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Salinity tolerance and mycorrhizal responsiveness of candidate species for use in restoration of *Tamarix* -dominated xeric riparian areas

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Thousands of hectares of riparian vegetation dominated by *Tamarix* have been controlled in the southwestern United States, using a combination of strategies including herbicide application, burning and mechanical removal. There is substantial scientific knowledge and numerous case studies that can inform revegetation of relatively mesic riparian sites with native cottonwood and willow. However, revegetation of upper floodplain or “xeric riparian” areas, where over bank flooding is impossible, soil salinity is high, groundwater is deep and mycorrhizal fungal symbionts are potentially absent, still presents a significant challenge to riparian land managers along the Rio Grande and other southwestern rivers. Our research aims to address this knowledge gap by identifying suitable native plant species and revegetation techniques for these xeric riparian sites. Components of this study include: 1) identification of candidate native plant species and communities via characterization of reference sites, review of historical botanical accounts of the Rio Grande valley, and communication with restoration practitioners; 2) germination trials where seeds of candidate native species are germinated in solutions of differing salinity levels; 3) greenhouse trials to examine the effect of salinity and mycorrhizal fungi on seedling survival and growth; and 4) field experiments testing the efficacy of various revegetation methods in soils of varying texture and salinity. Results from these experiments will be used to develop cost-effective protocols aimed at restoring xeric riparian shrubland and grassland communities.