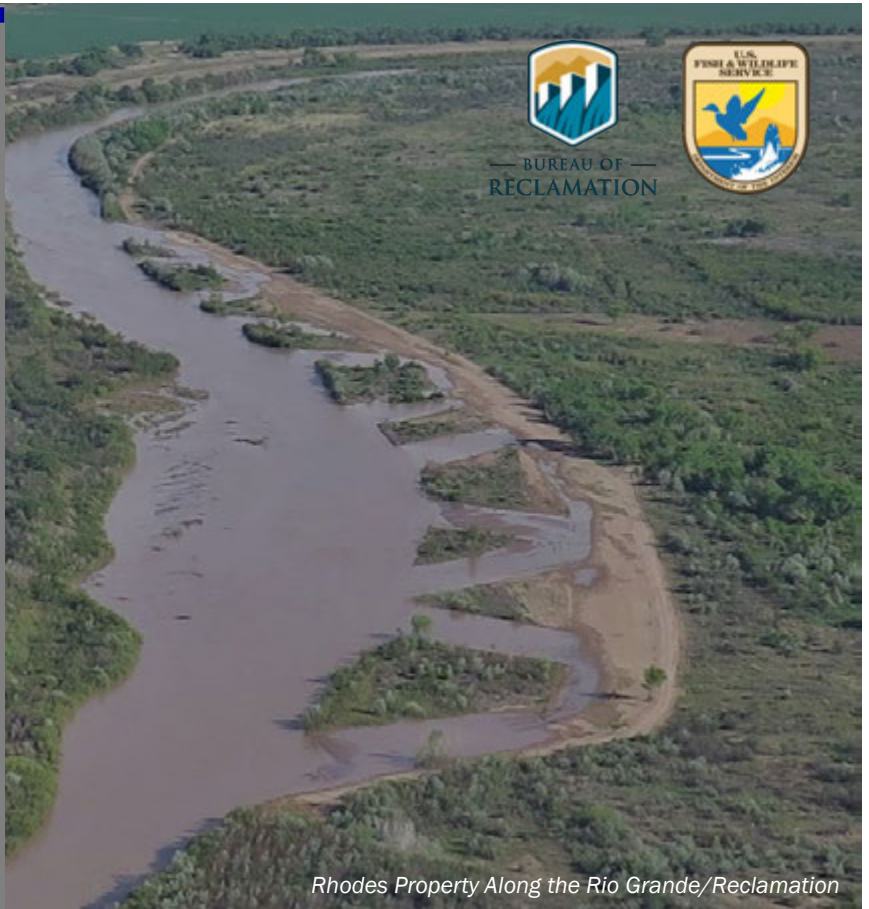
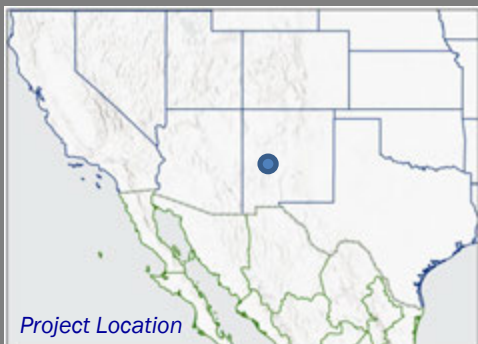


RESTORATION

Public-Private Partnerships for Rio Grande Silvery Minnow Habitat Restoration



The Rio Grande Silvery Minnow is an endangered minnow that once inhabited 3,000 miles of the Rio Grande River in New Mexico and Texas. Like many species in the Southwest, its life cycle depends on seasonal flooding of riparian areas and backwaters, but its numbers have declined due to management that moderates these floods. In early 2019, the Bureau of Reclamation, U.S. Fish and Wildlife Service, New Mexico Interstate Stream Commission, Natural Resources Conservation Service, and the Save Our Bosque Task Force worked with a local landowner, Doris Rhodes, to restore 0.8 river miles for the Silvery Minnow between San Antonio and Socorro, New Mexico.

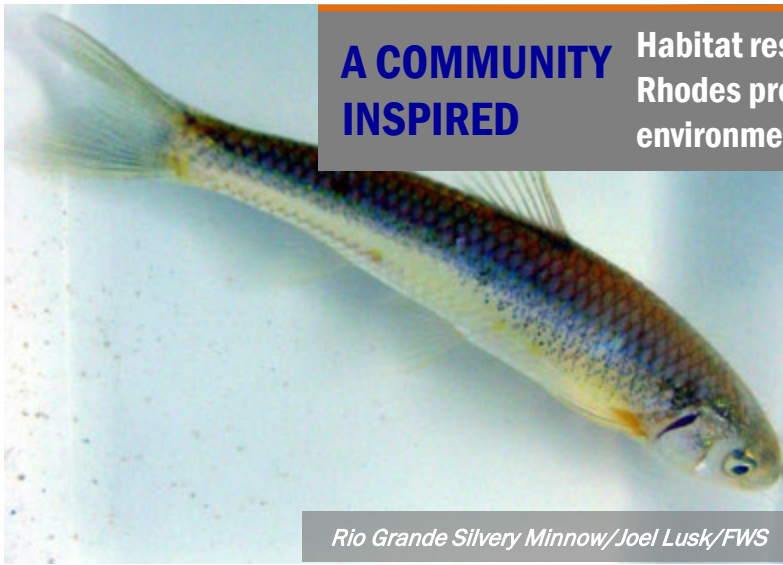


KEY ISSUES ADDRESSED

The range of the Rio Grande Silvery Minnow has decreased from a 3,000 mile stretch of river to 200 miles as the population struggles to find suitable habitat. Ecological challenges facing Silvery Minnow recovery include increased stream flow velocity and decreased availability of silty, inundated floodplains. Decreased habitat quality and availability for the Silvery Minnow results from dam construction that moderates overbank flooding and seasonal runoff, channelization that increases flow velocity, and river water withdrawals through pumping and diversion.

PROJECT GOALS

- Work with a private landowner to create functional fish habitat while minimizing construction impacts and maintaining visual appeal and recreational value
- Increase floodplain connectivity to provide suitable fish habitat throughout the year



A COMMUNITY INSPIRED

Habitat restoration for the Rio Grande Silvery Minnow at the Rhodes property encourages other landowners to pursue environmental stewardship opportunities for their properties.

Rio Grande Silvery Minnow/Joel Lusk/FWS

PROJECT HIGHLIGHTS

Restoration with Private Landowners: The Rhodes property is a family-owned 536-acre riverfront plot that was historically used for grazing. It was recently placed into a conservation easement and is home to several federally-listed species including the southwestern willow-flycatcher, yellow-billed cuckoo, Pecos sunflower, and Rio Grande Silvery Minnow.

Long-Time Partnerships: The owner of the Rhodes property, Doris Rhodes, has been working with federal and state agencies, non-profit organizations, and consultants to improve the ecological functions of her property since 2003.

Site Assessment to Guide Restoration: A baseline assessment was conducted to map soil types, vegetation species cover, and hydrology. This work guided non-native plant treatments, native species planting, and alteration of floodplain topography.

Inundated Edge Habitat: Edge habitat for Silvery Minnows was created by including multiple embayments (connections) that lead from the side channel to the main channel. This provides Silvery Minnows with multiple escape routes if their channel starts to dry.

Collaborators

- Numerous federal and state agencies
- Save Our Bosque Taskforce
- GeoSystems Analysis, Inc.
- Doris Rhodes, landowner

Lead Author: Caitlyn Aymami, University of Arizona, February 2020.
Case study support by U.S. Fish and Wildlife Service and Bureau of Reclamation.



LESSONS LEARNED

The Rhodes property was an ideal location for Silvery Minnow habitat because it is one of the few remaining areas on the Middle Rio Grande where the groundwater is favorable for wetland habitat creation, including open water features. This promotes seasonal flow into the floodplain and supports native riparian vegetation that requires shallow groundwater.

A baseline site assessment can be used to map the hydrological characteristics of a plot of land and locate areas that will be most conducive to bankline restoration.

The Rhodes property, after over fifteen years of restoration work, showcases the many benefits of private lands conservation. Locals become engaged as they watch wildlife recolonize newly available habitat and become potential partners for restoration on their own land.

NEXT STEPS

- Monitor seasonal hydrologic conditions to determine if measured flow depth and velocity is suitable for Silvery Minnow reproduction, and maintain restored floodplain topography
- Monitor for non-native vegetation encroachment into patches of native plants and treat non-native plants with herbicide to reduce their frequency
- Survey to determine if the Silvery Minnows are using created habitat for spawning

PROJECT RESOURCES

For more information on this project, contact Ashlee Rudolph: arudolph@usbr.gov

For additional project resources and case studies, scan the QR code below or visit the CCAST website:

WWW.DESERTLCC.ORG/RESOURCE/CCAST



Rio Grande/Joel Lusk/FWS