Park Creek Watershed Improvement Project

Final Report

Prepared for:

CWCB Colorado Water Plan Grant – Environmental and Recreation Project

Grant Contract Number: POGG1 PDAA 202000002111

Attn: Chris Sturm

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Prepared by: Emma Reesor and Connor Born

Colorado Rio Grande Restoration Foundation

Rio Grande Headwaters Restoration Project

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INTRODUCTION

The Park Creek Watershed Restoration Project (Project) was a collaboration between the Rio Grande Headwaters Restoration Project (RGHRP) and the Rio Grande National Forest Divide Ranger District (RGNF). The Park Creek watershed was identified as a priority for restoration as a part of the Upper Rio Grande Watershed Assessment, which assessed the condition of higher order streams in the headwaters of the Rio Grande. The Park Creek watershed is an important multi-use recreation area to the Rio Grande Basin, popular with campers, anglers, RVs and OHVs. In addition to high dispersed recreation use, the area is part of an active cattle allotment and has seen a relatively high amount of timber harvest in the past. As a result of these factors, the watershed was experiencing less than optimal conditions, including high sediment input, soil compaction, and riparian degradation.

The RGHRP and RGNF mitigated the effects of these activities through the Project activities, which included visitor education through outreach and interpretive signage, use of natural barriers to focus camping and vehicle use, hardening of FS Road 390 stream crossing, hardening of parking and OHV unloading area just off Highway 160, and riparian restoration.

The project applicant, the Colorado Rio Grande Restoration Foundation (CRGRF) is the fiscal agent and governing body for the RGHRP. Formed in 2001, the RGHRP works with private entities, other nonprofits, and local, state, and federal government partners to further their mission to "to restore and conserve the historical functions and vitality of the Rio Grande in Colorado for improved water quality, agricultural water use, riparian habitat, wildlife and aquatic species habitat, recreation, and community safety, while meeting the Rio Grande Compact." The RGHRP fulfills its mission through the following programs: Riparian Stabilization, Instream Infrastructure Improvement, Watershed Stewardship, and Outreach and Education.

BACKGROUND

The Park Creek Watershed is located along Highway 160 and the South Fork of the Rio Grande, just southwest of the town of South Fork in the headwaters of the Rio Grande Basin. The Park Creek Watershed Improvement Project activities were recommended in the Upper Rio Grande Watershed Assessment (URGWA) and identified as priority of the RGNF's planning efforts. The URGWA, funded in part by CWCB, assessed the conditions of the Upper Rio Grande watershed through studies of the adjacent uplands, riparian habitat, geomorphology, infrastructure, recreation, water quality, flow regimes, and aquatic habitat. Based on the results of these resource assessments, the URGWA found that "dispersed recreation is a top priority of concern in the Park Creek area," as campers and RVs compact the soil along the banks and degrade the area, and signage in the area is minimal (URGWA, Chapter 7.3). Additionally, the URGWA recommended the prioritization of projects that "protect and restore areas of overuse from dispersed recreation through restoration projects, educational campaigns, management of dispersed camping sites, and the closure of unauthorized trials" (URGWA, Chapter 1).

Dispersed camping and informal river access points throughout the Park Creek watershed have resulted in the removal of riparian vegetation and erosion of streambanks. Additionally, a well-used stream

crossing and an OHV unloading area located near the stream have increased sediment inputs to Park Creek. The condition of the riparian corridor was becoming compromised and further resource damage may have resulted in the USFS closing the area to camping, which would be devastating to the recreation community.

Partners, including the RGHRP and RGNF, worked together to develop a plan that would maintain access to the watershed for recreators while protecting and improving the health of the watershed.

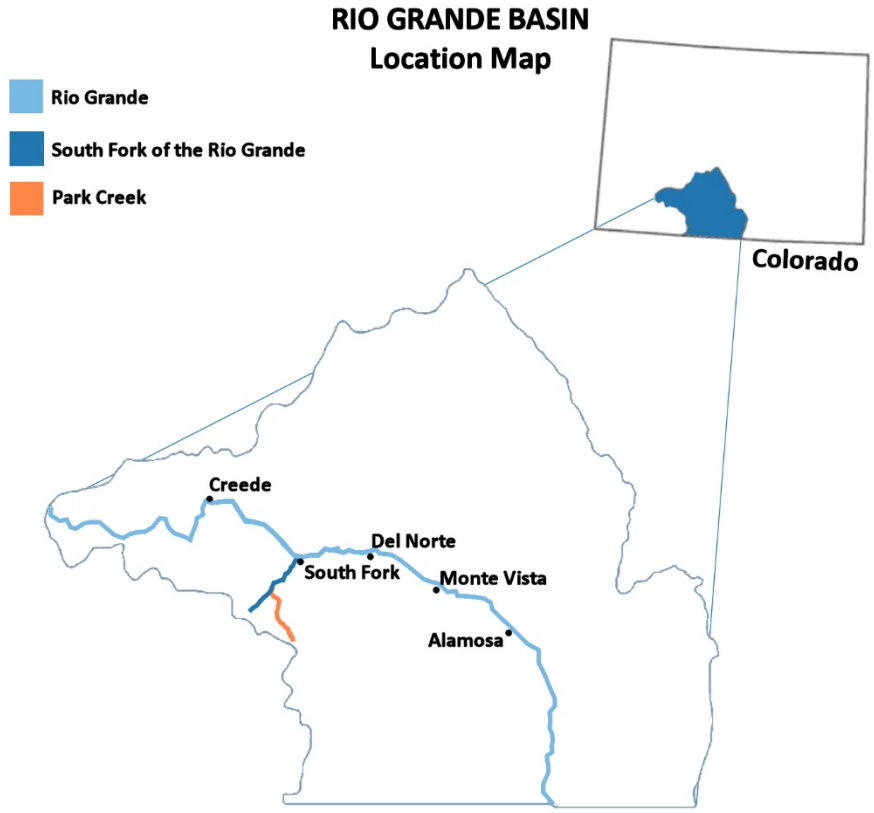

Figure 1. Location of Park Creek within the Rio Grande Basin

The project scope and designs were developed by the RGHRP and USFS staff, including the Divide Ranger District fisheries biologist, wildlife biologist, roads manager, recreation manager, and district ranger. These staff members, along with RGHRP staff, held multiple site visits to finalized project designs, resulting in plans that address watershed issues while also maintaining existing recreation opportunities.

The objectives of this project were as follows:

1. Protect riparian habitat throughout the Park Creek Watershed by concentrating dispersed recreation access to designated upland areas.
2. Educate recreators about restoration efforts and “Leave no Trace” principles.
3. Improve stream condition, water quality, and aquatic habitat by reducing sediment input through the hardening the Fox Creek Bridge OHV unloading area and FSR 390 stream crossing.
4. Improve riparian condition through targeted streambank stabilization and riparian revegetation.

METHODS

The following passages detail how the project objectives listed above were met through the completion of Project Tasks. CWCB funding supported the completion of Tasks 3, 4 and 5.

Task 1 - Design and Permitting

Description of Task: Complete designs, permitting, and NEPA compliance for the project elements, which include the hardening of the FSR 390 stream crossing, the hardening of the OHV unloading and parking area, and the streambank stabilization.

Methods: The RGNF and RGHRP staff held several site visits in Summer of 2019 to identify site locations for all project elements. In Summer 2020 RGNF and RGHRP staff met to finalize designs for the construction elements of the project, including the hardening of the FSR 390 stream crossing and the hardening of the OHV unloading and parking area. RGNF staff completed required NEPA compliance and permitting for all project elements.

Figure 2. Park Creek Project Site Visits with RGHRP and RGNF Staff

Figure 3. OHV Unloading and Parking Area Design

Task 2 – Education and Outreach

Description of Task: Develop and implement an educational campaign to inform community members and recreators on restoration efforts and "Leave No Trace" principals.

Methods: Signage text was be developed by RGNF and RGHRP staff for five interpretive signs to educate visitors to the Park Creek watershed. Signage topics included "Leave No Trace" principles, Camping Regulations and Etiquette, Motorized Access Rules and Regulations, Importance of Riparian Areas, and Historic Mining. The RGNF's Forest Landscape Architect completed the graphic designs for each of the signs. The interpretive signs were printed through KVO Industries and will be installed at key locations along Park Creek in Spring 2021. In addition to the interpretive signs, smaller signs were designed and printed to alert visitors of ongoing riparian restoration and protection efforts throughout the watershed. These will be installed Spring 2021 at 8 locations throughout the watershed where dispersed camping and motorized recreation have negatively impacted riparian areas.

In addition to signage, this task also included outreach to local recreation user groups and volunteer work days. The volunteer work days were delayed due because of safety concerns related to the COVID-19 pandemic, but the RGHRP and RGNF staff will hold these events when it is safe to do so in the coming year.

Task 3 – Concentration of Camping and Trails in Upland

Description of Task: Construct a combination of split-rail fence, u-channel, and boulder barriers along the Park Creek watershed.

Methods: In Summer and Fall 2019, RGNF and RGHRP staff to complete the construction of a combination of pole fences (worm fences) and u-channels strategically placed to concentrate camping in uplands away from the riparian area. Sixty four feet of worm fencing was installed at three locations (192 feet total) that were experiencing erosion and riparian habitat degradation due to unofficial off-road usage and dispersed camping. Road closure signs were also placed at these locations to discourage future use and concentrate recreation to designated areas. In Fall 2020, Cooley and Sons Excavating placed 30 boulders at 4 sites where unauthorized motorized use was impacting riparian areas throughout the watershed.

Figure 4. Worm Fencing and U-Channel Installation

Figure 5. Boulder Placement

Task 4 – Hardening of FSR 390 Stream Crossing

Description of Task: Construct a hardened stream crossing where Forest Service Road 390 crosses Park Creek.

Methods: Construction of Tasks 4 and 5 was put out to competitive bid in July 2020 by the RGHRP. A mandatory pre-bid meeting was held for any interested contractors on July 29, 2020 at the staging area for project construction. Cooley & Sons Excavating was awarded the bid and begin work on the FS Road 390 stream crossing in late September 2020. They first constructed a small coffer dam to dewater the site before installing geowebbing across the width of the channel and filling it in with river cobble. The geowebbing was extended above the banks of the creek and was connected with road regrading and drainage improvements made to the road approach on either side of the crossing. This work was finished in early October and was overseen by the fisheries biologist and roads manager of the RGNF Divide District, as well as RGHRP staff.

Figure 6. FS Road 390 Stream Crossing Construction

Task 5 – Hardening of OHV Unloading and Parking Area

Description of Task: Construct a hardened OHV unloading and parking area at Fox Creek Bridge.

Methods: While originally planned to be located near Fox Creek Bridge, Project partners decided to create the hardened parking area just off Highway 160, as the area receives the most overall traffic, maximizing its benefits to the watershed. Designs and permitting for the parking area were completed by USFS Staff. Cooley & Sons Excavating mobilized and begin construction of the parking area in mid-September 2020. They expanded the area by removing part of a berm, then graded the area, added road base, and compacted the area. Drainage for the parking area also included large rock and geofabric at its steepest section to prevent erosion.

Figure 7. OHV unloading and parking area site grading and construction

Task 6 – Streambank Stabilization and Riparian Restoration

Description of Task: Implement streambank stabilization and habitat restoration at critical locations along Park Creek.

Methods: A particularly degraded stretch of streambank was just north of the Fox Creek Bridge was protected from further recreation impacts through the construction of work fence and the installation of signage in Tasks 2 and 3. RGNF and RGHRP staff determined that in-channel rock work was not needed to restore stability to the banks, but rather riparian revegetation would be a more effective method to reduce erosion and improve riparian habitat. Native riparian revegetation will be completed in 2021 by volunteers and will include the planting of willow transplants and reseeding areas where grass and vegetation has been removed. In addition, the RGNF staff leads will work with the RGHRP and volunteers to complete riparian and uplands revegetation at targeted locations throughout the watershed.

Task 7 – Project Management and Administration

Description of Task: Complete Project oversight, management, and partner and volunteer coordination. Complete all necessary contracts, status reports, and internal and external documents. Ensure tasks are completed within approved costs and timelines.

Methods: The RGHRP oversaw project management and administration of the Park Creek Watershed Improvement Project. This included completing contracts with project funders and partners, managing budgets and reimbursement requests, and completing grant reporting. In addition, the RGHRP completed project oversight, partner coordination, site visits, ensuring project design and implementation was timely and accurate. During construction, RGHRP staff monitored progress along with RGNF staff. The RGHRP will work with RGNF to complete facilitate volunteer events in 2021 and complete long-term monitoring.

RESULTS

The Park Creek Watershed Improvement Project resulted in the successful implementation of the stated grant objectives through the methods listed above. The following describes in further detail how the Project furthered the grant objectives, benefiting the condition of the Park Creek watershed and in turn Rio Grande headwaters while maintaining recreational opportunities.

Objective 1: *Protect riparian habitat throughout the Park Creek Watershed by concentrating dispersed recreation access to designated upland areas.*

The project resulted in the placement and construction of natural barriers and signs to discourage the use of unofficial roads and access points in delicate riparian areas. This included the placement of worm fencing, boulders, and U-channel signs along the watershed in key areas where increased ATV/vehicle usage and dispersed camping had been observed. U-channel posts formalized the closure of these areas. Through these activities, dispersed recreation access will be concentrated to designated uplands, protecting riparian habitat from recreation impacts.

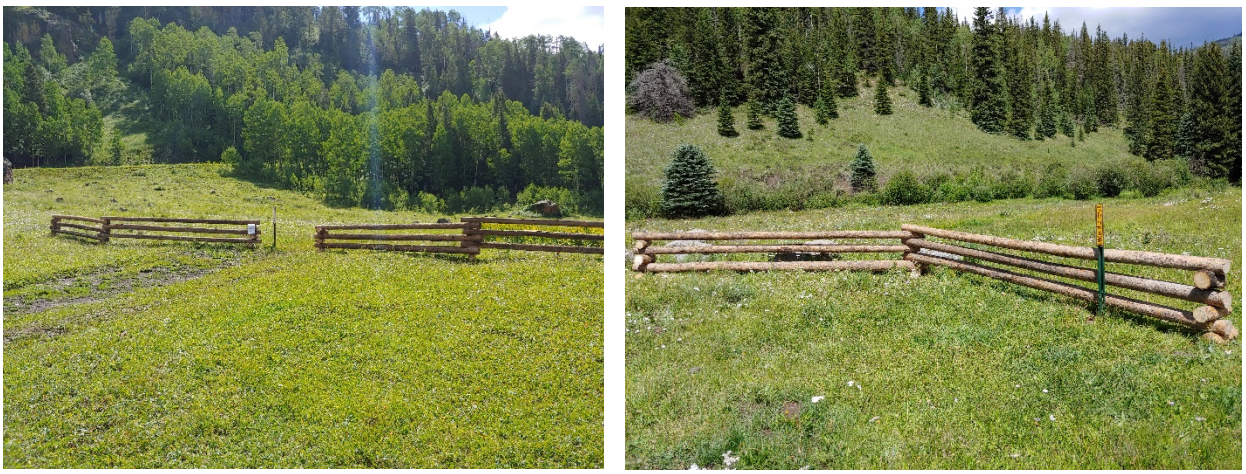

Figure 8. Worm Fencing and U-channel signs

Objective 2: *Educate recreators about restoration efforts and "Leave no Trace" principles.*
The Project resulted in the development and implementation of both interpretive and regulatory signs to educate visitors of restoration efforts, as well as best practices for maintenance and stewardship of our watersheds and forests. Signs will be placed in Spring 2021 at the new OHV unloading and parking area, as well as throughout the watershed at higher traffic areas near restoration work. Interpretive signage topics include the importance of riparian areas, Leave No Trace, camping in the national forest, motorized vehicle rule and regulations, and gold mining history and regulations.

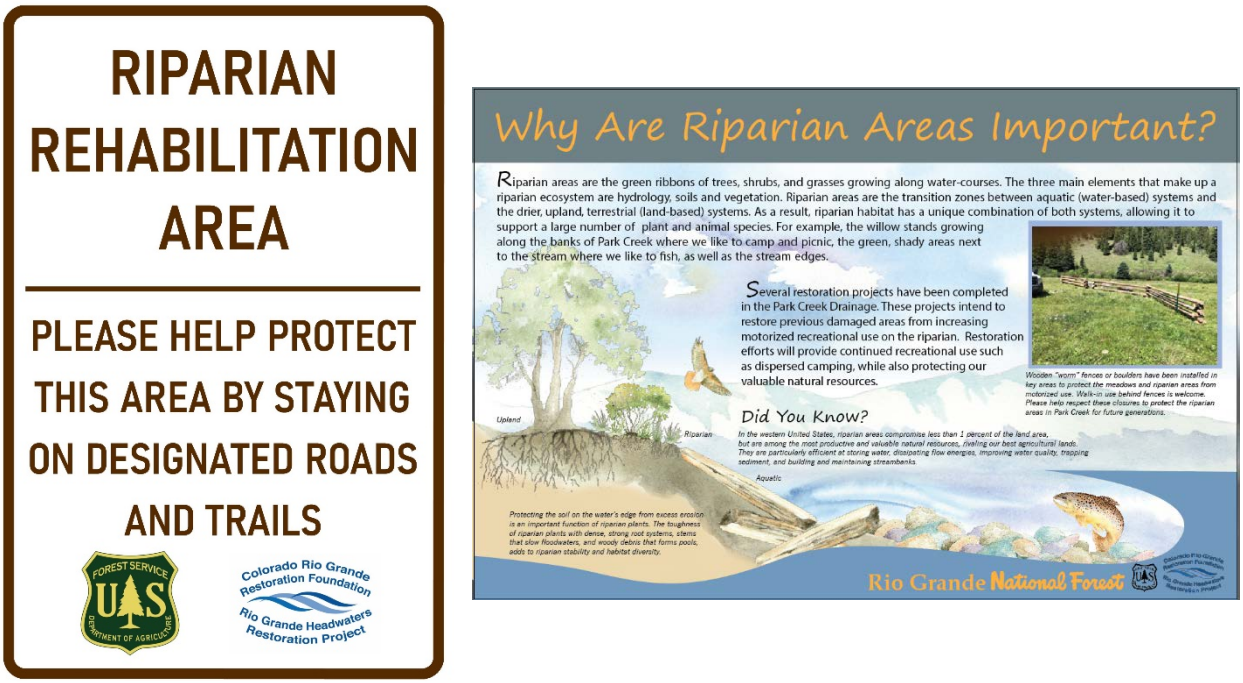

Figure 9. Signage examples.

Objective 3: *Improve stream condition, water quality, and aquatic habitat by reducing sediment input through the hardening the Fox Creek Bridge OHV unloading area and FSR 390 stream crossing.*
The Project resulted in improved stream condition, water quality, and aquatic habitat by reducing sediment input through creating a formalized, hardened area for OHV unloading and parking, as well as hardening the FSR 390 stream crossing. While originally planned to be located near Fox Creek Bridge, the hardened parking area was relocated just off highway 160, as the area receives the most overall traffic, maximizing benefit to the watershed. The expanded parking area will further take pressure off of other areas of the watershed, such as Fox Creek Bridge. The FSR 390 stream crossing and road approach was blown out and widening, causing increased erosion and sediment inputs to Park Creek. The hardening of the stream crossing and road approach will focus motorized use on the hardened road base, reducing sediment inputs into Park Creek and protecting the surrounding streambanks from erosion.

Figure 10. Parking area before (L) and after (R)

Figure 11. FSR 390 stream crossing before (L) and after (R)

Figure 12. Boulder placement

Objective 4: *Improve riparian condition through targeted streambank stabilization and riparian revegetation.*

The Project will result in improved riparian condition through the protection of riparian areas from dispersed recreation as well as targeted riparian revegetation along the Park Creek Watershed. Riparian revegetation efforts were set to be completed with the help of volunteer in the summer and fall of 2020, but these were delayed due to the COVID-19 pandemic. Volunteers will assist RGNF and RGHRP staff with the completion of riparian revegetation in 2021, which will include the planting of willow transplants and reseeding areas where grass and vegetation has been removed.

CONCLUSION AND DISCUSSION

Park Creek Project objectives were almost completely met through the methods and results described above. The concentration of dispersed recreation activities and motor vehicle access to upland areas through natural barrier construction, has reduced impacts to riparian areas throughout the Park Creek watershed. Establishing a formal hardened parking area and OHV unloading and a hardened stream crossing for FSR 390 has improved water quality and fish habitat by reducing sediment inputs to Park Creek. Signage will also educate visitors of their role in protecting these important areas, helping to create greater appreciation and respect for watersheds. All of these efforts will protect Park Creek and surrounding riparian areas while allowing recreation to continue.

Additional riparian revegetation efforts will take place during future volunteer workdays planned for 2021. These workdays will fulfill restoration and revegetation efforts described in the original grant application, improving overall watershed health.

Projects such as this one further the relationship between the USFS and RGHRP, paving the way for future collaborative planning efforts in the RGNF. Results from Park Creek also serve as an example for watersheds facing similar issues.

Lessons Learned and Future Project Recommendations

The Park Creek Watershed Improvement Project wouldn't have been possible without the collaboration of the RGNF and the support of each funder. Lessons learned from the planning and implementation of this project include:

- Work directly with the USFS staff throughout project development, planning and implementation. USFS staff provided invaluable support and expertise, which was critical to project success.
- Include all appropriate departments and staff within the USFS throughout project planning and design. During design and permitting, project plans were modified based on input from the RGNF Divide Ranger District fisheries biologist, wildlife biologist, roads manager, recreation manager, and district ranger.
- Get bids or cost estimates from local contractors early on in project planning to allow for more accurate project budgeting and fundraising. Several aspects of the project were more expensive than originally planned because project partners did not have accurate quantities and cost estimates for construction. Thankfully, the RGNF was able to provide additional funding to make up for the budget shortfall for this project.
- Allow for extra time for implementation due to a limited construction window in the high country. Construction timing for the FSR 390 stream crossing was limited to late summer and early fall as this was when the stream flows were lowest, but before trout spawning began.
- Provide clear signage and communication with public during construction. Because project construction occurred in a very popular recreation area, visitors tried to drive through or park in the construction zones in areas where it wasn't clearly marked.
- Development and fabrication of interpretive signage required more time and funding than originally planned. Allow for more time and funding for any future projects that include signage.
- Track all project timelines and complete needed reports in advance of deadlines.

The RGHRP is continuing to implement the recommendations of the 2001 Study, Lower Rio Grande Study, Upper Rio Grande Watershed Assessment, and Rio Grande Basin Stream Management Plans. Lessons learned throughout the Project will be applied to future projects implemented by the RGHRP and project partners. These lessons will be especially valuable to future projects with the USFS involving recreation and public access, several of which are identified in the Upper Rio Grande Watershed Assessment and Rio Grande Stream Management Plan.

ACTUAL EXPENSE BUDGET

Table 1. Park Creek Watershed Improvement Project Actual Expense Budget Table by Funding Source and Task

Park Creek Watershed Improvement Project - Final Budget

Task	CWCB CWP Funds	Cash Match			In-kind Match		TOTAL
		SLV CCI*	CRGRF	USFS	USFS	Volunteers	
Task 1 - Design and Permitting	$ -	$ -	$ -		$ 3,850	$ -	**$ 3,850**
Task 2 - Education and Outreach	$ -	$ 2,050		$ 3,055	$ 1,750	$ -	**$ 6,855**
Task 3 - Concentration of Dispersed Recreation in Uplands	$ 4,200		$ 2,800	$ -	$ 1,300	$ 576	**$ 8,876**
Task 4 - Construction of Hardened FS Road 390 Stream Crossing	$ 9,600			$ 7,500	$ -	$ -	**$ 17,100**
Task 5 - Hardening of OHV Unloading and Parking Area at Fox Creek Bridge	$ 7,800	$ 7,950	$ 5,350	$ -	$ -	$ -	**$ 21,100**
Task 6 - Streambank Stabilization and Riparian Revegetation**	$ -	$ -	$ 200	$ -	$ -	$ 1,152	**$ 1,352**
Task 7 - Project Management and Administration	$ 4,200	$ -	$ 1,686	$ -	$ 1,750	$ -	**$ 7,636**
PROJECT TOTAL	**$ 25,800**	**$ 10,000**	**$ 10,036**	**$ 10,555**	**$ 8,650**	**$ 1,728**	**$ 66,769**
Percentage of Total Project Cost	*39%*	*15%*	*15%*	*16%*	*13%*	*3%*	

*San Luis Valley Conservation Connection Initiative

** Task to be completed in 2021

ACKNOWLEDGMENTS

The successful completion of the Park Creek Watershed Improvement Project is a testament to hard work, collaboration, and coordination with the project partners, stakeholders and funders. Project partners and funders include the Rio Grande National Forest, San Luis Valley Water Conservancy District, Cooley and Sons Excavating, Trout Unlimited, Colorado Water Conservation Board, San Luis Valley Conservation and Connection Initiative, and local recreators and community members.

Special thanks to the Colorado Water Conservation Board for providing grant funds for the continued efforts to improve the overall condition of the Rio Grande headwaters. This great project would not have been possible without your support!

For More Information, Contact

Emma Reesor, Executive Director

Colorado Rio Grande Restoration Foundation

Rio Grande Headwaters Restoration Project

623 Fourth Street

Alamosa, CO 81101

(719) 589-2230

emma@riograndeheadwaters.org