

Policy Brief

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Preface

My name is Hannah Miller, and I am a recent UNM graduate from a dual master's program in Water Resources and Community and Regional Planning (2023). My bachelor's is in Watershed Management from New Mexico Highlands University (2013). I was born and raised in Ruidoso, NM and graduated from Ruidoso High School. I have lived and worked in central and northern NM for over 15 years. My policy research focused on the MRG bosque ecosystem and led to key points that should be considered by the State. My research question was: What is the role of citizen science in ecosystem management? The Bosque Ecosystem Monitoring Program (BEMP) served as a case study and the MRG bosque ecosystem is the study area. If you would like citations or need more information for any of the information provided in this brief – please feel free to contact me.

Overview

- The study area includes the entire extent of the MRG bosque ecosystem – 170 stream miles of the Rio Grande, from Cochiti Dam to Elephant Butte, and the associated 20,000 – 30,000 acres of predominantly cottonwood forest. The discrepancy in acres is due to a lack of comprehensive planning, which would include current information with extent maps reflecting all natural resource values in the system. Neither of the two main plans associated with the study area clearly define the extent of the forested ecosystem. **There is currently a discrepancy in the extent of the ecosystem of about 10,000 acres.**
- A cottonwood tree only lives for about 100 years. Cottonwood trees require flooding conditions to regenerate naturally.
- The current MRG bosque (cottonwood riparian forest) is basically a monoculture (same age), established through flooding around the 1940s – prior to flood control engineering efforts. The stand expiration date is approaching (2040's) due to a lack of natural regeneration - **only about 10% of the current cottonwood population are regenerating across the ecosystem.** These changes are due to the exclusion of overbank flooding across the ecosystem.

Consider losses coming soon that will adversely affect the City of Albuquerque, the MRG bosque ecosystem, and the State of New Mexico:

- Significant and sustained losses in urban and riparian canopy density that offer shade and cooling for humans, wildlife, and municipal water supply.
- Significant and sustained decreases in surface water quality in the Rio Grande. These forests bordering the MRG offer temperature regulation to a surface water system that currently provides around 70% of the municipal water to the state's most dense urban area.

- Significant and sustained losses in quality of outdoor recreation and wildlife habitat (the changing forest composition will favor dominance of more competitive invasive/non-native species that offer lower quality values to recreation and habitat).
- Significant and sustained increases in wildfire risk and occurrence. Fuels are building up across the system and wildfire is already trending in the lower reaches (Socorro reach). Riparian ecosystems are not fire-adapted and will not recover.
- 25 years of citizen science conducted by the BEMP program continues to produce fine grain data that zones in on specific locations across the ecosystem over time (which could really support comprehensive planning efforts). BEMP is well connected with various management agencies and offers a strong partner to anyone developing comprehensive management.

Current Comprehensive Plans associated with the MRG Bosque

The Bosque Biological Management Plan is a 30-year-old plan that was developed by the MRG Biological Interagency Team (led by Cliff Crawford UNM Biology Dept.). The plan is outdated and lacks urgency and authority.

The Middle Rio Grande Conservation Action Plan (MRGCD-led) is still in the early planning stages and lacks a clear agenda for achieving any objectives mentioned in the current plan. The plan is moving too slowly and lacks urgency and authority.

Comments

- This changing ecosystem provides critical natural infrastructure that supports a large urban area and is home to a wildlife population that includes endangered species.
- The area lacks comprehensive planning and an agenda - and is headed for an intense decline very soon.
- The MRG is no longer a flood-prone zone and management concerns are shifting towards climate change-driven challenges like drought, deforestation, and wildfire.
- Research suggests that additional leadership and ingenuity are necessary at this time to support MRGCD in implementing a timely comprehensive management plan with an agenda that reflects an appropriate level of urgency.
- The MRGCD mission statement still reflects a primary function related to irrigation delivery (not forest management). Reflect on the mission of MRGCD, considering current and unfolding forest management concerns emerging across the ecosystem.
- Reflect on the mission of AMAFCA and/or other ecosystem management agencies in the study area with missions associated with challenges of the past like flooding, while considering how these organizations could shift their resources and share the burden of mitigating unfolding MRG bosque forest ecosystem management challenges.