



# RIO GRANDE WATER FUND WILDFIRE AND WATER SOURCE PROTECTION

► **ANNUAL REPORT 2020**







## ► By the numbers since the Rio Grande Water Fund launch:

### Collectively with all Partners

**140,000 acres** treated with thinning, controlled burns, and managed natural fires.

**330,000 acres** in the planning pipeline

**\$5.3 million** in private funding invested

**\$49 million** in public funding leveraged

**1,400** estimated forest jobs supported

**\$120 million** in total economic impact

### Direct Contributions

**40** watershed restoration, forest health, monitoring, or capacity building projects

**7** Place-based collaborative groups developed

**88** total charter signatories

**10** local governments and municipalities now funding watershed restoration

## ► Message from the Executive Committee

First, we want to say that we hope you — our partners, investors, and friends — are well and staying healthy. It is times like these, though they are unusual for sure, that collaboratives such as the Rio Grande Water Fund illustrate that teamwork creates possibilities that would not be achievable if we operated independently.

To that end, we are pleased to share this report, which showcases the incredible creativity and fortitude that you have shown in moving initiatives forward, helping to meet the goals and objectives of the Rio Grande Water Fund in this, its sixth year of operation. The success stories you will read about not only inspire us, but are inspiring the development of new water funds in the United States, and the technical information provided is assisting the launch of similar work around the world.

We also take a moment in this report to recognize and honor Laura McCarthy, the architect of the Rio Grande Water Fund, who had the vision and determination to launch this water source protection project that will benefit generations of New Mexicans. And, we couldn't be happier that Laura and her colleagues at New Mexico State Forestry remain engaged in the Rio Grande Water Fund, which is instrumental to its success.

Finally, we would be remiss if we didn't thank you for your financial investments and contributions of time and creative conservation ideas — the Water Fund wouldn't be where it is today without all of us working together. We look forward to the opportunities that await us all in 2021!

## What is the Rio Grande Water Fund?

The Rio Grande Water Fund (RGWF) is a public-private partnership with a goal of generating sustainable funding for a 20-year program of large-scale forest restoration treatments, including: thinning overgrown forests, managing fire, restoring wetlands and streams, educating youth, providing research to policy makers, reforestation and creating forestry and wood products jobs.



### EXECUTIVE COMMITTEE

Jake Caldwell, LOR Foundation  
Rick Carpenter, Santa Fe Water Division  
Dale Dekker, Dekker/Perich/Sabatini  
Paula Garcia, New Mexico Acequia Association  
Martin Haynes, Business Water Task Force  
Elaine Kohrman, USDA Forest Service  
Terry Sullivan, The Nature Conservancy  
Katherine Yuhás, Albuquerque Bernalillo County Water Utility Authority



COVER PAGE Bighorn Sheep along the Rio Grande Gorge looking out to the Sangre de Cristo Mountains. © Leeann Murphy; INSET Member of the Tri-Pueblo Coalition preparing trees to plant, © Trees, Water, People  
OPPOSITE PAGE Sean O'Neill at the mouth of the Rio Grande near Chama, NM. © Sean O'Neill and Kyle Stepp THIS PAGE CLOCKWISE Acequia in Lama Canyon. © Collin Haffey/TNC; RGWF Signatories meeting in 2019  
© Jackie Hall; Taos Trex pile burn © J Bailey



# ► Reforesting the Jemez Mountains

Imagine your favorite forested area without big, beautiful pine trees cooling you from the sun or providing clean air during your hike. That’s what we’re facing across the Jemez Mountains, which were scorched by the Las Conchas Fire in 2011. The flames burned so hot that the seed sources were destroyed. That, combined with drought and warmer temperatures, could mean serious issues for our water supply and the animals who call the forest their home.

To enhance the Rio Grande Water Fund, we launched a reforestation effort to create “tree-islands” in the burned areas of the Jemez Mountains. These tree islands will serve as the seed sources for the future. This project is supported by many partners in the Jemez Mountains and even some folks as far away as New England who are helping us develop a strategy that identifies the places that will likely support trees best in the future. In addition to the ecological goals, we are working closely with our Pueblo partners to identify culturally important tree species and planting locations.

The planting area is the ancestral territory of several Pueblos. We are working with our Native American partners to plant trees, develop a workforce and engage youth in the project (see Trees, Water, People sidebar). Santa Clara Pueblo, the lead for this tree planting, wrote in support of the reforestation initiative, “we especially support this project due to the restoration effects this proposal will have on one of the Pueblo’s traditional cultural properties and we look forward to playing a role in these endeavors.”

Creating resilient forests and planting trees are strategies embedded in the 2020 New Mexico State Forest Action Plan. The Nature Conservancy (TNC), working alongside State Forester Laura McCarthy (see page 10), and many stakeholders developed the reforestation plan to address needs across the entire state. Similarly, our efforts are intersecting with a national effort, led by TNC, to identify the ever-growing need for reforestation across the country.



## POST-FIRE PLANTING



### Trees Water People

Trees, Water & People (TWP) has been working in the Rio Grande Valley since 2018. TWP engages local Pueblos in the Jemez Mountains to reforest their watersheds. The reforestation efforts aim to restore ancestral landscapes that have been deforested following several fires in recent decades. These efforts are planned and implemented by tribal members, including elders and youth, with the intention of using reforestation to preserve vibrant Pueblo cultures. TWP draws from 20+ years of experience in Central America and the Great Plains and is based in Colorado. In New Mexico, their program is headed by James Calabaza, a member of Santo Domingo Pueblo.

# ► Rio Chama’s Robust Collaboration

In the Rio Chama Watershed of southern Colorado and northern New Mexico, long-standing partnerships share a collective vision and a commitment to making science-informed land management decisions that lead to landscape-scale outcomes. The Two Watersheds-Three Rivers-Two States Cohesive Strategy Partnership (“the 2-3-2”) is a team of teams, bringing together small collaboratives from across the broader geography to achieve the pace and scale of work needed to establish resilient communities and ecosystems. The Rio Grande Water Fund was foundational in launching this partnership and developing a Rio Chama Collaborative Forest Landscape Restoration Program (CFLRP) proposal that will boost collaborative efforts in southern Colorado and northern New Mexico.

The strength of these partnerships was recognized when, in July 2020, the Federal Advisory Committee for the CFLRP recommended the Rio Chama CFLRP as a Tier I project for full funding in FY 2021. Members of the Committee ranked the Rio Chama CFLRP as the second-highest proposal during their deliberations, underscoring that the Rio Chama stood out for the strength of existing partnerships, the diversity of communities reliant upon the landscape, the commitment to restoring fire and the opportunity to develop industry in a region sorely in need of jobs.



While the proposal is currently awaiting signature by Secretary of Agriculture Perdue and US Forest Service Chief Christiansen, partners are moving ahead to ensure optimal readiness for when final approval is granted. If funded, the Rio Chama CFLRP would build upon

existing relationships and projects to increase the pace and scale of much-needed work in the region, which is a high priority for source water protection, and mitigation of severe wildfire risk across several landscape-scale planning efforts. Even if not funded, working collaboratively to develop the proposal further strengthened partnerships, and highlighted the critical need for continued coordination on the landscape.

“How we work has really changed,” said Mary Stuever, Chama District forester for New Mexico State Forestry. “Historically, each agency focused only on lands where they had jurisdiction and boundary lines were great places to see the impacts of various management strategies. Today’s natural resource management issues are so complex, so wicked, that we need to all work together. By coordinating across all these scales with all the landowners and land managers, we can ensure our limited resources are implementing projects that give us the best chance of maintaining resilient landscapes in a changing environment.”



The Rio Chama CFLRP’s high ranking is indicative of the success that the Rio Grande Water Fund has had in building and strengthening partnerships in the region.

## GROWING JOBS



### J.R. LOGAN Owner, Del Medio Forestry, LLC

Del Medio Forestry, LLC was founded in 2019 to help grow the Taos County restoration economy. Owner J.R. Logan is working with the New Mexico Forest Industry Association, the Carson National Forest, Taos County and the Rio Grande Water Fund to increase the pace and scale of restoration work while opening new opportunities for local contractors.

“People in northern New Mexico have a deep connection to their forests and water, and there’s real interest in growing our restoration industry by employing people to protect these resources,” J.R. said. “Together, we’re addressing workforce and business development issues, improving the demand for restoration crews and developing new markets for small-diameter wood products. All of this is creating good, sustainable jobs that help our community and environment thrive.”



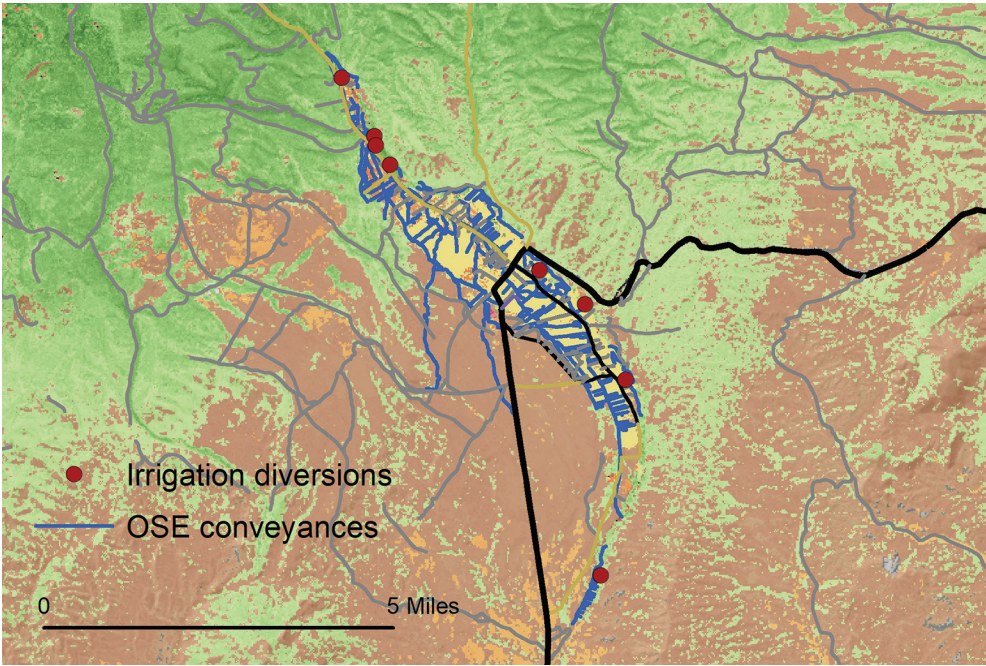
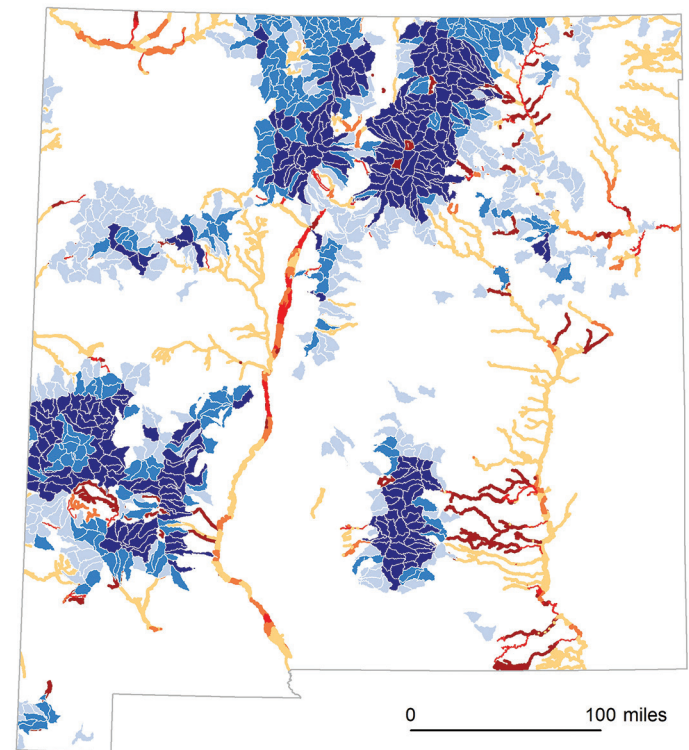
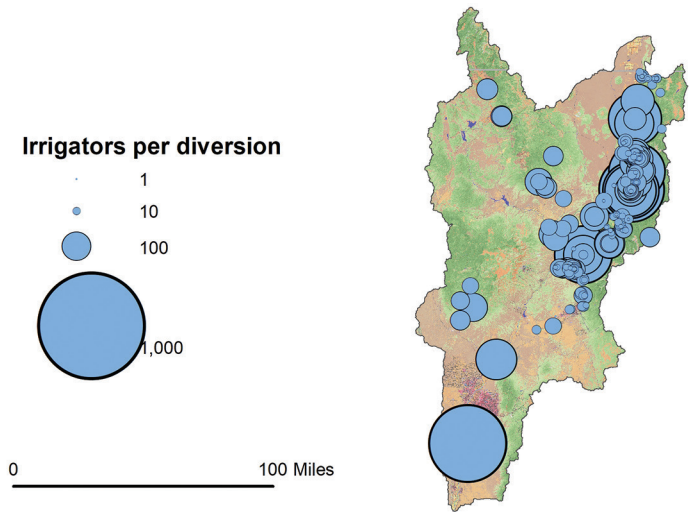
► New Mexico's Forests

The State of New Mexico is setting priorities for forest and watershed restoration using an approach pioneered by the Rio Grande Water Fund (RGWF). The RGWF has employed a quantitative wildfire risk assessment framework in several focal landscapes to target investments in watershed health where investments have the greatest expected return on investment. The data generated through these risk assessments have enabled land managers and community leaders to implement science-based treatments with confidence in high priority areas using a transparent, data-driven process.

This approach has been scaled up to the entire state, as part of the 2020 Forest Action Plan (FAP), developed by the New Mexico Forestry Division (NMFD) of the Energy, Minerals and Natural Resources Department (EMNRD). This plan will guide investment in forest treatments by the State of New Mexico. Additionally, through a “Shared Stewardship Agreement” between the U.S. Forest Service and the State of New Mexico, federal investment will be directed to these science-based priority sites as well.

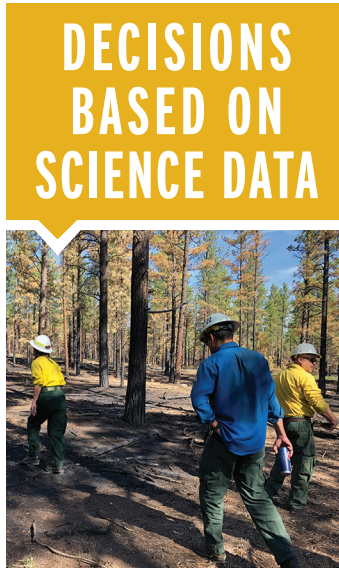
Prioritization is typically limited by a dearth of data depicting resources and assets and hazards. Through a statewide assessment of natural resources, the breadth of available data has been updated and expanded, dramatically increasing the types of resources and assets that can be included in prioritization. For example, instead of mapping generalized developer areas, individual building footprints have been mapped. Ecosystem services have also been specifically included. Watersheds are valued for the runoff they provide. That water is especially valuable if many irrigators and public water system users depend on it. In the Forest Action Plan, the watersheds that produce the most benefit per acre foot of runoff are recognized and mapped as having a greater value to New Mexico.

Developed by U.S. Forest Service scientists, the spatial risk assessment framework adapted for New Mexico by the RGWF evaluates where resources and assets are expected to experience the greatest loss from future wildfire to answer the question “Where must we act to prevent the greatest loss of value?” The limited question of wildfire risk has been broadened include post-fire hazards including flooding and debris flow, global threats like climate change, disease and insect infestations, and development and fragmentation.



While the State benefited from the RGWF’s effort in developing this assessment and prioritization approach, the RGWF stands to gain from this initiative, too: 1) Ecosystem services are now explicitly included in prioritization of state investments. As recognized by RGWF signatories, the Rio Grande and its source watershed is a critical source of the ecosystem services depended on by many New Mexicans. Protecting these sources of value is now a state priority; 2) Connections between land managers, scientists, and stakeholders throughout the state have been strengthened by the collaborative process used to develop the forest action plan; and, 3) invaluable data has been created for use in our future optimization and prioritization of forest and watershed health improvement projects.

All the data developed or aggregated during the forest action planning process are now available. The “open data” approach allows geography-focused collaborative groups like the RGWF to integrate these new, best available datasets into their own planning and prioritization efforts. Statewide datasets are not suited for smaller landscapes, but the seven million acres Water Fund area is large enough that the FAP data will be perfectly suited for our use. With this new data, we expect to update our priority investment maps to account for threats to newly mapped resources and assets including water sources and water transmission for interstate and intrastate delivery.



Where are communities most dependent on limited water resources?

For the Forest Action Plan, the number of parcientes per acre foot of runoff was used to model the relative value of every watershed in the state. A full accounting of irrigation diversions and their irrigators from 1987 was digitized and georeferenced to produce an unparalleled map of where people are most dependent on irrigation water. Even though the data is old, the distribution of beneficiaries throughout the state is expected to be very similar today.



## ► Spotlight on CPLA Executive Director



Caleb Stotts started his career working for federal agencies, fighting fires throughout the West. He later spent more than a decade as a ranch manager and logging contractor. His ranch stewardship work was distinguished with multiple conservation awards and he served

as chairman of the Tallgrass Legacy Alliance, a widely respected ranchland conservation organization.

Prior to working at Chama Peak Land Alliance (CPLA), he was a program coordinator at the Ecological Restoration Institute at Northern Arizona University where he worked to communicate forest restoration science and provide technical assistance to land managers in the Southwest. As the new Executive Director of CPLA, Caleb is excited to be working with conservation-minded land managers in the San Juan and Chama headwaters.

“Landowners have been doing great conservation work in this region, but we still have much more work to do,” he

said. “With warming/drying climatic trends and dense forest landscapes, the threat of a large high-severity fire is always looming. We know the consequences of inaction, and it motivates us to get things done on the ground.”

Working with the Rio Grande Water Fund, CPLA has been implementing ecological resiliency treatments that contribute to forest health and watershed protection.

“Implementing these treatments have become a core part of our mission and many landowners are eager to get more treatments done on the ground,” Caleb said. “At the same time, we need to assess the outcomes of our treatments as much as possible.”

“The monitoring and adaptive management process is key to assessing the work that we are doing and looking for opportunities to improve,” he said. “We are currently developing a drone-based monitoring program with TNC and it is already proving to be a useful tool. Not only does this technology allow for quantitative assessments of changes to forest structure, but we can produce amazing 3D visualizations of forest conditions before and after treatments.”

## ► Drones: Our “Eyes in the Sky”

Partners in the RGWF are working together to improve monitoring techniques to track progress and identify where adjustments can be made to increase the impact of Water Fund projects. The RGWF monitoring program has a multipronged approach: in 2018 and 2019, the New Mexico Forest and Watershed Restoration Institute and the Rocky Mountain Youth Corps led roving monitoring crews to sample projects on multiple sites. These data are now being used to help ground-truth TNC’s testing of remote sensing technologies for monitoring. Planes using LiDAR (pulsed laser energy bounced off the earth’s surface to generate three-dimensional models of vegetation and other features) provide information that is being coupled with high resolution images from uncrewed aerial vehicles, or drones. The hope is that combining traditional monitoring approaches, with data from satellites and drones will lead to methods to collect good data more quickly and at lower cost. Funding from the U.S. Endowment for Forestry and Communities Healthy Watersheds Consortium allowed TNC to test drone monitoring in forest treatments in the San Juan River headwaters in summer 2020. These thinning projects were

implemented by the Chama Peak Land Alliance using RGWF partner funds from the Middle Rio Grande Conservancy District and the Albuquerque Bernalillo County Water Utility Authority.

Further west, the RGWF is funding work by the Jemez Mountains Firewise Group, and the University of Arizona to use LiDAR images to create a “before” image of a forest restoration treatment and then drone camera imagery to create the “after” image. Together, the images can be used to assess fire risk reduction to individual homeowners or neighborhoods to help community members see the difference. Armed with this information, residents can take strategic action to create a more fire-adapted community.

Initial results are showing promise, not just by communicating change through pictures but by providing real data to compare treatment results. These new technologies can help us stay on course as we work together to increase the pace and scale of forest restoration treatments across the RGWF.



## ► Cattlemen Collaborate for San Antonio Creek

Partnerships are vital to the success of the Rio Grande Water Fund. In 2020, we entered into a unique collaboration involving multiple organizations working toward improving the health of San Antonio Creek in the Jemez Mountains. The project partners include: Trout Unlimited, National Forest Foundation, the Pueblo of Jemez, New Mexico Trout, the Santa Fe National Forest, Rio Grande Return and the San Diego Cattlemen’s Association.



This project restores the eroded stream channel using natural channel designs that reconnect the stream with the historic floodplain. Using a process that mimics nature, the project will create more wetlands and store more water in our headwaters. The project also aims to protect wetland species like the endangered New Mexico jumping mouse by removing cattle from sensitive riparian, or streamside, areas.



Working with the San Diego Cattlemen’s Association, Trout Unlimited will install water sources for large ungulates further away from the stream and wetland area. The Cattlemen’s Association supports the project saying: “Particularly in years of drought, which are predicted to increase over time, cattle are drawn to riparian areas in search of water, taxing the ability of our manpower and infrastructure to protect these fragile habitats. Opening up a source of water for cattle and wildlife in the uplands will greatly help us in our efforts to protect the riparian areas of San Antonio Creek.”

The partners are working together to create multiple funding strategies that leverage one another to accomplish project goals at the watershed scale. For example, the National Forest Foundation is working with corporate funders looking to offset their water usage in ways that benefit nature and people. The Rio Grande Water Fund is providing funds to install drinking water for the cattle. Other groups, including the Cattlemen’s Association, are providing in-kind contributions to support the work and improve the stream.

This diverse array of partners is seeking novel solutions to the age-old problem of stream damage from thirsty cattle. We will learn from this effort and hope to develop more projects like this, paving the way to future, impactful collaborations via win-win problem-solving.





► It All Started with Ecosystem Services



She thought she wanted to be a landscape architect; it turns out, that wasn't the case. During Laura McCarthy's undergraduate days, she envisioned a career designing attractive and functional public parks and gardens. Fast forward a few decades, she became the visionary behind the Rio Grande Water Fund, was named the state's Environmental Leader of the Year in 2015 and is now the first female state forester in New Mexico's history.

How did she land here? It all started with an internship application to work with a landscape architect on a National Forest in Idaho, a position sponsored by the Student Conservation Association. Though she successfully landed the post, the job was cancelled. Instead, Laura was asked to serve on a forest crew on one of the most remote ranger districts in the lower 48 states. After that, she was hooked! For three years, she was part of that crew in Idaho, which inspired her to pursue postgraduate work in forestry.

Following her graduation from the Yale School of Forestry, Laura held positions with the USDA Forest Service, a state forest agency and the Forest Guild. In 2005, she accepted a job with The Nature Conservancy first serving as the senior policy advisor for fire and forest restoration, at which time she developed the Santa Fe Water Source Protection Fund, the proof-of-concept model for the Rio Grande Water Fund. Her interest in developing the Santa Fe water security initiative stemmed from the position description she was first



given, with a vague job objective to develop ecosystem services projects for wildfire. She was also inspired by what she had learned from TNC's New Mexico State Director, Terry Sullivan, after he visited TNC's first water fund in Quito, Ecuador and started the Santa Fe project as a small-scale test of a big idea.

Of course, launching a project the size and scope of the Rio Grande Water Fund wasn't easy and the greatest challenge, according to Laura, was raising enough money to begin the work. Enter the LOR Foundation, which provided more than \$2 million over two years as a start-up investment. That influx of funding helped make the Rio Grande Water Fund



possible and was key to its future success. With the Water Fund up and running for six years now, Laura has a different perspective on its importance as it relates to New Mexico State Forestry. She is grateful that the Rio Grande Water Fund is in place because of its "nimble" ability to respond to opportunities for partnership and community engagement and to work effectively with state and federal agencies.

Laura has high hopes for the future of the Rio Grande Water Fund, which is so ably led by the Executive Committee, such as growing its signatories partnership to 100, sustaining funding and leveraging other dollars to increase on-the-ground work and keeping those restored acres above 30,000 a year! Leaving us on that positive note, Laura added that while we are all working so hard to continue making strides with the Rio Grande Water Fund, we need to remember to spend time outdoors and reconnect with the places that inspire our work in conservation. Thank you, Laura!

► Rio Grande Water Fund Investors

Founding Investors

- Albuquerque Bernalillo County Water Utility Authority
- Anne Ray Foundation
- Bernalillo County
- Bonneville Environmental Foundation
- City of Albuquerque
- Ciudad Soil and Water Conservation District
- Fire Learning Network
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- PNM Resources, Inc.
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- US Bureau of Reclamation: Southern Rockies Landscape Conservation Cooperative
- US Endowments for Forestry and Communities
- USDA Forest Service
- Linda and Jim Wolcott
- WCS Climate Adaptation Fund

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- Albuquerque Metropolitan Arroyo Flood Control Authority
- Buckman Direct Diversion Project
- Jonathan & Kathleen Altman Foundation
- New Mexico Department of Game and Fish
- New Mexico Watershed and Dam Owners Coalition
- New Mexico EPSCoR
- Racher Resource Management, LLC
- Sandoval County
- Santa Fe Community Foundation
- Taos County

Secure Investors

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- Albuquerque Community Foundation, Vitality Works Endowment
- Avalon Trust
- Business Water Task Force
- Bureau of Reclamation Cooperative Watershed Management Program
- Edgewood Soil & Water Conservation District
- Stephanie Holscher Bear
- Michael Hartshorne & Lida Crooks
- Lineberry Foundation
- National Park Service
- New Mexico Coalition of Conservation Districts
- New Mexico Interstate Stream Commission
- SCM Partners, LLC
- South Central Mountain Resource Conservation and Development Council
- US Geological Survey
- Wells Fargo Bank/Wells Fargo Foundation

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PROUD PARTNER



BEN ABRUZZO  
Vice President, Ski Santa Fe/Sandia Peak Ski Area

Ski Santa Fe and Sandia Peak Ski Area are proud to have joined with the Rio Grande Water Fund to help maintain and preserve the precious resources of New Mexico. Our streams, rivers, and watersheds are the cornerstone to a bright future and must be nourished and protected. This partnership with the Rio Grande Water Fund will help communicate the importance of our mountains and their long-term health to visitors and locals alike and provides a blueprint for action into the future.



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\*Full list of investors inside