COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Planning for Healthy, Resilient Streams through Stream Management Plans

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Colorado's Water Plan set forth goals to protect Colorado's water supplies, rural and municipal communities, and cherished natural landscapes. One of these goals is to complete stream management plans (SMPs) on 80% of locally prioritized rivers and watershed protection plans on 80% of critical watersheds by 2030. This ambitious goal recognizes the timely need to inventory existing conditions and develop multipurpose projects to protect the long-term health of Colorado's rivers and watersheds.

Colorado's streams are under increasing strain as farming communities work to provide food for a growing population; cities grapple with their obligations to supply residents with clean, healthy water and spaces to enjoy the outdoors; and recreationists flock to rivers for boating, fishing, and wildlife viewing. Data indicate that climate change, fires, floods, and increased development in floodplains have the potential to further stress Colorado's rivers.

According to the Water Plan, "well-developed stream management plans should be grounded in the complex interplay of biology, hydrology, channel morphology, and alternative water use and management strategies. They should also consider the flow and other structural or management conditions needed to support both recreational uses and ecosystem function."

The Colorado Water Conservation Board (CWCB) staff and Board are fully invested in achieving the goals of Colorado's Water Plan and have made funding SMPs a priority. The grants and outstanding project development support from CWCB's staff have spurred plans in every corner of the State, including the Rio Grande Basin.

Stream and river management planning efforts are not new to the Rio Grande Basin. Local groups have compiled conditions assessments and prioritized projects since the late 1990s. On Willow Creek and the Alamosa River, efforts were driven by citizens working to address water quality impacts from mining. On the Rio Grande, local farmers, ranchers, water managers, and agency personnel came together to assess the condition of 91 miles of the river, determine causes of degradation, and develop priorities for restoration, which was documented in the Rio Grande Headwaters Restoration Master Plan, completed in 2001 (also known as the 2001 Study).

The 2001 Study inventoried the status of riparian areas and habitat, diversion and headgate structures, and channel geomorphology. A key finding of the study was that accelerated streambank erosion has led to water quality impairments, loss of important riparian habitat, disconnected floodplains, channel migration away from ditch headgates, and diminished water conveyance. The analysis of diversions and headgates identified the conditions of structures

and noted many that require high maintenance, trap sediment and debris, fail to divert decreed water rights, are impediments to flows, or influence adjacent streambank erosion. The advisory team, the stakeholder group that guided the study, used the technical data to develop prioritized lists of structural and non-structural projects.

The Rio Grande Headwaters Restoration Project (RGHRP) was formed to implement the recommendations of the 2001 Study. The RGHRP has partnered with over 50 private landowners to improve streambank stability, reconnect the floodplain, and restore riparian habitat. Additionally, the RGHRP has worked with 7 ditch companies to replace their infrastructure with modern diversion dams and headgates. Many of the headgates include automation and the diversion dams were designed to include considerations for recreation and fish passage or barriers, as appropriate. These projects have improved ecosystem resiliency, channel function, water conveyance, upland and aquatic habitat, and community safety. Since the completion of the 2001 Study, the RGHRP has undertaken additional studies that encompass the entire Rio Grande in Colorado and provide the basis for ongoing riparian restoration efforts.

Figure 1. Streambank stabilization and riparian restoration project on the Rio Grande – Before.

Figure 2. Streambank stabilization and riparian restoration project on the Rio Grande – After.

The projects that have been completed on the Rio Grande are examples of the fruit that comes from planning and have motivated initiation of SMPs throughout the basin. With the help of local water users, the Rio Grande Basin Roundtable prioritized the Rio Grande, Conejos River, and Saguache Creek for the first set of SMPs. The RGHRP is coordinating the SMPs and has received funding from the CWCB, Bureau of Reclamation, San Luis Valley Conservation and Connections Initiative, and San Luis Valley Water Conservancy District.

The objectives of the Rio Grande Basin SMPs are as follows:

1. Maintain and build on the coalition of community partners engaged in stream management planning through frequent and robust stakeholder engagement throughout the project.
2. Summarize and obtain information regarding the biological, hydrological, and geomorphological condition of identified stream reaches in the Rio Grande watershed.
3. Define and prioritize environmental, recreational, and community values.
4. Develop goals to improve flows and physical conditions needed to support values.
5. Outline actions to achieve measureable progress toward maintaining or improving goals.
6. Identify opportunities and constraints for implementation of projects, and additional data needed to inform project development.

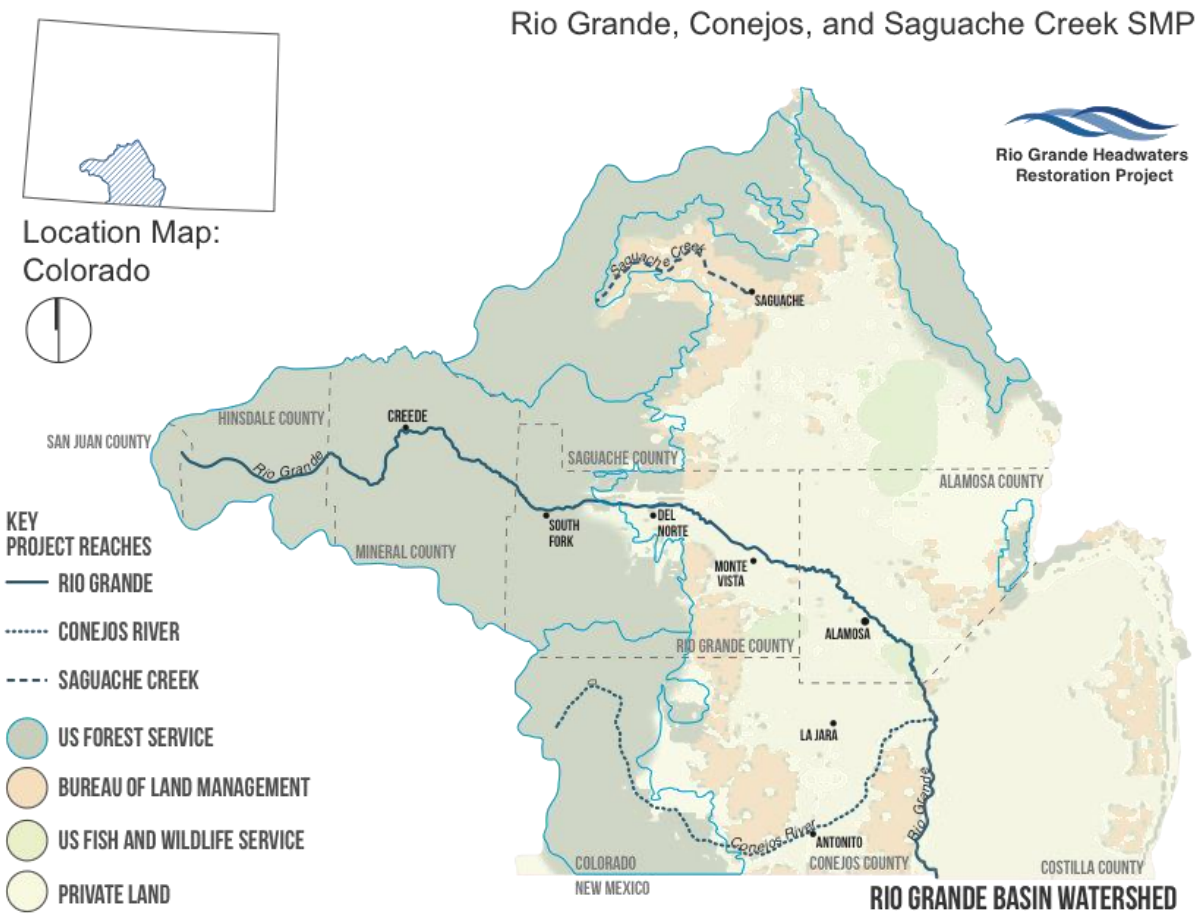

Figure 3. Location of the Stream Management Plans Underway in the Rio Grande Basin.

The Rio Grande Basin SMPs are well underway; the summary of existing data, riparian vegetation assessment, water quality sampling, and macroinvertebrate collection were completed in 2018. The hydrology and geomorphology assessments, a boatable days analysis in partnership with American Whitewater, and the instream infrastructure inventories will be completed in 2019. The technical team and stakeholders have provided continuous input on sampling methods and data analysis. The SMPs will provide useful baseline information and goals for future work to improve the condition and resiliency of streams in the Rio Grande Basin.

To read more about this exciting project, visit the recently completed Rio Grande Basin SMP story map:
https://rghrp.maps.arcgis.com/apps/Cascade/index.html?appid=47c95df190814e2e84695385c4761ea4