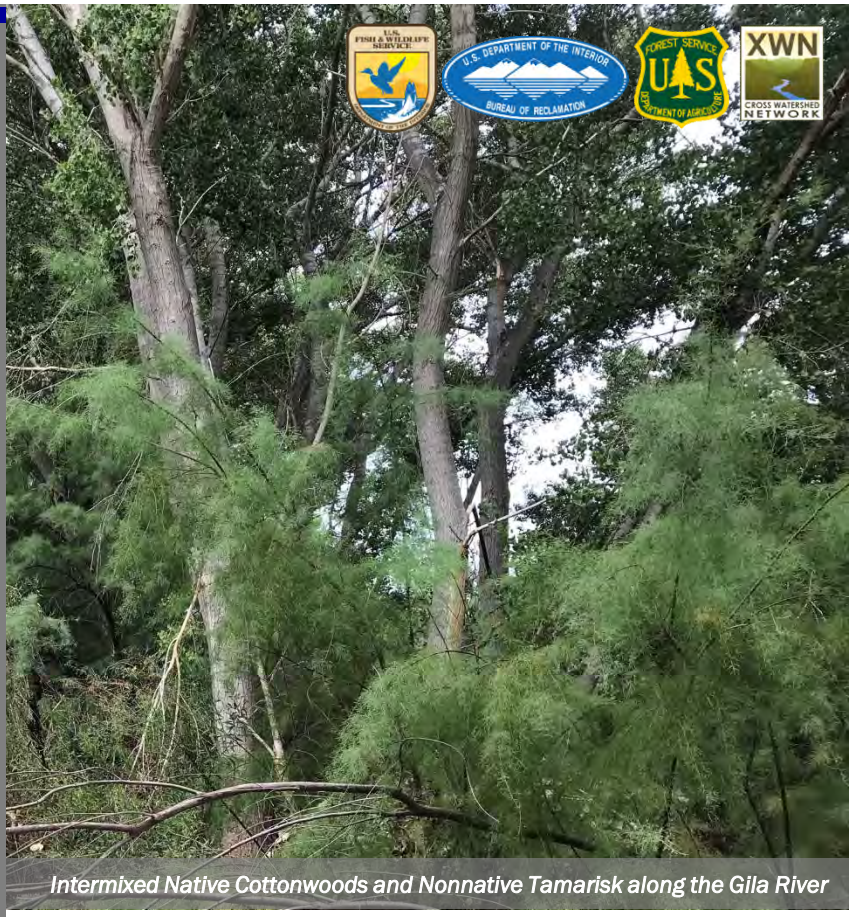
RESTORATION

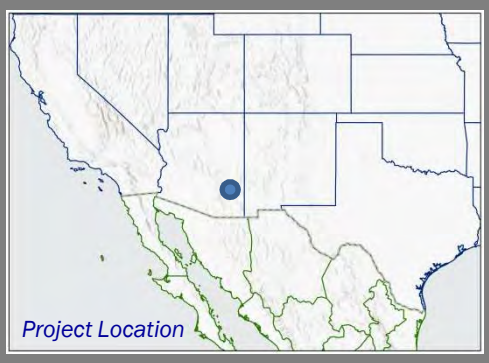
Gila Watershed Partnership: Restoration to Mitigate Tamarisk Beetle Impacts

GILA WATERSHED PARTNERSHIP OF ARIZONA



Intermixed Native Cottonwoods and Nonnative Tamarisk along the Gila River

The Upper Gila River Watershed is located in southeast Arizona and New Mexico and is one of the last undammed sections of river in Arizona. Tamarisk (*Tamarix* spp.), a nonnative plant species, dominates the floodplain along the majority of the river. In 2015, the Gila Watershed Partnership (GWP) began work to restore 200 acres of tamarisk-dominated habitat in the floodplain along a 54-mile stretch of river to native vegetation. The restoration project will create islands of native vegetation that will act as refugia for threatened and endangered species, especially birds.



Project Location

KEY ISSUES ADDRESSED

Tamarisk was first introduced in the early 20th century to control river erosion and has become extremely dominant in southwestern riparian communities, often outcompeting native tree species including Fremont cottonwood and Goodding's willow. Tamarisk beetles were released as a biological pest control agent in several southwestern states beginning in 2001. Tamarisk beetles and their larvae feed on tamarisk leaves, reducing foliage cover and density during avian nesting seasons. This can decrease nesting success for species such as the endangered southwestern willow flycatcher (SWFL). Beetles have not yet been detected in the Upper Gila Watershed, but their arrival is considered imminent.

PROJECT GOALS

- Restore over 200 acres of tamarisk-dominated habitat
- Grow all plants for restoration in the Gila Native Plant Nursery
- Establish dense native vegetation at restoration sites to heights of at least 14 feet
- Use restoration sites to provide seeds for passive restoration

YOUTH ENGAGEMENT

On-the-ground work is completed with the Arizona Conservation Corps. This partnership engages youth from 18-25 years old to work outdoors and learn about careers in natural resources.

Planting Native Vegetation at a Restoration Site

PROJECT HIGHLIGHTS

Invasive Vegetation Removal: Nonnative tamarisk was mechanically cleared from sites and treated with a triclopyr-based herbicide to reduce resprouting. These sites were treated again in subsequent seasons using both mechanical and chemical means to control regrowth of tamarisk and treat secondary weeds.

Islands of Native Vegetation: Areas cleared of tamarisk and treated for resprouts were replaced with "islands" of native plant species. Species were chosen to provide improved wildlife habitat and assist with erosion control along the river bank. By focusing efforts in smaller areas, resources can be concentrated in locations with high potential for success.

Vegetation Monitoring: Surveys were conducted to evaluate vegetation present on-site post-treatment. Transects were walked on each treated site and primary native and nonnative vegetation cover and stem density was recorded and mapped. Woody native vegetation natural recruitment was measured by walking the banks of the river at each site and counting and mapping native vegetation and recording the maximum height.

Working with Landowners: The riparian corridor in this portion of the Gila River is primarily owned by private landowners. It is essential for GWP to develop and maintain land use agreements for restoration sites to increase treatment acreage and create native vegetation islands.

Collaborators and Funding Partners

- See online for full list of collaborators and funding partners

Case study support provided by US Fish and Wildlife Service, US Bureau of Reclamation, US Forest Service, and Cross Watershed Network. Updated April 2019.
Photos courtesy of Gila Watershed Partnership

LESSONS LEARNED

Tamarisk regrowth has been higher than expected. Herbicide mixes containing 15% Triclopyr Liquid Ester were increased to 20% to improve effectiveness.

Tall pot (15-inch deep) plantings had higher survival rates than 10-inch deep plantings.

Pole plantings (primarily of coyote willow) were also successful when they were given consistent moisture across seasons, not just during the growing season. Coyote willow plantings, both from poles and tall pots, had the highest survival rates of all planted species.

Inadequate maintenance and herbivore predation by elk, beaver, and jackrabbits were the primary causes of planting failures. Tall pot plants allow for greater maintenance flexibility, especially where manual watering is a struggle. Protective caging will be an essential part of future planting plans.

NEXT STEPS

- Continue site maintenance focused on retreatment of tamarisk regrowth and removal of secondary weeds
- Increase the planting density of coyote willows along the river bank to increase stabilization and create suitable nesting habitat for SWFL
- Continue SWFL surveys and nest monitoring at restored and future restoration sites to determine restoration benefits

PROJECT RESOURCES

For more information on this project, contact Bethany Drahota: bethany@gwpaz.org

For additional project resources and case studies, visit the Collaborative Conservation and Adaptation Strategy Toolbox: WWW.DESERTLCC.ORG/RESOURCE/CCAST

Wildfires Pose a Risk in Both Restored and Unrestored Riparian Areas