

Restoration Efforts in the Rio Grande Valley State Park

Ondrea C. Linderoth

Abstract—Restoration techniques for riparian habitats in the Southwest are being widely studied. Efforts for natural regrowth of native species are a high priority. Techniques for native cottonwood (*Populus fremontii*) regeneration are being investigated in the Rio Grande Valley State Park. Experimentation with flooding of riparian zones using different techniques is beginning to show promising results.

The Rio Grande Valley State Park (RGVSP) is a 5000 acre park in the greater Albuquerque area of New Mexico (fig. 1). The Park is managed by the City of Albuquerque, Open Space Division (OSD) in coordination with the Middle Rio Grande Conservancy District. Other agencies with jurisdiction of the river area include the Bureau of Reclamation and the Army Corp of Engineers. These agencies, as well as others, have collaborated on many projects to restore and enhance the bosque in this stretch of the middle Rio Grande. Different techniques for restoration in the Park are being coordinated and/or implemented by OSD.

Cottonwood Pole Planting

The cottonwood pole planting program which is implemented by the OSD, Operations & Maintenance Section, has been successfully running for the last ten years. This program continues to grow in size and success every year. Monitoring of these poles has shown an approximate 90 percent success rate. Almost 1000 poles are planted in the State Park every year. An estimated 10,000 poles have been installed to date.

Methods for installation include the “use of young trees (2-4 years) found growing in riparian areas which can be transplanted or utilizing young trees grown by nurseries for installation” (Barron, 1995). This young stock is utilized when dormant and placed in pre-drilled holes in the riparian area. The holes must be drilled to the groundwater table. A single pole is placed into the hole and pushed through until it is touching the water. Poles are then protected using woven wire wrapping. This material protects the young tree from potential predators such as beaver.

In: Finch, Deborah M.; Whitney, Jeffrey C.; Kelly, Jeffrey F.; Loftin, Samuel R. 1999. Rio Grande ecosystems: linking land, water, and people. Toward a sustainable future for the Middle Rio Grande Basin. 1998 June 2-5; Albuquerque, NM. Proc. RMRS-P-7. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Ondrea C. Linderoth is Natural Resource Planner, City of Albuquerque, Open Space Division, Albuquerque, NM.

Experimental Microirrigation Project

Open Space is working in coordination with the USDA, Natural Resource Conservation Service (NRCS), Plant Material Center on an experimental plot in the RGVSP. NRCS established an experimental microirrigation site on the west side of the river near the Calabacillas Arroyo and has been monitoring the site since 1997. This is a one-acre study site with approximately three fourths of the site being enclosed by a fence. The site is irrigated through a well system utilizing three types of microirrigation. Weed control was performed by hand and “cottonwood seedlings were sprayed monthly from August to October 1997 to control cottonwood leaf beetle” (USDA, NRCS, 1997).

The site has proven to be successful in generating native cottonwood seedlings by keeping the soil moist during seed dispersion. “Over 12,500 seedlings were established at this one-acre site by October 1997” (USDA, NRCS, 1997). Due to this success, an additional site is being created on the east side of the river.

Ground Level Manipulation

A new concept that was implemented during the restoration of a burned site was to include sculpting of the ground level to partially inundate the area with ground water when the river is running high. This area, called the Zoo Burn site, is located on Tingley Drive on the east side of the river behind the Zoo. This treatment allowed the cottonwoods, willows, seepwillows, and other species that were planted at the Zoo Burn site to be closer to the water source and establish more successfully. The area is partially flooded during high water and native wetland species have been planted and established in this ‘moist soil’ area. The site is now in its second season and all species that were planted as well as volunteer native species are thriving. Because of the ‘wetness’ of the site, migratory bird species are also attracted to the area and sandhill cranes have been viewed in the area. Though no statistical or definitive information has been collected at this time, observation of the progress of the sight seems to show that his type of restoration is very successful.

Exotic Species Removal

Removal of exotic species is another management tool that is being implemented in the RGVSP. In coordination with the U.S. Army Corps of Engineers and the USDA Natural Resource Conservation Service, a salt cedar removal project was implemented in 1997 as mitigation for the Middle Rio Grande Flood Protection: Bernalillo to Belen, New Mexico levee rehabilitation project. Within the RGVSP, the project

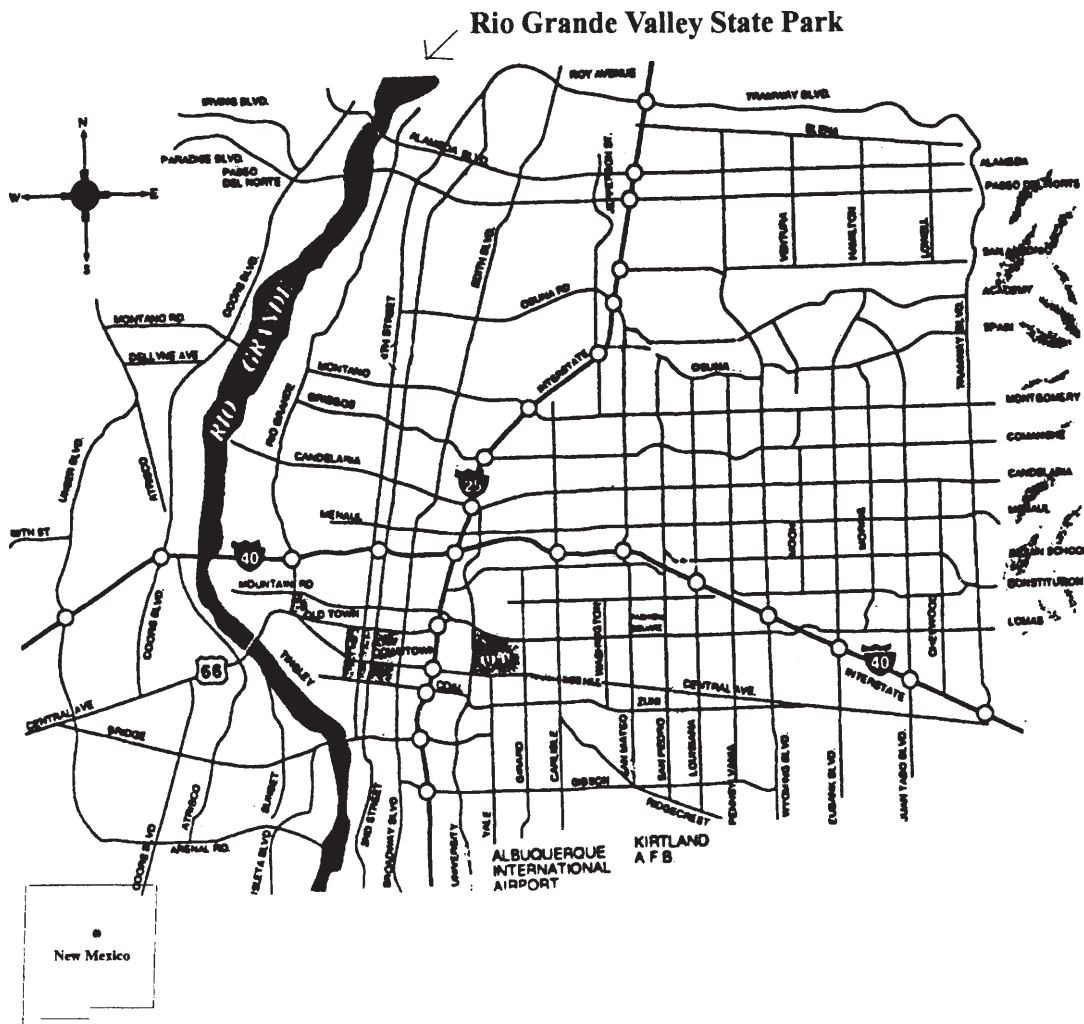


Figure 1—Location map: Rio Grande Valley State Park, Albuquerque, NM.

took place on the west side of the river between Alameda Blvd. and La Orilla channel. Three areas were treated for removal of salt cedar and follow up spraying of Tamarisk (*Tamarix pentandra*) seedlings as mitigation for the rehabilitation project; one at the La Orilla channel outfall, and two on the east side of the river south of Paseo del Norte. These areas have recently been replanted in 1998 with native species.

The plan for this mitigation is spelled out in the *Fish and Wildlife Mitigation Plan* of the Final Environmental Assess non-native species within the project area. The techniques followed for removal are as follows: Sites were chosen where large patches of the exotic species, Tamarisk, existed. The site was then cleared and grubbed “to remove the roots and discourage re-sprouting” (ACOE, 1996). Follow up included herbicide treatment of sprouts and removal of dead and down material prior to replanting. The material that was removed was burned on site. Replanting using cottonwood poles occurred during the dormant season (January-April) following the removal of Tamarisk. The mitigation will

occur over a three year period with 10 sites identified throughout the RGVSP and the Corrales Bosque Preserve just north of and adjacent to the RGVSP.

Created Wetlands

The Alameda Wetland project is currently under construction at the Alameda/Rio Grande Open Space property at the north end of the RGVSP. This property was jointly purchased by the City of Albuquerque, Open Space and Bernalillo County. Construction of a parking lot was completed in 1997 by Bernalillo County. The second phase of activities for the site is the implementation of a created wetland. The project is being constructed by the Bureau of Reclamation, with additional funding from the U.S. Fish and Wildlife Service for the liner, and Intel providing funding for wetland and upland plant species. Open Space is planning and overseeing project implementation while providing additional funding. Open Space will manage and

maintain the wetland once it is completed. This will be a five acre wetland created for increased habitat near the RGVSP riparian zone.

Over the last 60 years, the Middle Rio Grande bosque has lost approximately 85 percent of its wetland areas. This as well as the increased population in the Albuquerque area, has created pressures on habitat and the wildlife that dwell within. Opportunities for projects of this kind will continue to be investigated in the RGVSP to meet Open Space goals to increase wildlife habitat.

Albuquerque Overbank Project _____

Open Space is one of the participants involved in a multi-agency project to manipulate the riverbank to encourage overbank flooding and, in turn, potentially foster natural cottonwood generation. The Albuquerque Overbank Project has been implemented in coordination with the Bureau of Reclamation (lead agency), Middle Rio Grande Conservancy District, University of New Mexico, New Mexico Natural Heritage Program, and Open Space. The site is approximately 3 acres in size and is located on the west side of the river north of Rio Bravo Blvd. The area has been successfully prepared for natural overbank flooding by removing existing non-native vegetation including Russian Olive (*Elaeagnus angustifolia*) and Tamarisk (*Tamarix pentandra*). It was felt that there was a need for action due to the decline of the “ecological health of the bosque as reflected by exotic species’ invasions and reduced native stand vigor” (BOR, 1998). From this, the need is to then understand how to reestablish a healthy native riparian habitat. This is one of the few geographical areas in the RGVSP that allowed an opportunity for overbank flooding without threat to private home sites.

The project is currently being monitored for vegetation populations and species diversity, groundwater level and nutrient analysis, soil analysis, and surface water fluctuations. A draft outline has been compiled to date which will

be developed into a final report for distribution. The site is currently receiving minimal flooding and the group is exploring options for release of additional waters.

Discussion _____

All of the projects discussed have had positive effects on riparian restoration in the RGVSP. Techniques for providing moist soil or natural inundation by water in the riparian zone are most successful in fostering native cottonwood generation. Ongoing study of these projects and implementation of follow up or varying studies will help elaborate which techniques or techniques are the most successful in restoring native riparian habitat.

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