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**THE EVOLUTION OF HABITAT RESTORATION FOR THE
BENEFIT OF MIDDLE RIO GRANDE ENDANGERED SPECIES**

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ABSTRACT: Two endangered species, Rio Grande silvery minnow and southwestern willow flycatcher, and all or portions of their critical habitat are located within the Middle Rio Grande. While there are other species of concern, most recovery efforts have been directed towards these two species. Water managers within the area are thus restricted, and obligated, regarding water management plans and activities. The establishment of the Middle Rio Grande Endangered Species Collaborative Program has resulted in the initiation of numerous habitat restoration projects directed towards the recovery of both these species. The development of methods, application, and monitoring of these projects has been ongoing since 2000. This presentation will describe these activities at several locations within the Middle Rio Grande area. Locations within two reaches are considered, for both species. Site design, construction, and monitoring results are presented. Beyond descriptive information, the presentation will then consider the positive and negative results that have been recorded from the selected projects. What has been the effectiveness of the projects in terms of meeting design criteria and more importantly, recovery criteria for the species? Have the projects been adequately evaluated within the context of restoration overall in the Middle Rio Grande? Habitat restoration is only one aspect of moving the species towards recovery. Substantial ecological (Population Viability Analysis) and hydrologic modeling (for water management and availability) is ongoing to assist the federal agencies and others with Endangered Species Act compliance. Ongoing and future habitat restoration, to remain a viable aspect of endangered species recovery plans, must be a component of this modeling. Habitat restoration can then present technical alternatives to water managers and serve as another tool to be used. Suggestions are presented for the improvement of habitat restoration methods, monitoring, and the use of those results in both long term and adaptive management plans, and will help to define the success of future restoration projects.

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