Monitoring and Adaptive Management Saves Money and Extends Functional Life of Middle Rio Grande Habitat Restoration Projects

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This presentation provides a case study demonstrating that maintaining ecological functions of Middle Rio Grande habitat restoration projects through a coordinated monitoring and adaptive management strategy is an essential step towards achieving recovery goals for the federally endangered Rio Grande silvery minnow. Eleven restoration projects were constructed between 2016 and 2019 along a 30-mile river reach between Sevilleta National Wildlife Refuge and Socorro, NM. All projects involved mechanically lowering elevated floodplain terraces to promote overbank inundation at discharges between 800cfs and 2000cfs. The chief objective was to create favorable habitat conditions for spawning and rearing silvery minnow along river segments with inherently low channel habitat complexity. While all eleven projects were designed to provide off-channel habitat at low to moderate discharges, the construction period coincided with above average and prolonged snowmelt runoff. A comprehensive effectiveness monitoring program documented that biological and physical success criteria were achieved at the design discharge, but that sediment plugs deposited along backwater channel inlets would prevent all project sites from functioning at the design discharge without adaptive management intervention. Nonetheless, topographic surveys revealed that the volume of deposited sediment was relatively small compared to amount removed during construction. These data demonstrate that modest funding is required to remove these sediment plugs and extend the functional life of these projects.

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