

Restoration and Monitoring Techniques in the Middle Rio Grande

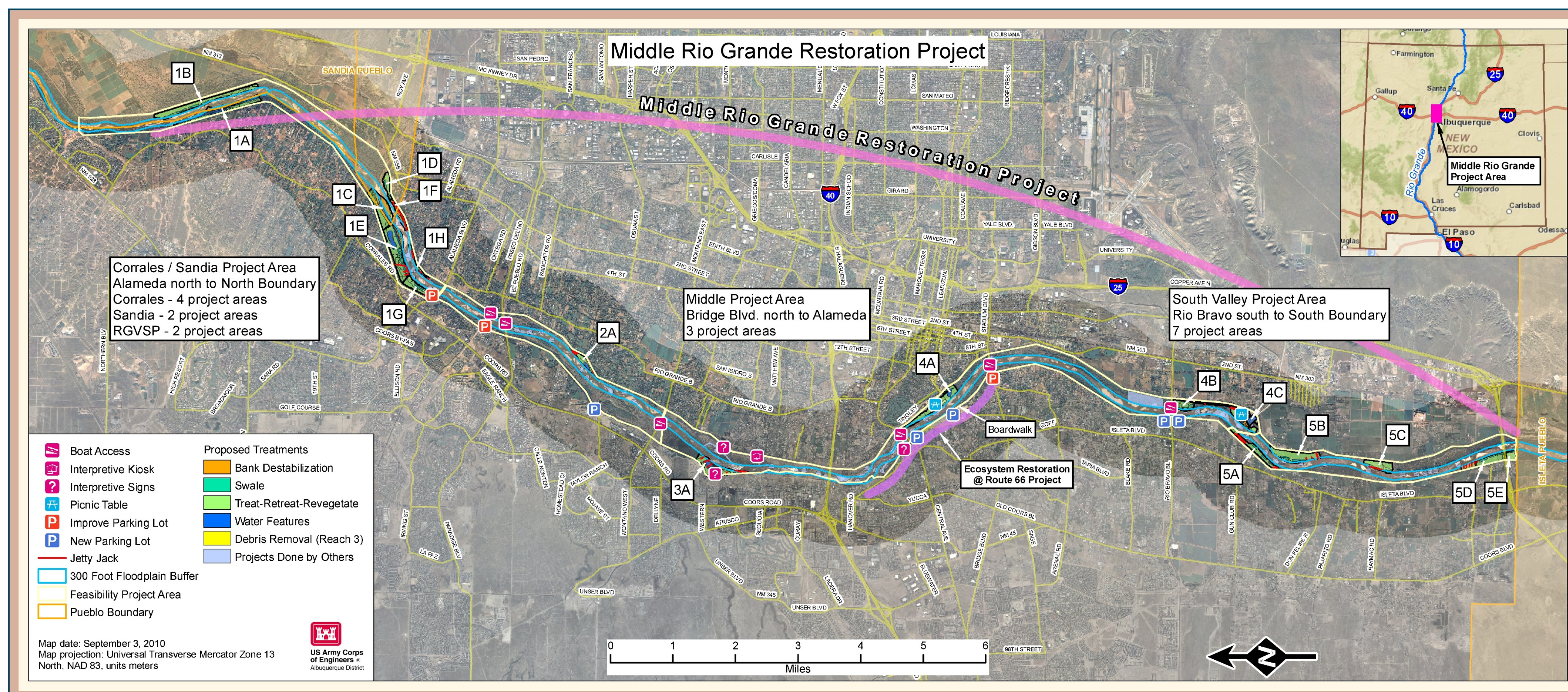
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US Army Corps of Engineers
Albuquerque District

Project Description

The goal of the project is to develop a framework to restore the 'bosque' (riparian forest) into a more functional and sustainable ecosystem, as well as increase the diversity and quality of wildlife habitat. The Rio Grande floodplain is largely disconnected due to flood protection features (dams, levees, jetty jacks) and channelization to meet water compact deliveries. Restoration of floodplain connection is accomplished by 'bringing the bosque to the river' by **excavating bank terraces, high flow channels, and willow swales**. Another key focus is to reduce wildfire hazards through the **removal of the metal jetty jacks, debris, dead wood and treatment of non-native vegetation** (salt cedar (*Tamarix* spp.), Russian olive (*Elaeagnus angustifolia*), Tree of Heaven (*Ailanthus altissima*) and Siberian elm (*Ulmus pumila*)).



Fuel Reduction/Exotic Thinning/Jetty Jack Removal



High Flow Channels



Bank Terracing



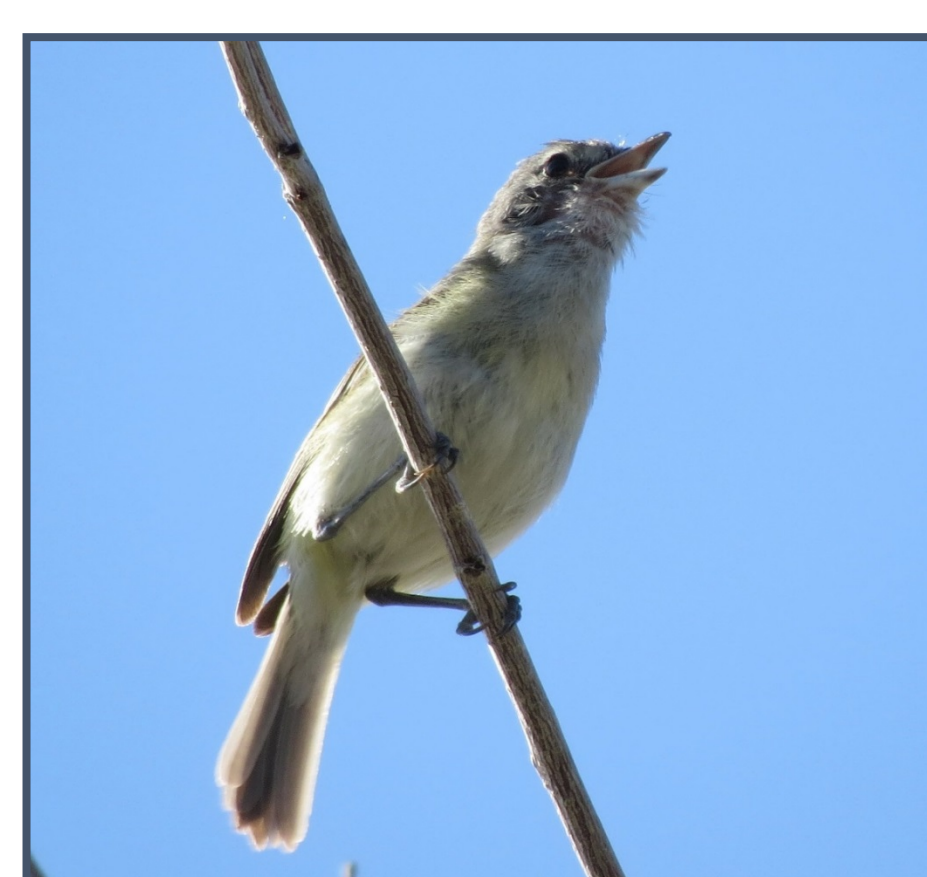
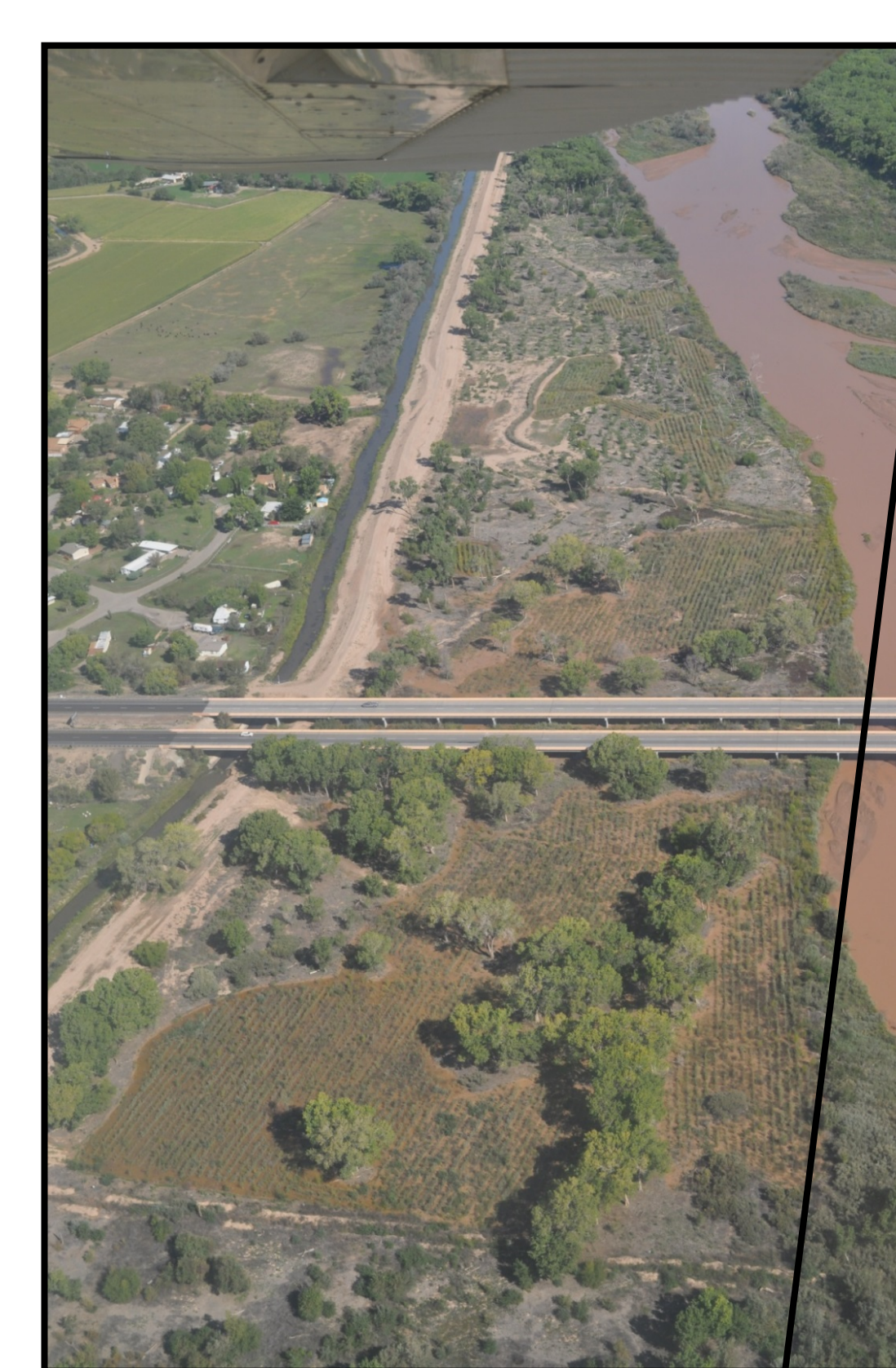
Willow Swales



Monitoring

A Monitoring and Adaptive Management Plan was developed for the Middle Rio Grande Restoration (MRG) Project and shall be implemented for up to 10 years after construction in order to determine if project success criteria were met. In order to determine that, the following components are being monitored:

- ▶ Avian surveys
- ▶ Bosque Ecosystem Monitoring Program (BEMP) monitors groundwater depth, vegetation production, rainfall and arthropods at project locations
- ▶ High flow inundation monitoring
- ▶ Groundwater monitoring
- ▶ Threatened & Endangered Species
 - ▶ Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
 - ▶ Yellow-Billed Cuckoo (*Coccyzus americanus*)
 - ▶ Rio Grande silvery minnow (*Hybognathus amarus*)
- ▶ Vegetation survival and transects



Southwestern Willow Flycatcher and Bell's Vireo detected at MRG Restoration sites

Rio Grande silvery minnow monitoring

