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THE CAJA DEL RÍO: A REFLECTION ON GREAT JOURNEYS

GREEN FIRE TIMES

News & Views from the Sustainable Southwest



HISTORIA DE LAS CAJAS DEL RÍO SANTA FE Y EL RÍO GRANDE
BY HILARIO E. ROMERO

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CONTENTS

THE CAJA DEL RÍO: A REFLECTION ON GRAND JOURNEYS – ALAN WEBBER, JOSÉ VILLÉGAS SR., ANDREW BLACK, JOSEPH BROPHY TOLEDO / 4

CAJAS DEL RÍO SANTA FE Y EL RÍO GRANDE Y SU HISTORIA – HILARIO E. ROMERO / 5

THE CAJA DEL RÍO REPRESENTS HEALING FOR VETEREANS – JULIAN GONZÁLES / 6

THE WILDLIFE AND ECOLOGICAL IMPORTANCE OF THE CAJA DEL RÍO – ANDREW BLACK / 6

IS THE LEOPOLD LEGACY STILL AT HOME ON THE RANGE? – RICHARD RUBIN / 8

BOOK PROFILES: FIRST AND WILDEST: THE GILA WILDERNESS AT 100; LIVING THE LEOPOLDS' MI CASITA ECOLOGY / 9

CHASING THE ELUSIVE: A ZEN APPROACH TO SAVING THE PLANET – KATHERINE MORTIMER / 9

WATER DATA IN NEW MEXICO: HIGHLIGHTING GROUNDWATER DATA – STACY TIMMONS / 10

WATER NEWSBITES: 12-17

BOOK PROFILES: WATER AND AGRICULTURE IN COLORADO AND THE AMERICAN WEST: FIRST IN LINE FOR THE RÍO GRANDE; WATER FOR THE PEOPLE: THE ACEQUIA HERITAGE OF NM IN A GLOBAL CONTEXT / 14

AMERICAN INDIAN DAY AT THE NEW MEXICO LEGISLATURE / 15

NATIVE NEWSBITES / 16-19

2023 NEW MEXICO FOOD AND FARMS DAY AWARDS / 18

FROM THE PUEBLO OF TESUQUE TO BOLIVIA, PERU, MÉXICO – EMIGDIO BALLÓN, GAILEY MORGAN / 19

ENERGY NEWSBITES / 21-25

INCLUDING NEW MEXICO WOOD IS A WIN FOR NM BUILDERS, FORESTS AND COMMUNITIES – SETH ROFFMAN / 28

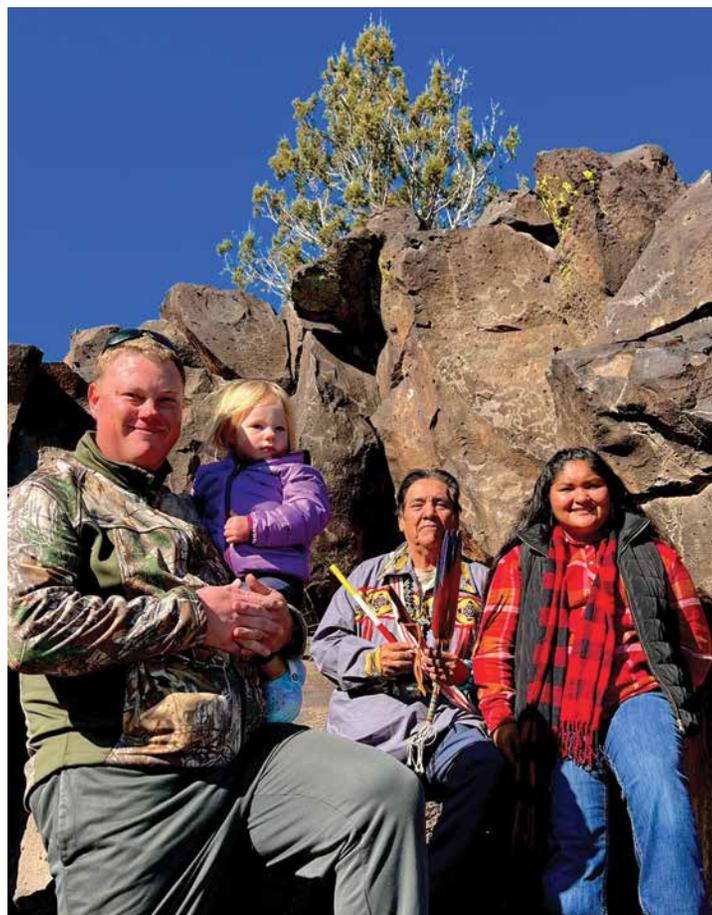
2023 SANTA FE AREA HOME BUILDERS AND REMODELERS SHOW / 28

2023 NEXT GENERATION WATER SUMMIT – MICHAEL COLIGNON / 28

ELECTRIC VEHICLE CHARGERS THROUGHOUT NEW MEXICO – LUCY GENT FOMA WITH JERRY VALDEZ / 29

NEWSBITES / 10, 11, 19, 20, 27, 28

WHAT'S GOING ON / 38



For thousands of years, the Caja del Río has told the complex story of the confluence of cultures throughout northern New Mexico.

HISTORIA DE LAS CAJAS DEL RÍO SANTA FE Y EL RÍO GRANDE

PG.5

Generations of teachers and spiritual leaders are working together across cultures to protect the Caja del Río. Tribal leader Brophy Toledo with daughter Rayanne of Jemez Pueblo are pictured with Rev. Andrew Black and daughter Brooke among petroglyphs of La Cieneguilla.

[HTTPS://CAJADELRIO.ORG](https://cajadelrio.org) Photos © Jennifer Black, © Andrew Black

THE CAJA DEL RÍO

A Reflection On Great Journeys

BY MAYOR ALAN WEBBER, JOSÉ VILLÉGAS SR.,
ANDREW BLACK, JOSEPH BROPHY TOLEDO



Since time immemorial, the Caja del Río has been a place of great journeys. What started as wild game migration trails became Pueblo footpaths. Thousands of years later, one of these paths became the famed El Camino Real de Tierra Adentro, the Spanish trade route that ran from Mexico City to the Pueblo of Ohkay Owingeh in northern New Mexico. Centuries later, portions of this trade route were designated as N.M. 1 running up La Bajada Hill. That project was considered one of the world's greatest engineering feats and became part of New Mexico's bid for

statehood. A few decades later, the portions of N.M. 1 crossing the Caja became part of Route 66, the "Mother Road" that brought forth hope coming out of the Great Depression and westward expansion.

Pueblo communities around northern New Mexico have long ties to the Caja del Río that continue to endure today. The area is also home to various Spanish historical and sacred sites. For thousands of years, the Caja del Río has told the complex story of the confluence of cultures throughout northern New Mexico. It has spoken to the sacred connection between the people, land, water, and wildlife that makes us who we are today. Santa Fe's rich fabric is made up of the complex and diverse interwoven cultures of the Caja del Río, and the city of Santa Fe wouldn't be the incredible cultural destination it is without this historic area.



Today, the journey of the Caja del Río continues and is one of self-reflection. It is a journey where we must focus on what it means to love our neighbors and live together in a healthy community. A journey where we must value and respect all cultures, religions and traditions. A journey where the deep wounds and truths of the past and present are not only acknowledged and honored, but are also no longer allowed to fester in unhelpful and destructive ways.

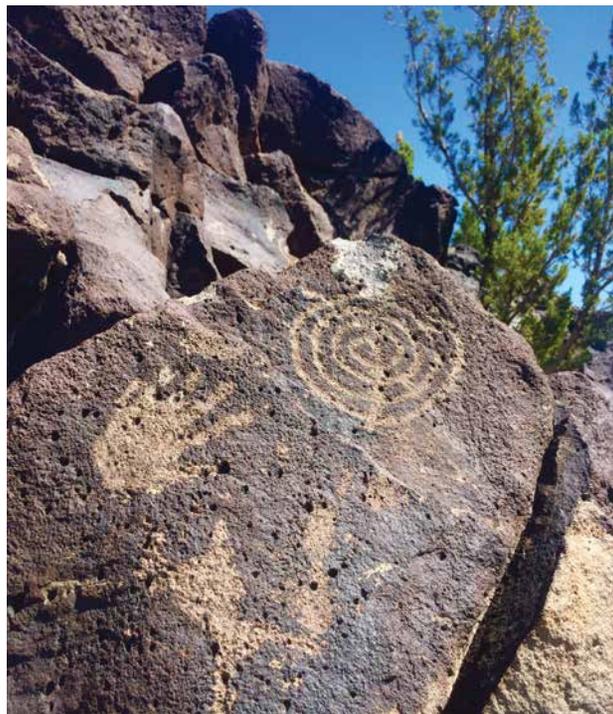
It is a journey focused on healing and wholeness, where we affirm not just the dignity of our differences, but also where, in the words of the late Archbishop Desmond Tutu, we recognize that "our differences are not intended to separate, to alienate; we are different precisely in order to realize our need of one another."

There is no doubt that this will be difficult as we seek to listen to and learn from one another. As we build trust across cultures and discover our common values and shared humanity. There is only one way to make this journey: together.

Working together to permanently protect the Caja del Río is about more than conservation. It is about preserving and honoring distinct cultures while valuing unity and diversity. It is about showing the world—and ourselves—that people from different cultures, religions and value systems can work together in a spirit of humility and collaboration. Our journey is to a future where we have acted together to protect our amazing landscape and acted as a model for our children and grandchildren. ■



Alan Webber is mayor of Santa Fe. José "Chappy" Villégas Sr., a Catholic chaplain, is the mayordomo of the Valle de La Cieneguilla Land Grant and a member of the Texas Band of Yaqui Indians. Reverend Andrew Black, a Santa Fe native, is a minister at First Presbyterian Church of Santa Fe, the public lands field director for the National Wildlife Federation and the founder of EarthKeepers 360. Joseph Brophy Toledo is the co-founder and cultural adviser of the Flower Hill Institute, a member of Walatoma Pueblo (Pueblo of Jemez), and is deeply connected to the power points of the Caja del Río.



La Bajada escarpment, trail of El Camino Real de Tierra Adentro. Wagons and caravans traveled up this iconic cliff face on the six-month journey from Mexico City to Ohkay Owingeh. © Garrett VeneKlasen; More than 4,400 petroglyphs at La Cieneguilla Petroglyph site reflect history, culture and sacred connections among people, land, water and wildlife. © Andrew Black; Wildflowers can be found throughout the plateau as well as in riparian areas of the Santa Fe River Canyon and along the Río Grande. © Garrett VeneKlasen; The vastness of volcanic geology comes alive during fiery sunsets. © Andrew Black

Historia de las Cajas del Río Santa Fe y El Río Grande

History of the Río Santa Fe and Río Grande Box Canyons

BY HILARIO E. ROMERO

GEOGRAPHY

New Mexico is a physical extension of the Mexican “cradle of civilizations” going back millennia. New Mexico’s dramatic lava flows created mesas, valleys, deserts and plains. Flora and fauna arrived during and after the earth settled. *Las Cajas de los Ríos* area commands the attention of visitors and residents alike, with two box canyons or *cajas* formed by escarpments, mesas and cliffs, carved by rivers—namely the *Río Grande* and the *Río Santa Fe*. The area includes Pueblo villages, traditional Spanish/Mexican towns, and is bounded on the north side by Bandelier National Monument.

To understand this beautiful, relatively pristine area of geological, ecological and historical significance, richly deserving of preservation, we begin at Las Cajas de los Ríos and the surrounding mesas. Breathtaking views of volcanic escarpments and fissures, caves, fossils, mesas, rivers, cold springs, exotic flora and fauna await visitors along many old trails. All of this is interconnected by the two flowing rivers that eventually merge.

LAND AND WATER IN LA CAJA DE RÍO SANTA FE

In order to comprehend the Río Santa Fe and Río Grande cajas, we need to understand the geography and ecosystem to which they are connected. The Caja del Río Santa Fe originates in the upper watershed of *La Sierra Madre del Norte de Nuevo Méjico*, the original Spanish name for the Mother Range of northern New Mexico, which extends into Colorado and Utah. The Río Santa Fe flows in a southwesterly direction for 47 miles until it empties into the Río Grande. It flows through the old settlement of Río Arriba de Santa Fe (upper river), now called Cerro Gordo, and passes through the city of Santa Fe, including extended neighborhoods called el Barrio de Analco (other side of the Río Santa Fe) on the southwest side of the river and el Barrio del Torreón (watchtower) on the northwest side. It flows through the former village of Pueblo Quemado, as well as Agua Fría Traditional Historical Village, the Pacheco Land Grant, La Cieneguilla Land Grant, and the communities of El Alamo and La Ciénega. It continues through the box canyon (Caja del Río Santa Fe) to La Bajada village and finally, through the village of Peña Blanca, where it empties into the Río Grande at Cochiti Pueblo. In the late 1960s, the flow was diverted between La Bajada village and Peña Blanca, and today flows directly into Cochiti Dam. (Hilario Romero. “End of the Long Journey on El Camino Real: La Cienega & Cieneguilla Pueblos & Land Grants” *Chronicles on the Trail Journal*, Fall/Winter 2015) & “Pueblo Villages, Land Grants and Spanish Villages in the Valle de Cochiti,” *Green Fire Times*, Vol. 10 No. 9, Sept. 2018)

LAND AND WATER IN THE CAJA DEL RÍO GRANDE

To form the Caja del Río Grande, the largest river in New Mexico has cut through the escarpments called La Bajada and La Majada mesas, as well as escarpments along the west side of the caja with lands granted to Cochiti and Kewa (Santo Domingo) pueblos. It begins at the entrance upriver just above Diablo Canyon and flows south to Cochiti Pueblo, only to have its flow stopped by Cochiti Dam. Its valley courses through the Cochiti Pueblo Grant, the Caja del Río Land Grant, La Majada Mesa and Land Grant and the Kewa Pueblo Land Grant.

FLORA AND FAUNA

Most areas of the two Cajas del Río are located in the upper Sonoran Life Zone, characterized by ponderosa, piñon, sabinas and cedro trees as the canopy, and more sparsely distributed chamisa shrubs, chamisa hedionda, saltbrush, scrub oak, yucca, buffalo grass, blue grama grass, cholla, nopal and small barrel cactus. Wildflowers are abundant in the cajas. The bosques along each river are dominated by cottonwoods, with some invasive species. These trees, plants, bushes and shrubs provide food for animals that roam along the escarpments. Life for all species was possible because of the rivers, streams and numerous springs. Kangaroo rats and deer mice nest under the yuccas, chamisa bushes, saltbrush and cholla cactus; rattlesnakes in the volcanic rocks; rabbits among the piñon, along with horned, collared and whiptail lizards. Groups of elk, mule

deer, bighorn sheep, bears, mountain lions, coyotes and bobcats roam the area along with bald eagles, red-tailed hawks, *Peregrino* falcons breeding birds, bats and owls. (Craig D. Allen. “The Setting: Geology, Landforms, Soils, Vegetation, Fauna & Paleoenvironment” *The Pajarito Plateau: A Bibliography*. U. S. Interior Dept.: National Park Service 1993)

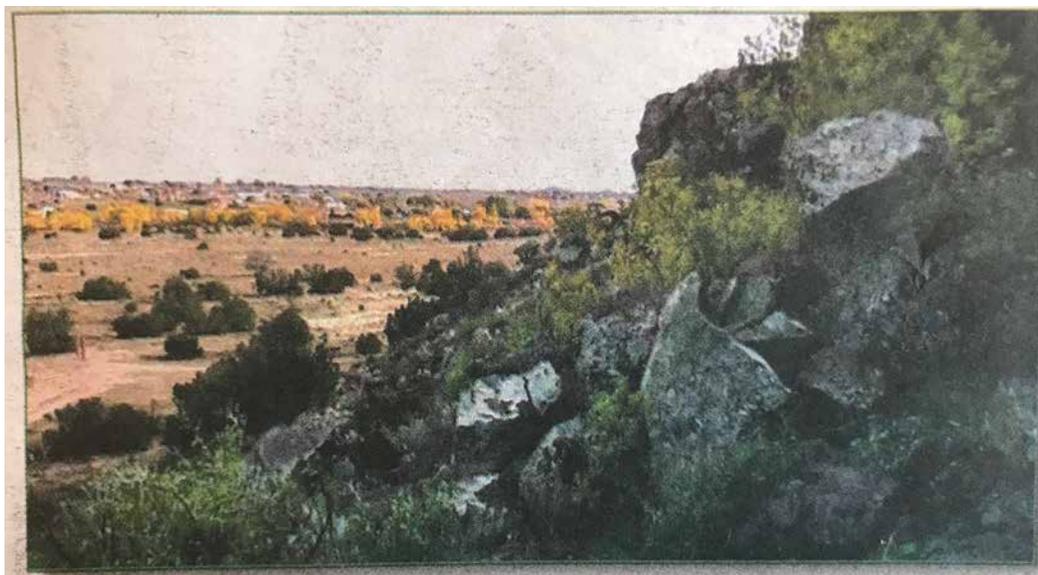
CAJA DEL RÍO SANTA FE—PRE-EUROPEAN PERIOD

Centuries of human existence in this caja have left cultural imprints. The indigenous Pueblos had ancestors that Nels Nelson, archaeologist, referred to as Clovis, Folsom, Cochise or Pre-Pueblo, dating back 13,500 years, and are a testament to their long presence. From time immemorial, Pueblo peoples sustained themselves in this large area, leaving remains of former pueblos, evidence of farming atop and below Mesa La Bajada, understated shrines, petroglyphs, and oral and written traditions. Pueblo groups continue to live and conduct ceremonies in and near this area. (Hayward Franklin & David Snow, “Ceramics from LA 5 (Los Aguajes), Albuquerque Archeo. Society, *Pottery Southwest Journal*, Nov. 2007)

Life was hard, dangerous and uncertain. Since 1450, the Apachis, Diné and Yutas arrived from all directions and established seasonal encampments. During droughts, with the migration of game, these tribal bands would plan excursions into Pueblo country to trade or steal stored food, sometimes carrying off captive women and children. Pueblo people fortified their villages and farmlands with walls and enclosed plazas. Despite the intrusions, Pueblos defended themselves, farmed, hunted and gathered plants, water and food from the entire caja. Remains of the pueblos of Tse’nah’teh, Tse’gu’mah, Guicú, Pindí, Pueblo Quemado de las Cieneguitas and Tres Arroyos (Spanish names) continue to exist as a legacy along the Río Santa Fe. Cochiti and Tesuque pueblos share historical perspectives about these ancestral pueblos.

CAJA DEL RÍO GRANDE—PRE-EUROPEAN PERIOD

Along the Caja del Río Grande are the ancestral Pueblo villages at Cañon de los Frijoles, Potrero Viejo, Cañada de Cochiti, Bandelier, and the more recent village of Tash’Cah’Tseh, as well as Tse’Nah’teh on the Río Santa Fe near La Bajada village. The Cochiti probably relied on these ancient villages as security from raiding tribes, from drought and from strained relations with their neighbors before and after the arrival of the first Spanish incursion near where they live



Area near La Cieneguilla Pueblo

today. Living along both sides of the Río Grande gave them water security for crops on one side, and springs for drinking on the other at La Cañada de Cochiti, where one of their older villages was located. Upon the arrival of other tribal groups—Diné, Apachi, Yuta and later, Comanchi—they realized that vigilance and protective measures were needed. No longer were they alone. (Charles Lange. *Cochiti: A New Mexico Pueblo, Past & Present*. Austin: Univ. of Texas Press, 1959)

ARRIVAL OF THE SPANISH INTO PUEBLO TERRITORY

However, upon the arrival of Spanish intrusions from 1540 to 1542, and again in 1580, the 1590s and in 1598, when Oñate and his soldier-colonists arrived,

CONTINUED ON PAGE 32

THE CAJA DEL RIO REPRESENTS TRADITIONS, HEALING FOR VETERANS

BY JULIAN GONZÁLES

My family has lived near the Caja del Río plateau in northern New Mexico for generations, long before it was even part of the United States. Located just west of Santa Fe, the high desert plain is ringed by white cliffs, with the Jémez and Sangre de Cristo mountains rising in the distance. Much of the 106,885-acre area is part of the Santa Fe National Forest. This rugged land is practically in my DNA. Hunting, camping, collecting firewood and piñon nuts, are traditions that run deep.

I get butterflies just thinking about spending so much time here. Our family loves to tell the story of my grandfather taking a huge mule deer buck when he was a young man. Decades later, my father did the same. When I turned 13, it was my turn. I wanted to be part of that story. And I did. Now it is my son's turn.

I have made it my mission to work with a broad and diverse coalition of people to ensure that this land is protected and accessible to everyone. I serve on a citizen's advisory commission for the New Mexico Department of Game and Fish and want to see all people—whether it's bird watchers, hunters, cattle ranchers or cyclists—enjoy this region for generations to come. We call this the U.S. ranch and it's for all of us to use. The Quarter Horse Association runs a 100-mile race here. The Hunt Club chases a mechanical fox here. Let them all come and enjoy this wonderful place.

I work with a broad and diverse coalition of people to ensure that this land is protected and accessible to everyone.



Rock face walls of Diablo Canyon are a favorite of climbers. The popular recreation area also offers great hiking, photography and wildlife viewing. © Garrett VeneKlasen

I think it's especially important for the Hispanic community to weigh in on future decisions about what will happen to our public lands. People need to show up at meetings. We want to make sure this is protected for our grandchildren and our great-grandchildren.

The Caja del Río not only represents family traditions but was a place of personal healing. As a veteran who served in the U.S. military for 27 years—including a stint in Iraq—it was spending time on this land that helped restore me. When I came back, I needed some space to cure the demons that I had inside me—that I brought back. Stuff happens in war that imprints on you that you don't want to share. So I came back out here, in the Caja, and found an inner peace. It purified my soul. ■



Julian González is an avid sportsman, military veteran and traditional land user from New Mexico who spends most of his days on the Caja.

The Wildlife and Ecological Importance of the Caja del Río

BY THE REVEREND ANDREW BLACK

The Caja del Río Cultural Heritage and Wildlife Area is one of the most ecologically significant wildlife corridors and habitats in North America. As part of the Upper Río Grande, the Caja helps connect a vital wildlife migration pathway that runs from the state of Colorado to México. The Caja's "corridor of connectivity" is recognized by the Western Governors Association as fundamental to the strategic planning of "continental conservation."

A wide variety of species will benefit from permanent protection of the Caja del Río including elk, mule deer, cougar, black bear, badger, coyote, diamondback rattlesnake, Milk snake and collared lizard. Recognized as an important bird area, the Caja also supports a diversity of birds species including: golden and bald eagle, various species of hawks, burrowing owls, turkey, roadrunners, hummingbirds, Curve-billed, sage, Bendire's Thrasher, mockingbirds, Scotts Oriole, Grey Vireo, red winged blackbird, bluebirds, killdeer, Say's phoebe, Western and Cassin's Kingbird, Bullock's Oriole, Blue Grosbeak, Lark, Song and White Crowned Sparrow, and Southwest Willow Fly-Catcher. With distinct ecosystems ranging from grasslands and cacti forests to riparian canyons, the Caja is home to a wide variety of birds that are often only found much further south and at lower elevations and warmer temperatures.

Surrounded by the Jémez, Sangre de Cristo, Sandia and Galisteo mountain ranges, the Caja del Río serves as a linchpin of wildlife connectivity as animals move along the Río Grande and Santa Fe River corridors. The Caja provides critical habitat and is vital to the movement of native species ranging from elk and mule deer to black bear and cougar. As a wildlife corridor, the Caja provides extensive, long-term genetic viability of migrating populations as well as refuge from increasing development, urbanization, wildfires and other climate disturbances.

As a Bureau of Land Management (BLM) area of Area of Critical Concern (ACEC), the La Ciénega ACEC, 13,390 acres within the Caja, contains "important and relevant cultural, riparian, scenic and vegetation values, as well as wildlife habitat, including habitat for special status species like the Gray Vireo,¹" a small southwestern desert songbird listed as threatened by the New Mexico Department of Game and Fish. The Caja del Río plateau has been documented as an important population site for the Gray Vireo, which is threatened by



habitat loss (clearing of piñon-juniper woodlands), disturbance from construction and development, habitat alteration from livestock grazing, and Brown-headed Cowbird brood-parasitism.²

Watersheds associated with the Caja del Río include the Río Grande River and the Santa Fe and Galisteo basins. These watersheds are critical to the long-term future production of high-quality water, necessary for overall ecosystem health and could serve as potential sites for species reintroduction ranging from native fish and otters, to bighorn sheep, pronghorn and a wide variety of plants.

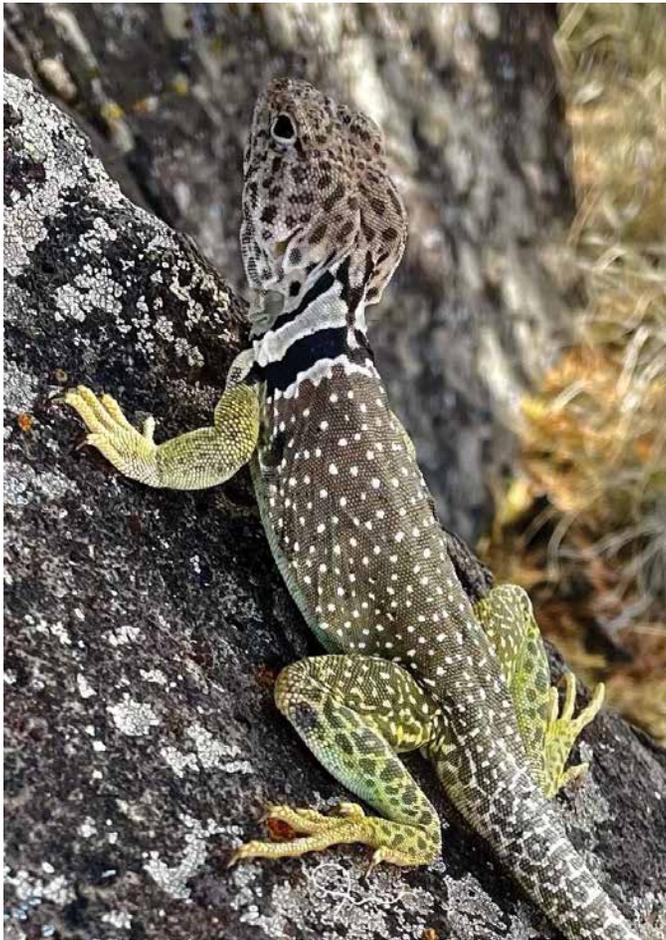
1. Bureau of Land Management, *La Cienega ACEC*, Area of Critical Environmental Concern.
2. John P. DeLong and Sartor O. Williams III, *Status Report and Biological Review of the Gray Vireo in New Mexico*, from <http://www.unm.edu/~jdelong/NM%20Gray%20Vireo%20Review%20Final.pdf>; see also *New Mexico*

Avian Partners: Gray Vireo, from [HTTP://WWW.NMPARTNERSINFLIGHT.ORG/GRAYVIREO.HTML](http://www.nmpartnersinflight.org/grayvireo.html) ■

The Rev. Andrew Black is Public Lands Field Director of the National Wildlife Federation, and founder of EarthKeepers 360.

Photos: The Santa Fe River canyon runs along the Caja del Río. © Garrett VeneKlasen

A Common Collared Lizard waits in ambush for prey. © Andrew Black



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IS THE LEOPOLD LEGACY STILL AT HOME ON THE RANGE?

BY RICHARD RUBIN

Do the values and practices of Aldo and Estella Leopold continue to inform our Western environmental challenges a century later? With courage and culture, Aldo and spouse María Alvira Estella Bergere made important contributions in the Southwest from 1909 to 1924.

Legacy means the long-lasting impact of events, actions or people's lives. Leopold's experiences as a young ranger on the Apache and Carson national forests influenced his changing concern—from hunting game protection to land conservation and ecological relationships. He began to evaluate the effects of erosion and overgrazing on wildlife. When Aldo was promoted to supervisor of the Carson in 1912, they built a home in Tres Piedras, now known as Mi Casita. The house received National Historic Registration in 1991 and was restored by the Forest Service in 2005 to "offer the public a place of reflection on conservation and scholarly pursuits." Staff scientist Robert Bailey described Leopold's house design as a *Craftsman* style bungalow incorporating values of natural materials, multiple windows for openness to the environment, and a setting against the prominent rocks with expansive views across Taos Valley toward the Sangre de Cristo Mountains. Visitors today can experience these meaningful qualities.

Soon after the restoration, the Leopold Writing Program was organized "to inspire an ethic of caring for our planet by cultivating diverse voices through the spoken and written word." Since 2012, 22 environmental writers, scholars and conservation managers have had month-long creative residencies at Mi Casita. This literary

resurgence in the spirit of Leopold's work inspired the Albuquerque Wildlife Federation to establish a library there. They donated a dozen Leopold-topic books to

He had a transformative experience seeing "the fierce green fire" fade from a dying wolf's eyes.

the Carson District in memory of their teacher, Richard Becker.

After barely surviving winter exposure and kidney failure on range patrol in 1913, Leopold continued in Albuquerque on Forest Service desk assignment. He founded the Wildlife Federation in 1914 to generate support for his evolving conservation



An area of the Gila Wilderness in southern New Mexico

Contributing to awareness and useful restoration is powerful for progress and optimism.

concerns. While assigned to the Apache National Forest and hunting predators in 1910, he had a transformative experience, seeing "the fierce green fire" fade from a dying wolf's eyes. The Albuquerque Wildlife Federation continues as a robust volunteer group devoted to New Mexico public land regeneration and preservation. Another significant initiative by Leopold during the Albuquerque years was broaching publicly the need for wilderness protection in national forests. In 2023, we are recognizing the Gila Wilderness Area centennial, the first to achieve that designation.

In 1924, Aldo, Estella and their growing family transferred to a forestry position in Madison, Wisconsin. His continuing advocacy for game management and conservation evolved to a professorship at the university. He became free to write, teach and study the new science of ecology. Devoted to field experience, they bought a depleted farm and pursued restoration of the land and trees. Leopold practiced *phenology*, the systematic observation of wildlife, botany and seasonal weather patterns. The restored farmland and forests are now the site of the Aldo Leopold Foundation, begun by Estella and the children after Aldo suddenly died fighting a neighbor's range fire in 1948. The foundation maintains his legacy through education programs, including tutorials and calendars for phenology practice. His decades of detailed data included the now particularly relevant effects of climate change on animal and plant cycles. Leopold's insightful thinking about a land ethic culminated in his classic *A Sand County Almanac*, published in 1949. The foundation has developed a Leopold Education Program as a school curriculum, based on the almanac and his teaching methods.

In New Mexico at Mi Casita, the library has grown organically with diverse contributions, now numbering 100 titles. These continue to be available for community education and scholarship, as well as for Forest Service staff. In order to maintain the house for public use, a Friends of Mi Casita volunteer group was formed. We established a non-profit fund at the Taos Community Foundation in our shared stewardship role with the Forest Service for ongoing repairs and care. We are also facilitating the education program for Taos area groups. While current access to Mi Casita is restricted to authorized visitors for site protection and safety, more public opportunities are planned.



A particularly meaningful legacy value is support for Leopold's concern for ecology students and scholars feeling the land's "world of wounds." These programs provide active practices for managing environmental anxiety and despair. As Aldo taught, contributing to awareness and useful restoration is powerful for progress and optimism. ■

A retired medical doctor living in Taos, Richard Rubin serves as volunteer steward with the USFS and coordinator of the Friends of Mi Casita. He and his wife, Annette, recently published Living the Leopolds' Mi Casita Ecology (Nighthawk Press).

LEOPOLD WEEK 2023: NURTURING RECIPROCITY

Aldo Leopold's land ethic challenges us to imagine how we can live in community with air, water, soil and all species. During the Aldo Leopold Foundation's Leopold Week, modern voices of the conservation movement help nurture reciprocity with nature and give back to the Earth.

From March 3-12, the Aldo Leopold Foundation offers an inspirational speaker series that can enhance people's connection with nature and the conservation community. [HTTPS://WWW.CROWDCAST.IO/C/LEOPOLDWEEK2](https://www.crowdcast.io/c/leopoldweek2). Check out the foundation on Facebook, Instagram, Twitter, and sign up for the foundation's e-news to stay up to date on all things Leopold. [HTTPS://WWW.CROWDCAST.IO/C/LEOPOLDWEEK23](https://www.crowdcast.io/c/leopoldweek23)

BOOK PROFILES

FIRST AND WILDEST: THE GILA WILDERNESS AT 100

EDITED BY ELIZABETH HIGHTOWER ALLEN

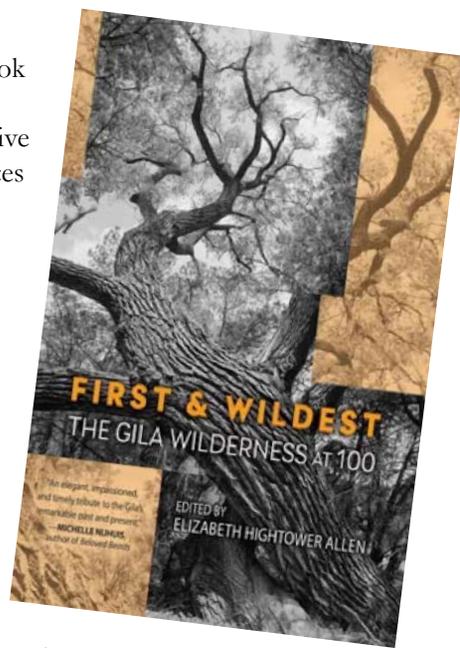
TORREY HOUSE PRESS, 2022

The importance of American wilderness areas has evolved despite many controversies and deserves enhanced attention now on the 100th anniversary of the Gila Wilderness. This is a New Mexico story. It goes beyond politics to be rightly regarded as a powerful enhancement of the ongoing ecology relationship to our land. Aldo Leopold is credited with inspiring the certification of this first federally protected wilderness.

In recognizing this centennial of the Gila Wilderness establishment, an important book of essays was recently released: *First and Wildest: The Gila Wilderness at 100*. Twenty-five contributors describe meaningful experiences there. They include Alastair Lee Bitsoi, Eve West Bessier, U.S. Interior Secretary Deb Haaland, Joy Harjo, Aldo Leopold, Beto O'Rourke, U.S. Sen. Martin Heinrich, Leeanna Torres, former U.S. Senator Tom Udall, and U.S. Sen. Gabe Vasquez, among others.—Richard Rubin

“Thorough, profound, multifaceted. Whether you call this place the Pueblo ancestral home, the Apache’s northern stronghold, the Mexicans’ stolen territory or the Anglos’ wilderness, it’s a range and a river that gives humans eternal gifts. Explore it here—then protect it forever.”

—Mark Sundeen



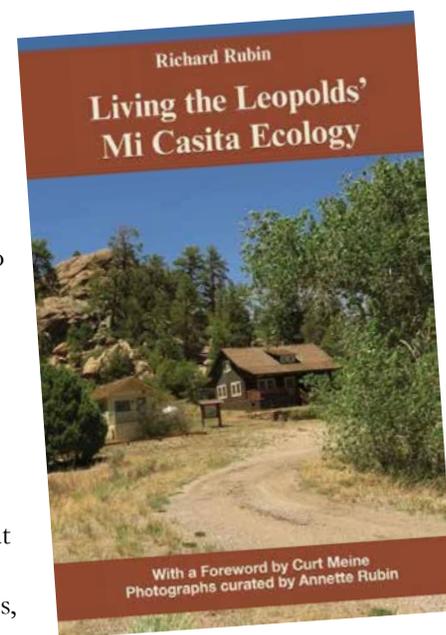
LIVING THE LEOPOLDS' MI CASITA ECOLOGY

BY RICHARD RUBIN

NIGHTHAWK PRESS LLC, 2022

The authors describe and illustrate their experience of Aldo and Estella Leopold’s legacy in Tres Piedras, New Mexico. As Carson National Forest supervisor and daughter of a founding New Mexico family, they are an engaging axis to these words and pictures. The book provides a wide tour through time, places and people, including archaeology, geology, Indigenous nomads, European settlement, U.S. Forest Service mandates, the Leopolds’ brief presence, subsequent residents’ contributions, modern preservation and restoration progress, current regeneration of literary and conservation scholarship, thoughts on activism psychology, insights about Leopold’s relevance now, and hopeful plans for greater community participation in this meaningful setting.

Drawing on decades of northern New Mexico engagement and several years of volunteer service as Mi Casita steward and conscientious student, Richard Rubin shares wisdom he has gleaned from ecological scientists and teachers. Annette Rubin provides visual enhancements of the relationships that create true living in this story.



CHASING THE ELUSIVE

EXPLORATIONS IN ACHIEVING SUSTAINABILITY

A ZEN APPROACH TO SAVING THE PLANET

BY KATHERINE MORTIMER

According to a poll conducted last summer, reported by [AXIOS.COM](https://www.axios.com), 71 percent of Americans believe that climate change is happening now, and 70 percent of those people believe that it is necessary for people to make lifestyle changes to combat it. Given these figures, you might think that there would be a lot more being done to avoid climate catastrophe. While recent federal programs will go a long way, it still may not be enough. I have been working to address climate change and the associated topics of equity and economy for most of my career, and I think that there is a disconnect between believing that we’re headed for disaster and the public outcry insisting that more be done. There are many reasons for that, which I will not go into here. To me, all of the efforts to change policy in more significant ways seem like we are tilting against windmills.

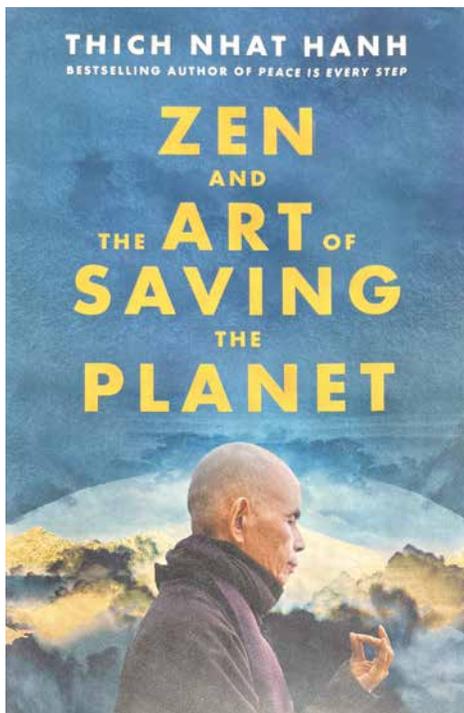
Ensuring a habitable planet for current and future generations seems to be a value that transcends politics.

A book I recently read by the Buddhist monk Thich Nhat Hanh, *Zen and the Art of Saving the Planet*, is intriguing. The overall message seems to be that

we have turned our backs on our connections to nature, the planet and all it’s made up of, and each other, and we need to restore those connections before we can create a movement that has the force to cut through the corporate self-interest that is so effectively countering the will of the people. All of this makes me wonder if the extreme divisions that have arisen between people with differing political beliefs in recent years may have been intentional. It keeps us occupied, taking pot shots at each other rather than finding where we have common ground, and from there, how to build a better community.

The idea that we have to go inward in order to be more effective at realizing change in the world seems contrary to American culture. After all, that elusive “American Dream” is all about the power of individualism and a “winner-takes-all” mentality. I consider myself an open-minded person, but the idea of sitting in quiet reflection as a first and necessary step to start a movement for change seems like the exact opposite of what we should be doing. However, given the slow progress, even after a courageous teen, Greta Thunberg, has made such powerful arguments for action, I’m starting to think that Thich Nhat Hanh might just be right.

Ensuring a habitable planet for current and future generations seems to be a value that transcends politics.



The inspiration for this article was this book by Thich Nhat Hanh (HarperOne, 2022)

For example, the bible has numerous references to our responsibility to be stewards of the Earth, while the Christian right seems to support unfettered domination over the Earth's resources. Yet, the kind of cross-sectional movement needed to counter large corporations attempting to squeeze every possible dollar out of the remaining fossil fuels has not emerged. It makes me wonder how we can put aside differences that are characteristic of the current political climate in order to address this, the greatest existential threat to the continuation of life on the planet.

In the last section of Thich Nhat Hanh's book, he shares his vision of how that could

There is a disconnect between believing that we're headed for disaster and the public outcry insisting that more be done.

happen. He says that after we each examine the value of nature in our lives individually, we can then come together to form "communities of resistance" based on six principles:

1. Being physically present with each other and for our shared aspirations. It is important that this coming together be done in a way where the time we spend together is inspiring and nourishing;
2. Sharing our resources to build a sense of community and build trust and commitment to each other;
3. Sharing ethical principles to find common ground, starting with addressing the causes of climate change and building from there;
4. Sharing, and being tolerant of different people's views. This requires us to listen with open minds and caring in our hearts, even if what we first hear are things that make us cringe. Keep in mind that we have all become easily triggered when we hear criticism and incorrect information. Remember, what you say may engender the same reactions from people who are equally triggered by our points of view;
5. Share from the heart and be sensitive to other's perspectives. When we share our own experiences and our deepest concern for the country and the planet with honesty and humility, we can build a harmonious shared understanding that cuts through political rhetoric; and
6. Communicate with compassion and avoid causing hurt or harm to others. If we can engage in our local communities, welcoming people from all walks of life and all political perspectives, we have a chance

to build coalitions which, together, have the power to counter arguments that it is not yet time to make big changes. In fact, there is no time left to not do so. ■



Katherine Mortimer is the founder and principal of Pax Consulting, LLC, a New Mexico business providing government and businesses with tools they need to be resilient and sustainable by addressing environmental stewardship, economic vitality, and most importantly, social justice.

ALBUQUERQUE BECOMES FIRST CITY TO ADVANCE JUSTICE40

On Jan. 27, the anniversary of the Biden administration's ambitious call to save 30 percent of land, fresh water and ocean in the United States by 2030, a one-of-a-kind coalition released its policy agenda to achieve continental-scale conservation by embracing equitably distributed funding and community-led policies and projects. A core metric of the coalition is Justice40, designed to ensure that at least 40 percent of the America the Beautiful initiative investments are made for and with communities that have historically seen underinvestment in conservation and equitable access to nature. The coalition consists of 150 organizations, ranging in focus from outdoor recreation, urban parks and greenspace, water conservation, public lands protection, Indigenous rights, public health, wildlife and workforce development.

On Feb. 10, Albuquerque Mayor Tim Keller, joined by climate, economic and social justice advocates, signed an Executive Order for Equitable and Just Implementation of Justice40. "Too many communities in Albuquerque have been historically underserved and overburdened by pollution, disinvestment and economic inequity," said Keller. "We are committed to investing in innovative, community-driven solutions and building a healthy and sustainable future."

The executive order also calls for establishment of the Albuquerque Justice40 Oversight Coordinating Committee to prepare and implement a five-year CABQ Justice40 Equitable and Just Administration Plan. The city sought nominations for people to serve on a Justice40 Oversight Coordinating Committee. The commission will meet monthly for two years.

The community and city will come together to prioritize investments. "This will make Albuquerque the first city to call on deep community-government collaboration to secure federal funding for bottom-up solutions that transform inequitable legacy systems," said Richard Moore, co-founder and executive director of Los Jardines Institute. Moore, a long-time community leader, was appointed by the Biden administration to the White House Environmental Justice Advisory Council.

For more information on the coalition, visit [HTTPS://AMERICATHEBEAUTIFULFORALL.ORG](https://AMERICATHEBEAUTIFULFORALL.ORG). For information on the Albuquerque coordinating committee, email OEI@CABQ.GOV.

CELEBRATE SPRING WITH A WALK IN A NEW RECREATIONAL GEM

HARVEY JONES BIOSWALE BENEFITS PEOPLE AND NATURE

In 2022, The Nature Conservancy (TNC) and its partners celebrated the grand opening of the Harvey Jones Bioswale and recreation area in Corrales. A bioswale is a nature-based solution—a wide dirt channel that collects and slowly infiltrates stormwater to reduce pollutants before moving downstream into communities' water supplies. In this case, water is cleaned before moving into the Río Grande.

Crews first removed 18,000 yards of dirt to lower one channel and create two new channels that move stormwater from Río Rancho to the Río Grande to lessen sediment and erosion. Then —over the course of two weeks—Río Grande Return and volunteers planted 28,000 willows and 100 cottonwoods to create a healthy habitat for birds, wildlife and people.

"Before all this work, years of accumulated sediment left native plants high and dry and allowed invasives to move in," said Sarah Hurteau, TNC in NM's Climate Program director. "Also, stagnant water and mosquitoes became a problem in another area. It needed some love."

The multi-year effort will become 10 acres of wetlands creating an inviting home for birds and wildlife. Soon, trails will be built and benches will be placed throughout the area.

The choice of planting willows in this area was an important one to Glen Catlin Ami—Ancestral Lands Conservation Corps program coordinator. "Willows are steeped in Indigenous cultures. We use them for prayer sticks during ceremonies and for medicinal purposes. We want future generations to be able to enjoy these benefits too," Ami said.

The project's partners include: Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA), Village of Corrales, City of Río Rancho, Middle Río Grande Conservancy District (MRGCD), Ancestral Lands Conservation Corps (a program of Conservation Legacy), Río Grande Return, AMREP and Albuquerque Metro Arroyo Flood Control Authority (AMAFCA).

WATER DATA IN NEW MEXICO: HIGHLIGHTING GROUNDWATER DATA

BY STACY TIMMONS

The Water Data Act was passed in 2019 with a goal to have state agencies, convened by the New Mexico Bureau of Geology and Mineral Resources, work collaboratively to identify and integrate data from a variety of state, federal and local sources. One of these important datasets that informs us on the health of our aquifers is groundwater level data.

In dry years, well owners and operators are encouraged to safely monitor trends in the level of groundwater in wells. Recognizing seasonal influences on their aquifer, one well owner northeast of Albuquerque has taken an important step toward increasing awareness of this issue by establishing groundwater level monitoring on his domestic well. Data are collected and maintained by the New Mexico Bureau of Geology as part of the Healy Collaborative Groundwater Level Monitoring Network, a program supported by Healy Foundation. At this site, groundwater level data streaming in real-time are mapped, together with many other sites across the state.

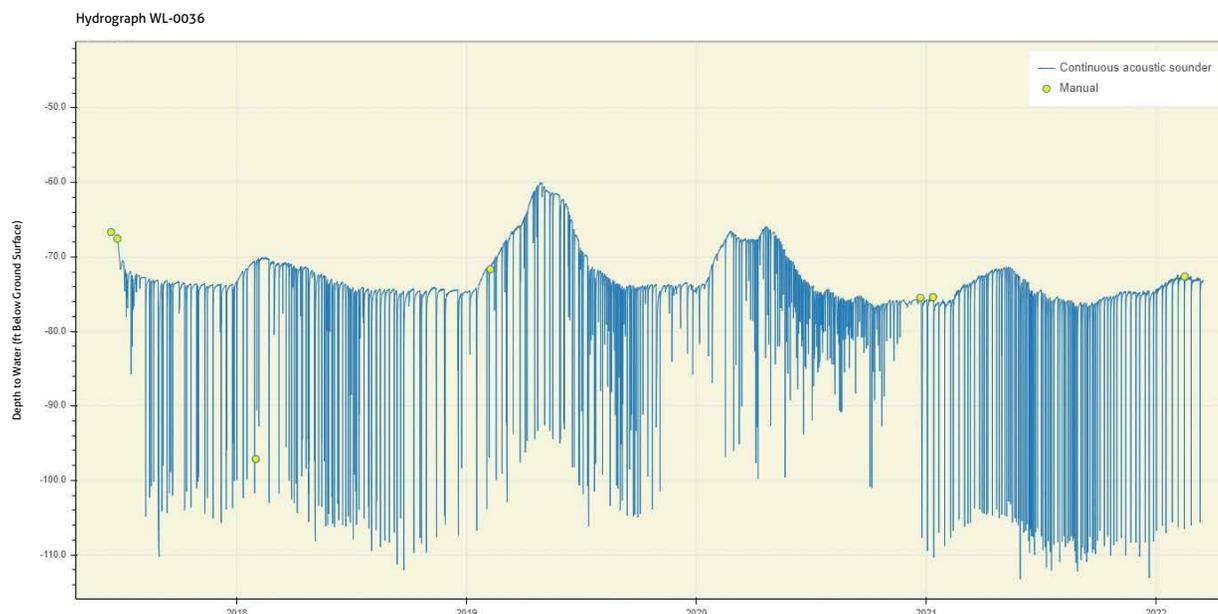
Groundwater, New Mexico's largest source for drinking water, is found in aquifers accessed typically by wells which pump water to the surface. Aquifers are recharged—or refilled—when water percolates through overlying vegetation, rock and soils, replenishing the aquifer rock unit. In the northeast region of Albuquerque along the slopes of the Sandia Mountains, some homes are completely reliant on groundwater from domestic wells. In this area, the groundwater is found in a “fractured rock aquifer.”

These aquifers store groundwater mostly within fractures and larger openings in the rock. Unlike basin fill or sediment aquifers—where water is stored in spaces between grains of sand and gravel—fractured rock aquifers have very little water stored within the rock itself. Fractured rock aquifers mainly hold the water that fills existing fractures or larger openings within the rock, and they tend to be able to hold much less water than sediment aquifers. The result of having less in storage is that water levels can change dramatically. In years where there is limited recharge from snowmelt or rain, fractured bedrock aquifers may not produce as much water as in wetter years. The water level can drop quickly in dry years or when the well is pumping.

Looking at the hydrograph from the northeast of Albuquerque (bottom of page), an increase in the groundwater level is observed as a rising trend (especially noticeable starting around the beginning of 2019 and 2020). These increases indicate that winter snowmelt is providing recharge to the fractured rock aquifer, with an increase in the water level in the well. The vertical lines shown on the graph represent the drawdown that occurs when the pump is used. The water level returns to its static level after pumping ceases.

Monitoring trends in our aquifers over many years and maintaining data on all of our water resources is an important activity for an arid state like New Mexico. The New Mexico Water Data Initiative ([HTTPS://NEWMEXICOWATERDATA.ORG](https://newmexicowaterdata.org)) is working hard to bring together many different data types to help provide a clear and dynamic picture of our water reality.

Additionally, as part of the Water Data Act, there is progress to identify regions where there is insufficient monitoring, and provide recommendations for building a state-supported groundwater monitoring network. Look for groundwater level data under “water quantity” in the New Mexico Water Data catalog: [HTTPS://CATALOG.NEWMEXICOWATERDATA.ORG](https://catalog.newmexicowaterdata.org). For more information about the Collaborative Groundwater Monitoring Network, visit [HTTPS://GEOINFO.NMT.EDU/RESOURCES/WATER/CGMN/HOME.CFML](https://geoinfo.nmt.edu/resources/water/cgmn/home.cfml). ■



Groundwater is New Mexico's largest source for drinking water.

For further reading

[HTTPS://NEWMEXICOWATERDATA.ORG/](https://newmexicowaterdata.org/)

[HTTPS://CATALOG.NEWMEXICOWATERDATA.ORG/](https://catalog.newmexicowaterdata.org/)

[HTTPS://GEOINFO.NMT.EDU/](https://geoinfo.nmt.edu/)

[HTTPS://GEOINFO.NMT.EDU/RESOURCES/WATER/CGMN/HOME.CFML](https://geoinfo.nmt.edu/resources/water/cgmn/home.cfml)

Stacy Timmons is associate director of Hydrogeology Programs at the New Mexico Bureau of Geology and Mineral Resources.

EAST MOUNTAIN CITIZENS WIN 14-YEAR BATTLE WITH WATER SPECULATOR

A recent court decision prevents new groundwater pumping that would have supported Campbell Ranch's proposed 4,000 home and golf course development in the Sandia Park area. The land in Bernalillo County was annexed by Edgewood in 2001 using a 15-mile shoestring to connect it to Edgewood. The Appeals Court decision confirmed the lower court's denial of the application for a new appropriation based on the impairment to existing wells and not being consistent with the conservation of water. The Town of Edgewood could still approve the development if a different water source, such as importing from the Estancia Basin, is obtained.

The conflict began in 2009, when Aquifer Science applied to the Office of the State Engineer (OSE) to appropriate 1,500 acre-feet of groundwater (later reduced to 350 acre-feet) in the Sandia Basin. Aquifer Science, a Nevada-based limited liability company, was formed to obtain water for the Campbell Ranch project. It consists of a partnership between Campbell Ranch (5%) and Vidler Water Company (95%). Vidler was recently purchased by DR Horton, a national homebuilder. The application was denied by the OSE in 2014 and the denial was confirmed in a de novo District Court appeal in 2019.

The Campbell Ranch area is also protected from additional applications for new commercial groundwater rights. In 2021, based on an analysis of declining water levels, the OSE issued an order to protect the groundwater resources of the Sandia Underground Water Basin and a portion of the Río Grande Underground Water Basin in Bernalillo and Sandoval counties east of the Sandia Mountains. The order bars applications for new appropriations of groundwater in the protected area under Section 72-12-3 of the New Mexico Water Code. Domestic wells are not affected.

The effort to protect groundwater was supported by San Pedro Creek Estate Homeowners, the Deep Well Protest (a local community non-profit), Bernalillo County and hundreds of local individuals and small businesses. In particular, community members thanked Doug Meiklejohn, founder of the New Mexico Environmental Law Center, for his legal support since 2009, as well as other attorneys, experts, volunteers and donors.

WATER NEWSBITES

NEW MEXICO'S 50-YEAR WATER PLAN

New Mexico's 50-year water plan is aimed at helping the state prepare for climate change impacts. The plan will recommend how communities can better use and conserve water supplies. The 50-year plan is separate from the state water plan, which must be updated every five years. A draft of the plan was released in August 2022. Its foundation is a projected climate analysis by a panel of scientists. Their research found that annual statewide temperatures in 50 years could increase by as much as seven degrees.

The plan's recommendations include protecting acequias and other community-managed irrigation systems, helping farmers and municipalities conserve water, and modernizing water rights administration and enforcement. The water plan encourages the Legislature, state agencies and communities to take advantage of a historic influx of project funding. New Mexico is slated to receive \$355 million from the federal government's bipartisan infrastructure law for water projects. Infrastructure improvements will likely be a major factor of the plans.

The planning commission has written that "any new use of water such as cannabis cultivation or expansion of existing water use must come at the expense of an existing water use."

The report recommends learning from tribes, pueblos and acequia communities that have centuries of experience managing slim water supplies. Tribes and acequia groups contributed recommendations to the report. The Interstate Stream Commission (ISC) is working with the Indian Affairs Department to include water plan recommendations from Indigenous communities.

The plan's analysis projects New Mexico's annual average statewide temperatures could rise between five and seven degrees Fahrenheit over the next 50 years if greenhouse gases continue to rise. That could create hotter droughts, lower streamflow and aquifer recharge and decreasing snowpack.

Alternative water sources could help communities adapt to diminishing river flows and groundwater supplies. Proposed alternatives include treating brackish water, drilling deep wells, treating oil field wastewater, cloud seeding and rainwater catchment systems.

PROTECTING NEW MEXICO'S WATERS

Federal authorities don't necessarily understand the unique ecosystems of dry states like New Mexico, and this year, the Supreme Court could throw out protections reinstated by the Biden administration and restrict applications of the Clean Water Act.

Under the Trump administration, federal protections were removed from almost all surface waters in New Mexico. The Trump rule covered navigable waters but failed to include "ephemeral" waters, which constitute an estimated 90 percent of waters in New Mexico—those that flow intermittently, have dry stretches or are caused by storms. The rule, which was backed by the industrial agriculture, manufacturing and fossil fuel industries, also didn't regulate runoff that can carry pollutants to rivers used for drinking water. It was terminated by a federal judge in 2021.

To safeguard the state's waters, for fiscal year 2024, Gov. Michelle Lujan Grisham asked the Legislature for funding to help the Environment Department create a surface-water permitting program, which would develop policies, procedures and regulations. Requiring permits for pollution discharges would help control what materials reach rivers, lakes, streams, wetlands and reservoirs.

PROTECTIONS FORMALIZED FOR NORTHERN NM STREAMS

In 2022, after many public hearings, the Water Quality Control Commission (WQCC) officially designated 125.9 miles of northern New Mexico rivers and streams as Outstanding National Resource Waters, based on their recreational, ecological and cultural significance. The designation supports and protects existing community uses, such as ranching and farming, while prohibiting new pollution from impacting these watersheds.

A diverse coalition, including tribal leaders, local governments, farmers, acequia members, outdoor recreationists and water conservation groups celebrated the decision to protect significant portions of six streams. The protected waters include segments of the Río Grande, Río Hondo, Lake Fork, East Fork Jemez River, San Antonio Creek and Redondo Creek. Dozens of outdoor recreation businesses in northern New Mexico testified about the importance these rivers have on their livelihoods and the economic health of the region.

The Outdoor Recreation Division (ORD) of the New Mexico Economic Development Department (EDD) filed the petition with the commission after years of community outreach. When she created the ORD in 2019, Gov. Michelle Lujan Grisham identified the outdoor recreation industry as a key target sector to diversify the New Mexico economy. Since then, the office has invested approximately \$2 million in outdoor recreation grants and business programs, including the first-of-its-kind Outdoor Equity Fund and the state's first outdoor business accelerator. ORD prioritized conservation and sustainable growth of the outdoor economy.

The outdoor industry contributes almost \$2 billion a year to New Mexico's GDP and employs over 25,000 people, according to the Bureau of Economic Analysis (BEA). In 2020, boating and fishing were the second-largest drivers of state outdoor economy, generating \$100.96 million.

"Since time immemorial and still today, the Río Jemez and its headwaters are the lifeblood of our people and the ecosystems that are connected to this very special place in our ancestral homelands," Brophy Toledo, Jemez Pueblo cultural leader said. "We, as Native peoples, see the sacredness of the water ecosystems that sustain life for all the birds and animals, plants and aquatic life that humans greatly benefit from. These protections ensure that sacred practices and irrigation can continue without additional requirements."

Elias Espinoza, *mayordomo* of the Acequia de San Antonio, wrote in the petition, "Our *parciantes* (water rights holders) cherish our local rivers. Not only do the acequia association members irrigate with water from the Río Hondo, "our fellow *parciantes* on other acequias depend on the Río Hondo to irrigate food crops, pastures and livestock. We all depend on clean unpolluted waters for our quality of life."

MIDDLE RÍO GRANDE CONSERVANCY DISTRICT'S WATER USE

In January, WildEarth Guardians filed a lawsuit, contending that New Mexico's state engineer has issued extensions for 90 years on the Middle Río Grande Conservancy District's water permits without making the agency prove beneficial use of water. Beneficial use is a basic tenet of New Mexico water law. The environmental groups attorney, Samantha Ruscavage-Barz, said that the state engineer has not reported how much the MRGCD is using, so it's not possible to know how much water is at stake. She said that the state engineer has relied too much on one clause in the statute—that he can extend the permit without proof of beneficial use if he deems it in the public's interest—giving himself unlimited discretion. An attorney for the state engineer, Simi Jain, argued that the clause allows practical decisions to be made based on situations that arise. State District Judge Francis Mathew said it could take 60 days to make a decision and encouraged the parties to discuss a settlement.

IS WATER THE NEW OIL?

A private investment firm is showing a growing interest in an increasingly scarce natural resource: water in the Colorado River. For farmers and cities that depend on the river as a lifeline, that is concerning.

A New York-based investment firm, Water Asset Management, bought a large farm in western Colorado around 2017, and rents some of that land to farmers. The Madison Avenue company, founded in 2005, has bought at least \$20 million worth of Grand Valley land in the last five years, making it one of the area's largest landowners. The hedge fund's website says that it invests exclusively in assets and companies that ensure water supply and quality and that "scarce clean water is the resource defining this century, much like plentiful oil defined the last." In a 2020 interview, the company's co-founder/president, Matthew Deserio said, "Water in the United States is a trillion-dollar market opportunity."

The Colorado River flows through seven states and is an important water source for cities including Albuquerque, Denver, Los Angeles and Salt Lake City. But climate change is making the West hotter and drier. The river's flow dropped nearly 20 percent over the past century, and there has been a 23-year megadrought, the worst in 1,200 years. The nation's largest reservoirs, Lake Powell in Arizona and Lake Mead in Nevada, are at historic lows.

UNITED WAY—CONNECT HELPLINE

United Way and CONNECT hosted a ribbon-tying event on Feb. 11 to celebrate their new partnership and linking of the CONNECT network to United Way's 211 information and referral Helpline. Mayor Alan Webber, Santa Fe County Commissioners Hank Hughes and Anna Hamilton, and United Way President/CEO Rodney Prunty joined with staff and stakeholders to highlight this expansion of services for community members in need.

The event also unveiled a "text to donate" hotline to support the program. New signage is on display around Santa Fe to let people know they can call 211 if they need help getting food, shelter or other support, or text "CONNECT" to 26989 if they would like to help by donating to the CONNECT network.



SANTA FE'S WORK-BASED LEARNING PROGRAM

*Opportunities for Youth to Develop Skills,
Build Professional Networks*

The City of Santa Fe's Governing Body has approved a work-based learning program developed between the city's Office of Economic Development and Youth and Family Services Division, in partnership with Santa Fe Public Schools (SFPS). The program will utilize \$797,600 from the American Rescue Plan Act (ARPA) for youth workforce development, mentorship and job training. Santa Fe is the only city in New Mexico to utilize these funds in partnership with public schools.

The new initiative will consist of paid internship programs for youth interested in arts-based, trades and diversified industries leadership opportunities. High school juniors, seniors and recent graduates living in the Santa Fe area will be eligible to apply. The ARPA funds will support schools' operations and services, including business outreach, student mentoring, social-emotional learning and life-skills training, student internship placement and paid internships during the school year and the summer.

"Santa Fe has a diverse variety of families, all of whom would like to ensure young people have opportunities to prosper and make a meaningful career path," said Community and Economic Development Director Rich Brown. "I am thrilled to see this innovative partnership supporting our future leaders move forward."

"Our work-based learning program continues to soar. We greatly appreciate the city's partnership with the district and its investment in our youths. This program is meeting employability needs across many sectors, which is a benefit to employers and students. It's a prime example of what can be accomplished when everyone is at the table for the betterment of all," said SFPS Superintendent Hilario "Larry" Chávez.

SFPS leadership, including Superintendent Chávez, Deputy Superintendent Vanessa Romero, Assistant Superintendent for Secondary Schools Michael Hagele, Executive Director of Curriculum and Instruction Peter McWain, Director of College and Career Readiness Mary Massey and SFPS' Work-Based Learning Coordinator José Villarreal contributed to the development of the program.

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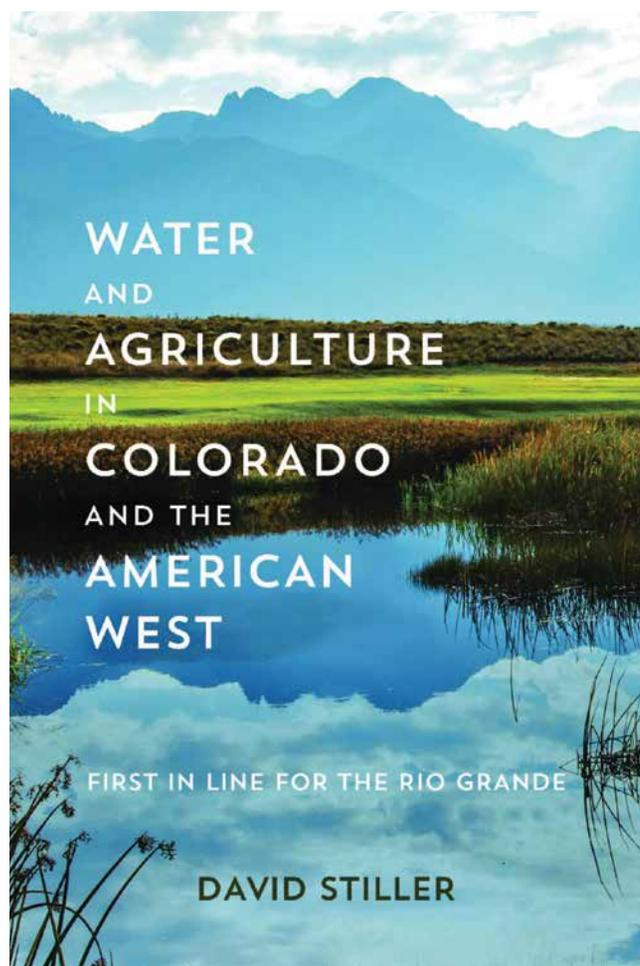
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WATER AND AGRICULTURE IN COLORADO AND THE AMERICAN WEST: FIRST IN LINE FOR THE RIO GRANDE

BY DAVID STILLER

RENO: UNIVERSITY OF NEVADA PRESS, 2021

Water has always been one of the American West's most precious and limited resources. The earliest inhabitants—Native Americans and later Hispanics—learned to share the region's scant rainfall and snowmelt. When Euro-Americans arrived in the middle of the 19th century, they brought



with them not only an interest in large-scale commercial agriculture but also new practices and laws about access to, and control of, the water essential for their survival and success. This included the concept of private rights to water, a critical resource that had previously been regarded as a communal asset.

David Stiller's thoughtful study focuses on the history of agricultural water use of the Río Grande in Colorado's San

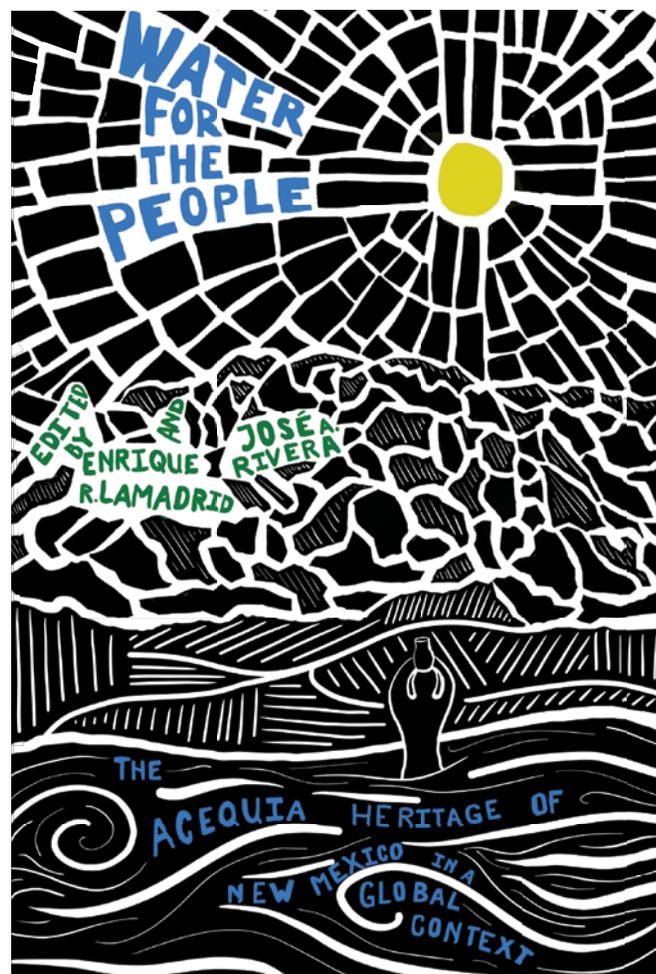
Luis Valley. After surveying the practices of early farmers in the region, he focuses on the impacts of Euro-American settlement and the ways these new agrarians endeavored to control the river. Using the Río Grande as a case study, Stiller offers an informed and accessible history of the development of practices and technologies to store, distribute and exploit water in Colorado and other western states, as well as an account of the creation of water rights and laws that govern this essential commodity throughout the West to this day. Stiller's work ranges from meticulously monitored fields of irrigated alfalfa and potatoes to the local and state water agencies and halls of Congress. He also includes perceptive comments on the future of western water as these arid states become increasingly urbanized during a period of worsening drought and climate change.

An excellent read for anyone curious about important issues in the West, *Water and Agriculture in Colorado and the American West* offers a succinct summary and analysis of Colorado's use of water by agricultural interests, in addition to a valuable discussion of the past, present and future of struggles over this necessary and endangered resource.

WATER FOR THE PEOPLE: THE ACEQUIA HERITAGE OF NEW MEXICO IN A GLOBAL CONTEXT

EDITED BY ENRIQUE R. LAMADRID AND JOSE A. RIVERA

UNM PRESS, 2023, UNMPRESS.COM



Water for the People features 25 essays by world-renowned acequia scholars and community members that highlight acequia culture, use and history in New Mexico, northern Mexico, Chile, Peru, Argentina, Spain, the Middle East, Nepal and the Philippines, situating New Mexico's acequia heritage and its inherently sustainable design within a global framework. The lush landscapes of the upper Río Grande watershed created by acequias dating from as far back as the late 16th century continue to irrigate their communities today despite threats of prolonged drought, urbanization, private water markets, extreme water scarcity and climate change. *Water*

for the People celebrates acequia practices and traditions worldwide and shows how these ancient irrigation systems continue to provide arid regions with a model for water governance, sustainable food systems and community traditions that reaffirm a deep cultural and spiritual relationship with the land year after year.



Irrigating from an acequia in northern New Mexico
© Seth Roffman

Enrique R. Lamadrid is a distinguished professor emeritus at the University of New Mexico. Jose A. Rivera is professor emeritus of community and regional planning at UNM.

“Editors Enrique Lamadrid and Jose Rivera have assembled in this beautifully illustrated volume the most

fascinating account to date of the remarkably durable acequia and the lessons it offers in careful water management for a hotter and drier world than we have known. We should all pay attention.” – Baker H. Morrow, author of *Best Plants for New Mexico Gardens and Landscapes*



Left and above: All Pueblo Council of Governors Chairman Mark Mitchell (Pueblo of Tesuque) speaks; Top: President Edward Velarde (Jicarilla Apache); Center (l-r): Regis Pecos (Cochiti) and Rep. Derek Lente (Sandia) advocated for tribal education funding; Onlookers listen; Posting of the colors by the Pueblo of Acoma American Legion Post 116. The Cloud Eagle Singers from the Pueblos of Jemez and Zuni performed an honor song. Photos © Seth Roffman

AMERICAN INDIAN DAY AT THE NEW MEXICO LEGISLATURE

There are 23 federally recognized tribes and eight spoken Indigenous languages in New Mexico. As American Indian Day was celebrated on Feb. 3 at the state capitol, Gov. Michelle Lujan Grisham announced the appointment of James R. Mountain to lead the Indian Affairs Department. Mountain is a former governor of the Pueblo of San Ildefonso.

Elders, youth, state and tribal leaders filled the roundhouse to capacity. “Paving the Way for the Future: Centering and Uplifting Indigenous Voices” was this year’s theme. For many, it was an opportunity to strengthen relationships between tribal governments and their communities with elected state officials. Gov. Lujan Grisham recognized efforts by many tribal leaders and government officials in education who helped establish free college tuition for state residents, and discussed the importance of the tribes, as sovereign nations, reclaiming renewable energy. She also spoke of the importance of early childhood education—commending the Pueblo of Jemez’s programs—and emphasized the importance of food security, especially for tribal communities.

TRIBAL EDUCATION ALLIANCE

Tribal leaders, including All Pueblo Council of Governors (APCG) Chairman Mark Mitchell, Mescalero Apache Tribe President Eddie Martinez, Jicarilla Apache Nation President Edward Velarde, along with the Tribal Education Alliance, New Mexico Center on Law and Poverty and Transform Education New Mexico, held a press conference to discuss House Bill 140, the Tribal Education Trust Fund, which would establish a stable and consistent funding source for Tribal education departments to create culturally and linguistically relevant community-based education programs and support Indigenous students in their own communities. The bill was sponsored by Rep. Derrick Lente, who eventually decided to abandon it until 2024, when he will have a seat on the Legislative Finance Committee.



JICARILLA APACHE NATION, NM INTERSTATE STREAM COMMISSION AND THE NATURE CONSERVANCY ENTER NEXT PHASE IN HISTORIC WATER SUPPLY AGREEMENT

On Dec. 14, 2022, the Jicarilla Apache Nation (Nation), New Mexico Interstate Stream Commission (NMISC) and The Nature Conservancy (TNC) announced the next phase in their Water Supply Agreement that was reached earlier in the year. With final federal and state approvals secured, the NMISC placed an order for all 20,000 acre-feet of water, and the Nation approved and reserved water to be released from Navajo Reservoir to the San Juan River in 2023.

In January 2022, the partners signed a first-of-its-kind agreement that allows the NMISC to lease up to 20,000 acre-feet of water per year (for 10 years) from the Nation to benefit threatened and endangered fish and increase water security for New Mexico. As the western U.S. faces its driest period in 1,200 years, this agreement demonstrates how tribal nations and state governments can work on a sovereign-to-sovereign basis—with support from conservation organizations to find collaborative solutions that benefit multiple interests and users of the San Juan and Colorado rivers.

“The Jicarilla Apache Nation looks forward to the implementation phase of this project and hopes that this transaction can serve as a model across the basin for collaboration with conservation organizations, negotiation of arms-length sovereign-to-sovereign agreements, and development of creative solutions that serve multiple interests,” said Jicarilla Apache Nation President Edward Velarde.

Water is expected to be released into the San Juan River in 2023.

The partners are exploring multiple options about when and how the water will be released in 2023. The decision on timing will be made by the lease agreement parties with input from scientists to determine the best outcome for endangered fish species. Scientists are working on a plan to monitor how the habitat for endangered fish reacts to the release and will use the information garnered to help make decisions for future releases.

“The NMISC is pleased that we are able to support this important project through New Mexico’s Strategic Water Reserve,” said NMISC Director Rolf Schmidt-Petersen. “We want to be sure we’ve carefully thought through the logistics of the first water release and seize the opportunity to measure benefits to the razorback sucker and Colorado pikeminnow.”

This project will use the Nation’s water temporarily placed in the State of New Mexico’s Strategic Water Reserve for the purposes of the Strategic Water Reserve: 1) to assist the state in complying with interstate stream compacts and court decrees, and 2) to assist the state and water users in water management efforts to benefit threatened or endangered species.

“The Colorado River is in an unprecedented crisis,” said Celene Hawkins, Colorado River tribal partnerships program director for The Nature Conservancy. “Communities must proactively work together, focusing on water conservation and management. This project is a step toward those goals, and we are thrilled to be a part of this great partnership.”

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Rio Embudo, Northern New Mexico

FIFTEEN TRIBES TO SHARE \$580 MILLION IN WATER RIGHTS SETTLEMENTS

President Biden's Bipartisan Infrastructure Law invests more than \$13 billion directly in Native American communities across the country. Several northern New Mexico pueblos are among 15 tribes that will share \$580 million for tribal water rights settlements this year.

The Aamodt Settlement will receive \$30,500,000. The Navajo Nation will receive \$137,000,000 for the Navajo-Gallup Water Supply Project.

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Four-hundred-sixty-million dollars of that is coming from the \$2.5 billion allocated to implement the Indian Water Rights Settlement Completion Fund. The settlement's other \$120 million will come from the Reclamation Water Settlements Fund, created by Congress in 2009. There were 34 congressionally enacted Indian Water Rights settlements as of Nov. 15, 2021, when the Infrastructure Law was signed.

The funding will help implement an agreement that defines tribes' senior rights to water from rivers and other sources. It will also pay for pipelines, pumping stations and canals to deliver water to tribal lands. "Water is a sacred resource, and water rights are crucial to ensuring the health, safety and empowerment of Tribal communities. Through this funding, the Interior Department will continue to uphold our trust responsibilities and ensure that Tribal communities receive the water resources they have long been promised," said Department of the Interior Sec. Deb Haaland.

Settlement of Indian water rights disputes helps create conditions that improve water resources management by providing certainty as to the rights of all users who are parties to disputes. Thirty-million, five-hundred-thousand dollars was allocated for the Aamodt Litigation Water Rights Settlement, which involves the pueblos of Nambe, Pojoaque, San Ildefonso and Tesuque, and communities between Santa Fe and Española. The long-awaited settlement calls for construction of the Pojoaque Basin Regional Water System, to be completed in 2028.

The Navajo Nation will receive \$137 million for the Navajo-Gallup Water Project, a network of pipelines and pumping stations that is expected to be completed in 2027. It will deliver treated drinking water from the San Juan River to northwest New Mexico. A separate, \$39-million settlement will fund water infrastructure in San Juan County.

How do I love NMELC? Let me count the ways. When the Contra Santolina Working Group was going under, you threw us a life preserver and with your help we are still afloat. We still fight on. Without NMELC there might be houses in Santolina now. Instead there are jackrabbits and sagebrush and sand.

Marcia Fernandez
 Contra-Santolina Working Group

Please consider a donation to the New Mexico Environmental Law Center

www.nmelc.org/donations

Your support is vital in helping us defend environmental justice across NM

The New Mexico Environmental Law Center has been defending environmental justice since 1987. It is our mission to work with New Mexico's communities to protect their air, land and water in the fight for environmental justice.

2023 NEW MEXICO FOOD AND FARMS DAY AWARDS

During the legislative session, Farm to Table and the New Mexico Food & Agriculture Policy Council (one of the nation's longest-running food policy councils) presented the annual Food and Farms Day Awards in the Rotunda of the state Capitol. The annual event celebrates the efforts of individuals, communities, organizations and agencies that strive to create a thriving local food, farming and ranching economy. It highlights ways groups and initiatives are working together to increase affordable, healthy food access; and intersections among health, sustainable food systems and the economic wellbeing of the state's farms and ranches. For more information, visit: [HTTPS://NMFOODPOLICY.ORG/2023-FOOD-FARMS-day-awardees/](https://nmfoodpolicy.org/2023-food-farms-day-awardees/)

This year's winners were from every corner of the state:

Good Food for New Mexico Award—Celebrating Farmers' Markets
Portales and Clovis Farmers' Markets

Growing the Future Award for New or Young Farmers and Ranchers
Datura Farm, Buckhorn

Heart of the Land Award for Outstanding Leadership in Farming and Ranching
Bidii Baby Foods LLC, Shiprock

Living Land Award for Outstanding Leadership in Land Stewardship
Reunity Resources, Santa Fe

Sowing Change Award for Organizations Engaged in Creating Sustainable Food Systems
First Nations Development Institute, Albuquerque

Visionary New Mexico Award
Food Initiative, Office of the Governor

The Golden Chile Awards are organized by the New Mexico Grown Coalition. These awards recognize innovative New Mexico-Grown programming taking place at preschools, K-12 schools and senior centers, and farmers and food producers who supply the food.

Golden Chile—"Program is mature and fruitful"
Gold Star Academy & Chile Development Center, Roswell Independent School District

Blossom—"Program is reaching maturity"
Bumblebee Learning Center, Sunland Park, Río Arriba County Senior Program, Chama, Tierra Amarilla, El Rito, Coyote, Dixon, Española, Alcalde, Chimayo and Truchas

Sprout—"Program is growing strong"
Clovis Municipal Schools
Presbyterian Medical Centers—Torrance Senior Services in Torrance County

Seed—"Program has potential"
Mid-West NMCAP Socorro Head Start
Santo Domingo Senior Center, Santo Domingo Pueblo



Left: Samantha Hilborn, Chili Yazzie, Lawrence Gallegos, Anthony Wagner, Gov. Michelle Lujan Grisham, Helga Garza, Santo Domingo Pueblo Gov. Esquipula Tenorio Sr.; Above: Zachariah Ben of Bidii Baby Foods; Julian and Tejinder Ciano of Reunity Resources receive award from Lawrence Gallegos (l) and NMDA Sec. Jeff Witte (r); directors of Bumble Bee Learning Center, Sunland Park; Luciano Bailon, Santo Domingo Senior Center food service director (l), Gov. Esquipula Tenorio Sr. (r)
Photos © Seth Roffman

APPRENTICESHIP NETWORK SUPPORTS NATIVE AMERICAN BEGINNING FARMERS AND RANCHERS

First Nations Development Institute has announced the 30 Native American beginning farmers and ranchers selected to participate in the organization's Native Farmer and Rancher Apprenticeship Network. The farmers and ranchers will be supported in building business capacity and strengthening their land management strategies, with a goal to increase local food production, food access and conservation stewardship. The network launched in 2022 with the support from the National Institute of Food and Agriculture (NIFA), U.S. Department of Agriculture (USDA) and Ronald W. Naito MD Foundation. "This investment will benefit a rising generation of beginning farmers and ranchers who truly reflect the tapestry of American agriculture," said NIFA Acting Director Dr. Dionne Toombs.

The participants were chosen from a pool of diverse applicants from Arizona, Minnesota, New Mexico, North Dakota, South Dakota and Wisconsin. They will receive regional in-person trainings, virtual webinars, coaching support for their business plans and fieldwork.

Leiloni Begaye, First Nations program officer, said the new network was developed based on success with the "Community of Practice" model, which convenes Native leaders for trainings and workshops and provides a collaborative approach to sharing best practices. "This cohort will learn first-hand from knowledgeable community members about Native farm and ranch management practices," said Begaye. "At the same time, they will find guidance, partnerships and inspiration from each other that can advance their work in marketing, agriculture, conservation planning and natural resource management."

The network is part of First Nations' Stewarding Native Lands program, which recognizes that Native American communities have sustainably managed their lands for thousands of years, cultivating, adapting and transferring traditional ecological knowledge over many generations. The program cultivates this expansive reservoir of knowledge by providing financial and technical assistance to support Native ecological stewardship and improve Native control of and access to ancestral lands and resources.

Through the 30-month apprenticeship, which runs through July 2024, individuals receive a stipend, as well as individualized technical assistance. For more information, visit [HTTPS://WWW.FIRSTNATIONS.ORG/PROJECTS/NATIVE-FARMER-AND-RANCHER-APPRENTICESHIP-NETWORK/](https://www.firstnations.org/projects/native-farmer-and-rancher-apprenticeship-network/).



FROM THE PUEBLO OF TESUQUE TO BOLIVIA, PERU, MÉXICO

BY EMIGDIO BALLÓN AND GAILEY MORGAN



The philosophy of the governor, the tribal council and the people of the Pueblo of Tesuque is to share our experiences with Indigenous communities of America (South, Central and North). Based on this, we developed the idea of sharing our experience of building a seed bank with our brothers and sisters.

In November 2022, we were part of the inauguration of a seed bank in the Bella Flor de Pucara Indigenous community, located in the

Cliza section of Cochabamba, in Bolivia. Community members, people of Quechua origin who are descended from the Incas, built the seed bank. We wish to highlight the support of the Seed, Soil and Culture Foundation, who are preserving culture, tradition and taking care of Mother Earth (Pachamama). They are also working to stop the genetic engineering of food and to advance self-reliance, because those who control the seeds control life.

We were part of the celebration of the inauguration of the seed bank. Like our seed bank in New Mexico, we think it is one of the first of its kind in Latin America. This is a task left by our ancestors to care for and protect for our future generations.

Top (l-r): Seed carriers Felix Rodríguez, Agustina Flores and Severina Tarrazes with Gailey Morgan and Emigdio Ballón in front of their seed bank in the village of Villa Rivero, Aramasi, Bolivia; Above: Morgan and Ballón in seed vault, Bella Flor de Pucara, Bolivia



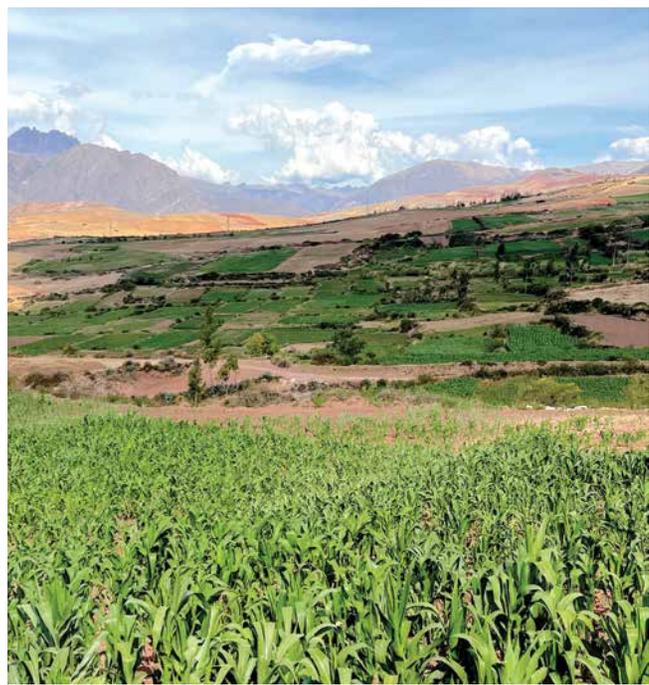
In Peru, we participated in an exchange of seeds in the community of Lamay, where the culture of Los Queros, also descendants of the Incas, is located.

Those who control the seeds control life.

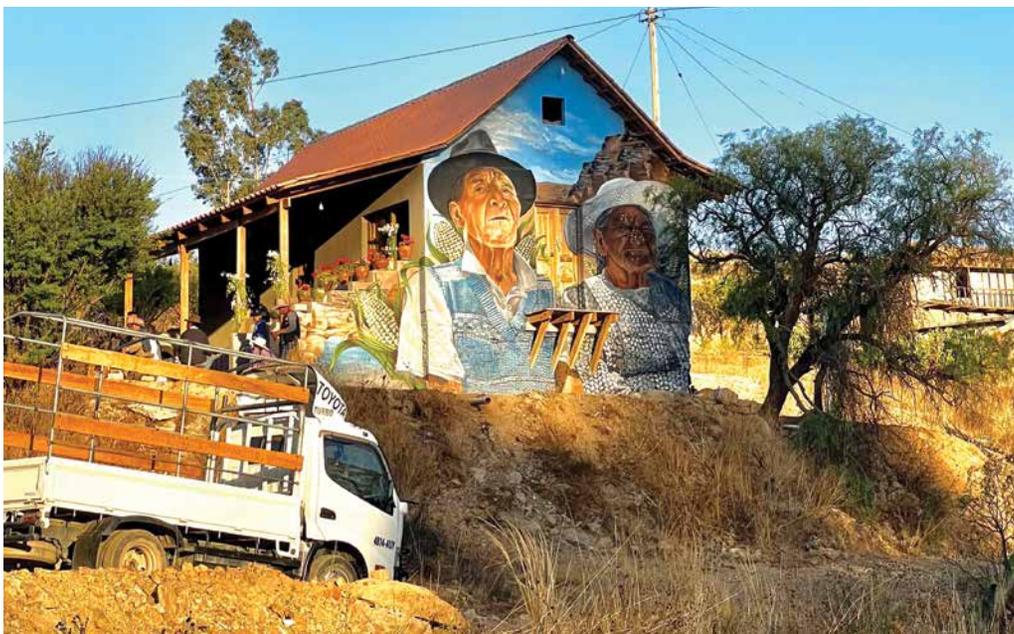
We ended our journey in México, where we worked in another Indigenous community, the village of San Pedro, in Guadalajara, where food is provided to 750 children. We helped start a food production project, which includes medicinal plants and conservation and production of seeds. As part of this, we participated in traditional rituals, an important part of the Mayan culture.

We wish to thank the governor of the Pueblo of Tesuque for his support. It was a great experience for those of us who were part of the team. We also wish to thank Jashua, Veronica Sandoval, Matt Machado and Daisy Vargas. ■

Emigdio Ballon (Quechua) is the director of the Tesuque Pueblo farm, north of Santa Fe. Gailey Morgan (Pueblo of Tesuque), a leader of the farm project team, has worked with Emigdio on the project for 17 years.



Top: Emigdio Ballón gives an opening prayer in Quechua at the seed bank in Bella Flor de Pucara, Bolivia. Indigenous elders from surrounding communities attended; Corn field, Moray, Peru (11,480 feet above sea level); Seed bank, Bella Flor de Pucara, with image of village father Tata Julio Pardo and mother Ricarda Zarate



ASSESSMENT OF NATIVE SEED NEEDS AND THE CAPACITY FOR THEIR SUPPLY

As climate change increases the possibility of extreme weather events that often damage natural areas, an insufficient supply of native seeds presents a major barrier to ecological restoration and other revegetation efforts.

The National Academies of Sciences, Engineering and Medicine's recent report outlines the importance of native seeds in conserving and restoring native plant communities and provides recommendations for building a more robust native seed supply and industry.

Native plant communities are foundational to thriving ecosystems, delivering goods and services that regulate the environment and support life, provide food and shelter for a wide range of native animals, and embody a wealth of genetic information with many beneficial applications. Restoring impaired ecosystems requires a supply of diverse native plant seeds that are well suited to the climates, soils and other living species of the system.

The report examines the needs for native plant restoration and other activities, provides recommendations for improving the reliability, predictability and performance of the native seed supply, and presents an ambitious agenda for action. An Assessment of Native Seed Needs and the Capacity for Their Supply considers the various challenges facing our natural landscapes and calls for a coordinated public-private effort to scale-up and secure a cost-effective national native seed supply. To learn more, visit [HTTP://OW.LY/BROP50MBC4B](http://ow.ly/BROP50MBC4B).

ROCKY MOUNTAIN SEED ALLIANCE BECOMES SEEDS IN COMMON

Caring for Land, Water, People and Seeds

The Rocky Mountain Seed Alliance, a seed-saving educational organization, has transitioned to become Seeds in Common. In addition to the new name, the dedicated network of seed stewards, seed teachers and program participants has a new mission and vision focused around supporting seed-keepers and food growers by providing educational, financial and material resources. "Seeds will remain the heart of what we do," their website states.

The mostly women-led team of farmers and community organizers is dedicated to advocating for seed diversity and food justice. "We envision a healthy world rooted in community care for life, land, water, people and seeds," the group said.

The Rocky Mountain Seed Alliance, founded by John Caccia, Bill McDorman and Belle Starr in 2014, had many accomplishments, including offering programs across the West, conducting heritage grain trials and "Grain School," and sponsoring seed summits in Santa Fe.

In early 2022, Seeds in Common began a "paradigm shift" to restructure the organization's staff, board and organizational framework to better represent the communities it serves. They define the region they serve as the Colorado and Río Grande watersheds. They have held seed-saving, local food, and land restoration workshops in Colorado and New Mexico.

To subscribe to the organization's newsletter, email EDUCATION@SEEDSINCOMMON.ORG. For more information, visit WWW.SEEDSINCOMMON.ORG.

ACCELERATING SOLAR ENERGY DEVELOPMENT ON PUBLIC LANDS IN THE WEST

During a visit to the Sonoran Solar Energy Project in December 2022—a project on public lands expected to power 91,000 homes—Secretary of the Interior Deb Haaland and Principal Deputy Assistant Secretary for Land and Minerals Management Laura Daniel-Davis announced new efforts to support solar energy development on public lands across the West and help meet the Biden-Harris administration’s renewable-energy and conservation goals.

The Bureau of Land Management (BLM) is updating the Solar Programmatic Environmental Impact Statement (PEIS) to guide solar energy development on public lands and continue momentum for a clean-energy economy. The BLM is also reviewing three proposed solar projects in Arizona that could add one gigawatt to the grid.

“This administration is committed to addressing the climate crisis, enhancing America’s energy security and providing good-paying union

Plans for three solar projects in Arizona totaling 1GW of clean energy are under review.

jobs,” Haaland said. “A new analysis of the role public lands can play in furthering solar energy production will help ensure lower costs for families and create robust conservation outcomes on the nation’s lands and waters.”

In 2012, the BLM and the Department of Energy (DOE) issued a final PEIS for solar energy development in six Southwestern states: Arizona, California, Colorado, Nevada, New Mexico and Utah. The 2012 Solar PEIS identified areas with high solar potential and low resource conflicts in order to guide responsible development and provide certainty to developers. A decade later, in light of improved technology, new transmission and ambitious clean-energy goals, the BLM is considering adding more states, adjusting exclusion criteria and seeking to identify new or expanded areas to prioritize solar deployment.

The BLM kicked off a process to develop a new solar plan for the West.

A 60-day public comment period began in December. Interested stakeholders submitted written feedback or participated in public scoping meetings. The BLM is now developing a draft programmatic EIS for public review and comment. Scoping meetings will also be announced for environmental analysis of the proposed Jove solar project in Arizona, which would produce up to 600 megawatts of utility-scale renewable energy from solar photovoltaic modules on 3,495 acres of public land in southeastern La Paz County. Then there will be a two-year segregation of more than 4,400 acres of public land associated with two projects. The segregation supports review of the

the proposed 250 megawatt Pinyon Solar project in Maricopa County and the 300-megawatt Elisabeth Solar project in Yuma County.

Haaland and Daniel-Davis also announced that the BLM is issuing updated guidance to improve consistency in processing rights-of-way for utility-scale solar projects under the variance process established by BLM’s 2012 Western Solar Plan, which is used for solar projects outside of Solar Energy Zones.

Across the West, the BLM is currently processing 65 utility-scale onshore clean-energy projects proposed on public lands. This includes solar, wind and geothermal projects, as well as interconnect gen-tie lines that are vital to clean energy projects proposed on non-federal land. These projects have the combined potential to add over 31,000 megawatts of renewable energy to the Western electric grid. The BLM is also undertaking the preliminary review of more than 100 applications for solar and wind development, as well as nearly 50 applications for wind and solar energy testing.

PUBLIC-PRIVATE PARTNERSHIP APPROVED FOR FOUR CORNERS RE TRANSMISSION LINE

In January, the board of directors of the New Mexico Renewable Energy Transmission Authority (RETA) voted to enter into a joint development agreement to work with Invenergy Transmission to advance the New Mexico North Path (North Path) transmission project. The \$2-billion-, 400-mile direct current line would move up to four gigawatts of renewable energy produced in northeastern New Mexico to the state’s Four Corners region, powering the equivalent of two million homes in New Mexico and across the Southwest.

RETA’s independent board—including a statewide elected official and members appointed by the executive and legislative branches of government—will thoroughly review the project, and RETA will help navigate local, state and federal processes. “New Mexico has some of the best wind and solar energy potential in the United States, and the North Path transmission line represents a critically needed pathway for moving low-cost clean energy to consumers across the state and region,” said RETA Chairman Bob Busch.

State-of-the-art high-voltage direct-current (HVDC) transmission lines can carry the same amount of energy as alternating-current (AC) lines over longer distances at lower cost, while using narrower rights of way. Most structures would be sited over a quarter-mile apart, paralleling existing infrastructure where possible, according to the project’s website ([HTTPS://NEWMEXICONORTHPATH.COM](https://newmexiconorthpath.com)).

The new line would help unlock a share of what RETA has estimated is \$11 billion in untapped renewable-energy investment potential in the state. Power would be injected into the line in Union County. The project would create 3,500 jobs during construction and generate tens of millions of dollars in annual tax payments to tribal, state and local governments. It would also support the renewable energy standard of 50 percent by 2030 of New Mexico’s Energy Transition Act.

The project team has engaged with groups in Union, Harding, San Miguel, Guadalupe, Santa Fe, Sandoval, McKinley and San Juan counties. Ongoing engagement with the Navajo Nation and Pueblo communities helped identify suitable areas for the project. In addition, the team has hosted community open houses in Clayton, Roy, Las Vegas, Moriarty and Santa Rosa. Public outreach and landowner engagement is to continue through 2028. The permitting process will continue through 2025. Construction and restoration of construction areas are to continue through 2028, when substations and the transmission line would be in service.

ENERGY NEWSBITES

TRANSPORTING AND STORING CLEAN ENERGY

Breeze, Inc., an Albuquerque-based startup, is developing a way to create, transport and store electricity in idle pipelines using compressed air. Reusing infrastructure keeps a major capital expense low. The company recently finished building a prototype and hopes to close a second round of investment funding by June.

Co-founder Mike Orshan cited “one of the largest workforces here in New Mexico of pipeline workers.” He told *Albuquerque Business First* that, “As we implement renewable energy, there’s more pipelines available and less being built, so our approach would be a great way to bring that workforce into the renewable world.” Orshan served as the director of science and technology for New Mexico under Gov. Bill Richardson before leading sales at various clean-energy companies. Breeze, Inc. also has operations in Alberta, Canada.

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UTILITY-SCALE RENEWABLE ENERGY ON TRIBAL LANDS

Despite the 2022 passage of the Inflation Reduction Act, which allows Native American tribes and other tax-exempt entities such as electric cooperatives to receive direct payment tax credits for building wind, solar and other clean-energy projects, it could be many years before tribes’ renewable-energy projects can connect to the power grid. That’s because many tribes have limited access to power lines and long wait times to link to the power grid.



A construction crew works on the Kayenta solar project, which was developed by the Navajo Tribal Utility Authority. | Navajo Tribal Utility Authority

Tribal lands cover about 5.8 percent of the country and comprise 6.5 percent of the nation’s potential for large-scale clean energy, according to estimates from the National Renewable Energy Laboratory. That means that tribal lands in the contiguous United States have the potential to supply more than nine gigawatts of solar, wind, geothermal and other renewable resources. Many in rural areas have the potential to build utility-scale tribally owned solar facilities.

There has been an unprecedented surge in solar, wind and battery projects nationwide. Some tribes see such projects as complementary to their values of living in harmony with nature. They have become increasingly interested in developing and owning their own energy projects, which requires not only proposing viable projects and financing them but also connecting them to the grid. In areas where infrastructure must be upgraded to support new generation, those upgrades are usually paid for by the developer of the new project. That can be prohibitive for a tribe. For two large wind farms proposed on reservations in South Dakota, grid infrastructure upgrade costs were estimated to be \$48 million, forcing the tribes to withdraw.

The Federal Energy Regulatory Commission (FERC) has proposed changes to the interconnection process that, if finalized this year, could benefit tribal entities that have secured land rights and project permits. The changes would make energy development opportunities more equitable. This could impact the Navajo Nation as it shifts from coal-fired power plants to owning its own solar farms.



The Kayenta solar project in Arizona was developed by the Navajo Tribal Utility Authority, a not-for-profit utility owned by the Navajo Nation. | Navajo Tribal Utility Authority

The Navajo Tribal Utility Authority is developing a 200-MW solar project that would connect to the grid through a substation that was part of the Navajo Generating Station, which was decommissioned in 2020. The plant was a significant source of revenue for the Navajo and Hopi tribes. The project has been secured through a lease from the tribe, environmental studies have been completed, and the Authority already has the right to use transmission lines in the area. However, it is not clear when the solar farm will be approved to connect to the grid because there is a backlog of projects proposed by private developers years ago.

Yet, because of the changes in the Inflation Reduction Act's climate law and FERC's interconnection plan, opportunities for tribes to become major clean-energy developers are more likely. In addition to direct payment tax credits, the law also increased the number of loans available through the DOE's Tribal Energy Loan Guarantee Program from \$2 billion to \$20 billion.

\$2.7 BILLION TO IMPROVE AND EXPAND RURAL ELECTRIC INFRASTRUCTURE

Includes Grid Security and Reliability project in Southeast New Mexico

The U.S. Department of Agriculture (USDA) announced the Department is allocating \$2.7 billion to help 64 electric cooperatives and utilities expand and modernize the nation's rural electric grid and increase grid security. "This funding will help rural cooperatives and utilities invest in changes that make our energy more efficient, more reliable and more affordable for decades to come," USDA Secretary Tom Vilsack said. "Rural Development State Director Patricia Domínguez added, "These investments will support rural communities here in New Mexico to be more economically viable."

Nearly half of the awards will help finance infrastructure improvements in underserved communities. The Río Grande Electric Cooperative based in El

Paso, Texas is receiving a \$42,890,000 loan, a portion of which will be used to expand electric service in Eddy and Otero counties in southeastern New Mexico. The loan also includes \$3,990,000 for smart grid technologies. A smart grid is an electricity network that uses digital and other advanced technologies to monitor and manage the transport of electricity from all generation sources to meet the varying electricity demands of the end user. Smart grid can be a catalyst for broadband and other telecommunications services in unserved and underserved rural areas.

DOE LAUNCHES \$50-MILLION PROGRAM TO HELP COMMUNITIES MEET CLEAN ENERGY GOALS

On Jan. 18, the U.S. Department of Energy (DOE) launched an up-to-\$50-million program to help communities across the country transition to "clean-energy systems that are reliable, affordable, equitable and reflective of local priorities." The Clean Energy to Communities program (C2C) will connect local governments, electric utilities, community-based groups and others with innovative modeling and testing tools. By helping communities reach their clean energy targets, the program supports the Biden-Harris administration's goals to decarbonize the electric grid by 2035 and achieve a net-zero emissions economy by 2050.

"C2C will help communities—from small rural communities to sprawling urban areas—make informed decisions about their own energy needs and access the tools and scientific and technological expertise they need to bring their energy systems into the 21st century," said U.S. Secretary of Energy Jennifer M. Granholm. The program provides integrated technical support across renewable power, grid, mobility and buildings sectors. It seeks to provide the type and amount of support communities require to meet their unique interests and needs in transitioning to a clean-energy economy. This includes funding to support program participation.

C2C offers three levels of technical assistance: in-depth, multi-year technical partnerships; peer-learning cohorts that meet regularly for about six months; and expert-match, short-term assistance with technical experts.

The National Renewable Energy Laboratory (NREL) is leading and managing the program, while leveraging expertise and capabilities from four other national labs. C2C includes NREL's Advanced Research on Integrated Energy Systems platform, on which local leaders can see how a virtual model of their community interacts with actual and emulated clean-energy infrastructure and devices, such as wind turbines, controllers and electric charging stations—helping to de-risk future investments. C2C is funded by DOE's Office of Energy Efficiency and Renewable Energy (EERE). Learn more at [HTTPS://WWW.NREL.GOV/STATE-LOCAL-TRIBAL/CLEAN-ENERGY-TO-COMMUNITIES.HTML](https://www.nrel.gov/state-local-tribal/clean-energy-to-communities.html).

RESILIENT EL RITO PROJECT AWARDED ENGINEERING FUNDS

The Resilient El Rito (RER) community resilience microgrid demonstration project has awarded the engineering stage contract to Kit Carson Electric Cooperative (KCEC). Work has begun and construction is expected soon. The project is in the village of El Rito, New Mexico, based on and around the branch campus of Northern New Mexico College (NNMC). The campus is a historical treasure and the original site of the college but has been underutilized in recent years.

The village is served by KCEC at the end of a single electric power distribution line that traverses mountainous terrain and wilderness and is subject to reliability and resilience challenges common to rural isolated areas, including climate-induced wildfires and winds.

NNMC'S Technical Trades program received \$220,000 from the New Mexico Energy, Minerals, and Natural Resources Department (ENMRD) through its grid modernization program for a planning grant to coordinate the design and engineering.

The RER project is a collaboration between NNMC and KCEC, supported by Santa Fe-based Microgrid Systems Laboratory (MSL) and Camus Energy, with objectives in keeping with those institutions' economic, resilience and sustainability objectives. It will:

- Utilize the 1.5 megawatt PV array installed on campus as the primary local generation source, complemented by a Battery Energy Storage System (BESS) and controls technology
- Enable the El Rito community to sustain critical needs and activities during an extended power outage
- Provide a workforce training environment for NNMC's students
- Support KCEC in its efforts to serve its customers and modernize its system with 100 percent renewable energy.

It could also support research and development, demonstration, testing and activities with research universities, national laboratories and entrepreneurs, thereby providing additional educational opportunities and regional economic development opportunities.

PROGRAM SAVES SANTA FE RESIDENTS MONEY ON ELECTRICITY AND HEATING

February marked this year's launch of Solarize Santa Fe at Santa Fe Habitat for Humanity's headquarters. On a snowy day, people crowded into Habitat's conference room to learn about the program from Mayor Alan Webber, city officials and the program's partners. It is designed to help residents save money, create jobs and address climate change by increasing access to rooftop solar and energy efficiency.

Santa Fe joined other cities and counties around the country last year when it launched New Mexico's first "Solarize" program, which offers negotiated discounts from pre-vetted installers. In 2022, 39 contracts were signed, including 10 for income-qualifying households. With the right financing, system prices and some subsidies, installing rooftop solar can save thousands of dollars in electricity bills over the 25-30 year-life of a rooftop solar system.

During the launch, Faith Yoman shared how the program supported her in the process of taking out a low-interest loan, applying for and receiving



Mayor Alan Webber (l), city staff, Solarize Santa Fe participants and residents at the 2023 program kickoff

federal tax credits, and putting solar on her roof. This year, Solarize Santa Fe is being run by Santa Fe Habitat for Humanity, with partners YouthWorks and the Coalition of Sustainable Communities New Mexico. Its focus is on reducing utility costs for low and moderate-income households. Despite declining prices, the financial and environmental benefits of rooftop solar remain inequitably distributed nationally, with less participation correlated to race and lower levels of income and education.

The partners are also working together to include energy efficiency and green job training as part of the program. New Mexico Gas is supporting a series of weatherization measures for participating income-qualified households. Positive Energy and Sol Luna Solar, as well as one of the energy-efficiency contractors, Energy Works, will take on apprentices from YouthWork's Youth-Build program.

To learn more and sign up, visit WWW.SOLARIZESANTAFE.COM.

MORE THAN 400 COMMUNITY SOLAR PROJECTS PROPOSED

The New Mexico Public Regulation Commission (PRC) announced on Feb. 21 that companies have submitted more than 400 community solar applications. The PRC has contracted with the independent administrator InClima for the program. InClima will now evaluate the 440 applications, which include proposals for solar arrays in 19 counties.

"The tremendous response to the community solar program request for proposals is an early indicator of success, and we are thrilled by the overwhelming enthusiasm to meet New Mexico's initial capacity limit," Miana Campbell, InClima's community solar lead for New Mexico, said in a press release. "InClima is scoring the project bids against the RFPs, and ensuring bidders have plans in place to offer discounts to low-income households and community-based organizations. This competitive process will result in high-quality projects being awarded capacity, creating one of the best markets for community solar subscriptions in the country and contributing to a cleaner, greener future for New Mexico."

Should all 440 be approved, it would result in 1,700 megawatts of solar power. The Community Solar Act caps the total amount of community solar during the initial years at 200 megawatts, which are divided among the three

investor-owned utilities. The Public Service Company of New Mexico has a 125-megawatt cap. El Paso Electric can have 30 megawatts on its system and Southwestern Public Service Company can have up to 45 megawatts. Each array is capped at 5 megawatts.

Community solar involves small arrays that tie into the grid and provide electricity to subscribers. It is intended in part to benefit low-income households and people who live in apartments or other settings where rooftop solar is not an option. The act requires that at least 30 percent of the energy generated be dedicated to low-income subscribers.

The county that had the most applications was Luna County, where 96 projects have been proposed. Bernalillo County had 17 and Santa Fe County had 11. Forty-six applications proposed community solar in Doña Ana County and 27 proposed building an array in Eddy County.

CLEANUP OF NEW MEXICO'S ABANDONED OIL WELLS

The U.S. Department of the Interior has created an office to administer \$4.7 billion in funding to states across the country to plug at least 129,000 abandoned oil wells, including in New Mexico, where they have been a longstanding problem. The wells may leak methane, a potent greenhouse gas, and contaminate groundwater. New Mexico was approved for \$43.7 million in the initial round from the federal infrastructure law and could receive a total of \$97 million, plus performance grants based on how well the cleanup is done.

States work with the Bureau of Land Management (BLM) to plug wells on federal sites. "Orphaned" wells on state and private lands, abandoned by operators that go out of business, become the state's responsibility. Contaminated lands near orphaned wells may need to be restored, which can cost taxpayers millions of dollars. Large companies often pump most of the oil from their wells, then sell them to smaller operators, who drain them further before selling the wells to outfits likely to become insolvent. Operators often put up too little money into a federal bonding system (not updated since the 1950s or 1960s) to cover cleanup, and regulators are understaffed.

New Mexico is second only to Texas as a top oil-producing state in the U.S. The New Mexico Oil Conservation Division says that there are about 1,700 orphaned wells in the state. The agency aims to plug 200 high-priority wells this year. The Biden-Harris administration has approved nearly 6,000 acres of oil and gas leases in southeast New Mexico's Permian Basin.

Newly elected Congressman Gabe Vasquez said in a statement that cleaning up orphaned wells is a priority of his, especially in frontline communities that are most vulnerable to health and environmental impacts.

NEW MEXICO PERMIAN BASIN OIL AND GAS LAWSUIT FILED

Conservation groups led by citizens from Carlsbad filed a lawsuit on Jan. 23 to overturn the Biden administration's approval of nearly 6,000 acres of oil and gas leases in southeast New Mexico's Permian Basin. Originally authorized by the Trump administration, the leases were sold just days before President Biden took office and announced a pause on new federal oil and gas leasing. In 2022 the Biden administration announced that it would reconsider millions of acres of oil and gas leases approved by the previous administration. That however, did not include the leases sold in New Mexico in January 2021. In its first two years, the Biden administration reportedly approved more permits for drilling on public lands than the previous administration. Nearly 4,000 permits have been approved in New Mexico.

The plaintiffs allege that the Interior Department has handed industry the right to release massive amounts of pollution. "This lawsuit will hold the Biden administration accountable to its own climate, environmental justice and biodiversity goals," said Taylor McKinnon, of the Center for Biological Diversity.

"Those of us living in this region continue to be alarmed by our ever-degrading air quality and environment," said Kayley Shoup of Citizens Caring for the Future. "Any direction you look, your eyes are met with rigs, flares and pollution at a mass scale. The devastation can even be seen in space. NASA recently identified a super-emitting site here. Unmitigated oil and gas production has impacted our health and our ability to nurture industries such as agriculture."

"Oil and gas companies are generating record profits," said Rose Rushing, a Farmington-based attorney with the Western Environmental Law Center. "The most marginalized communities in New Mexico are usually the most affected by the industry's toxic legacy." In January, U.N. Secretary-General António Guterres told attendees at the World Economic Forum in Davos that "fossil fuel producers and their enablers are still racing to expand production, knowing full well that their business model is inconsistent with human survival."

According to a report published in collaboration with research and conservation groups, unchecked fracking in the entire Permian Basin will unleash more than 55 billion metric tons of carbon by 2050, exhausting 10 percent of the global carbon budget needed to limit worldwide average temperature rise to no more than 1.5 degrees Celsius. To read the report, visit [HTTP://PRICEOFOIL.ORG/CONTENT/UPLOADS/2019/01/DRILLING-TOWARDS-DISASTER-WEB-V3.PDF#PAGE=9](http://PRICEOFOIL.ORG/CONTENT/UPLOADS/2019/01/DRILLING-TOWARDS-DISASTER-WEB-V3.PDF#PAGE=9).



INCLUDING NEW MEXICO WOOD IS A WIN FOR NM BUILDERS, FORESTS AND COMMUNITIES



BY SETH ROFFMAN

Did you know that in 1960, New Mexico had 117 lumber mills yielding 277 million board-feet of lumber annually? That's enough to build about 17,000 homes. Today, the key to supporting the state's forest economy (and the forest) is sustainable harvests. Remaining New Mexico mills are handling smaller timber (less than 16 inches in diameter), cut during thinning projects that leave big trees standing.

Through a new program funded by a U.S. Forest Service grant, builders can now know where their *vigas* come from and that they've been harvested sustainably. In an innovative effort to get

Locally sourced "good wood" is now part of Build Green New Mexico.

locally sourced wood products recognized by Build Green New Mexico (BGNM), the state's leading green-building industry organization, Source Verified GoodWood™ collaborated with BGNM and the Santa Fe Area Home Builders Association (SFAHBA). GoodWood tracks the chain of custody of logs from the forest, through processing and retail sales, verifying that wood from federal, state, tribal, or private lands is legally and responsibly harvested. The program is growing a collaborative of forest industry leaders interested in reducing wildfire threats and restoring the health of New Mexico's forests and watersheds.

Build Green New Mexico (www.buildgreennm.com) inspects and rates buildings in four categories: Energy, Water, Indoor Air Quality and Sustainability, and awards four levels of certification: Code-plus, Silver, Gold and Emerald. It has been used since 2007 to certify thousands of homes. Builders who use GoodWood products can now earn points toward Gold or Emerald certification, making them eligible to receive the transferrable Sustainable Building Tax Credit (SBTC) administered by the New Mexico Energy, Minerals and Natural Resources Division (EMNRD). The SBTC, roughly patterned along criteria in the National Green Building Standard, incentivizes construction of energy-efficient homes. It is one of very few such programs in the nation.

"We are proud to be in partnership with Build Green New Mexico," said Rachel Wood, the professional Santa Fe area forester behind the Source Verified GoodWood. "The products we verify can contribute to sustainable building in New Mexico while also protecting our forests and supporting our communities and the local wood products



Creating healthier, more resilient forests through verification of sustainably harvested and managed products



Above: Milling lumber, peeling vigas

industry. It will forge relationships between suppliers and users of sustainable wood products." Miles Conway, the SFAHBA's executive director, said, "This fits perfectly with our goal to source more building materials locally and sustainably. We are excited to see the immediate and long-term benefits to our members, forests and economy."

The public can purchase GoodWood® branded products wherever they are sold, and qualifying companies can become members of the program. Learn more at www.goodwoodverified.com. ■

NEW MEXICO'S SUSTAINABLE BUILDING TAX CREDITS

In 2021, the New Mexico Senate passed HB15, replacing the Sustainable Buildings Tax Credit (SBTC) from 2015, which was instrumental in transforming the market for new buildings in New Mexico. The 2021 SBTC added tax credits for improving the efficiency of existing homes and businesses. New Mexico State Rep. Kristina Ortez (District 42) sponsored the SBTC and the Community Energy Efficiency Development (CEED) Block Grant Act, which reduces energy burdens for low-income New Mexicans and helps the state meet its climate goals. CEED was enacted along with a \$10-million appropriation.

Buildings are a leading source of carbon emissions. Tax credits for installation of efficient products in homes and commercial buildings helps lower utility bills and fight climate change by reducing emissions from operating a building or home and improves communities' health by reducing health impacts from emissions.

Under HB15, homeowners and businesses are eligible for tax credits for the following actions:

- Energy Star heat-pump installation
- Energy Star heat-pump water-heater installation
- Energy Star windows or doors installation
- Improvements in insulation levels
- Making the home or building electric-vehicle ready

“These refundable and transferable tax credits are doubled for low-income New Mexicans or affordable housing, in most cases paying 100 percent of the incremental costs for each measure. This is climate justice in action,” said Ona Porter, of Prosperity Works. “Hotter summers and more extreme weather is impacting us in our homes,” said Camilla Feibelman, Sierra Club Río Grande Chapter director. “The SBTCs can literally make us more comfortable by helping pay for things like better doors, windows and insulation, for both hot and cold months.” “The SBTCs, paired with federal incentives from the Inflation Reduction Act and building improvement taxes, make our buildings cleaner and more efficient for a whole lot less out of pocket. These incentives also create jobs in the building sector,” said Noah Long, Western Energy director at the Natural Resources Defense Council.

The New Mexico Energy, Minerals and Natural Resources Department has posted the application form for tax credits. As long as a purchase was made from January 1, 2021 or later, New Mexicans qualify.



Trusses going up on a northern New Mexico home.
Photo © Rachel Wood

FIGHTING CLIMATE CHANGE (& SAVING MONEY) BY ELECTRIFYING HOUSEHOLDS

The world has dragged its feet on addressing the climate crisis. Scientists tell us that a steady ramp-down of fossil fuel use over the next 20 years is essential. Decisions we control in our households are responsible for 42 percent of energy-related greenhouse gas emissions, according to the Environmental Protection Agency's (EPA) 2021 draft GHG Inventory.

Electrification is the only viable pathway to decarbonizing a household. It means replacing machines that burn fossil fuels with new, improved electric counterparts, while also working to transform the energy sector so these machines are powered by 100 percent clean energy. In August 2022, the federal government passed the Inflation Reduction Act (IRA), which, among other things, allows U.S. households to get up to \$14,000 in up-front discounts on electric appliances, \$7,500 on electric vehicles, and save \$1,800 annually in lower energy costs by electrifying everything.

Driving can be decarbonized with electric cars, charging them cleanly with rooftop solar and renewable power from the grid. Methane-burning kitchen stoves can be switched-out with electric induction stoves, which are cleaner, often faster, and healthier, since, unlike “natural” gas stoves, they don't release toxic fumes. Electric water heaters, or better still, heat pump hot water heaters, provide hot showers and warm water more efficiently. A heat pump—potentially with energy storage cheaply attached—can replace a furnace or other heating systems with electricity. Electric clothes dryers can replace those that run on natural gas. To make all of this work, a bigger load center must be installed, electric car chargers wired in, and a battery capable of running loads in a house for a half day or so attached.

Replacing all of these things may seem daunting, but with a little planning, the right support and resources, it can be done. It can improve a home's air quality, minimize your carbon footprint, and save you money on energy bills.

Here are some ways to get started:

- 1) Make a list of all the machines that burn fossil fuels in your home.
- 2) Determine what local, state and federal incentives are available to you for their electric counterparts.
- 3) Research electric replacements ahead of time so you're ready if your fossil fuel machines fail unexpectedly.
- 4) Prioritize and plan. Which machines will you replace first? When will you make the switch?

Here are some resources from Rewiring America:

Rewiring America's Guide to the Inflation Reduction Act.—Figure out how to get the most out of the IRA: [HTTPS://CONTENT.REWIRINGAMERICA.ORG/REPORTS/REWIRING%20AMERICA%20GO%20ELECTRIC%20DIGITAL%20GUIDE.PDF](https://content.rewiringamerica.org/reports/rewiring%20america%20go%20electric%20digital%20guide.pdf)

Complete Guide to Electrify Everything in Your Home—Everything that needs to be electrified, what it costs and why it matters: [HTTPS://CONTENT.REWIRINGAMERICA.ORG/REPORTS/ELECTRIFY-HOME-GUIDE.PDF](https://content.rewiringamerica.org/reports/electrify-home-guide.pdf)

IRA Savings Calculator – How much can you actually save? [HTTPS://WWW.REWIRINGAMERICA.ORG/APP/IRA-CALCULATOR](https://www.rewiringamerica.org/app/ira-calculator)

SFAHBA BUILDERS & REMODELERS SHOW

MARCH 11–12, 10 AM–5 PM

*Santa Fe Community Convention Center,
201 W. Marcy Street*

You can meet manufacturers, suppliers, retailers, design and home energy system professionals of New Mexico at the Home Show & Expo. Meet northern New Mexico's renovation professionals at the Remodelers Showcase. A Kids' Lego Creations Contest is intended to support the next generation of builders and designers. There will also be "Fireside Chats," informative workshops on going solar, interior design essential, reducing property taxes and more. The event is presented by the Santa Fe Area Home Builders Association. A \$5 ticket provides admission to both days. For information, visit [HTTPS://SFAHBA.COM/PROJECT/2023-SANTA-FE-HOME-SHOW-REMODELERS-SHOWCASE/](https://sfaahba.com/project/2023-santa-fe-home-show-remodelers-showcase/).

A PARTIAL LIST OF EXHIBITORS:

Lightstyles of Santa Fe, The Firebird, The Finishing Touch, CAS Enterprises / Roof Restored, Santa Fe Community College / Woodworking Program, Positive Energy Solar, Listen Up!, Make Santa Fe, Coronado Paint & Decorating, Santa Fe Flooring Pros, Washington Federal Bank, Fabu-WALL-ous Solutions / The Design Alliance, Views Landscaping, BSN Santa Fe / In Depth Water Testing, The Home Construction Doctor, Clear Ovations, My Solar, Clear Results (PNM), I'm the Blind Lady, N Hance, Villanueva Granite, Counter Intelligence / H and S Craftsmen, The Santa Fe Housing Trust, United Healthcare, First Serve New Mexico, PPC Solar, Custom Window Coverings, Rangewood Reclaimers / Remodeling, Santa Fe Stucco & Roofing, Dreamstyle Remodeling, B. Public Prefab, Del Norte Credit Union, Sierra West Sales, Habitat for Humanity, ECC Solar, HB and Son Inc. Stucco / Plastering, ICF Warehouse, City of Santa Fe Environmental Services, Affordable Solar, Lifetime Spas, Santa Fe County Tax Assessor, Santa Fe Children's Museum, New Mexico Gas Company, Santa Fe New Mexican / Red Zia Events, Southwest Spray Foam & Roofing / Southwest Smart Seal, Stonewood Flooring, Skyoti Studios, Second to None Health & Beauty, Source Verified Good Wood, Stephen's Consignment Gallery, Santa Fe Awning, Action Glass & Mirror, Fix My Roof, Flawless Results, Leaf Filter, Mirage Spas, Cut Company.

NEXT GENERATION WATER SUMMIT

BY MICHAEL COLLIGNON



The Next Generation Water Summit (NGWS) brings together the building and development community, water reuse professionals and water policymakers in a collaborative setting to share best practices and learn about innovative water conservation and water reuse techniques that can be used to comply with water conservation restrictions being enacted across the Southwest.

The 2023 NGWS will take place June 14-17 in Santa Fe, N.M. For the first time since 2019, the Summit will have in-person attendance. A maximum of 120 people will be able to attend live sessions at the Santa Fe Community Convention Center. There will be a virtual attendance

option as well, as the event shifts to a hybrid format.

The theme of the Summit is "Water Reuse and Conservation: The New Paradigm." Attendees have come to expect innovative topics, and this year is no exception. Here are some of the sessions confirmed (as of press time):

- "Residential Blackwater Reuse Systems in the West—What is Possible?" with Paula Kehoe of San Francisco Public Utilities Commission and Michael Broussard of the State of New Mexico
- "Real World Water Savings with WaterSense-labeled Homes 2.0" by Jonah Schein, national program manager with the Environmental Protection Agency (EPA)
- "Multifamily: Emerging Tools and Regulations" with Christoph Lohr, vice-president of Technical Services and Research for IAPMO and Dan Cole, senior director of Technical Services for IAPMO
- "Lessons Learned in Getting to Net Zero Residential" with Darrel McMaster of Sustainable Homes and Laureen Blissard of LTLB Envirotecure

Several workshops have been formulated to help address pressing water issues in the West. "There is an urgent need to forge a sustainable path forward on water use in the West," said Mike Collignon, co-chair of the NGWS. "The Next Generation Water Summit educates professionals and individuals on the latest technologies and approaches to saving and reusing water. The workshops are a key networking opportunity that foster important business partnerships."

The virtual platform will host the Hall of Innovation. This invitation-only virtual exhibit area will showcase innovative products and ideas. All the invited presenters in this area will be curated by the NGWS organizing committee. "Our agenda always features cutting-edge topics and speakers, so we felt our exhibit area should reflect that as well," said Doug Pushard, NGWS's co-chair.

Professional sessions will be held on June 15 and 16, with a New Mexico-focused track on June 16. Local tours are scheduled throughout the community on June 17. More information is available on the Summit website. The Mayor's Reception, the annual kickoff to the event, will take place at the Drury Plaza Hotel on the evening of June 14. Registration is available now at [WWW.NEXTGENERATIONWATERSUMMIT.COM](http://www.nextgenerationwatersummit.com).

Hosts of the Next Generation Water Summit are the Santa Fe Green Chamber of Commerce; Green Builder® Coalition; City of Santa Fe; KUELwater, and the Santa Fe Area Homebuilder's Association. The education partner is Santa Fe Community College, and the national media partner is Green Builder® Media.

ELECTRIC VEHICLE CHARGERS THROUGHOUT NEW MEXICO

BY LUCY GENT FOMA WITH JERRY VALDEZ

My daughter will be a fourth-grader in the fall, and we're planning to make the most of her free National Parks pass by taking road trips across New Mexico and the West next year. With our all-electric 220-mile-range Nissan Leaf, regional travel poses a small hurdle at the moment because gaps in the charging network limit which parks we can access. For example, a road trip this spring to the Gila Cliff Dwellings by Silver City requires a few nerve-racking stretches between charging stations where conversation in the car dies off and we're all eyeing the battery percentage bar with bated breath. By next year, though, dozens more chargers will be available for our electric vehicle (EV) adventures.

New Mexico Energy Minerals and Natural Resources Department (EMNRD) was the first state agency to install publicly available EV chargers back in 2016, including at Bluewater Lake State Park. The agency's Alternative Fuels Program has worked for decades on reducing New Mexico's carbon footprint by supporting the use of compressed natural gas, biodiesel and hybrid/electric vehicles for transit, heavy-duty and fleet vehicles, providing technical assistance for alternative fuels and alternative transportation efforts such as ridesharing and bicycling.

In January 2019, Gov. Lujan Grisham signed Executive Order (EO) 2019-003, announcing New Mexico will support the 2015 Paris Agreement goals and setting a statewide goal to reduce greenhouse gas (GHG) emissions by at least 45 percent by 2030, relative to 2005 levels. The executive order also created the Interagency Climate Change Task Force to direct the efforts of multiple state agencies to reduce GHG emissions, improve air quality and protect natural resources. State agencies, including EMNRD, New Mexico Environment Department (NMED) and the New Mexico Department of Transportation (NMDOT) have been working together to advance decarbonization strategies, one of which is the 2022 Clean Cars Rule. EMNRD has also been working with REV West, a coalition of Intermountain West states collaborating to establish EV corridors that will make it possible to drive an EV across major transportation corridors in the West. The REV West states collect best practices and procedures to enhance EV adoption, coordinate on EV charging station locations, create voluntary minimum standards and leverage economies of scale.

As of spring 2023, over \$7 million worth of EV charging projects will have been initiated by the NMDOT, the lead state agency for transportation infrastructure, with additional investments planned by the end of the year. The NMDOT will distribute \$10 million of American Rescue Plan Act (ARPA) funds that were appropriated in the 2021 2nd Special Session. These funds are available for planning, engineering services, design and installation of EV DC Fast Charging stations to rural communities across New Mexico under the NMDOT Level 3 Direct Current Electric Vehicle Charging Station Grant Program (DC Fast EV Charging Program). Over 30 communities have already received funding. The agency has also used ARPA funding to begin construction of DC Fast Charging stations at NMDOT District Offices located in Las Vegas, Deming and Roswell. The agency plans to place charging stations at all District and NMDOT patrol locations using funding through the Infrastructure Investment and Jobs Act (IIJA) discretionary grant program opportunities.

There are approximately 230 publicly accessible EV chargers in the state.

There are approximately 230 publicly accessible EV chargers in the state, ranging between Level 1 (slowest-charging) and Level 3 (fastest-charging). Charging times for a vehicle depend on type of vehicle and brand of charger. Level 2 chargers take about nine hours to completely charge a vehicle, whereas Level 3 chargers can charge 80 percent of a vehicle battery in 40 minutes. The new Level 3 chargers are being funded with the 2021 ARPA and help to fill gaps in the planned and expanding EV charging network across the nation.

EMNRD worked in collaboration with NMDOT, NMED, the New Mexico General Services Department (NMGSD), El Paso Electric and Public Service Company of New Mexico (PNM) during spring 2022 to establish a five-year plan for deploying EV infrastructure throughout the state. The 2021 federal Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act (IIJA), allocates \$5 billion over five years to states to enhance publicly accessible EV charging infrastructure through the National Electric Vehicle Infrastructure (NEVI) Formula Program. New Mexico submitted its plan in July 2022, displaying analysis of the current EV infrastructure, as well as equity goals and priorities for the NEVI funding.

Over the next five years, New Mexico will be building charging stations along established Alternative Fuel Corridors (AFC). AFCs are federally designated routes on major highways that allow for inter-city, regional and national travel using lower-emission vehicles. The NMDOT expects to receive approximately a \$38.3-million apportionment from the federal NEVI program between 2022-2026. There will be a priority to build infrastructure on interstate highway locations. Once New Mexico accomplishes certification that the Alternative Fuel Corridors are fully built out, then the state may use funds provided under the NEVI Formula Program for EV charging infrastructure discretionally on any public road or in other publicly accessible locations that are open to the general public to fill in the gaps of charging accessibility for both public and fleet vehicles.

A comprehensive network also includes the deployment of EV charging in multi-family residential buildings.

A key component of the NEVI planning process was engaging technical experts, together with members of the public. To incorporate quality feedback from stakeholders, NMDOT and its project partners used one-on-one virtual interviews, virtual group meetings, survey outreach and electronic correspondence with various groups of targeted stakeholders during plan development. The national office overseeing the NEVI program lauds New Mexico's planning process as one of the most thorough and earnest public outreach efforts in the country.

The first goal of the New Mexico NEVI Steering Committee is to plan for the right charger in the right place for a comprehensive, sustainable network. This goal promotes the deployment of convenient, publicly accessible EV charging infrastructure in all appropriate locations across the state, including rural areas, remote highway corridors, recreation sites, pueblos and tribal lands, and elsewhere. A comprehensive network also includes the deployment of EV charging in multi-family residential buildings to help incentivize EV ownership.

Chargers installed using NEVI funding will meet or exceed the NEVI program's minimum specifications:

- Every 50 miles along New Mexico's portion of the Interstate Highway System within one travel mile of the Interstate

Over the next five years, New Mexico will be building charging stations along established Alternative Fuel Corridors (AFC).

- At least four 150kW DC fast chargers with CCS ports capable of simultaneously DC charging four EVs
- Compliant with ADA and Section 504 requirements, specifically ensuring adequate space for exiting and entering the vehicle, unobstructed access to the EV charging stations, free movement around the EV charging station and connection point on the vehicle, and clear paths and close proximity to any building entrances
- Available 24 hours a day

In addition, where appropriate and fiscally prudent, NMDOT may also seek to meet additional REV West (<https://www.naseo.org/issues/transportation/rev-west>) standards:

- Access to drinking fountains, bathrooms and food or vending
 - Security cameras, adequate lighting and an emergency shelter
 - Within walking distance of full-service amenities such as local restaurants, retail shopping, or tourist attractions
 - Dual protocol chargers (CHAdeMO fast charger in addition to CCS)
 - Third-party certified
 - Connected to a network
 - Cell service or free wi-fi available to customers
 - Support multiple payment options
 - REV West Stretch Standards
 - Uptime requirement of at least 97 percent
 - Customer support services available 24/7 (either onsite or toll-free telephone) capable of dispatching service
 - Proactive station health monitoring
 - Larger/additional utility equipment to avoid future construction and conduit costs.
- Sufficient real estate for the addition of future DC fast charger stations and future expansion. NMDOT may consider co-installation of different connector types to expand the number of EV drivers who can use them (for example, some CHAdeMO or Tesla converters).

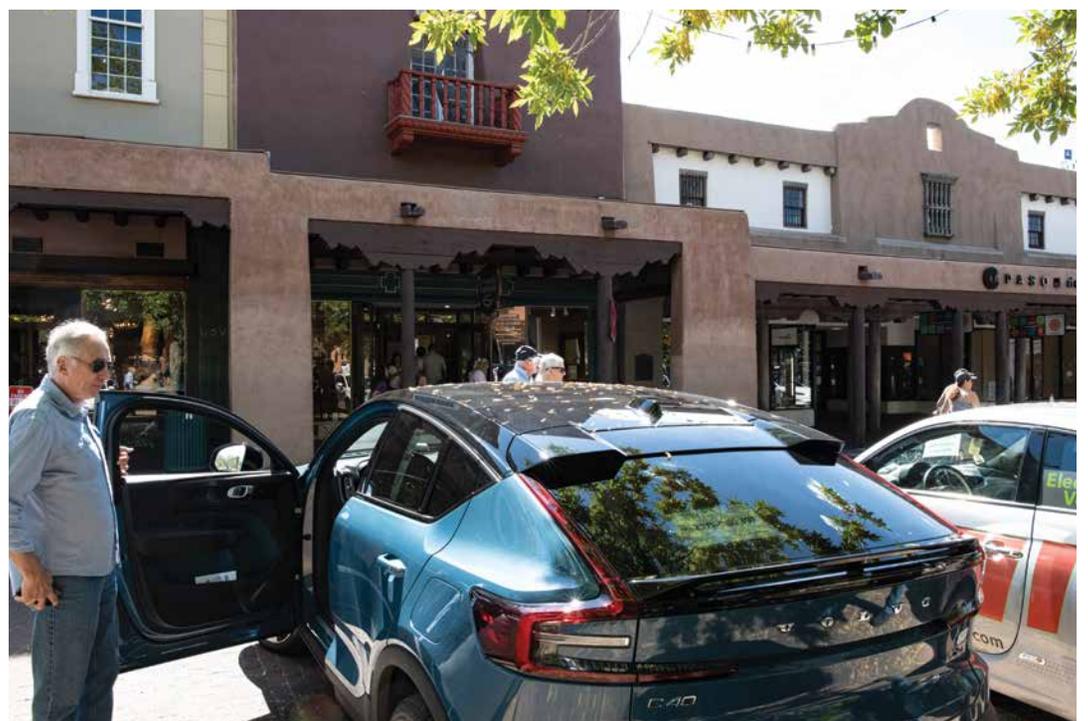
The NEVI plan provides a map of the general proposed EV charging stations, which makes travel along the I-25, I-40 and I-10 much easier. Having access to charging every 50 miles will make planning a family vacation around the state less stressful. Our weekends can soon be filled with visits to White Sands, El Malpais and Capulin Volcano without “range anxiety” (worrying about running out of battery charge). My kids are learning that alternative fuels can now power our adventures with a smaller carbon footprint, so that visiting these natural wonders doesn’t contribute to destroying them. ■

Lucy Gent Foma is Clean Energy Program Manager—Alternative Fuels, with the Energy Minerals and Natural Resources Department (EMNRD) of New Mexico. Jerry Valdez is executive director of the Planning Division of the New Mexico Department of Transportation (NMDOT).



Right: Electric vehicle charger in a repurposed phone booth;
Below: EV exhibition on the plaza in Santa Fe, 2022; bottom:
Glenn Schiffbauer, director of the Santa Fe Green Chamber of
Commerce, checks out an electric Volvo

© Seth Roffman



ARIZONA DOT PLANNING NETWORK OF EV CHARGERS

Thanks to \$76.5 million in funding via the Bipartisan Infrastructure Law, electric vehicle (EV) drivers across Arizona can expect more chargers in the next few years. The Arizona Department of Transportation will oversee the upgrade of eight existing chargers and installation of new ones along Interstates 40, 17, 10, 8 and 19. For now, no charging stations are proposed for the Interstate 15 corridor in the northwestern corner of the state. In 2024, ADOT will begin installing 13 more, placed about every 50 miles and within one mile of an interstate. Each station will have at least four EV fast chargers capable of charging most vehicles in about 30 minutes. The stations will be independently owned and operated. Station owners will pay 20 percent of construction costs and federal funding will cover the other 80 percent.

Arizona currently has 903 public EV charging stations with more than 2,400 charging ports. There are nearly 125,000 charging ports nationwide, according to the Alternative Fuels Data Center. The Bipartisan Infrastructure Law aims to increase the current number of chargers about four times and create a “nationwide network of 500,000 EV chargers by 2030,” according to the U.S. Department of Transportation.

Technological advances have led to the growth of EVs and various solutions available to charge them. Some people install solar panels on their homes to power them. In the past five years, the number of EVs registered in Arizona has increased more than five times to at least 40,740 as of June 2022. Consumers that own and drive an EV stand to save thousands of dollars annually through the reduction of fuel costs and operating and maintenance costs. Additionally, electric vehicles offer air and public health benefits.



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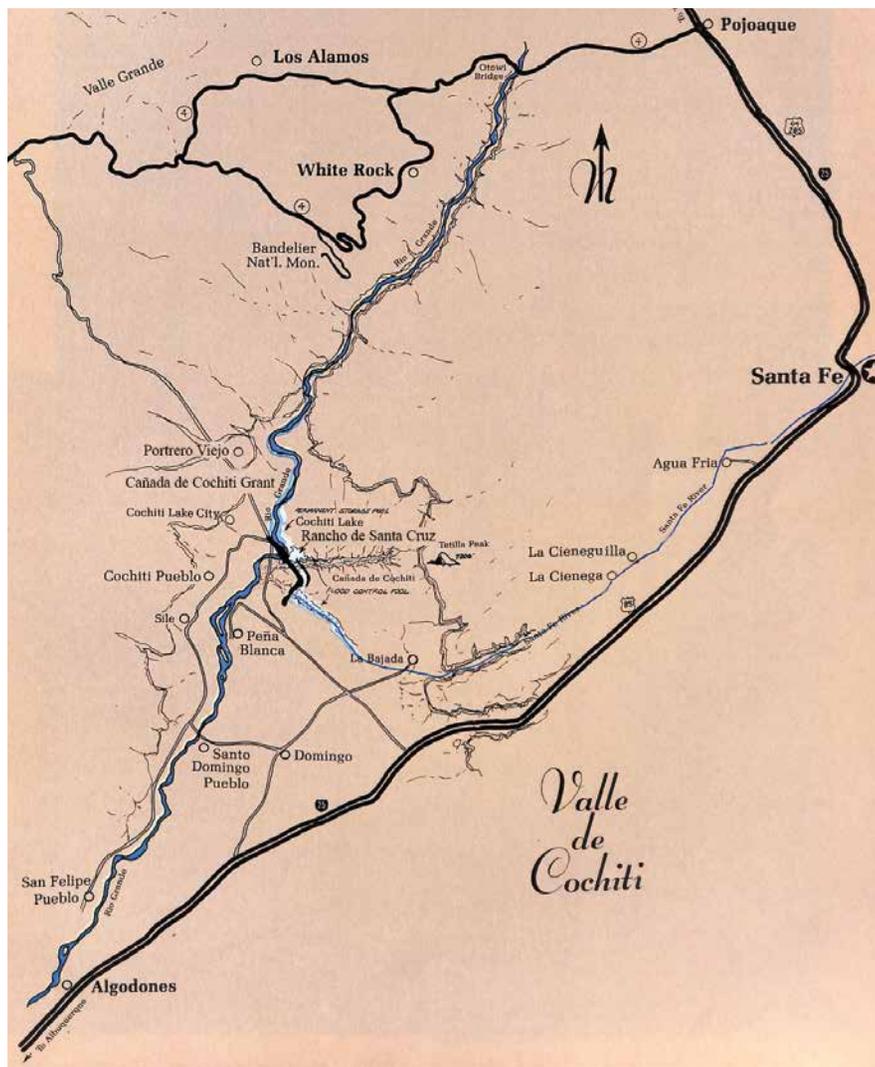


Historia de las Cajas del Río Santa Fe y El Río Grande

CONTINUED FROM PAGE 5

they shifted north temporarily to ancestral villages for protection. As a result, Cochiti was one of the villages least affected initially during Spanish incursions and settlement. Kewa and Cochiti would have Spanish neighbors who brought horses, trade goods, *carretas* (carts), metal tools, weapons and herds of domestic cattle, sheep, goats and chickens, fruit tree seeds and other domestic plants. They also brought forced conversion by the Franciscans, religious persecution, slavery, servitude and tribute through the *encomienda* (an estate of land and the inhabiting American Indians formerly granted to Spanish colonists or adventurers in America for purposes of tribute and evangelization). (Marc Simmons. *The Last Conquistador: Juan de Oñate & the Settling of the Far SW*. Norman: Univ. of Oklahoma Press, 1993)

Upon the arrival of Juan de Oñate and his soldier colonists, Indigenous and mixed-race slaves and servants, Cochiti and Kewa pueblos had to tolerate new



neighbors and settlement nearby. After the establishment of the first plaza, possibly on or near Pueblo Quemado, near today's Agua Fria, Spanish land grants were eventually awarded to soldiers after the arrival of Gov. Pedro de Peralta, who established the official Villa of Santa Fe. The original Spanish land grants, called *encomiendas*, were established for 82 years (1598-1680) with slavery, mandatory tribute, religious persecution, missionization and forced acculturation. They were given as rewards for military service along both cajas. (Calendar of Microfilm Edition, Spanish Archives of New Mexico, Roll 1, Frames 1-11. & Hilario Romero "Agua Fria Across the Centuries: From..." *CARTA Journal* Vol.12 No.2 Fall/Winter, 2016)

In 1680, Pueblo people, joined by some Apache groups, coordinated a revolt that sent the Spanish soldiers and settlers on a retreat to El Paso del Río del Norte for 12 years (1680-1692). Word of the uprising came from captured messengers from Tesuque holding rope cords that determined when the revolt would begin. Two *caciques* (religious leaders), Catua and Omtua, at Tseguma and

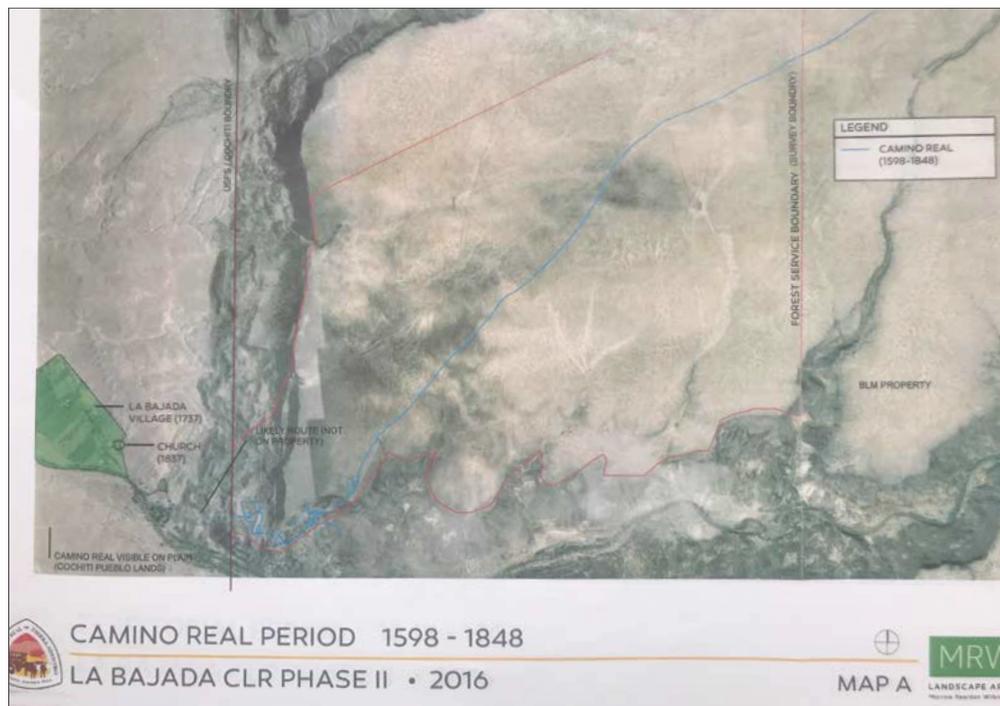
Guicú pueblos in La Ciénega and Cieneguilla were captured by maese de campo Francisco Gómez Robledo, put under arrest and taken to Santa Fe. The following day, Aug. 10, 1680, the revolt began. Twenty-one Franciscans were killed, including 400 Spanish settlers, and an estimated 300 Pueblos and Apachis lost their lives. The Spanish retreated to Guadalupe de el Paso del Norte. During this 12-year period, Pueblo people were again free to continue living as before—farming, storing crops, hunting, gathering water from the springs and conducting sacred ceremonies. (Charles W. Hackett & Charmion C. Shelby. *Revolt of the Pueblo Indians of New Mexico, 1680-1682*. Albuquerque: Univ. of NM Press, 1970)

Cochiti was one of the villages least affected initially during Spanish incursions and settlement.

The Pueblos and Apachis benefited from many of the horses left behind by the Spanish and traded some to the Yutas and Diné. The Spanish returned in 1693, but the Pueblo people resisted for almost four years. Pecos and a few other pueblos allied with the Spanish and were able to force the warring pueblo communities to make peace, which made possible some concessions on both sides. The *encomiendas* were prohibited, religious freedom was gained, although enforcement depended on each Nuevo México's governor's degree of authority. An uneasy relationship continued until they later joined forces for defense against the semi-nomadic Diné, Yuta, Apache and Comanche tribes as they stepped up their raiding. Spanish community land grants were given to new settlers, and those who returned had their family grants revalidated. Once again, the nearby Cajas de los Ríos pueblo communities had new neighbors using the mesas for grazing and the cajas for agriculture, gathering wood, plants for both medicinal use and consumption. (Malcolm Ebright. *Advocates for the Oppressed: Hispanos, Indians, Genízaros & Their Land in NM*. Albuquerque: Univ. of NM Press, 2015, Ch. 5, pp.115-142 & Paul Conrad. *Apache Diaspora: Four Centuries of Displacement and Survival*. Philadelphia: Univ. of Pennsylvania, 2021.)

The Camino Real (Royal Road/King's highway) evolved from a series of indigenous trails along the Provincias Internas de las Tierras Adentro. Originating in Mexico City, it passed through both cajas, initially into Okeh'Owingue and later into Santa Fe. The caja communities served as *parajes* (campsites) from 1600 to 1680. Early Spanish ranches located near the confluence of the two ríos grazed large herds of domestic sheep and cattle. Spanish horse herds from the Presidio de Santa Fe were grazed on or near the cajas as early as 1704, when Governor Vargas launched a small campaign against the Faraon Apachis at Bernalillo, where he died of dysentery. (Joseph Sánchez, *El Camino Real de Tierra Adentro Presentation*, Digital Depository, UNM, 4-3-2021 & Hilario Romero. "End of the Long Journey on El Camino Real: La Ciénega & La Cieneguilla Pueblos & Land Grants," Vol.11 No. 2 2015)

Large ranches belonging to prominent retired military officers, former government officials, merchants and miners were located within the cajas. They had to allow the military horse herds to graze within the grants throughout the 1700s and into the 1800s. They also occupied the cajas near pueblos when the Caja del Río and La Majada Land Grants were awarded in



1695 and 1742. La Villa de Santa Fe was dependent on the cajas for their domestic herds of sheep and cattle and agricultural products in order to feed 100 presidio soldiers, as well as settlers and artesanos. Acequia water, as well as cold springs, made the cajas ideal for farming and ranching. As soon as the semi-nomadic tribes acquired horses, they posed a new threat to both Pueblo people and Spanish settlers, as hostile bands began raiding villages and pueblos. A fragile co-existence continued on and near the cajas during the Spanish Colonial Period and into the next century. (*Jacinto Pelaez, Santa Fe, 1695, Grant at La Bajada, SANM, granted by Diego de Vargas, Gov. Re-granted to Jacinto Sánchez as La Majada Grant, SANM I, Doc.#822,1703-1704. R.E. Twitchell & Nicolás Ortiz, Santa Fe, 1742 Grant of Caja del Río, SANM I Doc.#1078, R.E. Twitchell.*)

LAS CAJAS AND MAJOR EVENTS IN THE 1700s

By the early 1700s, Pueblo villages along the Río Santa Fe, namely Tseguma, Guicú, Pueblo Quemado and Tres Arroyos were abandoned, as they were accused by the Spanish of participating in the 1680 revolt. The individual Spanish land grants given to Spanish soldiers were on or near the abandoned pueblos. Other community grants were given to ranchers and farmers, many of whom returned with the Spanish reconquest of New Mexico from 1692 to 1696.

By the mid-18th century, a mix of captive Pueblos, Apachis, Yutas, Diné and Comanchis by Spanish soldiers would be identified or known as *genízaros* (slaves and servants), and another *casta* (caste) group of Españoles-Mejicanos mixed with Indigenous tribes called *mestizos*. They were poor, many landless, and eventually became the predominant population of the area. They were given grants of land on the periphery of the *Alcaldías* (in frontier period mini-provinces) and served as buffer communities between Spanish villages and the Diné, Apachi, Yuta and Comanchi in the early 1700s.

For the next two-and-a-half centuries, the indigenous Pueblo peoples and the Spanish co-existed in the cajas, cooperated in times of disease, drought and war, and settled their land tenure differences in the colonial courts. They also mixed with each other. However, wealthy, powerful Spanish landowners in the cajas that had been granted lands overlapping Pueblo lands did not mix with the Pueblos for the most part. Land suits were filed by both groups, and based on the surviving documents, many of the outcomes favored the Indigenous Pueblos. During this period, many of the mestizo villagers of the Caja del Río Grande were baptized and received the sacraments at the Misión del Pueblo de Cochiti. By 1737, the settlers in nearby La Bajada, built a church dedicated to San Miguel.

During this uneasy coexistence, French traders began arriving in New Mexico illegally



La Majada Land Grant Map, 1894

as early as 1739 to trade, while others explored the area between St. Louis and Santa Fe. Much of the trade was with the Pawnee and Comanchis. These tribes acquired large herds of horses and weapons. Conflicts took place as early as 1720, when Pedro de Villasur organized his troops, *genízaro* and *mestizo* volunteers, a large contingent of Pueblo fighting men, along with Apachis de Jicarilla under their own war captains. They were defeated by the French and Pawnees at the junction of the Platte and Loop rivers in eastern Nebraska. Some Caja villagers and nearby Pueblo warriors joined this expedition and perished in the conflict. A great sadness consumed the entire population of Santa Fe and the cajas over the loss of lives of Indigenous Pueblos, Spanish soldiers, volunteers and the Apachis de Jicarillas, who fought together alongside their allies. Large bands of Comanchis would continue raiding in New Mexico throughout the 1720s until 1779.

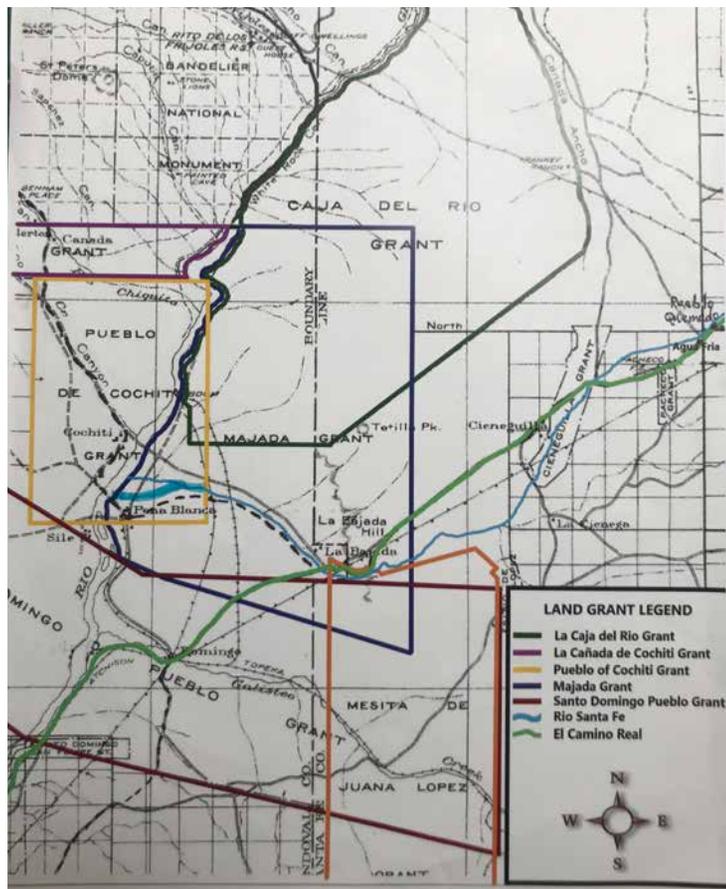
On the day of the summer solstice, June 20, 1776, a band of Comanchis attacked farmers near La Ciénega, killing nine residents, mostly men, and carrying off two children. This unprovoked attack finally caught the attention of authorities in Chihuahua and the Viceroy in Mexico City, who appointed a military leader, Capitan Juan Bautista de Anza, as governor of New Mexico in 1777. He organized a large contingent of Spanish soldiers, citizen militia of *genízaros*, *mestizos*, Pueblo warriors, Apachis de Jicarilla, Yutas and guides in search of the Comanchis led by Cuerno Verde in the spring of 1779. Many in this contingent of fighters were living in or near the cajas. The *ejército* (army) traveled northwest in order to avoid being sighted by the Comanchis. They traversed the Sendero de los Españoles (Old Spanish Trail) and moved east into the northern part of the Valle de San Luis over the mountain passes and down the eastern slopes of the Sierra Madres. Moving south they came upon the large group of Comanchis near a tributary of the Río Napeste (Arkansas River) and a battle ensued with Cuerno Verde, who along with many of his best warriors, were surrounded and killed. New Comanchi leaders came to Santa Fe a few months later to negotiate a peace treaty that was honored for decades. (Ronald Kessler. Translated by Alfred B. Thomas. *Diary of Juan Bautista de Anza*, Sept. 10, 1779)

Due to continuous raids by other semi-nomadic tribes, women and children captured—whether Spanish, mixed *casta* or Indigenous—in the northern province of New Mexico were traded, purchased out of slavery or lived out



Aerial photo of Las Bocas, La Bajada Escarpment & the Village

their lives with their captors. Some actually escaped and made their way back to their families, and a few became leaders among their captors. There were many captives from these tribes who lived in the cajas among the Pueblos and the Spanish villages as slaves and servants. Pueblo and Spanish villagers, especially women and children, were also carried off by the semi-nomadic tribes. The slave trade continued in La Provincia del Norte with most trading and purchasing conducted at trade fairs at Taos, Picuris and Pecos pueblos and the villages of Abiquiú and San Miguel del Vado. The Spanish, Pueblos, *Castas*, Diné, Apachis, Yutas, Comanchis, Pawnees, Kiowas and other Plains tribes participated in the slave trade that extended into the eastern plains all the way to French Louisiana. (*Paul Conrad. Apache Diaspora.*)

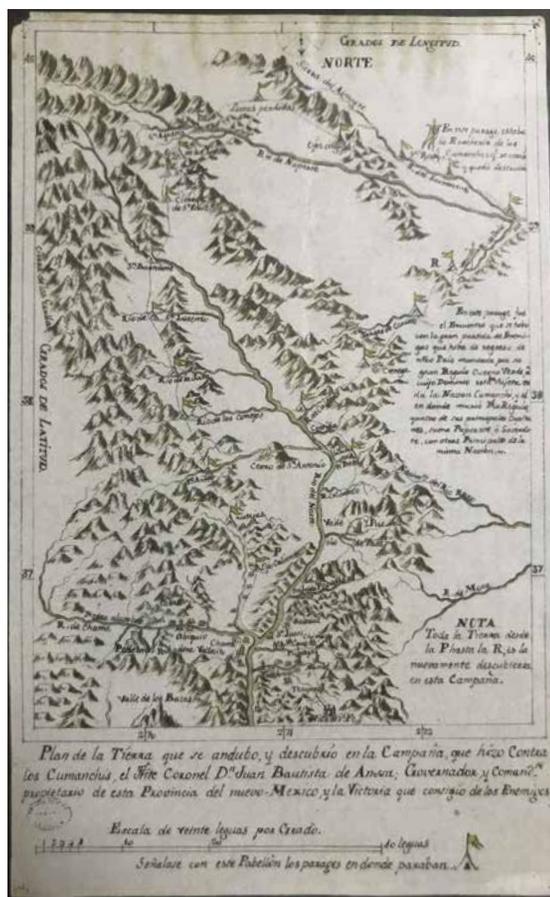


Forest Service map detail, 1924

Meanwhile, extended families were vigilant in both cajas, building their homes around central *placitas* for protection from attack. Families demonstrated self-reliance and resilience each day in order to survive in this difficult landscape while learning from the Indigenous Pueblos around them. Numerous cold springs provided fresh water and the river provided water for the acequias. Pueblo people were devastated by epidemics that took many lives. The Spanish and mixed castas were less impacted. Living 1,600 miles from the capital of La Nueva España in Mexico City, life was hard, dangerous and unpredictable. Supply caravans only arrived every two years.

FRENCH INVASION OF SPAIN WEAKENS SPANISH COLONIAL DOMINANCE

Meanwhile, Spain, an ally of France (Peace of Basel Treaty), allowed Napoleon to pass through Spain in order to force Portugal to close its ports to Britain. In October-November of 1807, under the pretext of sending reinforcements to his army occupying Portugal, Napoleon sent 30,000 troops through Spain. After they arrived in Madrid, Napoleon arranged a diplomatic encounter with Spanish King Carlos IV and his son Fernando VII, forced Carlos IV to abdicate the throne to his son, and imprisoned them at Bayonne, France. Napoleon then installed Joseph Bonaparte, his brother, as King of Spain. The Spanish Cortés escaped to Cadiz, a southern port, where a regency government in exile was established in 1810 and a constitution was created for Spain in 1812. In 1812, Pedro Bautista Pino, a delegate from Nuevo México, was sent to Spain



Map of 1779 Military Expedition of Juan Bautista de Anza and the Comanchi leader Cuerno Verde. Peter L. Edenbach, *Atlas of New Mexico Maps (1550-1941)*, ABQ, UNM Press, 2012

to present the current state of affairs before the Spanish Cortés at Cádiz and ask for help. With Spain in crisis, there would be no assistance for any of the frontier colonies. The Spanish Cortés organized an army to push out the French. However, Napoleon released Fernando VII, who replaced his brother as King of Spain. He then forced Fernando VII to immediately abolish the Cortés at Cádiz. Civil war

The new government encouraged settlers to stake claims without protecting lands that were granted to the Pueblos and the Mexicanos.

broke out between the king—controlled by France—and the members of the Cortés and their allies.

Revolutionary wars broke out in Nueva España (México, Central and South America) while the Spanish Cortés was in exile at Cádiz. All of Spain's colonies were directly affected by this turn of events, as there would be no assistance from a kingdom in crisis. La Frontera de Nuevo México would continue on its own, without reliance on Spain.

Spain slowly lost her hold on the provinces in the Americas, including the isolated frontier of Nuevo México, an outlier forgotten for decades. However, families living in the cajas were strong and determined, as were their Pueblo neighbors, due to their resilience. The earliest Spanish and mestizo pioneers had carved out a living in this wild land. Despite many pressures, they pressed on collectively to develop a way of life that kept them in their homes and villages.

With the expansion of the United States of eastern North America, following the purchase of Louisiana from France in 1803, interest in the western frontier increased. Zebulon Pike and his military spying expedition arrived at the Río Napeste (Arkansas River) in 1807, where they were arrested by the Spanish military and sent to Chihuahua after illegally crossing into La Provincia del Norte at La Junta de los Ríos (where the Río Purgatorio met the Río Napeste, in what is now Colorado).

MEXICAN PERIOD IN THE CAJAS

In 1810, with the Mexican Revolution erupting and Spain beginning to lose its grip on its most important colony, the fight continued until 1821. From that time forward, for almost two decades (1821-1837), New Mexico was administered as a northern frontier territory of México. The formation of the new República de México took several years to organize after the counterrevolution of 1821. By 1824, a new constitution was written and approved, which prohibited slavery, made Indigenous people citizens, and women property owners, as they were in the Spanish colonial period. Trade was officially opened with the United States of eastern North America. This opened the doors, first and foremost, to opportunists from Missouri and their connections back east. An unbalanced trade followed, with wagon trains from St. Louis arriving each year loaded down with commercial goods. These traders sought silver and gold in exchange for their goods. French and Anglo trappers made their way to Nuevo México, attracted by the Mexican-Indigenous fur trade. But most cajas villagers were not interested in letting go of their few silver or gold coins. They tried to arrange an even barter with their own goods. Wealthy Méjicanos were willing to let go of some of their wealth for foreign goods. (Communications Received from Authorities within México, MANM, Roll 1, 1821.)

Life among the Caja villages and pueblos did not improve under their new government. Initially, the government was stable, but in the late 1820s, a *caudillo* (dictator) backed by the military took power. General Antonio López de Santa Ana ruled with an iron fist off and on for the rest of the Mexican period, paying little or no attention to New Mexico. Semi-nomadic tribal bands continued their raids on the villages, including Las Cajas. México was losing its grip on its northernmost frontier. Las Cajas villages had long established *capillas* (chapels), acequias, wells and springs, ranches, gardens, small herds, and volunteer militias, but drought, disease and other natural disasters would take their toll. The Pueblo people continued to cooperate with the government in Santa Fe with their militias and trade, but smallpox, typhus and measles epidemics decimated many Pueblos as they had in the 1700s.

The Cajas' history is a chronology with which few places in New Mexico, the Southwest and the U.S. can compare.

In 1837, Antonio López de Santa Ana, dictator of México, reorganized the country into *departamentos* that decentralized the government but allowed the governors to appoint the leaders of these departments. He appointed Albino Pérez, who was tasked with imposing new laws that would abolish abuses of Nuevo México's colonial past, set up a tax system, reorganize its government, retrain the militia and contain the native clergy. A revolution began, with the poor ranchers and farmers in Santa Cruz de la Cañada, joined by the Pueblos of Taos and Picuris, who proclaimed "no taxation or reorganization without recognition or representation." (Governor's Papers (Albino Pérez). MANM Roll 23, 1837)

In 1841, a group of Texans organized a small army, crossed illegally into Nuevo México, attempting to seize lands they claimed belonged to Texas. This included all land from the entire east side of the Río Grande, from north to south. They were defeated at Anton Chico and put in chains. Some volunteers from Las Cajas went to Santa Fe and joined the soldiers at the presidio to protect New Mexico from this invasion.

EASTERN U. S. MANIFEST DESTINY AND THE MOVEMENT TOWARD WAR

At many Protestant pulpits, at political rallies and in the halls of the U. S. Congress during the late 1830s and early 1840s, the concept of westward expansion and imperialism was presented, discussed and published. Indigenous peoples were considered better dead than alive and Mexicans were deemed inferior and lazy. The myth that God shined his light on the U.S. to move "from sea to shining sea" and "it was their destiny to possess and rule this continent" was proclaimed. Ambassadors were sent to México in an attempt to buy Mexico's northern frontier in southwestern North America. James Polk, U.S. presidential candidate in 1844, campaigned on territorial expansion to the west. México politely refused to sell, as it had already lost a piece of its frontier in *Tejas* in 1836. Texas was admitted to the Union as a slave state in 1845. Texas's claims on New Mexico were designated on its maps, showing all lands north of the lower Río Grande and east of the upper Río Grande as belonging to Texas. (Laura Gomez. *Manifest Destinies: The Making of the Mexican American Race*. New York: NYU Press, 2008)

Throughout northern New Mexico, citizens were concerned about the turn of events, and Padre Antonio José Martínez, at his college in Taos (founded in 1826 for men and women) declared that the U.S., in cooperation with some of the traders, trappers and merchants, was attempting to start a war with México. By 1846, the villagers in the cajas heard the news about the threats and possible invasion and were ready and willing to prepare their militia to defend Nuevo México. Initially, Gov. Armijo was preparing his troops for battle. The Mexican-U. S. war broke out in Texas on April 24, 1846, when a party of U.S. soldiers, under orders from President Polk, illegally crossed the official border and were confronted by Mexican troops.

WAR AGAINST THE EASTERN UNITED STATES OF NORTH AMERICA

After almost 25 years of trading relations with the neighbors to the east, the República de México opened the doors to foreigners to trade within the Territorio Departamento Nuevo México. Many of these trappers and traders, who were opportunists, soon organized the first Santa Fe and Taos political-economic rings. They cohabited with, and some married New Mexican women; applied and were given citizenship, and were given land grants a few years before the U.S. Army of the West marched into Las Vegas and Santa Fe.

Charles Bent and his brother William established a trading post just outside the Spanish/Mexican border. They traded guns and whiskey with Comanchis, Cheyennes and Arapahos who attacked New Mexico villages in the 1830s. Colonel Kearney arrived in Santa Fe after Gov. Armijo fled south with his army. He appointed Charles Bent as governor of New Mexico. After declaring martial law, Col. Kearney left Nuevo México, and within a few months, Bent's behavior caused a revolt and newly appointed Gen. Kearney arrived in California.

Colonel Price and his 350 U.S. mounted troops, fully armed with howitzer cannons, battled poorly armed New Mexican patriots at Santa Cruz de la Cañada and Embudo. At Taos Pueblo, Price bombed the church, captured most of the leaders, including Tomasito Romero of Taos Pueblo, who was shot while in captivity. Other Mexican prisoners-of-war were court-martialed, tried and hanged by the U.S. military for treason. The prosecutor was Frank Blair

and the judge was Carlos Beaubien, whose son was killed in the Taos rebellion. Those officials had no jurisdiction in a war zone. The patriot Mexicanos were prisoners-of-war who fought for their country against the U.S.

The Pueblos and Mexicanos of the cajas hid their elders, wives and children when they heard of the coming of the Army of the West. They also hid food, kept their herds in corrals and waited for the enemy. They heard from their families in Santa Fe that the army had camped on hills south of the Barrio de Analco and that soldiers would go into town, get drunk and harass the residents. New Mexico was now an occupied territory. (Hilario Romero. "New Mexico's Fight for Freedom" Chapter 5. Masters Thesis, 1975.)

RESILIENCE IN THE CAJAS DURING THE U.S. OCCUPATION

The villages of the cajas tightened their close relationships with each other to deal with the new government's injustice and racism. They also had to deal with the new cash economy. They were used to bartering locally and trading on the Chihuahuah Trail. Once the Treaty of Guadalupe-Hidalgo was signed between the U.S. and México on Feb. 2, 1848, newly arrived land speculators, lawyers, businessmen, carpetbaggers and traders went to work on legal, economic and political strategies to wrest the land, water and resources from the native people of New Mexico. They declared war on all semi-nomadic tribes and organized search-and-destroy missions throughout the New Mexico territory, the largest in the United States at that time. It included west Texas, southern Colorado, southern Utah, all of the Zona Arida (Arizona) and southern Nevada.

NEW MEXICO AND THE CAJAS: OCCUPIED TERRITORY (1848-1912)

New Mexico would continue to be a military-held territory for the next 62 years. The Indigenous semi-nomadic tribes fought a war against the combined troops of Anglo soldiers and some Mexicanos. Indigenous Pueblos and Mexicanos tried to keep what land they had, and went to the courts to protect their land grants. Most of the U.S. president's appointed governors were current or former generals in the U.S. Army. They ran New Mexico like an occupied territory, fighting against the semi-nomadic tribes, who did not understand why they were being pursued. The new government also encouraged new settlers from the east to stake claims without protecting lands that were granted to the Indigenous Pueblos and the Mexicanos. Slowly but surely, the merchants who had a foothold in the territory partnered up with newly arrived lawyers, speculators and carpetbaggers to form political and economic rings. Almost all of the appointments to the Supreme Court and local district courts were given to lawyers from Missouri and the East. (Malcolm Ebricht. *Land Grants & Lawsuits in Northern New Mexico*. CLGS: Canada, Ch. 4 & 8.)

The land grants of the cajas were surveyed, and most were initially approved by the U.S. Surveyor General in 1860. However, some of the common lands were opened up to settlers under the Homestead Act of 1862. The U.S. Department of Agriculture was created and encouraged large commercialized ranching that spread into New Mexico. The villages of Pueblo Quemado, Agua Fría, La Cieneguilla and La Ciénega eventually had to compete with large commercial ranches. Many were barely able to sustain their small ranches.

CONFEDERATE BLACK SLAVE-OWNING-TEXANS INVADE NEW MEXICO AGAIN

In February of 1862, an army of approximately 3,000 Confederate Texans invaded New Mexico, advancing from West Texas north on the Camino Real along the Río Grande. After one major battle at Valverde, which they won, they pushed their way north to Albuquerque and Santa Fe. They put their Confederate flag up on the plaza, stole food, horses, supplies, money and whatever resources they could find to move their army. Upon arriving near Glorieta, they were met by the Union army and the Colorado and New Mexico Volunteers. After several skirmishes, a group of soldiers under Manuel Chaves circled around the Confederate army and destroyed their supply camp, causing them to retreat from New Mexico. (Marc Simmons. *Little Lion of the SW: Life of Manuel Chaves*, 1983)

The villagers of the cajas had made preparations to hide their elders, women and children, and some abandoned their ranches. This was not their war. Many Nuevo Mexicanos and Pueblos were concerned with the search-and-destroy missions conducted against the semi-nomadic tribes, with no recourse or treaties. The U.S. Cavalry marched them into concentration camps at the

Bosque Redondo. There were more recruits among native New Mexicans for the war against the Texans, than against the tribes.

LAND LOSS AT THE COURT OF PRIVATE LAND CLAIMS

The U.S. government convened the Court of Private Land Claims from 1891 to 1904 to adjudicate and approve the Pueblo, Spanish and Mexican land grants in New Mexico. Among those grants were the Cochiti and Santo Domingo Pueblo Grants, Caja del Río, La Majada, La Ciénega, La Cieneguilla, Pacheco, Pino (which included Agua Fria and Pueblo Quemado) and lands within the Barrio del Torreon and Barrio de Analco. Despite the fact that these grants had been settled on for centuries, the court insisted that the original documents be submitted. Most of the residents of the cajas did save their documents and were able to succeed in receiving court approval. The areas were surveyed once again and some were not approved. The Forest Reserve Act of 1891 took large areas of land from the land grants before the courts could rule on the common area.

CONTINUED LAND GRABS ON AND NEAR THE CAJAS

The Santa Fe Ring, led by Thomas Catron, created a spurious, fake, false land grant they called the "Santa Fe Grant." They tried to have it confirmed by the Court of Private Land Claims in the 1890s, but the court disapproved. He took it to the U.S. Congress, where they had allies, and created a private patent that was approved in 1901. Many Caja residents and their families on the Pino and Pacheco grants lost their land to this ring of speculators, lawyers, judges, merchants and carpetbaggers. (Malcolm Ebright. "A City Different Than We Thought: Land Grants in Early Santa Fe, 1598-1900 Ch. 2 in All Trails Lead to SF)

The Caja del Río Land Grant and La Majada Land Grant were adjudicated and approved by the Court of Private Land Claims in the 1890s. From that time forward, the grants were surveyed again and their size reduced. La Majada Land Grant would be cut from its original 54,606 acres due to an overlap. This was the beginning of a series of reductions to the grant. Today, descendants of the original grantees use and own 17 acres, and lease their own land from the federal government for grazing. (Malcolm Ebright. Land Grants & Lawsuits)

WATER ISSUES AND THE CAJAS IN THE 1800S AND 1900s

The villages of the cajas also had to fight for their water rights, which were cut off from them by Santa Fe County Commissioners and the Santa Fe Water and Light Company in 1880. Throughout the early 1900s, new laws were passed that affected both water rights and land grants in the cajas. The creation of the Office of the Territorial Engineer included language that would make water a commodity in 1907. In 1917, hydrographic surveys were conducted for the rivers and acequias of Santa Fe and the cajas. This caused more caja villages to lose water rights. In 1920, speculators convinced the government to allow mining in the Caja del Río Santa Fe, below La Ciénega and

above La Bajada. It became more difficult for the Pueblo and Spanish-México villagers to make a living from farming and ranching due to these changes. Local villagers ran for higher office, introduced legislation to counter these entities, but eventually they had to pay to lease their own land managed by the federal government for grazing, wood and other resource gathering. (Hilario Romero, Six-Article Series in *Green Fire Times*, 2015 to 2019)

STATEHOOD & 20TH CENTURY GOVERNMENT DOMINATION IN THE CAJAS

With the continued aim of taming the West and modernizing it at the turn of the 20th century, the U.S. government created a series of departments to take over land in the forests, rivers, streams, lakes, and appropriate public lands elsewhere to reap

resources in 1904. With a combined population of fewer than 320,000 inhabitants in 1900, the territory of New Mexico, including Arizona, covered an area of approximately 235,000 square miles and had one of the lowest densities of any area in the U.S. As a territory, it was still managed by a governor appointed by the president of the U.S., with an elected territorial legislature representing 20 counties. Land grant lands were leased to mining and logging interests that had already established themselves since the Mining Act of 1872. The need for railroad ties facilitated logging beginning in 1879.

By the 1950s, Caja del Río and La Majada grants would be managed by two entities: the USDA Forest Service and the Bureau of Land Management. The village of La Bajada had to deal with a uranium mine



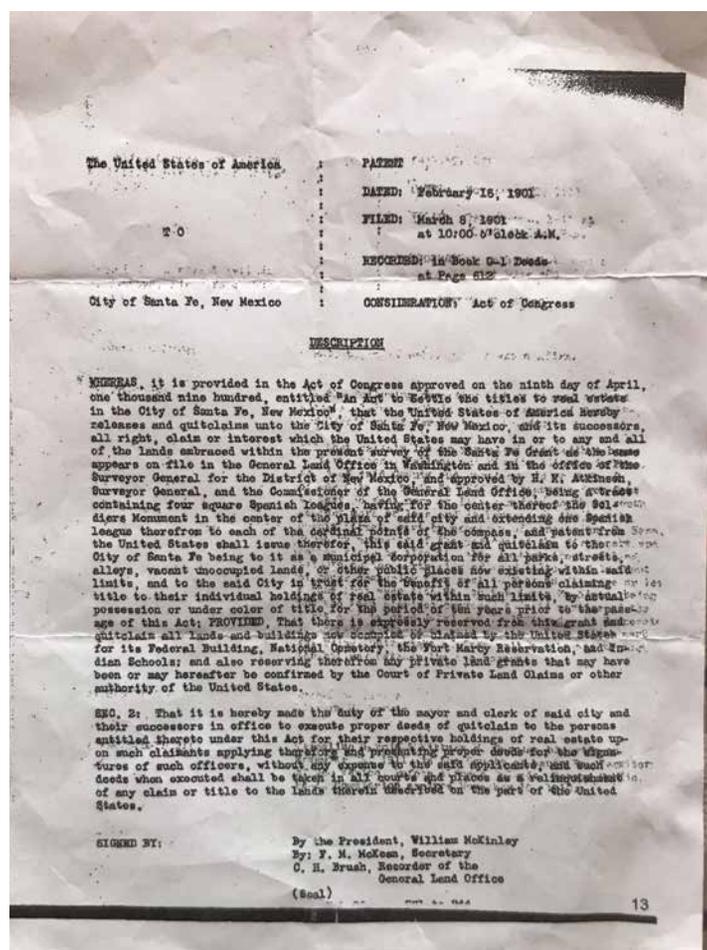
La Bajada escarpment, looking southeast, ca. 1930

Martial law was imposed in all of New Mexico, making it an occupied territory.

one mile upriver as early as 1915, again in 1956, and finally from 1962 to 1966 when the BLM again leased the mine to Lone Star Mining and Development. Residents complained about contamination. BLM finally suspended action on renewal of the lease in 1979. Reclamation work was done in 1985, due to contamination concerns. Finally, in 1995, an impact study was done by the New Mexico Bureau of Mines and Mineral Resources, concluding there was no significant impact on Cochiti Lake. In 2007, New Mexico Highlands University's Department of Sciences conducted a water quality study on the Río Santa Fe below La Bajada and found no significant contamination of radionuclides. The area that really needed these studies was located one mile above the village of La Bajada, in the Río Santa Fe riverbed just below the mine. ("La Bajada History Part III," *Green Fire Times*, Hilario Romero, June 2017, Vol. 9, No. 6)

CAJA DE RÍO SANTA FE AND THE CITY OF SANTA FE

The City of Santa Fe, since 1950, has controlled how much water trickles down the Río Santa Fe. Many of the cold water springs downriver have dried up. To make matters worse, the drought of 1952-1958 arrived and almost no water came down the river. Since then, the city has allowed treated waste to flow down the Río Santa Fe into the cajas from sewer treatment plants upriver. This has contaminated many wells in the caja below Santa Fe. Now that a drought has continued for over 20 years (since 1996), many of the natural springs have also dried up. The villages below Santa Fe have had to organize a community collaborative to deal with these problems and try to work with the city of Santa Fe to resolve them.



Copy of Pirate Patent of Santa Fe, Department of the Interior, General Land Office, 1901.

Cajas de los Ríos pueblo communities had new neighbors using the mesas for grazing and the Cajas for agriculture, gathering wood and plants.

SANTA FE AIRPORT BUILT ON PACHECO LAND GRANT

The city of Santa Fe decided in 1950 to locate an airport on the Pacheco Land Grant, where families had farmed and ranched for centuries. From that time until today, Pueblo Quemado, Agua Fría, El Alamo, La Cieneguilla and La Ciénega have put up with noisy aircraft over their quiet villages. A small number of residents that have lived in the Cajas, seeing that the land that is in the hands of the government, have lost confidence and feel powerless to change the situation. Some trash the land, others four-wheel it, and many use it for target practice in designated areas. However, most families care for it and respect it. Despite these changes, there are families that continue to farm and ranch on their land or lease it from the government.

COCHITI DAM AND ITS IMPACT

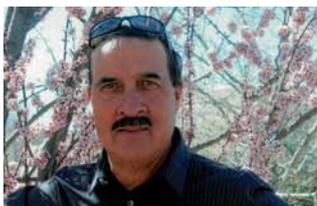
The Bureau of Reclamation and the Army Corps of Engineers teamed up in the early 1930s and again in the 1960s to study and determine whether it was feasible to build a dam near Cochiti Pueblo on the Río Grande. Once the Flood Control Act of 1960 was passed, it took five years for the U.S. government to decide and move on the project.

For Cochiti Pueblo, the dam has created more problems than advantages. The tribe protested the idea of building it in the first place. In 1976, one year after the dam was finished, the pueblo reported damages to farmland from a rising water table. In 1987 and 1988, the dam flooded about 1,500 acres of farmland. Cochiti Pueblo protested, wrote to the U. S. Army Corps of Engineers, which did not respond, and finally filed suit against the agency. For a project that was supposed to control flooding, it did the opposite. Today, the long drought has lowered the water level and the lake no longer floods the farmland. (Regis Pecos. "History of the Cochiti Reservoir from the Pueblo Perspective." UNM Law School, 2007)

SUMMARY

The cajas' history speaks for itself. From geologic times to the present, it is a chronology with which few places in New Mexico, the Southwest and the U.S. can compare. The unique character of the area has long been overlooked. There are hidden treasures of the geologic, geographic, ecological and historical past that would not fit within a short documentary film. The cajas will continue to show their unique nature and beauty through the landscapes, its skies, storms and its flora and fauna. Its history abounds with teachings of how cultures can survive in this landscape, make peace with one another, co-exist and build a future, overcome the onslaught of change and still keep tradition.

Despite all the challenges that arrived at the cajas, the villagers continued their lives and rolled with the punches. Many famous people have come out of this area to contribute their skills and talents and become known and admired in the history of New Mexico. Along with the pueblos of Cochiti and Kewa, descendants of original settlers still farm and ranch. In 2022, the All Indian Pueblo Council, representing the 19 Pueblos of New Mexico, passed a resolution to preserve Las Cajas de Los Ríos. We must preserve it for future generations by allowing the villages and their residents to become stewards of the area, in cooperation with the agencies that have managed it over the last century. That cooperation must give responsibility and genuine oversight to both parties equally. Using cultural knowledge and science together with common sense, this undertaking could be an example of best practices for governing the land, air, water and sky into the future. ■



Hilario E. Romero is a former New Mexico state historian, a retired professor of History, Spanish and Education, and a former federal grants administrator.

Note: Some of the tribal names in this article have been spelled phonetically.

WHAT'S GOING ON

ALBUQUERQUE / Online

MARCH 1-3

LAND AND WATER SUMMIT

Indian Pueblo Cultural Center, 2401 12th St. NW

Communities, Collaboration and Climate Change. Rethinking our approach to resource management—from Indigenous farming methods to green stormwater infrastructure for urban environments. WWW.LANDANDWATERSUMMITNM.ORG

MARCH 4-7

AMERICAN INDIAN HIGHER EDUCATION CONFERENCE

Albuquerque Convention Center

"Living Our Ancestors' Prayers"—Students, faculty and staff compete in academic, cultural and artistic exercises, share stories and best practices, participate in workshops and plenary sessions and celebrate the Tribal College movement. [HTTP://AIHEC.NAVAJOTECH.EDU](http://AIHEC.NAVAJOTECH.EDU)

APRIL 18-19

GO INTERNATIONAL TRAINING CONFERENCE

IPCC, 2401 12th St. NW

Advancing American Indian cultural tourism in the international travel and trade markets. For tribal tourism professionals, industry reps and entrepreneurs. Presented by the American Indian, Alaska Native Tourism Association. [HTTPS://WWW.AIANTA.ORG/GO-INTERNATIONAL/](https://WWW.AIANTA.ORG/GO-INTERNATIONAL/)

APRIL 20, 10:30 AM-2:30 PM

UNM SUSTAINABILITY EXPO

UNM Sustainability Studies Program. SUST.UNM.EDU

MAY 6, 11 AM

ALBUQUERQUE TURKISH FESTIVAL

Raindrop Albuquerque, 7901 Mountain Rd. NE

Turkish-Mediterranean cuisine, cultural exhibits, music, performances, children's activities. Free.

THROUGH MAY 6

ARTISTS AS KNOWLEDGE CARRIERS

516 ARTS, 516 Central Ave.

NM art professors (NMSU, UNM, CNM, IAIA, SFCC) as mentors of the next generation of artists. Plus in-person and live-streamed programs and workshops. 505-242-1445, 516ARTS.ORG

THROUGH MAY 22

CLAY LINE OF THE RED WILLOW PEOPLE

IPCC, 2401 12th St. NW

Taos Pueblo artists—micaceous potter Angie Yazzie, painter Brian Taaffe and photographer Deborah Lujan—represent the resilience and beauty of the pueblo, a World Heritage Site. WWW.INDIANPUEBLO.ORG

THROUGH JULY 23

INDIGENOUS ART, CULTURE AND COMMUNITY

Albuquerque Museum, 2000 Mountain Rd. NW

Ceramics, beadwork, prints, paintings and other artwork produced by award-winning Native American (mostly Santa Fe Indian Market) artists, from a collection recently donated to the museum. ALBUQUERQUEMUSEUM.ORG

OCT. 18-21

NATIONAL INDIAN EDUCATION ASSOCIATION CONVENTION & TRADESHOW

Albuquerque Convention Center

Education Sovereignty: It Begins with Us. WORKSHOPS@NIEA.ORG, [HTTPS://WWW.NIEA.ORG/2023-CALL-FOR-PRESENTERS](https://WWW.NIEA.ORG/2023-CALL-FOR-PRESENTERS)

APRIL 17-21, 2024

77TH ANNUAL INTERNATIONAL CONFERENCE

SOCIETY OF ARCHITECTURAL HISTORIANS

Albuquerque Convention Center

Architectural and art historians, architects, museum professionals, preservationists and those working in allied fields will share research on the history of the built environment. Paper sessions, keynote talks, social reception, tours. WWW.SAH.ORG

INDIAN PUEBLO CULTURAL CENTER

Tuesday-Sunday, 9 am-4 pm

2401 12TH ST. NW

“Gateway to the 19 Pueblos of N.M.” Museum galleries, exhibits and restaurant. Cultural dance program Sat., Sun. 11 am, 2 pm. Tickets \$10/\$8/\$7. 505-843-7270, WWW.INDIANPUEBLO.ORG

SANTA FE / Online

MARCH 7, 11

6TH GRADE/MIDDLE SCHOOL CURRICULUM UNIT WORKSHOPS

Online / Final in-person arroyo walk

3/7: 4:30-6 pm: Pollution and Arroyos; 3/11, 9-11 am: Arroyo Exploration. Teachers receive a \$50 stipend for each session attended. JULIE@SANTAFEWATERSHED.ORG, WWW.SANTAFEWATERSHED.ORG/ARROYOWORKSHOP

MARCH 8, 6 PM

ROBB HIRSCH BOOK TALK

Collected Works Bookstore, 202 Galisteo St. / Online

Walking Four Directions: A Journey for Regeneration in the Land of Enchantment. Hirsch explores four foundational concepts he believes can help us heal and resolve the climate crisis: spirit, nature, heritage and community. 505-988-4226, WWW.COLLECTEDWORKSBOOKSTORE.COM

MARCH 8–APRIL 20

JAZZ WORKSHOPS, PERFORMANCES

Institute for American Indian Arts

Delbert Anderson presents music, comedy, special guests. DELBERTANDERSON.COM

MARCH 8–MAY 24

ABRIENDO PUERTAS / PARENT LEADERSHIP CLASS

SF Community College Kids Campus

Promote your child’s development and school readiness. Each session focuses on a *dicho* or saying and builds on the leadership of all parents in the class. Participants are expected to attend 10 sessions. Free dinner and child care. [HTTPS://FORMS.OFFICE.COM/R/GXN0HDOBFB](https://FORMS.OFFICE.COM/R/GXN0HDOBFB)

MARCH 11–12

SANTA FE HOME SHOW & REMODELERS SHOWCASE

SF Convention Center

Manufacturers, suppliers, retailers, designers and home energy system professionals of NM. Workshops on going solar, energy-efficient homes and more. 505-982-1774, SANTAFEHOMESHOW.COM

MARCH 13–14

BANFF MOUNTAIN FILM FESTIVAL

Lensic Performing Arts Center

World tour. Mountain sports and environmentally themed films. Sponsored by the SF Conservation Trust. \$20 one night, \$38 both nights. SFCT.ORG/EVENTS/BANFF-MOUNTAIN-FILM-FESTIVAL/

MARCH 18, 11 AM–2 PM

COMMUNITY ART CLOSET

1600 St. Michaels Dr., SW Annex

Free art supplies. Vital Spaces: CONTACT@VITALSPACES.ORG

MARCH 18 THROUGH SEPT. 4

WITH THE GRAIN

NM Museum of Art, 107 W. Palace Ave.

Exhibition tracing the relationship between Hispanic, northern NM wood carvers and their use of incorporating natural wood in their carvings. 505-476-5072

MARCH 19, 10 AM–12 PM

WATER SYSTEMS WALKTHROUGH

AmperSand Sustainable Learning Center, Cerrillos, NM area

See how to live off rainwater with the help of sunlight, systems for greenhouses, solar water heaters, greywater. \$25. [HTTPS://AMPERSANDPROJECT.ORG](https://AMPERSANDPROJECT.ORG)

MARCH 26, 10 AM–3 PM

DEVELOPING YOUR PERMACULTURE PRACTICE

AmperSand Learning Center, Madrid/Cerrillos, NM area

Study permaculture at a mature site where techniques can be demonstrated. \$60-\$80. [HTTPS://AMPERSANDPROJECT.ORG/EVENT/DEVELOPING-A-PERMACULTURE-PRACTICE/](https://AMPERSANDPROJECT.ORG/EVENT/DEVELOPING-A-PERMACULTURE-PRACTICE/)

APRIL 1–8

SF MONOTHON 2023: A MARATHON OF PRINTMAKING

SF Community Gallery, 201 W. Marcy St.

Fundraising event to benefit Partners in Education through sales of one-of-a-kind artworks by local artists. 4/21, 5–7 pm: Gala sale. 4/22: Online sales. [HTTPS://SFAI.ORG/EVENT/SANTA-FE-MONOTHON-2023-A-MARATHON-OF-PRINTMAKING/](https://SFAI.ORG/EVENT/SANTA-FE-MONOTHON-2023-A-MARATHON-OF-PRINTMAKING/)

APRIL 6, 6–9 PM

NM WRITERS ANNUAL DINNER

La Fonda on the Plaza

Keynote by author Pat Mora. Hear from and meet 2022 grantees. [HTTPS://EVENTS.EVENTZILLA.NET/E/NEW-MEXICO-WRITERS-ANNUAL-DINNER-2023-2138571776](https://EVENTS.EVENTZILLA.NET/E/NEW-MEXICO-WRITERS-ANNUAL-DINNER-2023-2138571776)

APRIL 9 APPLICATION DEADLINE

2024 INTERNATIONAL THEMATIC RESIDENCY PROGRAM: SOVEREIGNTY

Santa Fe Art Institute

Supports artistic and creative engagement at intersections of sovereignty as it pertains to the individual, jurisdictions, systems and society as a whole. [HTTPS://SFAI.SLIDEROOM.COM/#/LOGIN/PROGRAM/70847](https://SFAI.SLIDEROOM.COM/#/LOGIN/PROGRAM/70847)

APRIL 11–MAY 23, 5:30–8 PM

CLIMATE MASTERS COURSE

Randall Davey Audubon Center

30 hours over seven weeks focused on climate change in NM and locally relevant interrelated connections among water, soil, food production, consumption/waste, forest management, transportation energy and the way we live our lives. Weekly expert guest speakers. Field trip to the Upper SF Watershed. \$25. [HTTPS://WWW.SANTAFEWATERSHED.ORG/EDUCATION-AND-OUTREACH/CLIMATEMASTERS/](https://WWW.SANTAFEWATERSHED.ORG/EDUCATION-AND-OUTREACH/CLIMATEMASTERS/)

APRIL 14 APPLICATION DEADLINE

PATHWAYS INDIGENOUS ARTS FESTIVAL

Buffalo Thunder Resort & Casino

Call for artists and performers: dance groups, bands, musicians, storytellers and comedians for 3-day festival. Indoor and outdoor stages. 505-455-5060, JSHIJE@POJOAQUE.ORG, POEHCENTER.ORG

APRIL 20, 9 AM–3 PM

EXPO 23 BUSINESS & CAREER RESOURCE FAIR

SF Convention Center, 201 W. Marcy St.

SF Chamber of Commerce. 505-988-3279

MAY 5, JUNE 2, AUG. 18, 5–9 PM

INDIGENOUS WAYS FESTIVAL

Santa Fe Railyard Park

Celebrate Native Arts, Culture, Music and Food. HELLO@INDIGENOUSWAYS.ORG

MAY 26–28

2023 NATIVE TREASURES

SF Convention Center

More than 200 Native artists, juried by Museum of Indian Arts and Culture staff. Entertainment, educational activities. Proceeds go to MIAC. \$5 admission, under 18 free. [HTTPS://WWW.EVENTBRITE.COM/O/MUSEUM-OF-INDIAN-ARTS-AND-CULTURE-27750123561](https://WWW.EVENTBRITE.COM/O/MUSEUM-OF-INDIAN-ARTS-AND-CULTURE-27750123561)

MAY 27, 9 AM–4 PM

PUEBLO FIBER ARTS SHOW

Poeh Cultural Center, 78 Cities of Gold Rd., Pueblo of Pojoaque

505-455-5041, POEHCENTER.ORG/FIBERARTS

THROUGH MAY 29

GROUNDING IN CLAY: THE SPIRIT OF PUEBLO POTTERY

Museum of Indian Arts & Culture, 710 Cam. Lejo

60+ members of tribal communities chose unique pots spanning 1,000 years. Exhibition will move to the Metropolitan Museum of Art in NYC. <https://groundedinclay.org>, Admission \$12. Discounts available. INDIANARTSANDCULTURE.ORG

JUNE 15–16

NEXT GENERATION WATER SUMMIT

SF Convention Center/Online

“Water Reuse and Conservation: The New Paradigm” The building and development community, water reuse professionals and policymakers share best practices and learn about water conservation and reuse techniques. [HTTPS://NGWS.VFAIRS.COM](https://NGWS.VFAIRS.COM)

MON.–FRI.

POEH CULTURAL CENTER AND MUSEUM

78 Cities of Gold Rd., Pueblo of Pojoaque

Di Wae Poma: They Came Back: Historical Pueblo Pottery. The Why, group show of Native artists. *Nah Poeh Meng*: core installation highlighting Pueblo artists and history. 505-455-5041

MON.–SAT., 8 AM–4 PM

RANDALL DAVEY AUDUBON CENTER & SANCTUARY

1800 Upper Canyon Rd.

Free walks to see birds, Sat., 8:30 am. RSVP for Randall Davey House tours.

RANDALLDAVEY.AUDUBON.ORG

TUES., SAT., 8 AM–1 PM

SANTA FE FARMERS' MARKET

1607 Paseo de Peralta

505-983-4098, SANTAFEFARMERSMARKET.COM

WEDS.–SAT., 10 AM–6 PM; FRI.–SAT., 10 AM–6:30 PM

SANTA FE CHILDREN'S MUSEUM

Interactive exhibits, play areas, weekly programs. Masks required for ages 2 and older.

\$10/\$8/\$7/\$3/age 1 & under free. 505-989-8359, SANTAFECHILDRENSMUSEUM.ORG

THROUGH AUGUST, WEDS.–FRIDAYS

MUSEUM OF SPANISH COLONIAL ART

710 Camino Lejo

Trails, Rails and Highways: How Trade Transformed the Art of Spanish New Mexico.

MUSEUM@SPANISHCOLONIAL.ORG

NM FOOD AND WATERSHED RESTORATION INSTITUTE

Summer Jobs in the outdoors for grads and undergrads. Join NMFWR's Ecological Monitoring team. Get paid to camp and learn about fire impacts on the landscape.

CARMEN@NMHU.EDU, [HTTPS://NMFWR.ORG/PROJECTS/SUMMER-STUDENT-INTERNSHIPS/](https://NMFWR.ORG/PROJECTS/SUMMER-STUDENT-INTERNSHIPS/)

SANTA FE HABITAT FOR HUMANITY

Seeking land, donated or for sale, to build affordable housing. Low-income homeowners help build homes and make mortgage payments to the nonprofit HFH. Property owners can qualify for 50% Affordable Housing tax credit through the NM Mortgage Finance Authority. 505-986-5880, ext. 109

SPRING SFCC CLASSES

March 11: Backyard Composting. 505-428-1676, WWW.SFCC.EDU/OFFICES/CONTINUING-EDUCATION/

STATE MUSEUMS

Museum of International Folk Art (10 am–4 pm), Museum of Indian Arts and Culture (10 am–4 pm), N.M. History Museum (10 am–4:30 pm), N.M. Museum of Art (Tues.–Sun., 10 am–4 pm). NEWMEXICOCULTURE.ORG/VISIT

YOUTHBUILD / YOUTHWORKS!

Paid training for Youth 16–24. Construction, Culinary, GED. 505-989-1855,

WWW.SANTAFEYOUTHWORKS.ORG/SANTA-FE-YOUTHBUILD/

TAOS / Online

LA HACIENDA DE LOS MARTÍNEZ

708 Hacienda Way

Northern NM-style Spanish colonial “great house” built in 1804 by Severino Martínez.

Open daily. TAOSHISTORICMUSEUM.ORG

MILLICENT ROGERS MUSEUM

1504 Millicent Rogers Rd.

Tuab-Tab/Taos Pueblo: Home, highlighting the pueblo's culture and artistic achievements.

Pop Chalee! Yippee Ki Yay! paintings. Open daily. MILLIF4N65OY45E.ORG

STORYCORPS: TELL YOUR STORY

StoryCorps records, preserves and shares stories of everyday people. Interview someone about their life, record with a friend or colleague about shared experiences, etc. Starting 3/2: Reserve spot to record: 1-800-850-4406. 3/16-29: Record virtually or at the Taos Public Library. [HTTPS://HARWOODMUSEUM.ORG](https://HARWOODMUSEUM.ORG)

HERE & THERE / Online

MARCH 6 APPLICATION DEADLINE

AGRICULTURE INNOVATION CENTERS GRANT

Grants to provide technical and business development assistance to producers developing and marketing value-added agricultural products. WWW.GRANTS.GOV/WEB/GRANTS/VIEW-OPPORTUNITY.HTML?OPPID=344750

MARCH 12–18

SW TRIBAL CLIMATE CAMP

Ghost Ranch, Abiquiú, NM

Tribal leaders, climate change coordinators, planners and program managers will build skills, gather info and develop tribal plans and policies needed to address climate change impacts. [HTTPS://ATNTRIBES.ORG/CLIMATECHANGE/TCC/](https://ATNTRIBES.ORG/CLIMATECHANGE/TCC/)

MARCH 14–15, 2023

HEALTH & ENVIRONMENTAL RESILIENCE AND LIVABILITY IN CITIES

Online

2nd international conference on sustainable urban systems design, livability at the heart of a city's urban planning, environmental quality, wellbeing and comfort, innovations in Smart Cities. [HTTPS://LNKD.IN/DA4FAJRX](https://LNKD.IN/DA4FAJRX)

MARCH 24 APPLICATION DEADLINE

ACEQUIA CULTURE YOUTH LEADERSHIP INSTITUTE

Youth 14–19 from acequia communities can learn more about NM acequias and cultural traditions, become a protector of the land and water, grow leadership skills and explore career paths. 8–10 online sessions plus 2–4 hands-on workshops/field trips. May–Nov. 2023. 505-995-9644, WWW.LASACEQUIAS.ORG/YOUTH-LEADERSHIP. NM Acequia Association.

THROUGH MARCH 30, MON.–FRI., 10 AM–4 PM

“LOOK OUT”

Northern NM College's Center for the Arts Gallery, Española, NM Faculty exhibition of visual art, dance, sound and film screenings. 3/30, 6–8 pm: screenings and conversation between filmmakers Mateo Frazier (*Things We Do for Love*) and David Lindblom (*Land Water People Time*), depicting northern NM's diverse cultures. 505-747-2193, [HTTPS://NNMC.EDU/](https://NNMC.EDU/)

MARCH 31, 2023 APPLICATION DEADLINE

FUNDING TO CLEAN UP LEGACY POLLUTION

Bipartisan Infrastructure Law funding available to catalyze economic opportunity by reclaiming abandoned coal mine lands. Open to state and tribal governments and some organizations.

[HTTPS://WWW.OSMRE.GOV/SITES/DEFAULT/FILES/INLINE-FILES/BIL_NOFO.PDF](https://WWW.OSMRE.GOV/SITES/DEFAULT/FILES/INLINE-FILES/BIL_NOFO.PDF)

APRIL 6–8

BIONEERS: REVOLUTION FROM THE HEART OF NATURE

Berkeley, Calif.

34th annual gathering. Breakthrough solutions for People and Planet.

[HTTPS://BIONEERS.ORG](https://BIONEERS.ORG)

APRIL 21, MAY 17 APPLICATION DEADLINES

NMDA HEALTHY SOIL PROGRAM

Grants to improve soil health. Applications for local governmental entities (4/21) and individual applicants (5/17). [HTTPS://NMDEPTAG.NMSU.EDU/HEALTHY-SOIL-PROGRAM.HTML](https://NMDEPTAG.NMSU.EDU/HEALTHY-SOIL-PROGRAM.HTML)

APRIL 22

EARTH DAY 2023

“Invest in Our Planet” WWW.EARTHDAY.ORG/EARTH-DAY-2023/

APRIL 27 APPLICATION DEADLINE

GRANTS FOR BEGINNING RANCHERS AND FARMERS

USDA Development Program #USDA-NIFA-BFR-009746. Applications accepted from collaborative state, tribal, local or regional networks or partnerships, including NGOs and educational institutions. [HTTPS://WWW.GRANTS.GOV/WEB/GRANTS/VIEW-OPPORTUNITY.HTML?OPPID=345713](https://WWW.GRANTS.GOV/WEB/GRANTS/VIEW-OPPORTUNITY.HTML?OPPID=345713)

MAY 2–4

CROSS-BOUNDARY LANDSCAPE RESTORATION WORKSHOP

CSU Campus, Ft. Collins, Colo.

Adapt to a climate-altered West. [HTTPS://CONFERENCEREG.COLOSTATE.EDU/CROSS-BOUNDARY23](https://CONFERENCEREG.COLOSTATE.EDU/CROSS-BOUNDARY23)

MAY 3–JUNE 14, WEDS., 16:00 PM GMT

THE GIVING COURSE, WITH VANDANA SHIVA

Online + face-to-face gatherings around the world

7-Week journey of connection with seeds, food and Indigenous forms of forest living. Pay what you want. WWW.GUARDIANSWORLDWIDE.ORG/GIVING

MAY 4–5

WESTERN AGRICULTURAL AND ENVIRONMENTAL LAW CONFERENCE

Reno, Nevada

Hosted by the National Agricultural Law Center. [HTTPS://](https://NATIONALAGLAWCENTER.ORG)

NATIONALAGLAWCENTER.ORG

JUNE 28–JULY 1

SAN JUAN JAZZ SOCIETY 2ND JAZZ FESTIVAL

Farmington Civic Center, Farmington, NM

A family event. Concerts and workshops will uplift the area's Indigenous and Latin cultures. [HTTP://NWNMAC.ORG](http://NWNMAC.ORG)

NAVIGATE a life with LESS WATER

 savewatersantafe.com



THANK YOU
FOR BEING A

*Certified
Waterwise
Business*

in Santa Fe

Thank you for reducing your water footprint in the City Different!

CERTIFIED WATERWISE DIRECTORY

RESTAURANTS

Andiamo	Jinja
Annapurna's	Joe's Dining
Anthony's Grill	La Choza
Buffalo Wild Wings	Lino Trattoria & Pizzeria
Bumble Bee's Baja Grill	Loyal Hound
Café Castro	Mampuku Ramen
Cafecito	Maria's
Carl's Jr.	Mid Town Bistro
Casa Chimayo	Museum Hill Café
Chili Line Brewery	Oasis Ice Cream
Cleopatra Café	Ohori's - Cerrillos
Cowgirl	Ohori's - St Francis
Coyote Café	Osteria D'Assisi
Dinner for Two	Pantry Dos
Dolina Bakery & Café	Pantry Rio
Domino's	Paper Dosa
ECCO	PC's Santa Fe
El Callejon	Plaza Café Southside
Fenix at Vanessie	Posa's El Merendero
Fire and Hops	Restaurant Martin
Flying Tortilla	Revolution Bakery
Herve Wine Bar	Rio Chama
HoneyMoon Brewery	Rufina Taproom
Hotel Santa Fe - Amaya	Santa Fe Bar & Grill
Jambo Café	Santa Fe Bite
Jimmy John's	SantaCafe
Jimmy John's-Zafarano	Santa Fe Capitol Grill
	Sassella

Second St Brewery
Railyard
Social at The Sage Inn
Sweetwater Harvest
Kitchen
Teahouse
Terra Cotta Wine Bistro
The Compound
The Palace Restaurant
The Pantry
The Ranch House
Tomasita's
Tortilla Flats
Yin Yang

LODGING

Coyote South
Drury Plaza Hotel
El Rey Inn
Hyatt Place Santa Fe
Sage Inn

SHOPPING CENTER

St. Michael's Village
West

BUSINESSES

A Sound Look
Amanda's Flowers
Big Brothers Big Sisters
Borrego's Guitars
CBA Insurance
Eterna Primavera
Harbor Freight
Linda's Nails
Piñon Acupuncture
PostNet
Red Star Vapor
Rob & Charlie's Bicycles
Sierra Pacific Windows
The Cuttery

savewatersantafe.com/waterwise-business

Since 2018 the City's Certified Waterwise pilot project saved 2.1 million gallons of water each year. Now a permanent program, it's estimated that tens of millions more can be saved by Santa Fe businesses who choose to participate in the free water usage assessment.