Upper Rio Grande Legal and Policy Assessment to Support Riparian Connectivity

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Executive Summary

This analysis is part of a four-part assessment of the needs and opportunities for conserving and restoring riparian connectivity in the Upper Rio Grande Valley in New Mexico and Colorado. This document provides an orientation to federal, state, and local laws, land grant and acequia governance, and Tribal/Pueblo rights to manage water and land uses that have specific bearing upon riparian corridors.

The complex ecological intersection of land and water that creates riparian corridors presents a challenge for the dominant legal systems that govern resource management and use. Land management is usually the subject of laws and policies distinct from those addressing surface water use, which are in turn separate from groundwater and water quality concerns. Riparian areas fall in a gray zone for conservation and management, and riparian corridors are seldom addressed at all. Opportunities for conservation action can be found by utilizing relevant legal authorities, as well as through existing partnerships and new initiatives involving a diverse array of public and private entities.

Throughout this analysis, examples illustrate a variety of ways in which conservation opportunities can strengthen and reinforce the good work already underway in the Upper Rio Grande Valley, while acknowledging that riparian areas are not included in many conservation initiatives. This report provides context for riparian conservation and presents key priorities for future work. Topics highlighted in this analysis include:

- National conservation and infrastructure initiatives: new sources of funding and priorities for riparian conservation
- Tribal and Pueblo sovereignty: co-management and prioritized restoration projects
- Acequias' conservation initiatives: protecting water resources and engaging in watershed restoration
- National Forests' plan implementation: corridor designation and landscape-scale restoration priorities

- Bureau of Land Management actions: improved planning and opportunities for restoration
- State agencies' authorities: prioritize riparian habitat for conservation and restoration
- Local agencies' and conservation districts' authorities: regulation, restoration, education
- Private land incentives: Federal incentive programs for conservation and restoration
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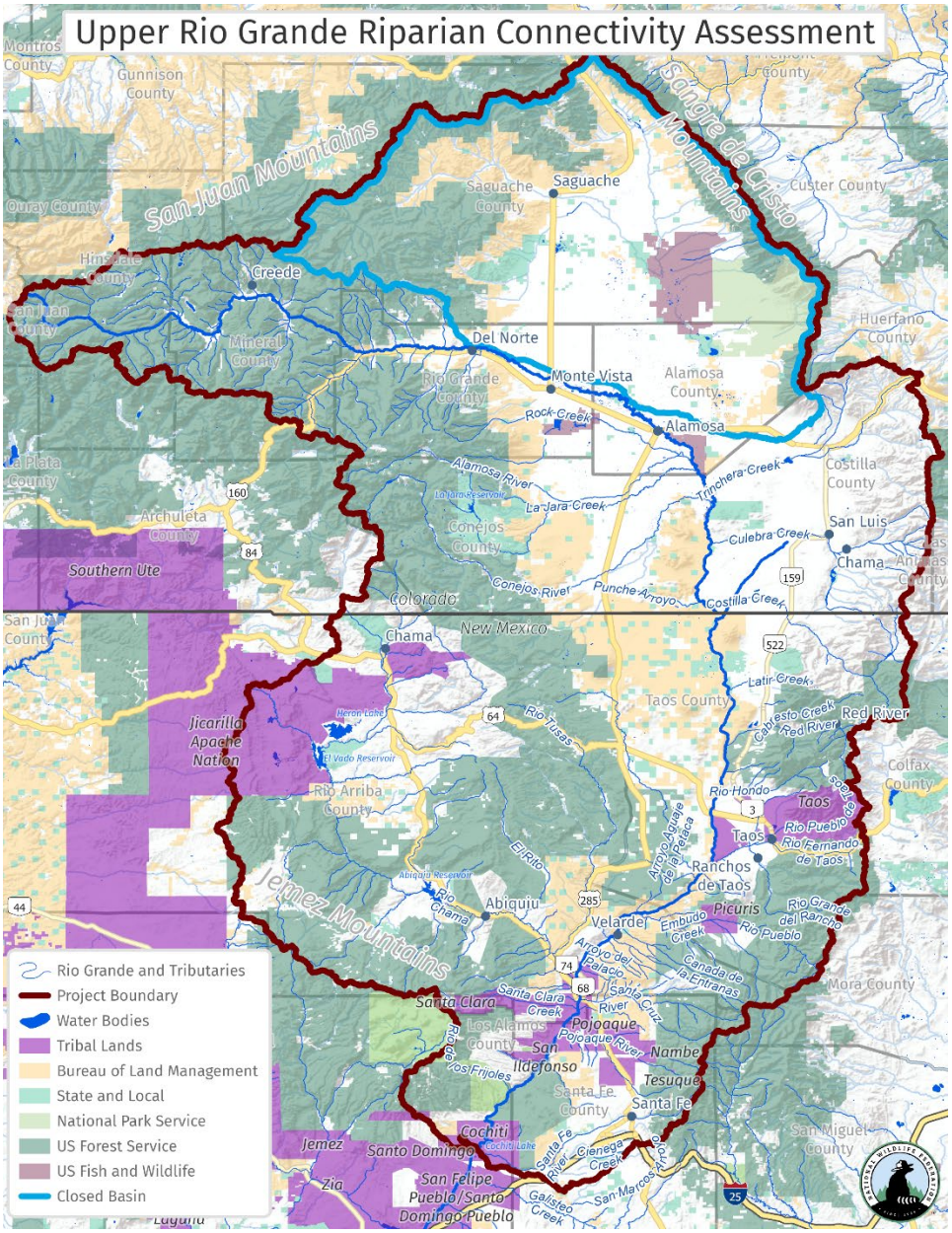
I. Introduction

This analysis is one component of a broader National Wildlife Federation (NWF) project designed to assess conditions, needs, and opportunities to conserve and restore riparian corridor networks in the Upper Rio Grande Valley in New Mexico and Colorado. The project includes a four-part assessment of the ecological, policy, institutional, and social values related to riparian corridors in this landscape, aiming to identify conservation needs and opportunities for the future.[1]



[1] The project website contains more information: https://www.nwf.org/ribbons-of-life

This report focuses on the laws and policies governing use and management of riparian corridors in the Upper Rio Grande Valley. It provides an orientation to federal, state, and local laws, land grant and acequia governance, and Tribal/Pueblo rights to manage water and land uses that have specific bearing upon riparian corridors.

Southern Colorado and Northern New Mexico share many geographical, social, and historical characteristics that are also reflected in this law and policy landscape. For example, federal lands and therefore public resource management and policy play an important role in both regions. Similarly, both states operate under the prior appropriation system of water rights, by which historical practices of water use have legal priority over newer ones (often referred to in shorthand as "first in time, first in right"). Both regions feature community-operated irrigation ditches called acequias, which have existed for centuries and support traditional agricultural communities. However, there are important differences between these two states, for example Colorado's statutory recognition of instream flows (also referred to as "environmental flows") as a beneficial use of water, and the influential role that Pueblos and Tribes play throughout Northern New Mexico.

The purpose of this analysis is to identify existing laws and policies that influence and provide the foundation for managing, conserving, and restoring riparian corridors throughout the Upper Rio Grande Valley. Section II summarizes the diverse values of riparian corridors and the growing need for laws and policies for conserving them. Section III provides an overview of the legal and policy landscape influencing land and water management throughout the region, and Section IV outlines examples of laws and policies that relate to riparian corridors, highlighting emerging opportunities for action. A summary starting on page 48 provides an overview of this information for easy reference.

II. Riparian Corridors: Ribbons of Life in an Arid Landscape

The area in which land and water come together at the margins of streams, rivers, lakes, and wetlands is known as the riparian zone.[2] The word "riparian" derives from the Latin word *ripa*, meaning "river bank." The riparian zone connects the upland zone of a watershed (lands that do not regularly flood) with the aquatic zone (the part of a stream channel regularly covered by water). Thanks to the availability of water, riparian zones have more variety, density, and structural diversity of vegetation than surrounding upland areas.

The plants typical of riparian areas provide diverse benefits to people by shading and cooling stream water, filtering nutrients and other pollutants from runoff, and anchoring streambanks to prevent erosion. Thanks to their ability to absorb water and trap pollutants as water flows from land surfaces into streams, wetland and riparian areas help decrease the need for costly

[2] See National Research Council, Riparian Areas: Functions and Strategies for Management 3 (National Academies Press, 2002), http://www.nap.edu/catalog/10327

stormwater and flood protection facilities. People are drawn to riparian areas to live, recreate, and access food and water.

Riparian areas provide essential habitat elements—food, water, shelter, nesting, and breeding areas—for terrestrial wildlife like birds and mammals, as well as for aquatic species such as fish and frogs. In New Mexico, 80 percent of all vertebrates use riparian areas for at least half their life cycles; more than half of these are totally dependent on riparian areas.[3] Throughout the arid western United States, riparian areas have such a disproportionate importance to wildlife that they are sometimes referred to as "ribbons of life."[4] When riparian areas with intact native

Ecological Values of Riparian and Wetland Ecosystems
Healthy riparian and wetland ecosystems provide important ecosystem services that regulate ecological processes and cycles and provide provisions for human or animal benefit. Healthy riparian areas and wetland ecosystems regulate and support water cycling and infiltration rates through slow water movement that raises the water table and saturation zone and recharges aquifers. They also dissipate stream energy, which can reduce flood damage. Riparian zones also protect streams from excessive sedimentation, erosion, and pollution, and, thus, play a role in water quality. Further, they provide shelter and food for aquatic animals and shade that is important for water temperature regulation. Riparian areas and wetland ecosystems provide wildlife habitat, increased biodiversity, and wildlife connectivity, enabling aquatic and terrestrial wildlife to move along river systems, and thus, preventing community isolation and fragmentation. They are also a source of large woody debris recruitment. Soils in riparian ecosystems play a key role in nutrient and water storage and distribution.

Santa Fe National Forest Land Management Plan 75 (Sep. 2021)

vegetation are connected along a stretch of river or stream, the resulting riparian corridor provides efficient pathways for animal movement across the landscape. In areas that have been heavily modified or degraded (e.g., some agricultural and most urban areas), the riparian corridor may represent the only remaining natural vegetation. With shifting wildlife ranges and habitat degradation due to climate change, riparian areas will play an increasingly critical role for wildlife connectivity in coming decades.

None of these benefits are possible without the water that sustains riparian areas. In a comprehensive national analysis of riparian areas, the U.S. Fish & Wildlife Service noted that a variety of approaches will be needed to conserve and restore riparian areas, but concluded that restoration priorities must be "driven by hydrology" because "hydrologic alterations are among the most pernicious impacts" to riparian areas.[5] In many parts of the arid West, including the

[3] U.S. Fish & Wildlife Service, A System for Mapping Riparian Areas in the Western United States (Nov. 2009)
[4] See, for example, https://extension.usu.edu/waterquality/learnaboutsurfacewater/watersheds/riversandstreams/riparianzones
[5] National Research Council, op. cit. at viii.

Upper Rio Grande Valley, historic practices of diverting water out of streams, retaining it behind dams, pumping groundwater, and moving water from one place to another have dramatically altered riparian areas and their continued ability to provide benefits to people and wildlife. In a few instances, water diversions support wildlife habitat, as illustrated by irrigation practices in the San Luis Valley of Colorado, where surface irrigation provides seasonal wildlife habitat by flooding meadows and hay fields.[6]

In addition to existing hydrologic alterations, impacts from a warming climate threaten riparian corridors with changes in snowpack and runoff, late-season stream dewatering, more frequent and severe wildfires, and water quality impacts related to higher-temperature waters (such as algal blooms and fish die-offs).[7] Colorado's Climate Plan summarized multiple studies indicating "that future warming will reduce the runoff produced for a given amount of precipitation," and that "runoff and streamflow may be further altered by the presence of dust-on-snow events that lead to earlier snowmelt."[8] Thus, just as riparian corridors' ecological functions become more important to climate resilience, their continued integrity is ever more precarious. In response, protective designations and restoration activities along streambanks must be accompanied by attention to the amount and seasonal patterns of water flowing in the adjacent waterways and measures to preserve or augment flows.

III. Legal Status of Riparian Corridors: A Challenge to Conservation, Opportunities for Action

> *Except for wetlands, there is no national regulatory program that attempts to manage ecologically harmful activities within riparian areas*.[9]

The complex ecological relationships between land and water that support riparian corridors present a challenge for the dominant legal systems that govern resource management and use in the Upper Rio Grande Valley. Land management is usually the subject of laws and policies distinct from those addressing surface water use, which are in turn separate from groundwater and water quality management. Riparian areas fall in a gray zone for conservation and management, and riparian corridors are seldom addressed at all.

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[6] A similar benefit is observed in acequias in New Mexico: http://wcrg.nmsu.edu/wp-content/uploads/sites/3/Publications/river-acequia-and-shallow-gw-interactions_fernald-and-guldan_report2.pdf

[7] For a summary of projected impacts on Southwest water, see https://yaleclimateconnections.org/2019/08/what-a-drier-and-hotter-future-means-for-the-arid-southwest/

[8] Colorado Climate Plan 9 (2018) https://dnrweblink.state.co.us/cwcb/0/doc/205387/Electronic.aspx?searchid=4fdc6e80-96ca-44b1-911c-57fe7793e3f6; one of the studies cited in this plan provides more details about predicted decreases in annual streamflow by 2050 for the San Juan and Rio Grande basins: Climate Change in Colorado (2014) (https://dnrweblink.state.co.us/cwcb/0/doc/191995/Electronic.aspx?searchid=e3c463e8-569c-4359-8ddd-ed50e755d3b7)

[9] National Research Council, op. cit. at 228

As one example, the federal Clean Water Act includes explicit protection for "jurisdictional wetlands"—a category defined by the U.S. Army Corps of Engineers based on soil, vegetation, and hydrological criteria—which typically overlap with but are far more restrictive than the extent of the riparian zone. The Clean Water Act contains no definition and no formal protection for riparian areas, but its broad mandate for cleaning up the nation's waters has been implemented to protect and enhance riparian resources. (See discussion in Section IV below.)

Riparian areas, providing a transition point where surface and groundwater connect, receive little or no attention in the state laws and regulations governing usage of either of these resources. Put more directly, western water laws prioritize protecting downstream users or complying with interstate compacts, with in-stream water rights and protection of rivers often being an incidental benefit. However, there is a local, public-private partnership implemented by the Rio Grande Headwaters Land Trust that has pioneered integrated strategies to protect and restore this interface of land and water, explicitly addressing the impacts of water diversions on groundwater and riparian resources.[10]

For publicly owned state and federal lands, the only explicit policies supporting riparian protection and restoration may be found in federal and state resource management plans, which guide and place sideboards on public resource management decisions and occasionally require or incentivize (but seldom require) long-term conservation measures. On private lands, riparian habitat policy may be embedded in public and private incentives for voluntary actions, for example through federal agricultural conservation payment programs or conservation easements. Rarely do state or local land-use ordinances explicitly address riparian areas.

Just as we are beginning to see examples of landscape-scale conservation initiatives[11], there is a small but expanding toolbox for conserving wildlife habitat corridors. Two national forests in the Upper Rio Grande Valley have adopted Special Management Area designations aimed at protecting wildlife habitat connectivity and migratory corridors, along with cultural, archaeological, sacred, and historic sites.[12] Specific management prescriptions for riparian corridors are less common, but examples do exist outside our project area.[13] Measures to protect river corridors through federal or state legislation, or by administrative action, are

[10] See, for example, the innovative work of the Rio Grande Headwaters Land Trust, https://www.riograndelandtrust.org/

[11] See examples and emerging standards of practice here: https://landscapeconservation.org/about/what-is-landscape-conservation/

[12] Examples include the Caja del Rio Wildlife and Cultural Interpretive Special Management Area in the Santa Fe National Forest and the Valle Vidal and San Antonio Special Management Areas on the Carson National Forest. See https://www.nwf.org/Latest-News/Press-Releases/2021/8-26-21-Forest-Plans-Protect-Critical-Migration-Corridors.

[13] See, for example, the riparian corridor management prescriptions for the Jefferson National Forest, USDA Revised Land and Resource Management Plan, Jefferson National Forest 3-178 – 3-187 (2004) https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3834582.pdf

usually focused on the waterway itself, but riparian resources may benefit from these measures aimed at waterbody protection and river conservation.[14]

IV. Laws and Policies Supporting Riparian Corridor Conservation: Toolbox and Opportunities

This section highlights the principal laws and policies that influence—though rarely directly address—riparian corridor management and conservation, with examples drawn from the Upper Rio Grande Valley. It begins with a summary of the longstanding rights held by Tribal and Pueblo communities, emphasizing the historical context and their sovereign authority to govern and manage land and water resources, as recognized by state and the federal governments. Riparian conservation initiatives in the Upper Rio Grande Valley must not only recognize but also integrate the values reflected in these governance structures. Additionally, land grants and acequias play a critical role in land and water management, and are important potential partners for riparian corridor conservation.

The remainder of the section is organized around several major categories of resource conservation: (1) land management; (2) water management; and (3) environmental protection. Some sections feature statutes enacted by Congress or state legislatures; others describe administrative actions by federal or state agencies. This section also describes conservation initiatives that are voluntary and incentive-based, usually implemented through collaborative partnerships involving diverse public and private organizations. Text boxes throughout this section highlight action opportunities using the tools described in the text, or examples of emerging opportunities that might be replicated in the Upper Rio Grande Valley in order to conserve riparian corridor networks.

National Conservation Initiatives

In addition to the statutory, regulatory, and incentive programs summarized here, several recent and pending national policy initiatives will offer expanded opportunities to conserve riparian corridors in the years to come:

- The **Bipartisan Infrastructure Law (as enacted in the Infrastructure Investment and Jobs Act or IIJA)** and associated State investments are resulting in a large influx of funding that could be utilized by Tribes, States or organizations to implement wetland and riparian restoration projects or water enhancement efforts[15]
- **America the Beautiful** (also referred to as 30x30) initiative, which aims "to conserve, connect, and restore 30 percent of our lands and waters by 2030 for the sake of our economy, our health, and our well-being"[16]

[14] Examples described in the next section include legislative protections (such as Wild and Scenic Rivers designations) and administrative actions (such as Outstanding National Resource Waters).

[15] https://www.whitehouse.gov/build/

[16] The federal policy initiative is described here: https://www.doi.gov/priorities/america-the-beautiful. See also Colorado Pathways to 30x30 (https://conservationco.org/wp-content/uploads/2020/10/Pathways-to-30x30-1.pdf),

- **Great American Outdoors Act**[17], which mandates full and permanent funding of the Land and Water Conservation Fund[18]
- **Recovering America's Wildlife Act**, currently under consideration by Congress,[19]promises to provide states, territories, and tribes with $1.39 billion annually to catalyze proactive, on-the-ground, collaborative efforts to restore essential habitat and implement key conservation strategies, as described in each state's Wildlife Action Plan

A. Tribal and Pueblo Land and Water Rights

The legal landscape of the Upper Grande Valley is as layered and complex as the societies that have inhabited the river basin over millennia. In particular, some of the Pueblos' land and water rights trace back to "time immemorial;" other rights were recognized in legal agreements that predate the establishment of the United States and its occupancy of this region.

These ancient rights have complex roots, and their integration with legal and regulatory authorities created more recently is still in progress. For example, the legal title to the beds and banks of streams within Pueblo lands can be traced back to centuries-old Spanish land grants, the 1848 Treaty of Guadalupe Hidalgo, the Land Claims Act of 1858, and the Pueblo Lands Act (1924) adjudications and resulting surveys. In 2013, the Solicitor of the U.S. Department of the Interior determined that Pueblos retained ownership of the beds and banks of lands below and beside rivers and streams that fall within the Pueblos' exterior boundaries.[20] This most significantly impacts areas of the Rio Grande River and its tributaries that flow through Pueblo lands adjacent to property held by private citizens or other entities.

Federal law is well settled that Tribes retain inherent powers of self-government that extend to management and regulation of natural resources within their lands.[21] All of the land use regulatory powers held by state and local governments are held by tribes. The Eight Northern Indian Pueblos and the Jicarilla Apache Tribal lands within the Upper Rio Grande Valley in

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the New Mexico 30x30 Executive Order (https://www.governor.state.nm.us/wp-content/uploads/2021/08/Executive-Order-2021-052.pdf), and the Native American Fish & Wildlife Society's Tribal Leader Statement on 30x30 Proposed Policy (https://www.nafws.org/wp-content/uploads/2021/03/FINAL-Tribal-Leader30x30-Statement-5.6.21.pdf).

[17] https://www.congress.gov/116/plaws/publ152/PLAW-116publ152.pdf

[18] For a national map projects funded by the LCWF, see https://lwcf.tplgis.org/mappast/

[19] Information about this proposed legislation and updates on its status is available here: https://www.nwf.org/Our-Work/Wildlife-Conservation/Policy/Recovering-Americas-Wildlife-Act

[20] Dept. of Interior, Solicitor's Opinion, M-Opinion 37028 at 7, (June 21, 2013): "With respect to the Pueblo land grants in New Mexico, those lands were not at any time 'public lands' subject to general disposal by the United States. Rather, they were communal fee lands granted by the Spanish crown to the Pueblos, title to which the United States was required to recognize and respect under the Treaty of Guadalupe Hidalgo." https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/M-37028.pdf

[21] In New Mexico v. Mescalero Apache Tribe, 462 U.S. 324 (1983), the Supreme Court confirmed this sovereign jurisdiction to regulate natural resources on Tribal lands.

northern New Mexico have all exercised this authority to adopt codes and regulations governing use and management of lands and waters within their territories, as well as strategies to address climate change, with many also taking measures to improve watershed and riparian health.[22]

The U.S. government has an obligation to uphold and respect Tribal sovereignty and ensure that treaty obligations are fulfilled. In January, 2021, President Biden reaffirmed this commitment in an Executive Order on Tribal Consultation and Strengthening Nation-to-Nation Relationships.[23] While meaningful and ongoing consultation with Tribal entities is important, resource management agencies including the U.S. Forest Service are increasingly exploring and beginning to engage with Tribal partners through co-management agreements.[24] These agreements may involve lands outside reservation boundaries to which the Tribal entities retained rights to hunt, fish, or engage in cultural practices when they entered into treaties ceding part of their traditional territory.

The federal reserved water rights held by Tribes and Pueblos provide another important avenue for protecting and restoring the stream flows that support riparian corridors. Long-established law confirms that Tribes hold legal rights to water sufficient to fulfill the purpose of their reservations, and that this right took effect on the date the reservations were established. Achieving full recognition of these reserved water rights has required decades of litigation and complex settlement agreements confirming the quantity of water and federal obligations to invest in infrastructure necessary for its use. It is important to note that the U.S. government has a federal trust responsibility to support Tribes and Pueblos in securing their water rights and is an active participant in litigation. While many water rights have still not been quantified, several such settlements exist in the Upper Rio Grande Valley in New Mexico: the Aamodt Water Rights Settlement (affecting the four northern Pueblos of Nambe, Pojoaque, Tesuque, and San Ildefonso); and the Taos Pueblo Water Rights Settlement.[25] Tribal and Pueblo governments have also leased water rights to support endangered species. Recently the Jicarilla-Apache tribe entered into an agreement with The Nature Conservancy and New Mexico's Interstate Stream Commission to lease Tribal water for endangered species in the San

[22] For example, the Pueblo of Tesuque Environmental Department includes an active riparian restoration effort in its watershed management and planning program, cooperating with a variety of federal agencies. https://www7.nau.edu/itep/main/tcc/Tribes/sw_tesuque

[23] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/26/memorandum-on-tribal-consultation-and-strengthening-nation-to-nation-relationships/

[24] For a detailed report with the historical roots of co-management, examples of emerging initiatives, and recommendation to expand the practice, see Monte Mills & Martin Nie, Bridges to a New Era: A Report on the Past, Present, and Potential Future of Tribal Co-management on Federal Public Lands," Public Land & Resources Law Review. Vol. 44, Article 2. https://scholarship.law.umt.edu/plrlr/vol44/iss1/2.
Also see Washburn, Kevin K., Simple Tribal Co-Management: Using Existing Authority to Engage Tribal Nations in Co-Management of Federal Public Lands (October 27, 2021). U Iowa Legal Studies Research Paper No. 2021-45, Available at SSRN: https://ssrn.com/abstract=3951290 or http://dx.doi.org/10.2139/ssrn.3951290]

[25] See New Mexico Office of the State Engineer, Indian Water Rights Settlements, https://www.ose.state.nm.us/Legal/settlements_IWR.php

Juan River and New Mexico's Compact obligations.[26] The six Pueblos that are affected by Compact decision-making on the Rio Grande have recently demanded participation in Compact meetings.[27]

Senator Ben Ray Luján (D-N.M.) and Representative Ruben Gallego (D-Ariz.) have introduced groundbreaking legislation, the Tribal Wildlife Corridors Act, that directs federal funding to tribes for wildlife migration pathways, helping to protect corridors on tribal lands and encouraging cooperation among the varied landowners along corridors.[28]

Opportunities to Support Tribal and Pueblo Riparian Conservation

The following actions would strengthen Tribal and Pueblo sovereign authority over land and water within their boundaries, and expand emerging opportunities to co-manage federal lands and waters to support riparian corridor conservation:

- Advocate to include explicit language regarding co-management in legislative or administrative actions designating special conservation areas for riparian corridors on federal lands and waters[29] and seek specific designations for riparian areas with special importance to Tribal and Pueblo people.[30]
- Ensure that federal land and resource plans adequately address Tribal and Pueblo rights and interests (including riparian corridor values), and that the agencies engage with Tribal and Pueblo partners early in the process to inform all elements of the planning documents
- Advocate for additional federal and private funding to support Tribal- and Pueblo-led riparian conservation initiatives.[31] Support Tribes' and Pueblo's access to Infrastructure Investment and Jobs Act, National Fish and Wildlife Foundation, Natural Resource Conservation Service, and U.S. Fish and Wildlife Partners for Wildlife funding.
- Share riparian connectivity ecological assessment data with Tribal and Pueblo natural resource staff to identify potential conservation or restoration opportunities that align with their priorities, and leverage to pursue funding.

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[26] https://indiancountrytoday.com/news/tribe-inks-water-leasing-deal

[27] https://indiancountrytoday.com/news/pueblos-again-seek-inclusion-in-rio-grande-decision-making

[28] https://www.congress.gov/bill/117th-congress/senate-bill/2705?s=1&r=48

[29] See, for example, Pres. Clinton's mandate that the U.S. Bureau of Land Management shall manage the Kasha-Katuwe Tent Rocks National Monument in New Mexico "in close cooperation with the Pueblo of Cochiti" (Proclamation No. 7384, 66 Fed. Reg. 7343 (Jan. 22, 2001)), and the more explicit co-management language in Pres. Obama's designation of Bears Ears National Monument (Proclamation No. 9558, 82 Fed. Reg. 1139 (Dec. 28, 2016).

[30] For example, the Pueblo of Sandia has explicit veto power over new uses of the T'uf Shur Bien Preservation Trust Area within the Cibola National Forest in New Mexico. Cited in Mills & Nie at 175.

[31] For example, the Rio Grande Water Fund provided support for the Santa Clara Pueblo's efforts to plant seedlings and control erosion from several fires in its watershed. https://www.nature.org/content/dam/tnc/nature/en/documents/NM_NatureConservancy_RGWF_AnnualReport2019.pdf

B. Land Grants, Acequias, and Traditional Land and Water Uses

> *For communities in Colorado and northern New Mexico, an* acequia *is a physical system, an irrigation ditch, but it is also a deeply embedded philosophy of community and governance. The philosophy revolves around loyalty to the community and a common understanding that water is both a shared resource and a shared responsibility*.[32]

Anyone working on land and water conservation in the Upper Rio Grande Valley must understand and integrate historical legal authorities for land grant and acequia rights and governance. Spanish and Mexican community land grants were settled on Indigenous territory for the purpose of forming new towns. The settlers constructed community irrigation ditches—acequias—where current-day heirs have long-standing familial and legal connections to the lands and water. The land grant system was developed by the Spanish king, after the 1680 Pueblo Revolt, as a form of codifying the colonial individual and communal ownership of land.[33] While many of the land grants in Northern New Mexico were granted after the Pueblo Revolt, the land grants in Colorado were granted by Mexico in the 1840s.

Both New Mexico's and Colorado's land grants are recognized under the 1848 Treaty of Guadalupe de Hidalgo. Although the treaty promised that hundreds of land grants would be respected by the United States, millions of acres of communal lands were acquired by abusive speculators or claimed by the U.S. government as "public domain" and later included in the national forest system. Subsequent legal actions asserting community land grant rights has led, in some cases, to formal recognition of traditional use rights—such as gathering firewood on public lands—and more regular consultation in public resource planning and management decisions.

The New Mexico Land Grant Council currently supports more than 30 registered communal land-grant boards. These boards are eligible for state and federal funds to support activities such as forest thinning and riparian restoration.[34] Land-grant boards have legal authority to conserve riparian resources on lands adjacent to acequias,[35] but a recent report concluded that

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[32] Willow Cozzens et al., "Underrecognized and underserved communities in Colorado water planning," Water Education Foundation (March 16, 2021), https://www.watereducationcolorado.org/publications-and-radio/blog/underrecognized-and-underserved-communities-in-colorado-water-planning/

[33] For a short history and description of the differences between land grants issued in New Mexico and Colorado, see: https://coloradoencyclopedia.org/article/mexican-land-grants-colorado; See also Raish C., McSweeney A. M., Land Grants and the U.S. Forest Service. Natural Resources Journal 48(4): 1039-1055 (2008).

[34] See J.R. Logan, "Troubled Taos, torn apart by a battle over historic Hispano land grants, High Country News (Aug. 27, 2012), https://www.hcn.org/issues/44.14/troubled-taos-torn-apart-by-a-battle-over-historic-hispano-land-grants/@@gallery_view?b_start:int=1; see also the 2020 annual report of the New Mexico Land Grant Council: https://lgc.unm.edu/sites/default/files/desktop/nmlgc_fy_2020_annual_report_appendices_final_12.1.20.pdf

[35] Reference to authority that exists through land grants for riparian protection was shared during a conversation on August 11, 2021 with Enrique Romero, staff attorney for the New Mexico Acequia Association.

current funding is inadequate to support robust restoration project planning and restoration.[36] Proposed federal legislation, the Land Grant-Mercedes Traditional Use Recognition and Consultation Act, [37] would increase the voice of local communities in federal decisions affecting land use.

Acequias have been used for the distribution of irrigation water in the Upper Rio Grande Valley for centuries. Withdrawing of irrigation waters from rivers presumably affects the ecology of the rivers, especially during dry years. On the other hand, acequias create riparian systems, and support their health through irrigation practices such as deep percolation, which increases shallow groundwater and provides more water along the acequias in drier months. AA study by Professor Jose Rivera documented that acequias "extend the riparian zone, preserve farmland and rural open space, increase local biodiversity and protect the hydrologic integrity of the watershed . . . [providing] important biological corridors and habitat islands for many species of plants and wildlife."[38]

As traditional, community-based irrigation systems, each with a governance structure, acequias are recognized as political subdivisions in New Mexico under the 1907 Acequia Act, which defined criteria for acequia membership, governance, and management.[39] This statute recognized the traditional three-person acequia commission, an elected mayordomo and parciantes or members. The commission oversees governance while the mayordomo manages the infrastructure of irrigation and the annual cleaning of the ditch.[40] While water rights are held by individual parciantes, the management of the water rights is communal.[41] The 1998 Acequia and Community Ditch Fund Act provides funding assistance to acequias to develop hydrological studies, and acquire technical and legal research and other services necessary to conserve and protect water.[42]

While New Mexico has a long history of recognizing the legal rights of acequias, only in 2009 did Colorado enact the Acequia Recognition Law, codifying the rights of acequias that meet certain criteria.[43] Amended in 2013, the Colorado law defines an acequia as a ditch that originated before Colorado's statehood and which historically treated diverted water as a community resource, using principles of equity in addition to priority to allocate water. Acequias have

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[36] New Mexico Land Grant Council, Report to 2018 Land Grant Interim Committee 6 (June 11, 2018), https://www.nmlegis.gov/handouts/LGC%20061118%20Item%201%20Role%20and%20Functions%20of%20the%20Land%20Grant%20Council.pdf

[37] S.2708 — 117th Congress (2021-2022), H.R.5493 — 117th Congress (2021-2022)

[38] Jose Rivera, "Water Democracies on the Upper Rio Grande, 1598-1998," USDA Forest Service Proceedings 20, 24 (RMRS-P-7, 1999).

[39] For a good summary of New Mexico acequia law, see https://uttoncenter.unm.edu/resources/research-resources/acequias.pdf

[40] https://www.nationalgeographic.com/environment/article/acequias

[41] https://lasacequias.org/wp-content/uploads/2017/10/Governance-Handbook-Rev-2014.pdf

[42] NMSA 1978 § 73-5-2A-1; § 73-5-2A-3

[43] Colo. Rev. Stat. § 7-42-101.5

historically utilized a one landowner-one vote system for making decisions, and members of an acequia traditionally provide the labor for the maintenance of the acequia.[44]

Although the state has recognized acequias as legal entities, Colorado's state water planning process has not adequately engaged acequias in important planning processes addressing long-term water supplies and use. As pointed out in a 2021 post on the Water Education Colorado website: "Among the Statewide Water Supply Initiatives, the 2015 Colorado Water Plan, the 2017 Technical Update, and the 2019 Ripple Effects Report, the word acequia is mentioned only once—in a footnote in the 2015 Plan. Acequias are briefly discussed in the 2015 Rio Grande Basin Implementation Plan, and they are not mentioned in the 2015 Arkansas Basin Implementation Plan. Acequia stakeholders are often absent from statewide planning process meetings and forums. The newly established Colorado Water Equity Task Force does not include any representation for acequia stakeholders."[45] By contrast, the New Mexico statewide water plan calls out acequias virtually every time agriculture is mentioned, with positive references to the acequia model for resilient water and agricultural management.

Lacking state government support in Colorado, several entities have formed to fill the gap. First, the Acequia Assistance Project at the University of Colorado's Getches-Wilkinson Center provides no-cost legal assistance and educational materials to Colorado's acequia communities.[46] And, in the San Luis Valley, the nonprofit Sangre de Cristo Acequia Association represents over 73 acequias and partners, with a mission "to preserve acequias, their traditional governance and water rights." The association worked with Colorado Open Lands (a statewide land trust with a strong acequia program) to secure federal funding through U.S. Department of Agriculture's (USDA) Natural Resource Conservation Service for the Acequia Conservation Initiative Regional Conservation Partnership Program (RCPP). This Initiative placed conservation easements on acequia properties in the Rio Culebra watershed, and provided technical support for acequia farmers to engage in agricultural conservation practices. In addition to supporting traditional agriculture, the program aims to protect wet meadows and their associated wildlife habitat and corridors.[47] Colorado Open Lands also negotiated an easement on the Almunya de las Dos Acequias, a 181-acre farm on the historic Peoples Ditch in the San Luis Valley (the oldest water right recognized in Colorado), aimed at protecting access to water for traditional farming practices and habitat for the Southwestern Willow Flycatcher.[48]

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[44] See Colorado Acequia Handbook: Water Rights and Governance Guide for Colorado's Acequias (Ref. 2019), https://www.getches-wilkinsoncenter.cu.law/wp-content/uploads/2019/04/Colorado-Acequia-Handbook-Third-Edition-Final.pdf

[45] https://www.watereducationcolorado.org/publications-and-radio/blog/underrecognized-and-underserved-communities-in-colorado-water-planning/

[46] https://www.getches-wilkinsoncenter.cu.law/curriculum/curriculum-and-student-info/acequia-assistance-project/

[47] https://www.coloradoacequias.org/programs/rcpp

[48] http://www.acequiainstitute.org/conservation-easement.html

Despite some differences in their recognition and legal rights, acequias in Colorado and New Mexico are united by their connection to the Rio Grande watershed, and meet together in an annual Congreso de las Acequias to discuss shared concerns. The 2021 Congreso agenda focused on climate change and threats to snowpack and streamflows.[49]

Opportunities to Support Acequias' Conservation Actions

Acequias may be active partners in conserving riparian corridors by exercising their legal powers to:

- Protest applications for water transfers that might be detrimental to existing water rights, are contrary to conservation of water, and/or will be detrimental to the public welfare.
- Protect legal easements to gain access to acequia ditches on private and public property, providing adequate width to allow for reasonable maintenance, use, and improvements to the ditch and thus preventing development that might compromise the riparian corridor. [50]
- Engage in restoration activities on lands throughout the watershed serving the acequia, in collaboration with public and private partners.[51]
- Support land grant boards, acequias, and their associations to access funding to restore or conserve priority riparian habitat (e.g., National Fish and Wildlife Foundation 'America the Beautiful Challenge').
- Actively support the inclusion of acequias in Colorado water management conversations to highlight the importance of acequias in the Rio Grande valley.
- Explore and replicate successful efforts to leverage federal funding to support acequia stewardship that conserves riparian habitats (e.g., Colorado Open Lands work through USDA's Natural Resource Conservation Service programs).
- Participate in the annual Congreso de las Acequias to learn more about conservation opportunities with acequias in both Colorado and New Mexico.
- Share riparian connectivity ecological assessment data with acequia associations to identify potential conservation or restoration opportunities that align with their priorities, and leverage to pursue funding.

C. Land Management Laws and Policies

As noted in Section III, despite the close relationship between land, water, and the environmental values that arise from the riparian areas created at their intersection, most laws and policies related to resource management and use focus separately on land, water, or broader environmental protection measures. This subsection highlights laws and policies most

[49] https://lasacequias.org/wp-content/uploads/2021/12/Press-Release-Congreso-12-1-21-Rev.docx.pdf

[50] NMSA 1978 § 73-2-5

[51] For example, the Taos Valley Acequia Association engages with diverse partners through the Rio Fernando Collaborative to remove invasive plants, reduce erosion, and take other measures to improve the watershed. The Forest Service's recently released Southwest Riparian and Aquatic Ecosystem Strategy (described later in this analysis) will facilitate more collaborative efforts such as this.

directly related to *land management*, addressing provisions that apply to federal, state, local, and private lands.

Federal Public Land Management

Much of the Upper Rio Grande basin includes national forests managed by the U.S. Forest Service (USFS) and other federal lands (generally at lower elevations) managed by the U.S. Bureau of Land Management (BLM). USFS manages ~2,058,000 acres or 39% of the land area in the Upper Rio Grande project area, while the BLM manages ~533,000 acres or 10%. The general management directive for these lands is one of *multiple use*, meaning that the resources and uses on public land must be utilized in a balanced combination that will best meet the needs of current and future generations. The multiple-use directive allows public resource managers to emphasize certain uses over others in appropriate areas, and provides discretion for designation and protection of landscape features including riparian corridor networks.

Additional federally-managed lands in the Upper Rio Grande Valley include National Parks (managed by the National Park Service) and National Wildlife Refuges (managed by the U.S. Fish & Wildlife Service). These federal lands are managed for a narrower range of resource values, according to the federal legislation under which each park or refuge was established.

Across this landscape, and not limited to federal lands, river corridors may be protected through designation under the National Wild and Scenic Rivers Act of 1968, which aims at preserving rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.[52] To date, Congress has designated 74 river and stream miles on the Rio Grande and 31 river and stream miles in the Rio Chama watershed for protection under this law.[53] The three classes of designation provided by this statute (Wild, Scenic, and Recreational) describe the current state of the particular river corridor and correlate with allowable development and management activities—including on private lands along the designated river segment. Once a river section has been designated as Wild and Scenic, the state or federal agency responsible for administration must prepare a comprehensive management plan to address resource protection, development of land and facilities, user capacity, and other management practices necessary or desirable to achieve the purposes stated in the designating legislation. For federally administered rivers, the designated boundaries generally average one-quarter mile on each side of the bank in order to protect river-related values.

Forest Service

[52] Pub. L. 90-542; 16 U.S.C. § 1271 et seq.
[53] See https://www.blm.gov/visit/rio-grande-wild-and-scenic-river; for national information, see https://www.rivers.gov/

The U.S. Forest Service manages national forest resources pursuant to the Organic Act of 1897, the National Forest Management Act of 1976 (NFMA)[54], other statutes, administrative regulations[55], and management policies published in the Forest Service Manual.[56] The NFMA requires the Secretary of Agriculture to promulgate regulations that set out the process for the development and revision of land management plans, which are commonly referred to as "forest plans." These planning regulations have evolved in the past several decades; the current process for revising forest plans is laid out in regulations known as the 2012 Planning Rule.[57]

The Upper Rio Grande Valley includes lands within three national forests: the Carson and Santa Fe National Forests in New Mexico, and the Rio Grande National Forest in Colorado. Although immediately adjacent to one another on the Colorado-New Mexico border, the Santa Fe and Rio Grande National Forests are within different administrative regions of the Forest Service and their management is not fully aligned or coordinated.[58] These national forests are in different phases of plan revision: the Rio Grande National Forest finalized its plan in 2020[59]; the Santa Fe and Carson National Forest both issued their draft plans in 2019 and are in final stages of officially adopting new Forest Plans.[60] Although forest plans generally provide broad guidance rather than mandates for particular actions, all subsequent management decisions must comply with the standards outlined in the relevant plans.

In the Forest Service's Southwestern Region (which includes the Carson and Santa Fe National Forests in New Mexico), the agency published a comprehensive **Riparian and Aquatic Ecosystem Strategy** in 2019.[61] The strategy describes goals for collaborating with partners to share information and address mutual restoration opportunities, with the goal of ensuring that the ecological integrity of riparian and aquatic habitat is maintained or restored. As a supplement to the strategy, the Forest Service created a guide for establishing desired conditions and identifying information sources for existing conditions and trends for riparian and aquatic ecosystems.[62] The objectives and guidelines set out in this regional strategy

[54] Pub. L. 94-588, Oct. 22, 1976, 90 Stat. 2949.
[55] 36 CFR 200-299, available at https://www.law.cornell.edu/cfr/text/36/chapter-II
[56] https://www.fs.fed.us/im/directives/dughtml/fsm.html
[57] For an excellent guide to public participation opportunities under the Planning Rule, see https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd509144.pdf
[58] For example, the Santa Fe National Forest Plan includes a special management area for wildlife habitat and movement that is not included in the immediately adjacent lands in the Rio Grande National Forest.
[59] The Rio Grande National Forest's record of planning resources is available at https://www.fs.usda.gov/main/riogrande/landmanagement/planning
[60] Information on the Santa Fe National Forest plan revision is available at https://www.fs.usda.gov/main/santafe/landmanagement/planning; and the Carson National Forest planning resources are available at https://www.fs.usda.gov/main/carson/landmanagement/planning
[61] https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd762374.pdf
[62] USFS Southwestern Region, Existing and Desired Conditions for Riparian and Aquatic Ecosystems (September 2019), https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd762375.pdf

framework are reflected in the revised forest plans for the Santa Fe and Carson National Forests.

Consistent with the strategy, the Forest Service has launched the multi-forest **Northern New Mexico Riparian, Aquatic, and Wetland Restoration Project**.[63] The purpose of this landscape-scale initiative is to maintain or enhance watershed and range health by restoring riparian, wetland, and associated upland and aquatic habitats throughout the region. Specific implementation actions must be aligned with overarching project goals. The Forest Service recently completed an environmental review process to provide for expedited approval for many proposed projects within the Carson, Cibola, and Santa Fe National Forests, ranging from riparian vegetation treatments to restoration of seeps and springs, and instream, side-channel, and floodplain projects.[64] While federal review and permitting for priority projects would be straightforward, the implementation of restoration projects under this Project still require prioritization, adequate funding, and support from community partners.

The Forest Service increasingly seeks to collaborate with other partners to pursue science-based ecosystem restoration of priority forest landscapes, including efforts to improve watershed resilience and water quality. In 2009, Congress enabled such efforts with a provision in the Farm Bill creating the Collaborative Forest Landscape Restoration Program (CFLRP) and authorizing funding for collaborative restoration projects.[65] A relatively new CFLRP project in the Upper Rio Grande, the **2-3-2 Cohesive Strategy Partnership** (named for the 2 states, 3 rivers, and 2 watersheds it encompasses), includes an objective to "improve the reliability and resilience of water resources for regional and downstream wildlife populations and communities, specifically in relation to impacts from wildfire."[66]

Riparian Conservation Opportunities on National Forests:
With forest plan revisions fully or nearly completed for all three national forests in the Upper Rio Grande Valley, bolstered by the Riparian and Aquatic Ecosystem Strategy (for national forests in New Mexico), there is a solid foundation for riparian corridor conservation actions aligned with and helping to implement these priorities. For example:

- Assure that riparian management zones, as identified in Forest Plans, are prioritized for restoration, and restrict future management activities to protect riparian values[67]

[63]This project is similar to the 2018 Aquatic and Riparian Conservation Strategy for the Pacific Northwest and portions of the Pacific Southwest Regions (California), which provides a broad, coordinated approach to develop networks of properly functioning watersheds to sustain habitats and provide high-quality water at landscape scales. In order to scale up restoration, the U.S. Army Corps of Engineers expedited its permitting process for projects that meet criteria outlined in the strategy.
https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd644753.pdf
[64] For proposed activities, see https://www.fs.usda.gov/project/?project=56975&exp=overview
[65] https://www.fs.fed.us/restoration/CFLRP/overview.shtml
[66] https://232partnership.org/wp-content/uploads/2020/03/232ActionPlan_3year.pdf
[67] For example, on the Rio Grande National Forest, Forestwide Standard S-RMZ-1 allows for short-term impacts on riparian areas, but requires that: "Over the long term (generally greater than 20 years), project shall not impair connectivity, composition, function, and structure" of riparian areas and wetland ecosystems throughout the

- Use the Forest Service Watershed Condition Framework[68] to indicate target areas for additional investments to protect and restore watershed and riparian conditions
- Evaluate eligible and suitable Wild, Scenic, and Recreational Rivers to prioritize advocacy for Congressional designation Advocate for the inclusion of critical riparian habitats in Forest Service Congressional or Administrative designations that protect landscapes and significant values (e.g., Wilderness Areas, Special Management Areas, etc.),
- On the Santa Fe and Carson National Forests, prioritize, garner community support for, and support implementation of riparian restoration projects prioritized in the Northern New Mexico Riparian, Aquatic, and Wetland Restoration Project, which can be pursued with expedited permitting and review
- Share riparian connectivity ecological assessment data with USFS staff to identify potential conservation or restoration opportunities that align with their priorities.
- Explore the 2-3-2 Cohesive Strategy Partnership's water resources goal to apply potential project funding to benefit riparian corridors through forest restoration activities
- Elevate and continue support for riparian restoration partnerships that have already prioritized, planned, and implemented projects in national forests and surrounding lands (e.g., the Rio Grande Headwaters Restoration Project); supporting and helping to expand their work would have substantial benefits for riparian corridor conservation[69]
- In areas where public land grazing is leading to consistent conflicts with riparian conservation and ranchers are interested in reducing conflict, explore the opportunity for compensating ranchers for relinquishing grazing permits and work with federal staff to consider permanent retirement of critical allotments.

Bureau of Land Management

The U.S. Bureau of Land Management (BLM) manages public lands pursuant to the Federal Land Management and Policy Act (FLPMA).[70] Similar to how forest plans provide frameworks for management of national forests, FLPMA requires the agency to publish and update resource management plans (RMPs) for the public lands within its purview.[71] These plans are often many years old and do not include detailed strategies for riparian corridor management or riparian area conservation practices.

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forest. The Santa Fe National Forest plan includes a detailed discussion of riparian values (including connectivity) and guidance for management based on the Riparian and Aquatic Ecosystem Strategy.

[68] The Watershed Condition Framework is explained, and a national interactive map provided, here: https://www.fs.fed.us/naturalresources/watershed/condition_framework.shtml

[69] See, for example, the Rio Grande Headwaters Restoration Project, which includes a focus area on riparian habitat and beaver restoration on the Rio Grande National Forest; information here: https://riograndeheadwaters.org/

[70] 43 U.S.C. § 1701 et seq.

[71] For an overview of the BLM planning process, see https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd762375.pdf

The BLM adopted a Rio Grande Corridor Plan in 2000, providing management guidance for public lands along the Rio Grande in New Mexico and Colorado. The plan included some protective management categories for riparian protection and laid the foundation for federal Wild, Scenic & Recreational River designation in the future.[72] In New Mexico, the BLM incorporated the corridor plan into the 2012 Taos Resource Management Plan,[73] which covers BLM lands in northern New Mexico. The Taos RMP has since been amended to include additional protected areas.[74]

Following the 2000 Rio Grande Corridor Plan, Congress enacted the Rio Grande Natural Area Act in Colorado in 2006 following extensive organizing by state and local governments and nongovernmental organizations. This included a 33-mile stretch of the Rio Grande from the southern boundary of the Alamosa National Wildlife Refuge to the New Mexico state border, and extending a quarter of a mile on either side of the river bank.[75] The Rio Grande Natural Area designated in this legislation encompasses approximately 8,800 acres, of which 5,900 acres (67%) are private lands and 2,900 acres (34%) are federal lands managed by the BLM, San Luis Valley Field Office. Planning for the 5,900 acres of *private* lands in this area was led by the Rio Grande Natural Area Commission, appointed by the U.S. Secretary of the Interior, who finalized a Rio Grande Natural Area Management Plan in 2015.[76] This plan resulted in multiple natural resource recommendations that prioritized fencing and removal of feral horses. The most recent approved San Luis BLM Resource Management Plan for this area dates back to 1991, although that document has been amended in subsequent years.[77]

Within the multiple-use public lands estate managed by the BLM is a special designation opportunity for National Conservation Lands,[78] totaling 35 million-acres throughout the nation in 873 federally recognized areas designated by Congress or the President for scientific, recreational, or historic reasons. Each such designation can include protective measures, including withdrawing the land from new mining or energy development activities in order to protect its special characteristics. For example, the Rio Grande Del Norte National Monument, designated by Presidential Proclamation in 2013, encompasses over 300,000 acres in northern New Mexico, including 242,710 acres of BLM land, 28,850 acres of private land, and 39,170

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[72] https://w3.spa.usace.army.mil/urgwops/eis_admin_record/Ref150.PDF

[73] The 2012 Taos RMP is available at https://eplanning.blm.gov/public_projects/lup/68121/86167/103325/Approved_Taos_RMP_-_5.16.12_(print_version).pdf. See in particular the goals, objectives, and management guidance outlined for riparian vegetation in Sec. 2.1.7.1, pp 20-22.

[74] For example, the Sabinoso Wilderness was enlarged with a ranch acquisition in 2017, along with new riparian protections.

[75] See maps and background here: https://www.rgwcd.org/rio-grande-natural-area

[76] Rio Grande Natural Area Management Plan (2015), https://www.rgwcd.org/attachments/Rio%20Grande%20Natural%20Area%20-%20Private%20Land%20Plan1.pdf

[77] https://eplanning.blm.gov/eplanning-ui/project/68503/510

[78] 16 U.S.C. § 7202; see additional information here: https://www.blm.gov/programs/national-conservation-lands/about

acres of state land.[79] The monument planning effort was suspended in 2017 pursuant to Executive Order 13792. According to the BLM, once preparation resumes and the management plan is completed, this plan will amend the Taos RMP.[80]

In the San Luis Valley in Colorado, the BLM has purchased land and manages a variety of areas that include public and private lands to enhance wetland habitat to support nesting populations of waterfowl and waterbirds, bringing back wetlands that had dried up due to excessive diversions and groundwater pumping beginning in the 1950s. Examples include the Blanca Wetlands, designated as a BLM Special Recreation Area and Area of Critical Environmental Concern in 1991. Using intensive water management with ditches and water control structures, the BLM manages irrigated basins with productive riparian, wetland, and aquatic habitat for high densities and diversity of birds, amphibians, fish, and macroinvertebrates. This area, originally just over 9,000 acres, was enlarged to 122,762 acres in 2014 to provide opportunities for wetland connectivity and restoration. Blanca Wetlands includes 19,400 acres of BLM lands, 17,626 other public lands, and 85,736 acres of private lands.[81]

Additionally, in 2019 Congress enacted the John D. Dingell Act, designating Wilderness areas on BLM lands, including some in New Mexico.[82] Two of the new designations in the Upper Rio Grande Valley include Cerro del Yuta Wilderness and Rio San Antonio Wilderness. As with Wilderness areas in national forests, these designations provide indirect protection for riparian areas by restricting allowable activities and requiring the agency to manage for wilderness characteristics, including intact ecosystems.

Opportunities for Riparian Corridor Restoration on BLM Lands:

- Incorporate riparian corridor and connectivity standards and requirements into pending BLM plan revisions, including the Rio Grande del Norte National Monument planning process
- Strengthen and support strong conservation partnerships already planning, prioritizing, and implementing restoration projects for maximum impact.[83] These partnerships may provide particular opportunities to work with private landowners as BLM-managed riparian areas and wetlands are heavily intermixed with private lands and other public lands

[79] Rio Grande del Norte National Monument Resource Management Plan Scoping Report 9 (2014), https://eplanning.blm.gov/public_projects/lup/72807/97058/117224/RGdN_Scoping_Report_5.22.14_(1).pdf
[80] https://eplanning.blm.gov/eplanning-ui/project/72807/510
[81] This information is from Wetland Dynamics, San Luis Valley Wetland and Wildlife Conservation Assessment 40 (2d ed. May 8, 2019), available at https://wetlanddynamics.com/wp-content/uploads/2020/04/SLVWetlandWildlifeConservationAssessment_Final_Edition2.pdf
[82] https://www.blm.gov/about-laws-and-regulations-dingell-jr-act-new-mexico
[83] A few examples include the Rio Grande Headwaters Restoration Project (https://riograndeheadwaters.org);

- Nongovernmental partners can enter into cooperative agreements with the BLM to achieve mutual conservation goals such as riparian corridor inventory and restoration projects
- State and tribal governments may enter into cooperative agreements with the BLM to achieve conservation outcomes, including enhanced stream flows to support riparian corridors.[84]
- Share riparian connectivity ecological assessment data with BLM staff to identify potential conservation or restoration opportunities that align with their priorities.
- State-level BLM leadership on riparian conservation strategies could replicate the Forest Service's Southwestern Riparian and Aquatic Ecosystem Strategy, as well as the landscape-scale riverscape restoration strategy developing in the Montana-Dakotas State Office[85]
- In areas where public land grazing is leading to consistent conflicts with riparian conservation and ranchers are interested in reducing conflict, explore the opportunity for compensating ranchers for relinquishing grazing permits and work with federal staff to consider permanent retirement of critical allotments.

Other Federal Land and Resource Management Agencies

The National Park Service, within the U.S. Department of the Interior, manages several units in the Upper Rio Grande Valley, including the Bandelier National Monument in New Mexico and the Great Sand Dunes National Park in Colorado. Each park or other unit managed by the National Park Service operates under federal laws and regulations, with specific resource management priorities related to each unit's designation.[86]

Also within the U.S. Department of the Interior, the U.S. Fish & Wildlife Service manages National Wildlife Refuges (NWRs) and several other categories of land units supporting wildlife, with an emphasis on migratory waterfowl. The largest area under management by the U.S. Fish & Wildlife Service in the Upper Rio Grande Valley is the San Luis Valley National Wildlife Refuge Complex, which includes the Alamosa, Baca, and Monte Vista National Wildlife Refuges. This complex, managed cooperatively with lands under state and private ownership, provides

[84] See, for example, the memorandum of agreement between Colorado's Department of Natural Resources and the Colorado State Office of the BLM, described here: https://scholar.law.colorado.edu/cgi/viewcontent.cgi?article=1015&context=innovations-in-managing-western-water

[85] See https://eplanning.blm.gov/public_projects/2000265/200379597/20021521/250027725/Draft%20Proposed%20Action%20Riverscape%20Restoration%20July%202020.pdf

[86] For example, the Valles Caldera Preservation Act of 2000 created the Valles Caldera Natural Preserve, providing for federal purchase of a ranch using funds from the Land and Water Conservation Fund. The Preserve originally was managed by a board of trustees, but in 2015 was transferred to the National Park Service. Laws and policies governing its management are available here: https://www.nps.gov/vall/learn/management/lawsandpolicies.htm

essential wetlands and riparian habitat for multiple species, which are the subject of several established, ongoing collaborative restoration initiatives.[87]

State Land Management

This section includes both lands managed by states (such as state wildlife areas and trust lands) and the laws and policies that provide authority for state agencies to regulate and provide incentives for management activities that affect riparian areas on private lands.

State-owned Lands

Upon statehood, the U.S. government granted lands to each western state in order to generate funding to support public education. These state trust lands are managed with an eye toward generating revenues, and may be leased, sold, or exchanged with other lands as determined appropriate by responsible state officials. State trust lands in New Mexico are managed by the State Land Commissioner, who has great discretion in the purposes for which lands are managed, and has used this discretion to withdraw lands from intensive uses, such as oil and gas development and utility right of ways. Colorado's state lands are managed by a State Board of Land Commissioners, which can designate lands under "stewardship trust" to be managed for conservation programs, as well as other economic uses.[88] In fact, the largest parcels of State Land Board land in Colorado's Upper Rio Grande Valley are designated as Stewardship Trust parcels, including those surrounding the headwaters of La Jara Creek.

Colorado Parks and Wildlife manages 350 state wildlife areas and multiple State Park units, including several in the San Luis Valley of southern Colorado.[89] One of the newest of these is the San Luis Hills State Wildlife Area, including over 17,000 acres of open space along 4.5 miles of the Rio Grande in Costilla County. This new designation is important, as it helps connect the aquatic and riparian corridor between the Alamosa National Wildlife Refuge and New Mexico's Wild and Scenic Corridor. Importantly, this conservation success depended on public and private grand funds and cooperation with the U.S. Fish & Wildlife Service and Costilla County.[90]

State Forestry Agencies

States also play important roles in supporting conservation of private lands, with a particular focus on forested landscapes. Although not specifically focused on riparian areas, measures aimed at improving forest health emphasize watershed function, and thus could provide

[87] For a summary of the resources and existing partnerships, see https://wetlanddynamics.com/wp-content/uploads/2020/04/SLVWetlandWildlifeConservationAssessment_Final_Edition2.pdf
[88] https://slb.colorado.gov/stewardship-trust
[89] https://cpw.state.co.us/placestogo/parks/Pages/WildlifeAreaMap.aspx
[90] Western Rivers Conservancy purchased this property and negotiated the subsequent transactions. See https://www.westernrivers.org/projects/co/upper-rio-grande

protections for riparian habitat. Conditions on timber harvest permits and other activities requiring approval can include specific protections for riparian areas.

In the 2008 Farm Bill, Congress tasked state forestry agencies to assess the conditions of the trees and forests within their boundaries and to develop strategies to conserve and manage public and private working forests for multiple values and uses, protect forests from harm, and enhance public benefits from trees and forests. Both Colorado and New Mexico include watershed health and riparian restoration priorities in their Forest Action Plans, and both emphasize the importance of collaboration between agencies and nongovernmental organizations in implementing their priorities.[91] The U.S. Forest Service has entered into Shared Stewardship Agreements with both states to establish the Forest Action Plan as the primary tool to coordinate forest and watershed management across public and private lands.

In New Mexico, implementation of the Forest Action Plan and collaborative programs with federal agencies and nongovernmental partners is the responsibility of the Forestry Division within the Energy, Minerals and Natural Resources Department. This office provides a clearinghouse of information on how the state seeks to achieve ecological, socio-cultural, and economic objectives through a collaborative, landscape-scale approach. Since 2019, New Mexico has allocated funding to restore forests and watersheds (with a heavy emphasis on wildfire mitigation) under the Forest and Water Restoration Act, which supports but does not explicitly address riparian corridors.[92] New Mexico's Forest and Watershed Health Office in the Division of Forestry provide additional statewide and local input on watershed and forest restoration activities that are relevant to riparian areas based on the 2004 Forest and Watershed Health Plan[93].

New Mexico's Forestry Division regulates timber harvest activities on private, non-municipal, or non-federal lands, including streamside management areas in which timber harvest and other activities are restricted within 50 feet on either side of a stream[94]. Best Management Practices, which are voluntary guidelines, encourage riparian restoration and other harvesting practices to protect the stream management area.[95]

[91] Colorado Forest Action Plan: https://csfs.colostate.edu/forest-action-plan/ New Mexico Forest Action Plan: https://www.emnrd.nm.gov/sfd/forest-action-plan/

[92] https://www.emnrd.nm.gov/sfd/forest-and-watershed-restoration-act-fawra/

[93] https://allaboutwatersheds.org/library/general-library-holdings/new-mexicos-forest-and-watershed-health-plan/FWHPLAN033005.pdf

[94] See Timber Harvest Regulations: https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/19-20-4_NMAC_eff09142007.pdf; 19.20.4.9 FOREST HARVEST PRACTICES STANDARDS

[95] See https://www.emnrd.nm.gov/wp-content/uploads/sites/4/ForestPracticesGuidelines2008.pdf

The Colorado State Forest Service works with all forest landowners through partnerships and collaboration. It does not have regulatory authority, but is a service and outreach agency of Colorado State University, with field offices around the state.[96]

Opportunities to Conserve Riparian Corridors in Cooperation with State Lands Agencies

- Review current management practices for state trust land parcels placed in Colorado's Stewardship Trust (e.g., La Jara). Evaluate existing management practices and work with agency to foster riparian connectivity and potential restoration efforts.
- Assess State Forest Action Plans to identify prioritized areas for riparian restoration or conservation to support forest health; projects matching these priorities will maximize potential collaboration and funding opportunities.[97] For example, Colorado's State Forest Action Plan identified "riparian habitat restoration" as the 4th highest priority resource goal, with specific HUC 12 subwatersheds prioritized in western Conejos and Rio Grande Counties. And New Mexico's State Forest Action Plan identifies top watersheds in the Upper Rio Grande valley that are of highest climate risk to riparian corridors.
- Advocate for state programs and funding aimed at conserving wildlife corridors that currently emphasize big-game species and terrestrial habitat[98] to be broadened to include riparian and aquatic corridors.
- Share riparian connectivity ecological assessment data with the New Mexico State Land Office and the New Mexico's Forest and Watershed Health Office to identify potential forest and watershed restoration opportunities that align with their respective priorities.
- Work with New Mexico's Forestry Division District Offices and the Colorado State Forest Service Alamosa Office to elevate riparian restoration and conservation best management practices for private landowners.

Local Land Planning and Regulation

Local governments—municipalities and counties—have the power to plan and manage land use. This can be accomplished through comprehensive and special purpose plans, which are implemented through ordinances, zoning maps, and administrative policies and funding decisions. In New Mexico, the standard for riparian conservation policy is set by Santa Fe County's Sustainable Development Code, which includes a provision focused on "Special

[96] https://csfs.colostate.edu/

[97] For example, restoration projects eligible for funding under the New Mexico Forest and Watershed Restoration Act are prioritized if they are included in the Forest Action Plan. https://www.emnrd.nm.gov/sfd/forest-and-watershed-restoration-act-fawra/

[98] See Colorado's Executive Order on Wildlife Corridors at https://www.codot.gov/programs/environmental/wildlife/governor-signs-wildlife-exec-order and New Mexico's Wildlife Corridors legislation at NMSA 1978 § 17-9-1 et seq.

Protection of Riparian Areas," that provides a definition of riparian corridors, uses permitted and prohibited in riparian corridors, and development standards in riparian buffers.[99]

Counties and municipalities in Colorado have similar power to balance environmental protection with development, including adopting regulations to administer natural hazard areas associated with wetlands. This authority has given rise to communities adopting riparian buffers—defined areas along streams that are protected from development in order to preserve the natural benefits of riparian ecosystems and reduce hazards to people living nearby. These buffers can be accompanied by setbacks which establish a minimum distance that a development must maintain between its boundaries and the riparian area to protect the buffer zone, and are accompanied by requirements that developers restore wetland and riparian buffers to a functional condition if altered or disturbed.[100]

Local governments have the ability to acquire lands and manage them as open space or parklands, protecting natural resources such as riparian corridors. For example, in 2018, with funding provided by Great Outdoors Colorado (a statewide source of conservation funding generated from lottery ticket sales), the nonprofit Western Rivers Conservancy purchased two properties to expand a public park in Alamosa, Colorado. The new Alamosa Riparian Park includes cottonwood groves, habitat for the Southwestern willow flycatcher, and 203 acres of riverfront park along a mile of the Rio Grande.[101]

In addition to the work of counties and municipalities, which have the ability to regulate development on private lands, additional local land and resource planning occurs through other channels. For example, Soil and Water Conservation Districts are government subdivisions of the state that work with local landowners to adopt plans for natural resource management and land use. These plans are not regulatory in nature, but they establish priorities and guidelines for projects applying federal and state funds. As an example of a plan component related to riparian areas, the Santa Fe-Pojoaque Soil and Water Conservation Plan includes the goal: "Maintain, restore, improve, and protect riparian areas to prevent soil erosion and flooding with the goal of maximizing their productivity, biological diversity, and sustainability."[102]

In addition to planning, conservation districts: provide training and information on a variety of conservation subjects, including riparian area conservation and streambank protection; lead project implementation; and provide access to federal and state funds for conservation activities.[103] Conservation districts work most closely with the Natural Resources Conservation

[99] See Santa Fe County Code of Ordinances Title XV, Chapter 153, 7.25, available at https://z2codes.franklinlegal.net/franklin/Z2Browser2.html?showset=santafecountyset

[100] See more details and examples from several counties in Colorado here: https://planningforhazards.com/stream-buffers-and-setbacks

[101] https://goco.org/programs-projects/funded-projects/alamosa-riparian-park

[102] Sec. 4.2-8 Riparian Habitat, https://nmccd.org/pdf/lup/Santa_Fe_Filed2016SFPLUP_4abovePDF10.pdf

[103] See resources and examples of specific conservation district activities at New Mexico Coalition of Conservation Districts (https://nmccd.org/), the New Mexico Association of Conservation Districts (http://www.mnacd.org/), (previous link incorrect)and Colorado Association of Conservation Districts (https://www.coloradoacd.org/)

Service, within the U.S. Department of Agriculture, implementing conservation programs authorized and funded through the Farm Bill.

Opportunities to Work with Local Planners for Riparian Corridor Conservation:

- Engage with Upper Rio Grande counties and municipalities to learn local priorities and raise awareness of the benefits of adopting development regulations aimed at protecting riparian areas and restoring impacted areas (see Santa Fe County's Sustainable Development Code)
- Collaborate with Soil and Water Conservation Districts to consider district-wide riparian conservation or restoration planning to prioritize project funding and foster voluntary activities to improve connectivity
- Share riparian connectivity ecological assessment data with New Mexico's Association of Counties (especially in the Upper Rio Grande valley) to identify potential riparian conservation or restoration opportunities that align with their priorities.
- Local parks and open space programs can protect and manage riparian corridors with conservation priorities and connectivity as priorities

Private Land Conservation Incentives

Riparian corridor conservation and restoration on private lands requires cooperation between landowners and federal, state, or local agencies. This discussion begins with incentives supported through government programs, and then moves to private incentives, most typically available from private land trusts. Incentives may take the form of cost-share agreements to support conservation activities on private lands, or they may come in the form of conservation easements—legal agreements under which a private landowner agrees to restrict future activities on the land to protect its conservation values, in exchange for a direct payment and/or tax benefits for a charitable donation, as well as the satisfaction of protecting the integrity of the land for future generations. Conservation values protected by an easement may include riparian vegetation, irrigation practices that recharge shallow groundwater and support riparian habitat, stream flows, wetlands, and other ecological features that support riparian corridors.[104]

Conservation Incentives from Federal Programs

The Natural Resources Conservation Service (NRCS) , a division of the U.S. Department of Agriculture originally established in response to the Dust Bowl, operates under the authority of the federal Farm Bill and in close cooperation with local conservation districts, states, Tribes, and landowners to "deliver conservation solutions so agricultural producers can protect natural resources and feed a growing world."[105] Although its mission does not explicitly include riparian

[104] See examples and issues that arise in protecting riparian values in conservation easements in Sarah Bates, Land Trusts and Water (Land Trust Alliance, 2014), https://coloradowatertrust.org/2014/02/land-trusts-and-water-2

[105] https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/about/?cid=nrcseprd1547221

conservation, the agency supports evaluation and management approaches to improve riparian conditions,[106] and its incentive programs support riparian conservation measures. The examples below suggest a range of opportunities for improving riparian conservation in the Upper Rio Grande Valley in cooperation with private landowners and agency partners:

- The **Environmental Quality Incentives Program** (EQIP) provides up to 75 percent cost-share, as well as incentive payments to landowners who employ conservation practices such as riparian buffers, grazing systems, filter strips, and wildlife habitat improvement.
    - Example: The Rio Grande Headwaters Restoration Project secured funding from multiple public and private sources for an ambitious restoration project, including matching funds from EQIP to stabilize approximately 8,300 feet of streambank on private lands along the Rio Grande in Rio Grande County, Colorado.[107]

- The **Conservation Stewardship Program** (CSP) provides 50 percent cost-share for establishing permanent cover and conservation practices and annual rental payments for land enrolled in 10- to 15-year contracts. Riparian areas eligible for CSP include streamside areas in pasture lands, filter strips, forest buffers, and floodplain wetlands.
    - Example: The upper two-thirds of Fox Creek Canyon in Oregon was severely degraded by open-range cattle grazing. With support from the CSP, affected landowners, working in collaboration with an adjoining ranch, BLM, and a number of other partnering agencies, developed and implemented a restoration plan for Fox Creek Canyon. The restoration project also set the stage for beaver reintroduction once there is sufficient habitat.[108]

- The **Regional Conservation Partnership Program** promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and RCPP conservation program contracts.
    - Example: In 2017 NRCS funded the Canadian River Riparian Restoration Project in New Mexico, removing invasive plant species while maintaining energy production, maintaining cultural traditions, and supporting operation sustainability.[109]to reduce brush, dense forests, treat soil erosion and addressing wildlife habitat. [110]

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[106] See NRCS, Riparian Systems (Jan. 2007), https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_010137.pdf; see also NRCS and the New Mexico Association of Conservation Districts, A Guide for Planning Riparian Treatments in New Mexico (2007), file:///C:/Users/batess/AppData/Local/Temp/e_SW_riparian.pdf

[107] https://riograndeheadwaters.org/streambank-stabilization

[108] NRCS Riparian Systems, op. cit., at 11

[109] file:///C:/Users/batess/AppData/Local/Temp/CCA_Prairie_Grasslands_Region-1.pdf

[110] file:///C:/Users/batess/AppData/Local/Temp/CCA_Prairie_Grasslands_Region-1.pdf

- Under the **Wetland Reserve Enhancement Partnership** (part of the Agricultural Conservation Easement Program), partners work with NRCS to help restore, protect, and enhance enrolled wetlands directly with private landowners and Tribes through the purchase of an NRCS Wetland Reserve Easement. Eligible lands, which include farmed or converted wetland habitat that can be successfully and cost-effectively restored, may be enrolled under permanent easements, 30-year easements, or 30-year contracts (for acreage owned by Tribes). For lands enrolled through wetland easements, NRCS will also develop and implement a Wetland Reserve Easement restoration plan that will restore, protect, and enhance the wetland's functions and values.[111]
    - Example: In 2016, NRCS awarded Ducks Unlimited and its partners funding to complete restoration and enhancement of wetland, riparian, and upland habitats on two existing easements in the Upper Columbia watershed in northeast Washington.[112]

Using a similar incentive-based approach, the U.S. Fish and Wildlife Service administers the **Partners for Fish and Wildlife Program**, which provides up to full funding and technical assistance to restore wildlife habitat under minimum 10-year cooperative agreements. Eligible lands include wetlands retained, created, or managed for wildlife, and restoration projects may include restoring wetland hydrology and wildlife habitat. The Colorado Partners for Fish and Wildlife Program is a statewide cooperative effort, involving state and federal agencies, nongovernmental groups, and approximately 1,400 landowners seeking to work together to apply these incentive funds most effectively throughout the state. The 2017-21 Colorado Partners for Fish and Wildlife Strategic Plan includes a San Luis Valley Ecosystem Focus Area that aims to restore or enhance 15 miles of riparian and stream habitat, along with other habitat restoration targets.[113]

The U.S. Fish and Wildlife Service also administers the **North American Wetlands Conservation Act (NAWCA)** grants program that supports public-private partnerships carrying out projects in the United States that involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats for the benefit of all wetlands-associated migratory birds. The competitive grants program requires that grant requests be matched by partner contributions at no less than a 1-to-1 ratio and may include small enhancement and restoration projects on private lands or land acquisition. Funds from U.S. Federal sources may contribute towards a project, but are not eligible as match.

Conservation Easements and State Conservation Incentives

[111] Current program priorities are available here: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/easements/acep/?cid=nrcseprd1800225
[112] https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/easements/acep/?cid=nrcseprd1182808
[113] USFWS, Partners for Fish and Wildlife Program Mountain-Prairie Region Strategic Plan 40-43, https://www.fws.gov/mountain-prairie/refuges/partnersPDFs/COPFW%20SP2017-2021.pdf

Voluntary conservation easements are a valuable tool for permanently restricting development rights or permissible activities on private lands in order to protect conservation values, which can include riparian habitat connectivity and water quality protection.[114] Conservation easements may be held by a private land trust or a public agency authorized to do so. Land trusts currently working with landowners in the San Luis Valley include the Colorado Cattleman's Land Trust, Rio Grande Headwaters Land Trust, Ducks Unlimited, Colorado Open Lands, The Nature Conservancy, Rocky Mountain Elk Foundation and others.[115] In New Mexico, land trusts operating in this landscape include New Mexico Land Conservancy, the Trust for Public Land, The Nature Conservancy, Taos Land Trust, Santa Fe Conservation Trust, and Rio Grande Agricultural Land Trust, the Land Trust Alliance/New Mexico.

Federal and state tax incentive programs encourage private landowners to enter into conservation easements. The New Mexico Forestry Division of the Energy, Minerals, and Natural Resources Department oversees charitable donations of land or conservation easements to public or private conservation agencies eligible for a state tax credit through the New Mexico Land Conservation Incentives Act. The maximum tax credit is 50% of the appraised value of the donation and a maximum of $250,000 per individual donor.[116] In 2021, Colorado passed a bill to expand the state's existing conservation easement program. Significantly, the Colorado program provides greater tax incentives for the donation of a conservation easement. Under the new formula, conservation easements donated after January 1, 2021 receive a credit for 90% of the value of the donated land up to a maximum of $5 million in a tax credit.[117]

In 2015, Congress passed the enhanced federal tax incentive for conservation easement donation, providing that an easement permanently limits uses of the donated parcel in order to protect its conservation values, as specified in the Internal Revenue Code (IRC) 170(h).[118] Landowners are eligible to deduct up to 50% of their adjusted gross income in the year of the gift and for a period of 15 additional years, or until they've deducted the full value of the conservation easement. Qualifying farmers and ranchers may deduct up to 100% of their adjusted gross income during this period.[119] Estate tax incentives also exist, but under the 2017 Tax Cut and Jobs Act, most landowners are exempt from the estate tax.

The States of Colorado and New Mexico also offer multiple conservation programs that may be utilized by private landowners to conserve or restore riparian areas. The Colorado Wildlife Habitat Program offers funding opportunities for landowners who wish to voluntarily protect

[114] https://conservationtools.org/guides/150-what-is-a-land-trust
[115] https://wetlanddynamics.com/wp-content/uploads/2020/04/SLVWetlandWildlifeConservationAssessment_Final_Edition2.pdf
[116] Rule 30.13.20 NMAC contains requirements for eligibility and the certification of the tax credit.
[117] See https://conservation.colorado.gov/tax-credit-certificates and https://leg.colorado.gov/bills/hb21-1233
[118] 26 U.S.C § 170
[119] See the following for a description of the enhanced tax incentive for conservation: https://www.landtrustalliance.org/topics/taxes/income-tax-incentives-land-conservation; and, https://sonomalandtrust.org

important wildlife habitat, provide wildlife-related recreational access to the public, and, if appropriate, sell their property to Colorado Parks and Wildlife[120]. Private landowner conservation incentive programs may exist within the New Mexico Department of Game and Fish, but these were not clearly available in a review of NMDGF programming.

Opportunities for Private Landowners to Support Riparian Corridor Conservation:

- Engage with Upper Rio Grande private landowners and landowner associations (e.g., New Mexico Land Grant Council) to identify priority riparian restoration needs and opportunities.
- Share riparian connectivity ecological assessment data with private landowners in the Upper Rio Grande valley (through partners such as the Colorado Cattlemen's Agricultural Land Trust, the Rio Grande Agricultural Land Trust, or Soil and Water Conservation Districts) to identify potential riparian conservation or restoration opportunities that align with private landowner priorities.
- Support landowners in accessing federal or state assistance for riparian restoration projects (e.g., NRCS programs, Colorado Wildlife Habitat Program, etc.).
- In Colorado, where private landowners manage 5,900 acres of *private* lands in the Rio Grande Natural Area, foster support for riparian conservation priorities that align with the Rio Grande Natural Area Management Plan.

D. Federal, State, and Local Water Management Laws and Policies

As described earlier in this analysis, riparian corridors owe their very existence to the presence of water. Thus, while many opportunities to conserve riparian habitat focus on land management actions, it is equally important to ensure that the presence of water in stream channels and groundwater storage remains available to support riparian corridor vegetation and the many ecological values of the corridor that depend on water. Importantly, the levels of stream flow are not the only factor in a successful conservation effort; seasonal variations are also important. For example, riparian cottonwood forests need spring floods to successfully regenerate, and other species benefit from nutrients and sediment deposited during spring runoff.

This subsection highlights laws and policies most directly related to *water management*, addressing provisions that provide the authority and responsibilities to federal, state, and local entities. Tribal, Pueblo, land grant and acequia water rights and management authority are not included here, since they were addressed separately above.

Laws and policies governing water use exist within a system of federalism, in which the federal government exercises constitutional powers by enacting laws to protect water quality through national standards and enforcement; regulate and actively participate in the management of interstate rivers; and protect Indian treaty rights to water. For their part, states issue and enforce water right use permits, and thus play a more visible role to many water users as the

[120] Colorado Wildlife Habitat Program: https://cpw.state.co.us/cwhp

"primary" authority over water—but, in reality, water law "is an amalgam of state, tribal, and federal laws and regulations . . ." and "water management in the American West today involves multiple government agencies, private entities, and nongovernmental organizations operating in a federal system of shared sovereignty and responsibility."[121]

International and Interstate Water Agreements

Treaties and compacts—formal agreements negotiated between governments and ratified by Congress—have the force of federal law and provide broad, overarching requirements that influence water distribution and use throughout a river basin. This section summarizes several such agreements that affect water management in the Upper Rio Grande Valley and highlights an emerging opportunity to pursue riparian corridor conservation through integrated water management.

The Rio Grande Compact and the San Juan-Chama Project

The 1939 Rio Grande Compact[122], between Colorado, New Mexico, and Texas outlines Colorado's obligations to deliver water downstream to New Mexico, and New Mexico's obligations to deliver water to Texas. These delivery obligations attempt to share the river's fluctuating flows equitably, and thus include provisions for adjusting the deliveries based on actual flows. The Rio Grande Commission (consisting of one representative of each state, supported by a representative of the federal government) meets annually to adopt rules and regulations to implement the terms of this agreement.

The Compact was adopted at a time when the health of the river was not a concern; the purpose then and now was agricultural and municipal deliveries for downstream entities. Colorado essentially restricts private transactions that might provide additional flows over the state line by subtracting any such flows from its compact obligations.[123] The amount and timing of delivery of flows from Colorado to New Mexico to meet the Compact requirements play a critical role in the condition and restoration of riparian areas in the Upper Rio Grande valley.

In addition to its international status, the Rio Grande flows through three U.S. states (Colorado, New Mexico, and Texas), with interstate agreements governing water allocations and management practices. In addition, an agreement among the states that share water in the Upper Basin of the Colorado River, called the San Juan-Chama Project, includes a provision for water to be transported out of the San Juan Basin (in the Colorado River Basin) into the upper reaches of the Rio Grande, providing important environmental flows as well as economic

[121] See U.S. Army Corps of Engineers & Consensus Building Inst., Water in the U.S. American West (2012), https://naturalresourcespolicy.org/docs/water-in-the-west.pdf
[122] https://www.usbr.gov/uc/albuq/water/RioGrande/pdf/Rio_Grande_Compact.pdf
[123] https://www.denverpost.com/2018/07/06/the-rio-grande-is-dying-and-only-a-new-compact-will-save-her/

benefits in the Upper Rio Grande. The San Juan-Chama Project imports an average of 94,200 acre-feet of water into the Rio Grande Basin annually. The San Juan-Chama project is now a source of municipal water for cities in New Mexico, which ensures some flows in the Rio Grande for water deliveries. Under the agreement, the Jicarilla Apache Tribe procured water that can be leased and the Tribe has leased water for environmental flows using this water.

Delivery of water for both Compact requirements and municipal use is driven by these purposes, with environmental values disregarded or given minimal consideration. The exception to this generalization is the role of the Endangered Species Act, which has led to management for species protection on the San Juan river and the Rio Grande.

U.S.-Mexico Rio Grande Treaties

Several international agreements govern the allocation of water between the U.S. and Mexico, including the United States' delivery obligations on the Rio Grande. The 1906 Convention between the United States and Mexico[124] requires the U.S. to annually deliver to Mexico 60,000 acre-feet[125] of the waters of the Rio Grande in accordance with a monthly schedule at Mexico's Acequia Madre just above Juárez, Chihuahua. To facilitate deliveries, the United States constructed the Elephant Butte Dam (completed in 1916), which today is operated in part to ensure annual deliveries to Mexico. The 1906 Convention included a provision for sharing shortages: In case of extraordinary drought or serious accident to the irrigation system in the United States, the amount of water delivered to the Mexican Canal shall be diminished in the same proportion as the water delivered to lands under the irrigation system in the United States downstream of Elephant Butte Dam.

Another treaty signed in 1944[126] included several rivers flowing from the U.S. to Mexico delineated water deliveries below Ft. Quitman to the Gulf of Mexico, authorized the two countries to build and operate dams on the main channel of the Rio Grande, and recognized the International Boundary and Water Commission (IBWC) to carry out implementation of all international agreements governing the Rio Grande and Colorado River.

Today, the U.S. Section of the IBWC is a federal agency headquartered in El Paso, Texas, with foreign policy guidance from the U.S. Department of State. The Mexican Section is under the administrative supervision of the Mexican Ministry of Foreign Affairs and is headquartered in Ciudad Juarez, Chihuahua, Mexico.

Delivery Obligations as a Catalyst for Riparian Conservation in the Upper Rio Grande

The delivery obligations mandated by international and interstate agreements require storage of water at Elephant Butte Reservoir on the Rio Grande. Maintaining this pool is becoming

[124] https://www.ibwc.gov/Files/1906Conv.pdf

[125] An acre-foot is a standard measurement for large volumes of water, and is equal to a sheet of water one acre in area and one foot in depth, or approximately 43,560 gallons of water.

[126] https://www.ibwc.gov/Files/1944Treaty.pdf

more difficult for a variety of reasons, including upstream diversions and substantial evaporative losses (approximately 250,000 acre-feet are lost from the surface of Elephant Butte Reservoir each year). A warming climate will intensify consumptive demands for water and accelerate these evaporative losses. There is an emerging opportunity to manage water in the entire Rio Grande Basin in a more integrated fashion—for example, looking upstream to enhance natural storage in riparian corridors and wetlands—to reduce dependency on the reservoir and create a more resilient landscape.[127]

Federal Water Management

The most prominent federal water managers in the western U.S. are the U.S. Bureau of Reclamation (in the Department of the Interior), and the U.S. Army Corps of Engineers. Other agencies play important regulatory roles, as is addressed in Section IV.C below, but the focus here is on operation of federal dams and related infrastructure.

U.S. Bureau of Reclamation

The Bureau of Reclamation emerged in the early 20th century as the agency tasked with building and operating reclamation projects aimed at expanding irrigation in the arid West. Today the Bureau operates about 180 projects in the 17 western states, providing agricultural, household, and industrial water to about one-third of the population of the region. The modern statement of the agency's mission is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public".

Four Reclamation projects operate in or in connection with the Upper Rio Grande Valley:

- Nambe Falls Dam on the Rio Grande in New Mexico, which provides supplemental irrigation water to the Pojoaque Valley Irrigation District and the Pueblos of San Ildefonso, Nambe, and Pojoaque
- El Vado Dam and Heron Dam, on the Rio Chama in New Mexico, which store water transferred in from the Colorado River Basin as part of the San Juan-Chama Project, hold water to balance storage at Elephant Butte Reservoir, and provide irrigation water for Pueblo lands in the middle Rio Grande
- The Closed Basin Project, in southern Colorado, does not have a surface outlet to the Rio Grande but salvages groundwater and conveys water through a 42-mile channel to deliver water to the Rio Grande to assist Colorado in meeting its delivery requirements under interstate compacts; the project also provides water to wildlife refuges in the San Luis Valley[128]
- In 1962, Congress authorized construction of the San Juan-Chama Project, a trans-basin diversion system that imports water from tributaries of the San Juan River in Colorado (on the other side of the Continental Divide) and provides a portion of New Mexico's

[127]See, for example, WildEarth Guardians, Rethinking the Rio (2017) available at: https://www.rethinkingtherio.org/conclusion

[128] https://rgwcd.org/closed-basin-project

allotment under the Upper Colorado River Basin Compact. Water is delivered through the Azotea Tunnel that runs under the continental divide to Willow Creek then to the Rio Grande via Heron Reservoir and the Rio Chama. San Juan-Chama Project water is used to supplement the native flow of the Rio Grande for the principal purposes of furnishing water for agricultural, domestic, and municipal and industrial (M&I) uses and for providing recreation and fish and wildlife benefits. Water users such as the Albuquerque Bernalillo County Water Utility Authority, Middle Rio Grande Conservancy District, and other municipalities and irrigation districts contract with the Bureau of Reclamation for San Juan-Chama Project water.

Typically, reservoir storage for native water (water originating within the basin) in the Upper Rio Grande is limited to the amount needed a year or less of water use. In seeking to manage facilities for greater resilience in the face of climate change, the Bureau faces some institutional challenges:

- Operating rules for reservoirs are specified by Congress in the original project authorization; only Congress can modify these operating rules.
- Colorado and New Mexico manage water rights differently: Colorado relies upon strict adherence to priority calls; New Mexico typically relies upon shortage sharing agreements
- Accounting for groundwater pumping impacts on surface water supplies is variable across the states and include inconsistent data collection and sharing across the states

In an attempt to address these challenges, in 2009 Congress passed the SECURE Water Act, authorizing the Bureau to take several actions to "ensure that strategies are developed at watershed and aquifer system scales to address potential water shortages, conflicts and other impacts to water users located at, and the environment of, each service area."[129] The SECURE Water Act expires in 2023, but it has provided ample opportunity for the Bureau to study the Upper Rio Grande Basin, and many other western water basins, to define adaptive strategies to climate change and drought. Some of the identified strategies affecting the project area include:

- Increasing reservoir operational flexibility between El Vado and Abiquiu reservoir that encompasses the 34 mile stretch of Wild and Scenic River designation on the Rio Chama
- Working with a wide range of stakeholders on the Rio Grande to explore other flexibilities include altering flow schedules and water storage timing under the Rio Grande Compact
- Designing drought contingency planning for the Middle Rio Grande Conservancy District that takes into consideration operational flexibility
- On the Pecos River, the Bureau is working with the US Army Corps of Engineers to evaluate changes to the timing and volume of irrigation storage to more efficiently use water from monsoon storms and changes to runoff volume and timing.[130]

[129] 42 USC 10363 § 9503. Reclamation and Climate Change Water Program.

[130] See US Bureau of Reclamation SECURE Water Act Rio Grande Basin Report (2021) at 23-25.

Over the past several decades—and motivated by a combination of environmental mandates and evolving management values—the Bureau of Reclamation increasingly operates its facilities with ecosystem benefits in mind. For example, the Bureau ramped up water releases from El Vado Dam for five days in November, 2021, creating a "pulse flow" on the Rio Chama to move sediment and improve fish habitat.[131]

The Bureau of Reclamation works cooperatively with states, Tribes, and local entities (including nongovernmental groups) to plan for and implement actions to increase water supply through investments to modernize existing infrastructure and avoid potential water conflicts. The WaterSMART program annually grants millions of dollars to projects aimed at improving drought resilience, watershed management, and water efficiency.[132] The Bureau is the key player in efforts to protect the endangered Rio Grande Silvery minnow. These efforts have now gone on for decades, resulting in a collaborative process that involves various governmental agencies and NGOs – the Middle Rio Grande Endangered Species Act Collaborative Program (MRGESACP). [133]

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers also constructed numerous dams in the West and throughout the nation, with efforts aimed at improving commercial navigation on interstate rivers and protecting lives and property from floods. Corps-operated dams also provide economically important hydroelectric power, recreation, irrigation, and water supply for domestic and industrial uses. Corps projects in the Upper Rio Grande Valley include:

- Abiquiu Dam on the Rio Chama was authorized primarily for flood control, but also serves as a storage facility for irrigation and municipal water storage (including water imported from the San Juan River basin through the San Juan-Chama Project) and hydroelectric generation
- Cochiti Dam on the Rio Grande, was authorized primarily for flood control, with secondary purposes of creating recreational and wildlife habitat resources; the permanent pool was established by and is maintained by San Juan-Chama Project water, and the remaining reservoir capacity is reserved for flood and sediment control

Recognizing and addressing environmental impacts of dams is increasingly part of the Corps' management strategy, in part due to actions required by the species recovery mandates of the federal Endangered Species Act (described in more detail in section IV.3 below). In other river systems around the country, the agency has been working for 20 years with The Nature Conservancy through their 'Sustainable Rivers Program' to create operating plans that achieve environmental flows—scientific prescriptions for the timing, quantity and quality of water flow necessary above and below dams to revise and sustain critical ecological functions and species

[131] https://www.usbr.gov/newsroom/#/news-release/4046
[132] https://www.usbr.gov/watersmart/
[133] https://webapps.usgs.gov/MRGESCP/

habitat.[134] While the program has addressed 66 federal dams on 16 rivers in 15 states (as of 2020), none of the Sustainable Rivers Program work has included the Rio Grande.

The Corps' Rio Grande Environmental Management Program was authorized by Section 5056 of the Water Resources Development Act of 2007, as amended by Section 4006 of the Water Resources Reform Development Act of 2014. This program includes planning, construction, and evaluation of measures for fish and wildlife habitat rehabilitation and enhancement; and implementation of a long-term monitoring, computerized data inventory and analysis, applied research, and adaptive management program in consultation with the States of Colorado, New Mexico, Texas, and other appropriate entities. The Corps is also a participant in the MRGESACP.

Within the Corps, research attention has focused on the opportunity to conserve riparian buffers to improve conditions at federal projects, including protecting water quality, reducing erosion, expand recreational opportunities, and enhance wildlife habitat. In particular, the Corps has prioritized riparian rehabilitation efforts in the Southwest to help recover bird species listed as endangered under the Endangered Species Act.[135]

Opportunities to Conserve Riparian Corridors with Federal Water Agencies:

- Explore the Bureau of Reclamation's WaterSMART program as a source of riparian restoration funding. This program includes up to 75 percent cost-share funding for restoration projects that benefit plant and animal species, fish and wildlife habitat, riparian areas, and ecosystems directly influenced by water resources management.[136]
- Engage with Bureau of Reclamation's current Basin Study for the URG as an opportunity to have input on river management; e.g., through the Basin Study NGO environmental focus group.
- Work with the Army Corps and The Nature Conservancy to expand their Sustainable Rivers Program to include the federal facilities in the Upper Rio Grande. This program could complement other strategies to restore riparian corridors through proven methods for re-operating dams and modernizing infrastructure to increase their benefits, with particular focus on floodplains.
- Support the Army Corps' ecosystem research arm in their planning of at least one reservoir riparian rehabilitation in the Southwestern U.S. to demonstrate capabilities for improving water quality and creating/enhancing sensitive species habitat, and to inform other projects where water quality and/or endangered species habitats are a priority[137]

[134] https://www.nature.org/en-us/what-we-do/our-priorities/protect-water-and-land/land-and-water-stories/sustainable-rivers-project/ https://www.nature.org/en-us/what-we-do/our-priorities/protect-water-and-land/land-and-wlater-stories/sustainable-rivers-project/

[135] Medina, V.F., R. Fischer, and C. Ruiz. 2016. Riparian buffers for runoff control and sensitive species habitat at U.S. Army Corps of Engineers dams and waterways. ERDC WQTN-16-1, https://erdc-library.erdc.dren.mil/jspui/bitstream/11681/20365/1/ERDC%20WQTN-16-1%20revised.pdf

[136] https://www.usbr.gov/newsroom/#/news-release/3938

[137] Program Director: Dr. Pat Deliman, Patrick.N.Deliman@usace.army.mil

State Water Management

Legal rights to exert control over water and put it to use for irrigation, household needs, and other purposes are governed almost exclusively by state law and regulations. Like most western states, Colorado and New Mexico recognize water rights based on the doctrine of prior appropriation, often referred to as "first in time, first in right." This influences the well-being of riparian corridors because many streams are fully or over-allocated—that is, the legal rights to divert water, if fully exercised, would substantially deplete stream flows and deprive adjacent riparian vegetation of the water it needs to survive.

Depleted stream flows are a concern in the Upper Rio Grande, and existing allocation problems will only be exacerbated by projected impacts from climate change.[138] Total stream dewatering is not common, however, in part because of the legal mandates described above concerning water delivery obligations downstream (from interstate or international agreements) or habitat protection measures in place to help recover species listed under the federal Endangered Species Act.

Perhaps the most important opportunity to restore stream flows to support riparian corridors arises from state law and policy that recognize and provide legal protection for non-diversionary water uses. Like other appropriative water rights, in-stream flow rights (also called "environmental flows") are defined by conditions for where, when, and how much water is protected for designated "beneficial" uses. Colorado's rules for in-stream flows, for example, make it possible to protect water necessary for declining, sensitive, or threatened and endangered species, protection of macroinvertebrate populations and rare riparian vegetation, and restoration of the natural environment.[139]

The two states that share the Upper Rio Grande differ substantially in this regard. Colorado water law has recognized in-stream flows as a beneficial use of water since the 1970s[140], allowing conversion of valuable senior water rights to in-stream flow rights, which must be held by a designated state agency. Moreover, the state of Colorado and nonprofit partners provide financial support to help acquire and support in-stream flow rights and other water management innovations to support riparian corridors.

In New Mexico, instream flows can be protected through the Office of the State Engineer (OSE), based on an Attorney General's opinion that recognized environmental flows as a beneficial water use protected through the state's water rights system[141] The OSE has a letter document with instructions for obtaining an instream flow permit but no regulations. In 2019, the State Engineer approved Audubon New Mexico's application for a permit that allows for a 5-year

[138] For details on projected impacts in the Southwest, see https://nca2014.globalchange.gov/highlights/regions/southwest

[139] https://cwcb.colorado.gov/focus-areas/ecosystem-health/instream-flow-program

[140] COLO. REV. STAT. § 37-92-102(3)(2020); COLO. REV. STAT. § 37-92-103(4)(c)(2020); COLO. REV. STAT. § 37-92-103

[141] DENISE D. FORT, INSTREAM FLOWS IN NEW MEXICO, 7 S.E.L. & ASSOCIATES 155 (2000).

lease of an agricultural water right that will benefit the Rio Gallinas, a tributary of the Chama River in northern New Mexico. This permit represents a historic step forward for New Mexican rivers and suggests new opportunities for private water right holders to lease or sell their water for environmental purposes.[142]

Due to the mandates of the Endangered Species Act state, Pueblo and local water authorities now cooperate on the Middle Rio Grande to protect flows. These efforts resulted after years of conflict between water rights users and continue to be challenged by the severe drought that now affects the region. The ESA has also brought about some protection for flows on other rivers within the state.

New Mexico has a limited program to provide water for streams called the Strategic Water Reserve. It allows the state to purchase or lease water rights for the purpose of meeting Compact Obligations and preventing the listing of endangered species. Thus, the purposes of the law may be broadly applicable. However, the program is not currently playing much of a role in protecting riparian corridors.

Water transfers, usually pursued by municipal governments, may adversely affect flows by moving points of diversion upstream or piping water to other locations. Under NM law, affected entities, which might include Pueblos, acequias, or environmental interests, can protest transfers as contrary to the public interest, as well as other grounds. There is no group in New Mexico watchdogging transfers for their effect on riparian corridors.

Federal reserved water rights—created outside of, but administered within state water rights systems—are not addressed in detail here but could reinforce riparian corridor conservation in the Upper Rio Grande Valley. Congressional and executive reservations of federal lands (such as for national forests, parks, and wildlife refuges) include the right to sufficient water to accomplish the primary purposes of each reservation. These rights cannot be lost by nonuse, and have priority dates not later than the date the reservation was established. In 1952 the U.S. Congress consented to judicial adjudication of federal reserved water rights in state courts, as long as the adjudication includes all water rights in a basin. A negotiated settlement in 2000 recognized in-stream flow rights for the Forest Service on every major stream in the Rio Grande River Basin.[143]

Water planning is a more recent addition to western water management. Generally, water decisions are made by those who control water rights. But Colorado has a robust water planning program that successfully involved a wide spectrum of the public.[144] New Mexico will

[142] https://www.audubon.org/news/audubon-secures-important-water-right-supports-birds-and-people#:~:text=As%20of%20today,northern%20New%20Mexico
[143] https://www.justice.gov/enrd/federal-reserved-water-rights-and-state-law-claims
[144] https://cwcb.colorado.gov/colorado-water-plan

soon be involved in a revision of its current 5 yr. State Water Plan, with participation from the public and NGOs. The New Mexico Interstate Stream Commission (NMISC) is also leading a collaborative effort to develop the 50-Year Water Plan. The ecological condition of rivers is an add-on to the 50-year plan and it is anticipated that this plan will result in protections for rivers and associated riparian corridors. [145]

Opportunities to Support Riparian Corridors with State-level Water Policy

- Support and encourage efforts of the Colorado Water Conservation Board to appropriate and acquire through transfer water rights that are critical for in-stream flows "to preserve the natural environment to a reasonable degree." In 2020 the program expanded to allow temporary water loans (allowing enhanced flows during drought) and augmentation plans to allow creative use of "seed flows" to restore dewatered stream stretches.[146]
- Advocate for funding New Mexico's Strategic Water Reserve with nonrecurring or capital funds. Adequate support for staffing the Reserve program in the Interstate Stream Commission and funds to purchase water rights would be a meaningful way of providing water to maintain the ecological functioning of the state's rivers.
- Advocate for legislation to broaden the purposes of New Mexico's Strategic Water Reserve to include purposes outside of the acquisition of water for Compact compliance and protecting threatened and endangered species, to include waters that may benefit riparian ecosystems
- The River Stewardship Grant program of the New Mexico Environment Department could be a useful proponent of restoring riparian corridors. Support substantial state funding for the program; link the program to the Strategic Water Reserve.
- Explore the potential for a Water Trust in New Mexico, that can serve as an agent for the state to create more efficiencies and opportunities for water transfers that improve in-stream flow
- Track water transfers in the Upper Rio Grande valley that may negatively affect riparian corridors, and support protests of transfers that are contrary to the public interest. Engage attorneys and landowners to foster better understanding of the potential for privately held instream flow rights in New Mexico.

Local Water Management

The state-based water rights systems that exist in Colorado and New Mexico leave considerable discretion to individual water users and their associations—mutual ditch companies, water districts, as well as both public and private water utilities. In the Upper Rio Grande Valley, in addition to the land-grant boards and acequias described earlier, a wide variety of local entities play important roles in managing water and making decisions that affect riparian corridors.

[145] https://www.ose.state.nm.us/Planning/50YWP/index.php

[146] See detailed information about Colorado's program here: https://cwcb.colorado.gov/focus-areas/ecosystem-health/instream-flow-program

For example, New Mexico authorizes formation of watershed districts (subdistricts of Soil and Water Conservation Districts, described above), whose purpose is to secure federal assistance and "developing and executing plans and programs relating to any phase of conservation of water, or of water usage, including water-based recreation, flood prevention, flood control, erosion prevention and control of erosion, and floodwater and sediment damages."[147]
In 1967, the Colorado General Assembly created the Rio Grande Water Conservation District, which was then formed by a vote of the residents within the five counties it encompasses. The District is a corporate body and a political subdivision, and is authorized to levy an ad valorem tax on all real property located within the District, and collect fees assessments and surcharges. In addition, the District is also authorized to contract with Federal, State and local agencies, and individuals. Its mission is "to enhance and protect the water rights of the citizens in the San Luis Valley who reside within the boundaries of the District."[148] Among its projects are several directly aimed at improving riparian habitat, as well as support for improved irrigation practices.

Municipal water providers can also support riparian conservation, primarily through management practices on their watersheds. For example, the Santa Fe Municipal Watershed includes lands within the Santa Fe National Forest. A 20-year Municipal Watershed Management Plan provides a framework and recommendations for ongoing watershed management, environmental monitoring, educational outreach and long-term funding for a long-term project. Developed in cooperation with the City, the Forest Service, the Santa Fe Watershed Association, and The Nature Conservancy, the plan addresses: (1) vegetation management and fire use; (2) water management; (3) public awareness and outreach; and (4) financial management based on a "Payment for Ecosystem Services" model. The plan is pioneering in that it identifies City water customers as the beneficiaries of a healthy watershed, and proposes that costs associated with ongoing water source protection activities in the watershed be paid for by the public through the "Water Source Protection Fund."[149]

Opportunities to Work with Local Water Managers to Conserve Riparian Corridors:

- Share riparian connectivity ecological assessment data with New Mexico watershed districts to identify potential conservation or restoration opportunities that align with their priorities.
- Support efforts such as Colorado's Rio Grande Water Conservation District actions to restore and conserve riparian areas.
- Explore the potential for the Rio Grande Water Fund's 'Stream, Wetland and Aquatic Restoration Program' to provide information, best practices, and financial support for riparian restoration "to supplement the forest work and enhance overall watershed health"[150]

[147] NMSA §73-20-13; see also 1963 Op. Att'y Gen. No. 63-78 (discussing the purpose of watershed districts and the authorities they are granted under statute).
[148] https://rgwcd.org/
[149] For more examples of watershed investment partnerships, see the Healthy Headwaters Alliance: https://www.nwf.org/Northern-Rockies-and-Pacific-Region/Conservation/Western-Water/Healthy-Headwaters
[150] hhttp://riograndewaterfund.org/projects/swarp/

- Explore the potential for municipal watershed management plans in the Upper Rio Grande valley, learning from efforts such as those taken by the City of Santa Fe.

E. Environmental Protection Laws and Policies

In addition to laws and policies that govern land and water management, another legal framework provides measures to protect these resources, human health, and opportunities for future generations. This section focuses on three federal laws that are particularly relevant for riparian conservation, and then briefly addresses applicable state-run environmental programs in New Mexico and Colorado.

Starting in the late 1960s, Congress enacted new laws to address air and water pollution and other threats to the environment. These statutes provided direction for federal agencies to prepare regulations and programs to implement congressional intent, in close cooperation with states and Tribes. This discussion includes the Clean Water Act, Endangered Species Act, and National Environmental Policy Act.

Clean Water Act

Enacted in its current form in 1972, the Clean Water Act is the primary federal statute for protection of water quality and wetlands, carrying out Congress' intent to "restore and maintain the chemical, physical, and biological integrity of the nation's waters."[151] Among its many provisions, the two that relate most directly to riparian conservation are Section 402 (regulating discharge of pollutants into waterways) and Section 404 (regulating discharge of dredge or fill materials into waterways, with particular focus on wetlands). Each is described briefly below.

Under regulatory oversight by the U.S. Environmental Protection Agency (EPA), states and Tribes may assume primary authority to implement the National Pollutant Discharge Elimination Permit System (NPDES) as authorized in Section 402 of the Clean Water Act. New Mexico has not assumed this authority, so pollutant discharge permits in that state are issued by Region 6 of the Environmental Protection Agency (EPA).[152] By contrast, Colorado's Department of Public Health and Environment issues permits for discharges of pollutants into surface and groundwaters in that state.[153] Exemptions from the Clean Water Act's pollutant discharge permitting requirements include normal farming, silviculture, and ranching activities and activities related to the maintenance of dams and ditches[154]; for these activities, voluntary

[151] 33 U.S.C. §§1251 et seq.
[152] The State of New Mexico references this authority and links to permits issued by the EPA here: https://www.env.nm.gov/surface-water-quality/npdes-permits/
[153] Colorado's regulatory framework is described here: https://cdphe.colorado.gov/water-quality-permits
[154] NRC, Riparian Areas: Functions and Strategies for Management (2002) at 230, https://www.nap.edu/download/10327

best management practices are provided, with state-administered 319 programs (named for a section of the Clean Water Act) providing financial incentives for compliance. Riparian buffers are part of best management practices since riparian vegetation helps filter pollutants from runoff before it reaches a stream.[155]

The Colorado Department of Public Health and Environment Water Quality Control Commission issues water quality standards (including a set of standards specific to the Rio Grande Basin[156]), as well as periodic statewide water quality monitoring and assessment reports.[157] For its part, New Mexico's Environment Department issues water quality standards, including a designation for "Outstanding National Resource Waters" for special protection from degradation, including numerous designations on National Forest lands in the Upper Rio Grande Valley.[158] (All ONRW designations throughout New Mexico are on National Forest lands.[159])

Another section of the Clean Water Act regulates the discharge of dredged or fill materials (rock, sand, road construction debris, excavated materials) into waters of the U.S., including wetlands—some of which occur within riparian corridors. The U.S. Army Corps of Engineers is the regulatory agency charged with reviewing applications for permission for such discharges and deciding if a proposed activity meets criteria for approval. Statutory language prohibits the Corps from issuing a permit if a practicable alternative exists that is less damaging to the aquatic environment, or the nation's waters would be significantly degraded.[160] If unavoidable damage cannot be minimized, the Corps requires the permit holder, or a third party paid by the permit holder, to restore, create, enhance, or preserve nearby wetlands as compensation for the damage. This "compensatory mitigation" is intended to comply with the general goals of the Clean Water Act, and the more specific goal of no net loss in acreage or ecological function.

The scope of federal authority to enforce these Clean Water Act provisions has been contentious, and has shifted with changing regulatory definitions (and court interpretations) of the definition of "waters of the United States" within the jurisdiction of the Clean Water Act. In arid states like New Mexico and Colorado, this debate plays out most directly with respect to tributaries of the Upper Rio Grande that do not run year-round but still support valuable riparian corridors. As of June, 2021, the federal policy guidance includes these intermittent streams within the jurisdictional definition, and the EPA and the Corps are moving forward with rulemaking to formalize this and other details of jurisdiction.[161]

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[155] See, for example, https://www.epa.gov/sites/default/files/2019-02/documents/riparian-buffer-width-2005.pdf

[156] https://www.epa.gov/sites/default/files/2014-12/documents/cowqs-no36.pdf

[157] The 2016 report is available here: https://drive.google.com/file/d/1JQwGMPNn5jl8QTKqQu60TC-ZAsmh1IDf/view

[158] https://www.epa.gov/sites/default/files/2014-12/documents/nmwqs.pdf; the ONRW provisions are at Sec. 20.6.4.9. More information on existing ONRWs is available at https://www.env.nm.gov/surface-water-quality/onrws/

[159] Maps and information available here: https://www.env.nm.gov/wp-content/uploads/sites/25/2019/01/Map-List-ONRW-Wetlands-USFS-Wilderness-NM-Final-1.23.2019.pdf

[160] Sec. 404(b)(1)

[161] For current status of rulemaking, see https://www.epa.gov/wotus

Clean Water Act Opportunities for Riparian Corridor Conservation

- Clean Water Act Section 319 grants (combined with other state and federal cost-share grants such as NMED River Stewardship grants and Colorado Water Conservation Board grants) should be employed to provide substantial financial support for planning and implementing riparian restoration to reduce nonpoint source pollution runoff in water quality-impaired streams.
- The federal Five Star Urban Waters Restoration Grant, administered by the National Fish and Wildlife Foundation could be expanded to cities and urban areas throughout the project area.[162]
- Evaluate riparian connectivity ecological assessment data to identify high priority conservation areas that may warrant New Mexico's designation of Outstanding National Resource Waters along streams in National Forests.
- Clean Water Act Section 404 should be proactively employed to conserve, and mitigate loss of, wetlands. This could complement efforts to conserve the riparian corridors of which they are a part. Compensatory restoration to mitigate for wetland loss can be implemented to strengthen riparian corridor connections.

Endangered Species Act

Congress enacted the Endangered Species Act (ESA) in 1973 to protect and recover imperiled species and the ecosystems upon which they depend. It is administered by the U.S. Fish and Wildlife Service (USFWS) and the Commerce Department's National Marine Fisheries Service (NMFS). The USFWS has primary responsibility for terrestrial and freshwater organisms, and maintains records of all threatened and endangered species nationally and for the region.[163]

The provisions of the ESA most relevant to protecting and restoring riparian corridors in the Upper Rio Grande Valley are Section 7 (which requires formal consultation when federal agency action may jeopardize the continued existence of a listed species or impact its habitat), Section 9 (which prohibits anyone from "taking" a listed species), and Section 10 (which allows some activities that would otherwise be prohibited "take" so long as they are accompanied by conservation actions that will mitigate potential harm).

Once a species is listed as threatened or endangered, the Secretary of Interior is required to designate specially protected critical habitat, with the opportunity for exemptions of some

[162] https://www.nfwf.org/programs/five-star-and-urban-waters-restoration-grant-program/five-star-and-urban-waters-restoration-grant-program-2022-request-proposals

[163] Federally listed threatened and endangered species in Colorado are listed here: https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=CO&statusCategory=Listed&s8fid=112761032792&s8fid=112762573902; New Mexico's listed species are here: https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=NM&statusCategory=Listed&s8fid=112761032792&s8fid=112762573902

areas. However, if the Secretary determines the failure to designate certain areas as critical habitat will result in a species' extinction, then critical habitat designation is mandatory.[164]

Both Colorado and New Mexico also create state lists of threatened or endangered species. In New Mexico, once a species is listed as threatened by the State, the Department of Game and Fish must develop a recovery plan.[165] In Colorado, Colorado Parks and Wildlife develops a strategy including acquisition of land or aquatic habitat to support recovery.[166] As discussed above, New Mexico needs a comparable office within the ISC to coordinate this information with Game and Fish and the Strategic Water Reserve.

Opportunities to Conserve Riparian Corridors to Support Species Recovery

- Where federally-listed species' recovery plans include conservation of riparian habitat, leverage federal and/or state funding to support conservation or restoration activities.
    - Example: New Mexico's recovery plan for the Meadow Jumping Mouse includes protecting riparian areas from threats from over-grazing
- The use of conservation agreements aimed designed to prevent the listing of a species listing can result in opportunities for habitat restoration, including riparian corridor conservation.
    - Example: The Rio Grande cutthroat trout inhabits both the mainstem and many of its tributaries from Colorado into New Mexico. A conservation agreement and conservation strategy adopted by state, federal, and tribal entities in 2013 aimed at accelerating conservation measures to support recovery and thus avoid the need to list this species under the ESA.[167]
- ESA listing and compounding pressures from drought can catalyze multi-species collaborative partnerships to take action to improve water management and commit to habitat conservation, including riparian corridors along with other measures
    - Example: The Middle Rio Grande Endangered Species Collaborative Program unites federal, state, and local governmental entities, Indian Tribes and Pueblos, and non-governmental organizations committed to protecting and recovering federally listed species in the Middle Rio Grande Valley, while also preserving the area's existing and future water uses. Congress formalized the program in federal legislation in 2006.[168]

National Environmental Policy Act

The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970, and is administered by the President's Council on Environmental Quality (CEQ). NEPA requires that all

[164] 16 U.S.C. § 1533(b)(2)
[165] §17-2-40.1 NMSA 1978.
[166] §33-2-106 CRS 1985. §33-2-106 CRS 1985. https://cpw.state.co.us/learn/Pages/Recovery-Conservation-Plans.aspx

[167] https://westernnativetrout.org/wp-content/uploads/2019/07/2013-rgct-conservation-agreement.pdf
[168] https://www.congress.gov/bill/109th-congress/senate-bill/1540/all-actions-without-amendments

executive federal agencies analyze the potential environmental impacts prior to making decisions on permit applications, adopting federal land management actions, providing federal funds for projects, and constructing highways and other publicly-owned facilities. If a significant environmental impact is likely, agencies prepare detailed statements assessing the environmental impact of and alternatives to major federal actions significantly affecting the environment.

The information gathering and public engagement process mandated by NEPA offers a valuable opportunity to ensure that riparian corridor values and the potential threats to riparian corridor integrity are analyzed when major federal actions are contemplated. Moreover, the cumulative effects analysis requires consideration of similar past, present or future actions in the same geographic area—far broader than just the location where the project activities will occur.

Additionally, NEPA provides federal agencies the authority to work across boundary lines to enact landscape-scale management and restoration through programmatic Environmental Assessments, as the Forest Service has done in the Southwest with respect to riparian and aquatic ecosystem restoration, described in Section IV.C above.[169]

Some jurisdictions have established state or regional environmental review requirements to complement and expand upon the requirements of NEPA for projects receiving state permitting or funding.[170] Neither New Mexico nor Colorado has such a process.

Addressing Riparian Corridor Conservation in NEPA Review

- As federal NEPA processes arise in the Upper Rio Grande valley of New Mexico and Colorado, the mandate for public and interagency engagement provides an opportunity to expand scope of analysis and make sure riparian corridors are addressed
- In New Mexico, share riparian connectivity ecological assessment data with Environmental Protection Agency to assure that critical riparian conservation and restoration areas are considered in NEPA, with a focus on landscape scale analysis and planning

[169] Another example of landscape-scale restoration planning is the Pacific Northwest Aquatic Restoration Project Environmental Assessment: https://www.fs.usda.gov/nfs/11558/www/nepa/108207_FSPLT3_4448686.pdf

[170] See list of jurisdictions with environmental review processes recognized by the Council on Environmental Quality: https://ceq.doe.gov/laws-regulations/states.html

V. Summary of Legal and Policy Opportunities for Riparian Conservation and Restoration

National Conservation Initiatives

In addition to the statutory, regulatory, and incentive programs summarized here, several recent and pending national policy initiatives will offer expanded opportunities to conserve riparian corridors in the years to come:

- The **Bipartisan Infrastructure Law (as enacted in the Infrastructure Investment and Jobs Act or IIJA)** and associated State investments are resulting in a large influx of funding that could be utilized by Tribes, States or organizations to implement wetland and riparian restoration projects or water enhancement efforts
- **America the Beautiful** (also referred to as 30x30) initiative, which aims "to conserve, connect, and restore 30 percent of our lands and waters by 2030 for the sake of our economy, our health, and our well-being"
- **Great American Outdoors Act**, which mandates full and permanent funding of the Land and Water Conservation Fund
- **Recovering America's Wildlife Act**, currently under consideration by Congress, promises to provide states, territories, and tribes with $1.39 billion annually to catalyze proactive, on-the-ground, collaborative efforts to restore essential habitat and implement key conservation strategies, as described in each state's Wildlife Action Plan

Opportunities to Support Tribal and Pueblo Riparian Conservation

The following actions would strengthen Tribal and Pueblo sovereign authority over land and water within their boundaries, and expand emerging opportunities to co-manage federal lands and waters to support riparian corridor conservation:

- Advocate to include explicit language regarding co-management in legislative or administrative actions designating special conservation areas for riparian corridors on federal lands and waters and seek specific designations for riparian areas with special importance to Tribal and Pueblo people.
- Ensure that federal land and resource plans adequately address Tribal and Pueblo rights and interests (including riparian corridor values), and that the agencies engage with Tribal and Pueblo partners early in the process to inform all elements of the planning documents
- Advocate for additional federal and private funding to support Tribal- and Pueblo-led riparian conservation initiatives. Support Tribes' and Pueblo's access to Infrastructure Investment and Jobs Act, National Fish and Wildlife Foundation, Natural Resource Conservation Service, and U.S. Fish and Wildlife Partners for Wildlife funding.
- Share riparian connectivity ecological assessment data with Tribal and Pueblo natural resource staff to identify potential conservation or restoration opportunities that align with their priorities, and leverage to pursue funding.

Opportunities to Support Acequias' Conservation Actions

Acequias may be active partners in conserving riparian corridors by exercising their legal powers to:

- Protest applications for water transfers that might be detrimental to existing water rights, are contrary to conservation of water, and/or will be detrimental to the public welfare.
- Protect legal easements to gain access to acequia ditches on private and public property, providing adequate width to allow for reasonable maintenance, use, and improvements to the ditch and thus preventing development that might compromise the riparian corridor.
- Engage in restoration activities on lands throughout the watershed serving the acequia, in collaboration with public and private partners.
- Support land grant boards, acequias, and their associations to access funding to restore or conserve priority riparian habitat (e.g., National Fish and Wildlife Foundation 'America the Beautiful Challenge').
- Actively support the inclusion of acequias in Colorado water management conversations to highlight the importance of acequias in the Rio Grande valley.
- Explore and replicate successful efforts to leverage federal funding to support acequia stewardship that conserves riparian habitats (e.g., Colorado Open Lands work through USDA's Natural Resource Conservation Service programs).
- Participate in the annual Congreso de las Acequias to learn more about conservation opportunities with acequias in both Colorado and New Mexico.
- Share riparian connectivity ecological assessment data with acequia associations to identify potential conservation or restoration opportunities that align with their priorities, and leverage to pursue funding.

Riparian Conservation Opportunities on National Forests:

With forest plan revisions fully or nearly completed for all three national forests in the Upper Rio Grande Valley, bolstered by the Riparian and Aquatic Ecosystem Strategy (for national forests in New Mexico), there is a solid foundation for riparian corridor conservation actions aligned with and helping to implement these priorities. For example:

- Assure that riparian management zones, as identified in Forest Plans, are prioritized for restoration, and restrict future management activities to protect riparian values
- Use the Forest Service Watershed Condition Framework to indicate target areas for additional investments to protect and restore watershed and riparian conditions
- Evaluate eligible and suitable Wild, Scenic, and Recreational Rivers to prioritize advocacy for Congressional designation Advocate for the inclusion of critical riparian habitats in Forest Service Congressional or Administrative designations that protect landscapes and significant values (e.g., Wilderness Areas, Special Management Areas, etc.),
- On the Santa Fe and Carson National Forests, prioritize, garner community support for, and support implementation of riparian restoration projects prioritized in the Northern New Mexico Riparian, Aquatic, and Wetland Restoration Project, which can be pursued with expedited permitting and review

- Share riparian connectivity ecological assessment data with USFS staff to identify potential conservation or restoration opportunities that align with their priorities.
- Explore the 2-3-2 Cohesive Strategy Partnership's water resources goal to apply potential project funding to benefit riparian corridors through forest restoration activities
- Elevate and continue support for riparian restoration partnerships that have already prioritized, planned, and implemented projects in national forests and surrounding lands (e.g., the Rio Grande Headwaters Restoration Project); supporting and helping to expand their work would have substantial benefits for riparian corridor conservation
- In areas where public land grazing is leading to consistent conflicts with riparian conservation and ranchers are interested in reducing conflict, explore the opportunity for compensating ranchers for relinquishing grazing permits and work with federal staff to consider permanent retirement of critical allotments.

Opportunities for Riparian Corridor Restoration on BLM Lands:

- Incorporate riparian corridor and connectivity standards and requirements into pending BLM plan revisions, including the Rio Grande del Norte National Monument planning process
- Strengthen and support strong conservation partnerships already planning, prioritizing, and implementing restoration projects for maximum impact. These partnerships may provide particular opportunities to work with private landowners as BLM-managed riparian areas and wetlands are heavily intermixed with private lands and other public lands
- Nongovernmental partners can enter into cooperative agreements with the BLM to achieve mutual conservation goals such as riparian corridor inventory and restoration projects
- State and tribal governments may enter into cooperative agreements with the BLM to achieve conservation outcomes, including enhanced stream flows to support riparian corridors.
- Share riparian connectivity ecological assessment data with BLM staff to identify potential conservation or restoration opportunities that align with their priorities.
- State-level BLM leadership on riparian conservation strategies could replicate the Forest Service's Southwestern Riparian and Aquatic Ecosystem Strategy, as well as the landscape-scale riverscape restoration strategy developing in the Montana-Dakotas State Office
- In areas where public land grazing is leading to consistent conflicts with riparian conservation and ranchers are interested in reducing conflict, explore the opportunity for compensating ranchers for relinquishing grazing permits and work with federal staff to consider permanent retirement of critical allotments.

Opportunities to Conserve Riparian Corridors in Cooperation with State Lands Agencies

- Review current management practices for state trust land parcels placed in Colorado's Stewardship Trust (e.g., La Jara). Evaluate existing management practices and work with agency to foster riparian connectivity and potential restoration efforts.
- Assess State Forest Action Plans to identify prioritized areas for riparian restoration or conservation to support forest health; projects matching these priorities will maximize potential collaboration and funding opportunities. For example, Colorado's State Forest Action Plan identified "riparian habitat restoration" as the 4th highest priority resource goal, with specific HUC 12 subwatersheds prioritized in western Conejos and Rio Grande Counties. And New Mexico's State Forest Action Plan identifies top watersheds in the Upper Rio Grande valley that are of highest climate risk to riparian corridors.
- Advocate for state programs and funding aimed at conserving wildlife corridors that currently emphasize big-game species and terrestrial habitat to be broadened to include riparian and aquatic corridors.
- Share riparian connectivity ecological assessment data with New Mexico's Forest and Watershed Health Office to identify potential forest and watershed restoration opportunities that align with their priorities.
- Work with New Mexico's Forestry Division District Offices and the Colorado State Forest Service Alamosa Office to elevate riparian restoration and conservation best management practices for private landowners.

Opportunities to Work with Local Planners for Riparian Corridor Conservation:

- Engage with Upper Rio Grande counties and municipalities to learn local priorities and raise awareness of the benefits of adopting development regulations aimed at protecting riparian areas and restoring impacted areas (see Santa Fe County's Sustainable Development Code)
- Collaborate with Soil and Water Conservation Districts to consider district-wide riparian conservation or restoration planning to prioritize project funding and foster voluntary activities to improve connectivity
- Share riparian connectivity ecological assessment data with New Mexico's Association of Counties (especially in the Upper Rio Grande valley) to identify potential riparian conservation or restoration opportunities that align with their priorities.
- Local parks and open space programs can protect and manage riparian corridors with conservation priorities and connectivity as priorities

Opportunities for Private Landowners to Support Riparian Corridor Conservation:

- Engage with Upper Rio Grande private landowners and landowner associations (e.g., New Mexico Land Grant Council) to identify priority riparian restoration needs and opportunities.
- Share riparian connectivity ecological assessment data with private landowners in the Upper Rio Grande valley (through partners such as the Colorado Cattlemen's Agricultural Land Trust, the Rio Grande Agricultural Land Trust, or Soil and Water Conservation Districts) to identify potential riparian conservation or restoration opportunities that align with private landowner priorities.

- Support landowners in accessing federal or state assistance for riparian restoration projects (e.g., NRCS programs, Colorado Wildlife Habitat Program, etc.).
- In Colorado, where private landowners manage 5,900 acres of *private* lands in the Rio Grande Natural Area, foster support for riparian conservation priorities that align with the Rio Grande Natural Area Management Plan.

Opportunities to Conserve Riparian Corridors with Federal Water Agencies:

- Explore the Bureau of Reclamation's WaterSMART program as a source of riparian restoration funding. This program includes up to 75 percent cost-share funding for restoration projects that benefit plant and animal species, fish and wildlife habitat, riparian areas, and ecosystems directly influenced by water resources management.
- Engage with Bureau of Reclamation's current Basin Study for the URG as an opportunity to have input on river management; e.g., through the Basin Study NGO environmental focus group.
- Work with the Army Corps and The Nature Conservancy to expand their Sustainable Rivers Program to include the federal facilities in the Upper Rio Grande. This program could complement other strategies to restore riparian corridors through proven methods for re-operating dams and modernizing infrastructure to increase their benefits, with particular focus on floodplains.
- Support the Army Corps' ecosystem research arm in their planning of at least one reservoir riparian rehabilitation in the Southwestern U.S. to demonstrate capabilities for improving water quality and creating/enhancing sensitive species habitat, and to inform other projects where water quality and/or endangered species habitats are a priority

Opportunities to Support Riparian Corridors with State-level Water Policy

- Support and encourage efforts of the Colorado Water Conservation Board to appropriate and acquire through transfer water rights that are critical for in-stream flows "to preserve the natural environment to a reasonable degree." In 2020 the program expanded to allow temporary water loans (allowing enhanced flows during drought) and augmentation plans to allow creative use of "seed flows" to restore dewatered stream stretches.
- Advocate for funding New Mexico's Strategic Water Reserve with nonrecurring or capital funds. Adequate support for staffing the Reserve program in the Interstate Stream Commission and funds to purchase water rights would be a meaningful way of providing water to maintain the ecological functioning of the state's rivers.
- Advocate for legislation to broaden the purposes of New Mexico's Strategic Water Reserve to include purposes outside of the acquisition of water for Compact compliance and protecting threatened and endangered species, to include waters that may benefit riparian ecosystems.
- Track water transfers in the Upper Rio Grande valley that may negatively affect riparian corridors, and support protests of transfers that are contrary to the public interest. Engage attorneys and landowners to foster better understanding of the potential for privately held instream flow rights in New Mexico.

- The River Stewardship Grant program of the New Mexico Environment Department could be a useful proponent of restoring riparian corridors. Support substantial state funding for the program; link the program to the Strategic Water Reserve.
  Explore the potential for a Water Trust in New Mexico, that can serve as an agent for the state to create more efficiencies and opportunities for water transfers that improve in-stream flow.

Opportunities to Work with Local Water Managers to Conserve Riparian Corridors:

- Share riparian connectivity ecological assessment data with New Mexico watershed districts to identify potential conservation or restoration opportunities that align with their priorities.
- Support efforts such as Colorado's Rio Grande Water Conservation District actions to restore and conserve riparian areas.
- Explore the potential for the Rio Grande Water Fund's 'Stream, Wetland and Aquatic Restoration Program' to provide information, best practices, and financial support for riparian restoration "to supplement the forest work and enhance overall watershed health"
- Explore the potential for municipal watershed management plans in the Upper Rio Grande valley, learning from efforts such as those taken by the City of Santa Fe.

Clean Water Act Opportunities for Riparian Corridor Conservation

- Clean Water Act Section 319 grants (combined with other state and federal cost-share grants such as NMED River Stewardship grants and Colorado Water Conservation Board grants) should be employed to provide substantial financial support for planning and implementing riparian restoration to reduce nonpoint source pollution runoff in water quality-impaired streams.
- The federal Five Star Urban Waters Restoration Grant, administered by the National Fish and Wildlife Foundation could be expanded to cities and urban areas throughout the project area.
- Evaluate riparian connectivity ecological assessment data to identify high priority conservation areas that may warrant New Mexico's designation of Outstanding National Resource Waters along streams in National Forests.
- Clean Water Act Section 404 should be proactively employed to conserve, and mitigate loss of, wetlands. This could complement efforts to conserve the riparian corridors of which they are a part. Compensatory restoration to mitigate for wetland loss can be implemented to strengthen riparian corridor connections.

Opportunities to Conserve Riparian Corridors to Support Species Recovery

- Where federally-listed species' recovery plans include conservation of riparian habitat, leverage federal and/or state funding to support conservation or restoration activities.
  - Example: New Mexico's recovery plan for the Meadow Jumping Mouse includes protecting riparian areas from threats from over-grazing

- The use of conservation agreements aimed designed to prevent the listing of a species listing can result in opportunities for habitat restoration, including riparian corridor conservation.
    - Example: The Rio Grande cutthroat trout inhabits both the mainstem and many of its tributaries from Colorado into New Mexico. A conservation agreement and conservation strategy adopted by state, federal, and tribal entities in 2013 aimed at accelerating conservation measures to support recovery and thus avoid the need to list this species under the ESA.
- ESA listing and compounding pressures from drought can catalyze multi-species collaborative partnerships to take action to improve water management and commit to habitat conservation, including riparian corridors along with other measures
    - Example: The Middle Rio Grande Endangered Species Collaborative Program unites federal, state, and local governmental entities, Indian Tribes and Pueblos, and non-governmental organizations committed to protecting and recovering federally listed species in the Middle Rio Grande Valley, while also preserving the area's existing and future water uses. Congress formalized the program in federal legislation in 2006.

Addressing Riparian Corridor Conservation in NEPA Review

- As federal NEPA processes arise in the Upper Rio Grande valley of New Mexico and Colorado, the mandate for public and interagency engagement provides an opportunity to expand scope of analysis and make sure riparian corridors are addressed
- In New Mexico, share riparian connectivity ecological assessment data with Environmental Protection Agency to assure that critical riparian conservation and restoration areas are considered in NEPA, with a focus on landscape scale analysis and planning