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News & Views from the Resilient Southwest

CREATING RESILIENT COMMUNITIES

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Green Fire Times' cultural journalism and mentorship program help nurture initiatives that are transforming New Mexico into a diverse, sustainable economy. Highlighting traditions of sustainability helps communities discover who they once were and what they can become. GFT is also somewhat of a template that other regions could replicate to promote culturally based economic development.

Funding Needed

Be a part of keeping GFT alive and well. Production of a free, quality, independent, print/online publication requires financial contributions from readers and foundations—as well as advertising revenue. If ever there was a time to show appreciation for this publication, the time is now. Be part of the resilience and sustainability campaign for GFT by sending a tax-deductible donation through this QR code, via PayPal on WWW.GREENFIRETIMES.COM, or by sending a check (with a notation 'for GFT') to the nonprofit incorporated in 1973 that owns GFT, Southwest Learning Centers: P.O. Box 8627, Santa Fe, N.M. 87504-8627

Gail Russell
Taos, New Mexico
(A concerned reader and fan of GFT)

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CONTENTS

GREEN FIRE TIMES
News & Views from the Sustainable Southwest

Join Us for the Earth Day Festival April 13th

Earth Day Festival New Mexico

10 am–4 pm Sunday April 13th
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The Second Annual Earth Day Festival promises to provide information that will save people between $500 and $20,000 by incorporating green practices into your day-to-day lives.

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- Experts on rebates (PNM, state, federal)
- Clean energy vendors
- Kids Entrepreneurs section
- Workshops
- Food Court

Creating Resilient Communities

BY **SETH ROFFMAN**

According to the Albuquerque Food and Agricultural Action Plan, 17.6 percent of Albuquerque residents live in poverty, which not only impacts people's ability to access food; it also impacts the region's economic potential. Several exciting projects that address these challenges—projects that are likely to contribute to a healthier, more vibrant community—have recently opened or will soon open.

Barelas Community Kitchen (4th & Barelas)
Street Food Institute
Grand Opening March 27, 3–6 p.m.

Street Food Institute (HTTPS://STREETFOODINSTITUTE.ORG) helps people realize the dream of owning and operating a successful foodservice business. The organization is dedicated to growing the state's local food economy by developing strong business leaders who are trained to employ sustainable business practices that support local farmers, entrepreneurs and families. SFI's curriculum was developed in partnership with Central New Mexico Community College (CNM), which has a culinary program to train chefs. SFI's classroom training and internships provide real-world business experience.

The new Barelas Community Kitchen, in the heart of one of Albuquerque's oldest and predominantly Hispanic neighborhoods, is more than a state-of-the-art commissary kitchen. It is SFI's new home. It will allow SFI to expand its entrepreneurial food management program and provide education and training in a lab format for small food businesses to develop recipes and concepts. It will be a safe place for learning,

from intergenerational teachings to shared cultural experiences and traditions. In collaboration with SFI and Scout Design, members of MASS Design Group completed the design of the facility on 4th Street, an important commercial corridor in Barelas. The commissary kitchen is nestled in between an adaptive reuse of existing buildings, a strategy that helps maintain the street edge condition and provides storefront spaces for SFI graduates. The design takes its cues from the character of Barelas, through strategic weaving of color through tiled facades and recessed opening for natural shading. The second level includes nine office and artist spaces to support small business entrepreneurs. The 11,000-square-foot facility was also designed as a gathering space for community events. It is expected to have a powerful impact on the neighborhood and the broader community.

"4th and Barelas" (www.4THANDBARELAS.COM) is a Homewise redevelopment project. Two million dollars in congressional project funding made the commissary kitchen possible. It will be open 24 hours, every day of the week. Homewise partnered with NeighborWorks America and conducted the Voices of Barelas survey to identify needs within the community. Localized job training emerged as a high priority for investment. Homewise is renting the building to the institute for the first seven years. SFI will likely buy the building once seven years is up. Homewise has purchased many vacant or abandoned commercial assets in the Barelas neighborhood.

Nuevo Atrisco Food Court (Central & Unser NW)
In December 2024, there was a ribbon-cutting for Nuevo Atricso Food Park—a vibrant space in West Central Albuquerque that is designed to bring neighbors together through food, art and culture. Developed through a public-private partnership, Nuevo Atrisco offers interactive play areas, a performance stage and an eye-catching mural created by Jade Cruz and local youth from Working Classroom.
WWW.NUEVOATRISCO.COM

Three Sisters Kitchen (109 Gold Ave. SW)
Located in the heart of downtown Albuquerque, the nonprofit Three Sisters Kitchen (https://threesisterskitchen.org), founded in 2016, is dedicated to improving community health, creating economic opportunity and bringing together diverse communities around a shared table. On any given day, you can find high-school students learning how to cook pancakes or frito pie in the community classroom, bags of fresh locally grown lettuce and tomatoes going to food-insecure families, or food entrepreneurs churning small-batch ice cream and baking gluten-free crackers. Three Sisters' mission facilitates collaboration among local farmers, educators and community members who want to create a vibrant local food system. The bounty of New Mexico is both savored and celebrated.

Three Sisters also runs a café at the Explora Science Center and this year, TSK is opening a second commissary kitchen in downtown Albuquerque. This shared commercial kitchen space will host farmers and aspiring food entrepreneurs in a facility built specifically for manufacturing. Dehydration has always been a favorite of TSK's Food Business Training Program, and this new space will feature dehydrators as well as an extra-large freeze-drier. Freeze-dried foods last longer than dehydrated foods and maintain more of the nutritional value of fresh produce. They are often utilized to feed people during natural disaster relief. Three Sisters Kitchen is excited to see what local farmers and foodies do with this exciting new piece of equipment.

Mural by Vee Hernández at the new manufacturing kitchen
Photo by Darcy Rabold

ALDEA DEL RIO – A MODEL FOR SUSTAINABLE COMMUNITY

BY **CHRIS BACA,** FOUNDER/PRESIDENT/CEO OF YES HOUSING, INC.

Yes Housing, Inc., a 34-year-old nonprofit dedicated to community-based affordable housing and economic development, is embarking on an ambitious project. Our vision includes sustainable community practices like energy-efficient design, organic food production and collaborative efforts among small farmers. We have acquired 25-plus acres of arable land in Albuquerque's South Valley to create a transit-oriented neighborhood focused on health and wellbeing.

By revitalizing neighborhoods, creating jobs and enhancing public health, we aim to prioritize the needs of local stakeholders and promote social cohesion. Our commitment is also to climate change adaptation and wildlife protection. This project will set a benchmark for collaborative efforts in achieving social impact while building affordable housing and providing small-business opportunities, including developing a pool of agri-science talent for future generations of local farmers.

GOAL—To remove 97 acres from M-2 zoning and convert the site into a sustainable and habitable community in a low-income, majority-Hispanic, environmentally distressed area of Bernalillo County. Our ultimate goal is to develop multi-family apartments and townhomes, designed to be energy-efficient and environmentally friendly, to address the housing shortage in the region. It will be pedestrian friendly and connect to existing walking and bike trails as well as to the nearby Railrunner station (and a 120-mile corridor, from Belen to Santa Fe).

PURPOSE—To develop a green-centered neighborhood to demonstrate that a well-planned strategy can transform a community beset with environmental issues and poor health outcomes into a health-driven, sustainable living model.

OBJECTIVE—To build a community with an agriculture aggregator facility as its anchor. This facility, with greenhouses and large garden plots, will be the first onsite project to be built. It will process produce from 40–60 small farms in the area. We will then build infrastructure to accommodate the development of a neighborhood based on renewable energy; green the site with edible landscapes; reuse water from the nearby water treatment facility; create new, LEED-certified, affordable and workforce housing, and connect to existing walking/bike trails that bisect the city.

Thanks to a grant from the Bezos Earth Fund via Green Latinos, we are planting 170 fruit and nut trees to supplement the garden and greenhouses, aiming to enhance food security for low-income families that live in the units we will build.

We are teaming up with La Cosecha and AgriCultura to establish the processing facility to support local organic farmers and provide fresh produce to underserved communities. An agricultural aggregator supports local agriculture, enhances food security, greens the site, contributes to environmental sustainability and fosters community development. By centralizing resources and services for small farms, it can also improve efficiency and market access, making a substantial impact on the local economy and ecosystem. The aggregator then becomes the hub for building multifamily and single-family homes. These will drive complementary retail and commercial opportunities that benefit the whole area.

The vision for Aldea del Río (Village on the River), includes a strong focus on sustainable housing. We intend to develop multi-family residences built to LEED and HERS standards, striving for net-zero energy consumption. These eco-friendly homes not only reduce utility costs but also promote sustainability and community resilience.

Traditional community planning has often neglected pedestrian safety and convenience in favor of automobiles. Our approach involves designing streets and trails that are safe and easily accessible, bringing residential, retail and commercial spaces closer together to encourage residents to walk for their daily needs.

Embracing sustainable development signifies a transformative shift in community planning, driven by environmental, social and economic considerations. Through green innovation, collaboration and long-term vision, stakeholders can pave the way for a more sustainable and prosperous future, unlocking new opportunities for value creation and resilience.

The acquisition of 25 acres in Phase 1 and an additional 72 acres in Phase 2 presents an opportunity for Yes Housing to showcase a community that embodies these principles. Situated in a strategic location with access to key landmarks and natural assets, including the Río Grande, bike trails and wildlife preserves, this site is ideal for building an agri-hood and promoting green initiatives in Albuquerque's South Valley. We intend to create a distinctive community with amenities focused on healthy living and environmental sustainability, serving as a model for future developments. This integrated approach aims to harmonize the site with nature, setting it apart as a sustainable and multi-functional community.

We will keep the community informed as we progress. Strong communities are built on trust and social cohesion. Engaging residents in the housing planning process nurtures a deeper connection to neighbors and home, fostering vibrant, supportive communities. There is no substitute for in-person, face-to-face interaction. You must be present so you can hear, listen and engage. Our focus on involving communities in mixed-use projects with green building strategies aims to create inclusive, sustainable spaces that honor people's needs and values. Collaboration among policymakers, developers and communities is key to shaping equitable and sustainable housing solutions. Community engagement is key to shaping a future where housing mirrors the collective aspirations and values of its residents. ■

For more information, visit HTTPS://WWW.YESHOUSING.ORG .

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OP-ED: CHRIS BACA

BUILDING GREEN COMMUNITIES

Communities now have a unique opportunity to invest in their green spaces—both in claiming and reclaiming spaces, and in ensuring opportunities to build and maintain what we have, while addressing environmental issues that are confronting our society.

Increasingly, studies are showing that public green spaces have been linked to lower crime rates.

As cities have continued to grow and urbanize, creating livable green spaces that allow people to reconnect with nature is more important than ever. Indeed, with more than 80 percent of the U.S. population living in urban areas, communities have to offer a peaceful respite from city life. These intentionally built habitable oases can improve our mental and physical health, provide opportunities for physical activity and social interaction, and help clean the air and water. And increasingly, studies are showing that public green spaces have been linked to lower crime rates.

Sustainable communities can be built by using best practices in energy-efficient design, along with water reuse and conservation methods. For the Aldea del Río development, organic food production and processing and collaborative networking amongst small farmers from the region is key. It will set the framework for sustainability.

Communities have to offer a peaceful respite from city life.

YES Housing's aim is to develop multi-family apartments, single family and/or townhomes to help address the shortage of homes in the area. These structures would be built at LEED- and HERS-rated levels. The goal is for them to be net-zero in energy consumption. Net-zero residences benefit communities by reducing energy use and greenhouse gas emissions, leading to lower utility costs and a smaller carbon footprint. They also promote sustainability, can enhance property values, and contribute to a healthier community. Single, detached family homes and also townhomes can be built within a framework of pedestrian friendly environs. Our understanding, from talking to residential developers, is that townhomes are the platform that most new buyers are gravitating to because it is the least expensive.

The key elements of successful mixed-use developments include the right location, appropriate scale, uses that complement one another, well-designed public spaces, and high-quality, energy-efficient structures. Building and rebuilding community infrastructure to support both sustainability and a healthy economy—two synergetic goals that are often mistakenly viewed as mutually exclusive—are necessary elements to building new, green neighborhoods.

Chris Baca

The result will be:

- Health, wellbeing and social cohesion
- Economic growth and investment
- Preserving wildlife and habitats
- Stronger communities
- Building environments that counter climate change ■

AFFORDABLE HOUSING AND GREEN LIVING

"The housing affordability crisis prevents essential members of the city's workforce from living where they work. Beyond stabilizing their monthly housing payment, homeownership allows families to focus on what matters most—their family—and not on the cost of housing. That's why we remove barriers to homeownership through offering low down payment mortgages, making closing costs part of our loans, and removing monthly mortgage insurance. Plus, we build communities where 40 percent of the homes (double the City of Santa Fe's requirement) are sold at affordable prices. We also aim for our communities to have some green space or local businesses for families and their little ones to enjoy."

—Mike Loftin, Homewise CEO

"Building communities is much more than building housing and maybe some green space or commercial space. A healthy community includes quality-of-life amenities like parks, recreation, libraries, clinics, community centers, child and elder care, neighborhood commercial, spiritual spaces, public transportation, cultural and performance spaces, education and training and civic gathering spaces. We must demand that the city and county invest in these amenities and require concurrent funding and planning for any new development."

—Miguel Angel Acosta Muñoz, Co-director, Earth Care–New Mexico

"Our experience as an affordable housing developer has led us to understand the building of more units is only one solution to the crisis of affordable housing. What must also be addressed is access to jobs, healthcare, education and healthy food options. For a decade now we have been including social services, public transportation, on-site gardens, grocery stores and food hubs. We are strategically locating and partnering with others to make all those accessible."

—Chris Baca, President/CEO, YES Housing, Inc.

Miguel Angel Acosta Muñoz

Mike Loftin

NUEVO ATRISCO DEVELOPMENT IN ALBUQUERQUE

In May 2024, YES Housing's Chris Baca and Sen. Martin Heinrich spoke at a Gridworks tour of YES's Nuevo Atrisco community. Nuevo Atrisco is an example of how an affordable housing community can be built to meet the Gold Standard in Energy and Environmental Design. YES Housing staff provided an overview of the Nuevo Atrisco campus and sustainable living elements. Participants then toured apartments and learned more from residents about their experience of living in a green building.

Chris Baca speaks during tour of Nuevo Atrisco

CITY WORKING TO HELP AFFORDABLE HOUSING GO GREEN

Partnership with nonprofit ICAST improving energy efficiency in city-owned affordable housing

Albuquerque has continued to take strides towards citywide sustainability goals in a partnership with the International Center for Appropriate and Sustainable Technology (ICAST, WWW.ICASTUSA.ORG). ICAST assessed and made energy-efficiency improvements to eight city-owned affordable housing properties. "Utilities can be one of the highest expenses for households," said Deputy Director of Housing Joseph Montoya. "This investment will save our tenants money and extend the longevity of those units."

"The weatherization of these properties is more than just building retrofits. By reducing low-income families' bills and improving the comfort, safety and health of their homes, we're not just weatherizing buildings, we're weatherizing lives," said Ravi Malhotra, ICAST's president and founder. As the current manager of PNM's and the New Mexico Gas Company's multifamily utility energy-efficiency program, and a contractor with the New Mexico Mortgage Finance Authority to assist in housing weatherization, ICAST is able to leverage multiple outside funding sources to carry out many of the improvements it recommends to the city. The city has been pursuing additional federal funding to cover projects ICAST won't be able to carry out.

In alignment with its 2021 Climate Action Plan, the City of Albuquerque has been addressing existing inequities with projects that reduce energy costs and burdens for frontline communities. This project builds off of the Community Energy Efficiency project, which has provided over 200 homes with free energy audits and upgrades in partnership with PNM and Prosperity Works.

A MILESTONE IN SANTA FE'S AFFORDABLE HOUSING QUEST

Late last year, Homewise acquired almost all undeveloped land in the Tierra Contenta planned community, paving the way for nearly 1,500 new housing units (mostly single-family homes for young, first-time homebuyers), with 40 percent dedicated to affordability. The nonprofit will eventually sell some tracts to other developers to ensure a mixture of housing options, according to a press release. Homewise is also planning a school site and public park.

The purchase is a major step toward addressing Santa Fe's housing crisis and realizing the vision set forth in the nonprofit Tierra Contenta Corp's master plan. Critical infrastructure for the project—including a road and utilities—remains incomplete. There is pressure on the city to step up and contribute to the public infrastructure.

Homewise Donations: $35 Million

A recent $25 million donation to Homewise from philanthropist McKenzie Scott's Yield Giving organization, as well as a $10 million "impact investment" from the Anchorum Health Foundation in Santa Fe, will help the nonprofit developer build more homes and expand its lending program for home energy efficiency upgrades and first-time home buyers. Jerry Jones, president/CEO of Anchorum, said in a news release, "It's bold, visionary investments like these that will help transform our community." These major donations may attract additional funding from other organizations.

CHASING THE ELUSIVE
EXPLORATIONS IN ACHIEVING SUSTAINABILITY

CREATING RESILIENT COMMUNITIES *THRIVING TOGETHER*

BY **KATHERINE MORTIMER**

With climate change making natural disasters more frequent and severe, ensuring our communities are resilient to respond to these events is more important than ever. Community resilience is the ability of a community to address everyday stressors and to quickly recover from a disaster.

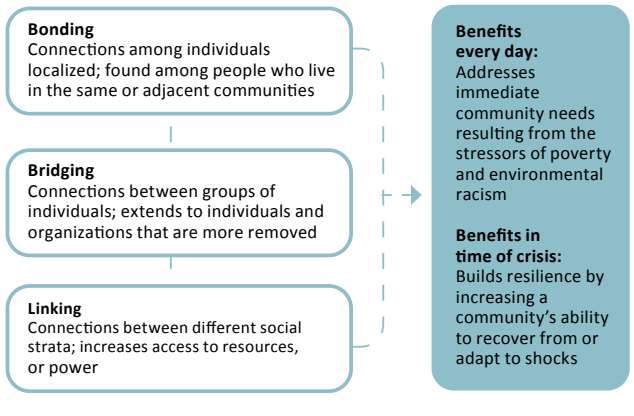
Traditionally, we have equated community resilience to disaster preparedness, including emergency shelters, generators for key facilities, emergency food and water supplies, and ensuring critical facilities such as nursing homes, hospitals and clinics and medical facilities remain operational. These actions are the responsibility of government, utility providers and NGOs. The intensity and frequency of natural disasters is increasing with climate change. New Mexico is projected to experience more severe and frequent floods, wildfires, extreme droughts, wind events and extreme temperatures, and these are addressed in emergency response plans.

Resilience hubs are physical places where people from vulnerable neighborhoods can go to connect with their neighbors.

In addition to traditional emergency preparedness practices, enhancing natural systems that reduce impacts from disasters is becoming recognized as an important strategy for community resiliency. Natural processes can be enhanced to reduce the impacts of floods, erosion, wildfire and heat. Using rainwater and greywater reduces drinking water demand. These actions also have the co-benefit of improving the ecological value of the region where they are employed.

Analysis of recovery efforts from recent disasters has found that social resiliency is a key factor in post-disaster outcomes, especially for vulnerable communities. Social resiliency comes from having strong social connections within a community that build trust and respect. The establishment of strong social networks before a disaster also allows them to be relied upon during a disaster and reduce everyday stressors.

There are three types of social capital as described by Daniel Aldrich: *Bonding Social Capital,* which are connections between friends and family; *Bridging Social Capital,* which are acquaintances and people you know through groups and organizations; and *Linking Social Capital,* which are connections with people in positions of power. The first two describe horizontal relationships and are critical in the first stages of responding to a disaster, while Linking Social Capital provides critical information to people in power to tailor the response from government and nonprofits to the specific needs of the community for better long-term outcomes.



Source: Forefront Fellows

The best strategies for building social capital will depend upon the unique characteristics of each neighborhood—its culture and needs. When communities use their own personal experiences to design the measures used to increase their social capital, the results better address the unique short- and long-term stressors of that community.

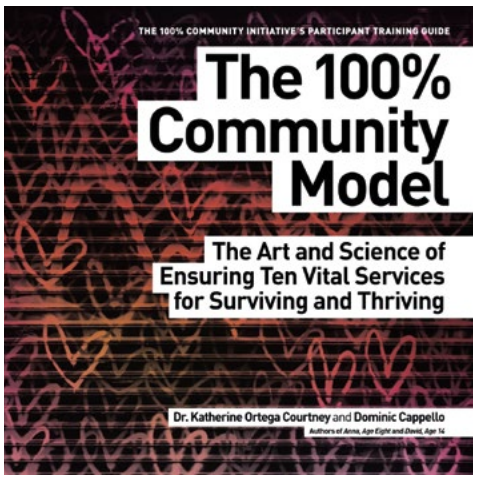
One strategy that kept coming up in my research for this article is the creation of resilience hubs. These are physical places where people from vulnerable neighborhoods can go to connect with their neighbors. Prior to disasters they provide activities, services and social connections as people are routinely brought together to attend gatherings relevant to the community. During and after a disaster they operate as a center for whatever is needed, such as providing emergency shelter, first aid, a communication hub, food and clothing distribution, and/or anything else that is needed. More information on resilience hubs can be found at www.resiliene-hub.org . ■

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.

BOOK PROFILE

THE 100% COMMUNITY MODEL

THE 100% COMMUNITY MODEL:
THE ART AND SCIENCE OF ENSURING TEN VITAL SERVICES FOR SURVIVING AND THRIVING
BY DR. KATHERINE ORTEGA COURTNEY AND DOMINIC CAPPELLO
2024, HTTPS://LNKD.IN/E2JQHDM6



Katherine Ortega Courtney, co-director of the Anna, Age Eight Institute at New Mexico State University, is a psychologist who co-developed (with *New York Times* bestselling author Dominic Cappello) the 100% Community Model, a framework designed to guide state and local work of preventing two interrelated public health and education challenges: adverse childhood experiences (ACEs) and adverse social determinants of health (SDH).

ACEs are forms of abuse and neglect that occur in the home that can lead to trauma and substance use disorders linked with low school achievement, lack of job readiness, domestic violence, child welfare involvement and other lifelong effects. SDHs are the environment children grow up in and include the services that can determine one's health, safety, education and quality of life. Across lifetimes, adverse childhood and adult experiences—trauma, substance use disorders, failing schools, unsafe communities—perpetuate a generational cycle that can lead to abuse, neglect, hopelessness, injury, violence, illness and fatalities.

A decade in the making, consolidating everything the authors learned from working with counties to ensure that families can access the 10 vital services, *The 100% Community Model's* step-by-step framework mobilizes local stakeholders in creating stable, safe communities. Their data-driven and technology-enhanced strategy supports community-building, leadership development, policy work, and public and private sector partnerships. The result, the authors say, will be a society where everyone has the opportunity to thrive.

Earth Day Festival

2025 EARTH DAY FESTIVAL NEW MEXICO

SUNDAY, APRIL 13, 10 A.M.–4 P.M.
BALLOON FIESTA PARK

2024 photos
© Seth Roffman

Creating a Healthy Home: The Benefits of Electrification

BY **CARL ULIBARRI**

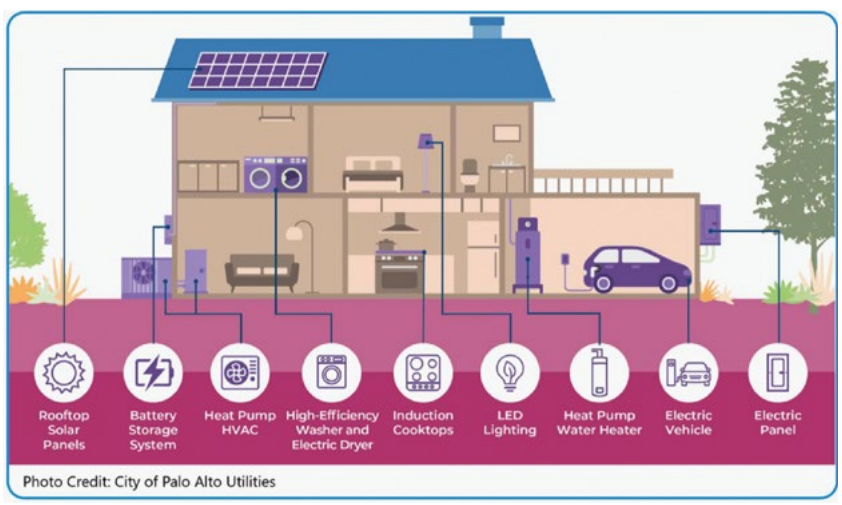
NM HOME SOLUTIONS

An efficient, electric home is more than just a comfortable space—it's a refuge that protects a family's health, lowers climate pollution and often cuts energy bills. Many households still rely on gas appliances for cooking, heating and water-heating, but these systems come with hidden risks. Gas combustion releases carbon monoxide (CO), a dangerous, odorless gas that can cause poisoning, lead to dizziness, headaches and even fatalities in high concentrations. Burning gas indoors releases nitrogen dioxide (NO_2) and other pollutants that can worsen respiratory conditions such as asthma, especially in children and the elderly. Poor ventilation exacerbates these risks, making electrification a smart choice for healthier indoor air.

Switching to electric alternatives—such as induction cooktops, heat-pump water heaters and electric space heating—eliminates these pollutants and enhances home safety. Induction stoves offer precise temperature control, while heat pumps provide energy-efficient heating and cooling. Americans have bought more heat pumps than gas furnaces in the last three years. Additionally, modern electric appliances combined with solar often perform better and lower energy bills over time, making them a practical and sustainable investment. Transitioning to an all-electric home is an effective way to protect both personal health and the planet. There are financial incentives from the state and electricity providers to help make the switch, even if federal programs disappear.

Benefits of a Comprehensive Home Energy Audit

How do you start? A home energy audit is one of the most effective ways to improve comfort, reduce energy waste and lower utility bills.



This comprehensive assessment helps homeowners identify inefficiencies in their home's energy use and provides a roadmap for prioritizing upgrades. Instead of guessing which improvements will have the most impact, homeowners receive data-driven recommendations tailored to

With cleaner air, improved safety and long-term savings, transitioning to an all-electric home is an investment in both your health and the environment.

their home's specific needs. Common suggestions include sealing air leaks, upgrading insulation, installing energy-efficient appliances and switching to a heat pump for heating and cooling. An additional benefit from an audit is that it will help determine the proper size of HVAC equipment that will be needed once air sealing and recommended insulation measures have been implemented. All too often, homeowners and contractors will oversize the heating and cooling equipment, which adds extra, unnecessary costs to the project.

During an energy audit, a trained professional uses tools like infrared cameras and blower door tests to detect drafts and weak points in insulation. The audit also examines electricity usage, lighting efficiency and the performance of major appliances. By implementing the audit's recommendations, homeowners may significantly reduce their energy consumption, leading to lower monthly bills and a smaller carbon footprint. In many cases, financial incentives and rebates are available to help offset the cost of efficiency upgrades. For those considering electrification, an energy audit provides a clear picture of a home's current energy use and ensures that the transition to electric appliances is as efficient and cost-effective as possible.

How to Get a Cost-Benefit Analysis Quote

For homeowners considering electrification, obtaining a cost-benefit analysis from a contractor can help determine financial feasibility. When reaching out to contractors, ask for:

- **Upfront installation costs**—Include appliance prices, labor and any necessary electrical upgrades.
- **Estimated energy savings**—Compare monthly energy costs between gas and electric options.
- A**vailable rebates and incentives**—Many states and utilities offer financial incentives for switching to electric appliances.
- **Maintenance and lifespan expectations**—Learn about upkeep and long-term costs.

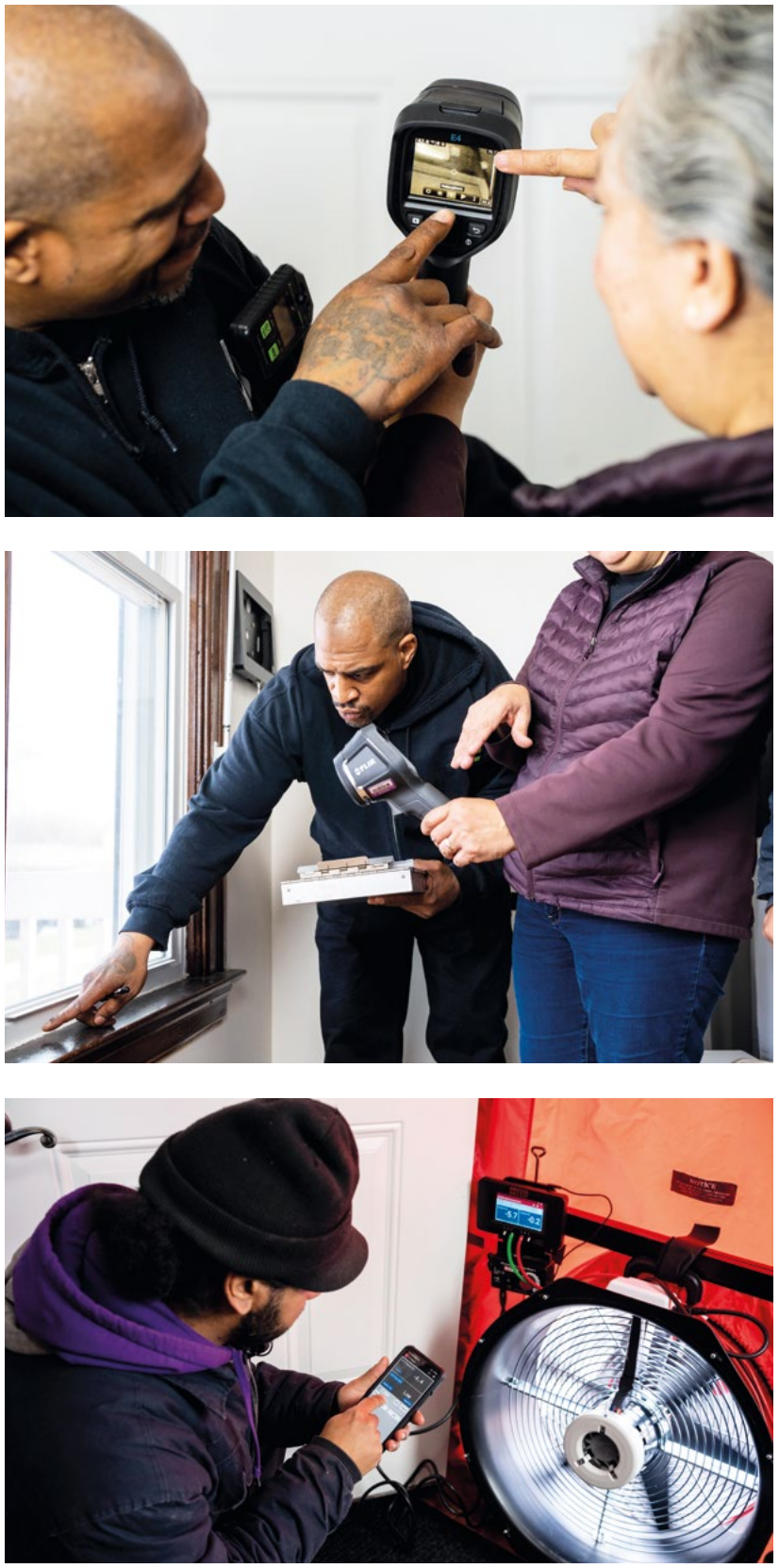
Be sure to get multiple quotes and ask about financing options that can make electrification more affordable.

Links to More Resources

https://homes.rewiringamerica.org/personal-electrification-planner?gad_source=1&gclid=Cj0KCQiA_NC9BhCkARIsABSnSTbi3oo90b_zSJKt6LRYtsy1XFXwr9sNXnvqtBP2JUq3J8wJTpHHa38aAtWsEALw_wcB

https://350newmexico.org/electrify-new-mexico/ ■

Carl Ulibarri is based in Albuquerque. He has over 39 years of experience in the housing industry, specializing in strategic management, technical leadership and green energy-efficiency solutions. He owns NM Home Solutions, LLC.
*(*NMHOMESOLUTIONS.COM, CARL@NMHOMESOLUTIONS.COM*)*



Photos: Weatherization testing

GET YOUR GREEN ENERGY REBATES NOW

From the Sierra Club Río Grande Chapter

EARTH DAY FESTIVAL NEW MEXICO
APRIL 13, 10 A.M.–4 P.M.

Balloon Fiesta Park, Albuquerque

NEW MEXICO emnrd Energy, Minerals and Natural Resources Department

State and local utility rebates for home weatherization are still available, even as the federal government pulls back on clean-energy funding. The Sierra Club Río Grande Chapter's Energy Guides at the 2025 Earth Day Festival New Mexico will help festival-goers learn about money-saving rebates and incentives to make their homes and transportation clean, comfortable, convenient and cost-effective.

New Mexico was in the forefront of applying for federal funding to pay for state-level rebates and incentives to make energy-saving home improvements affordable. And so, even while federal programs are at risk, New Mexico's state programs and local utility programs still offer rebates and incentives.

Save money while increasing energy efficiency at home and on the road.

The Energy Conservation and Management program offers rebates for qualifying ENERGY STAR® certified electric appliances and energy-efficient upgrades. These rebates are for income-limited homeowners, with a maximum rebate of $14,000 per address. The program is being launched in phases, so you can take advantage of rebates as they become available. Visit the ECAM website to start accessing purchase coupons and rebates now (https://clean.energy.nm.gov/).

Local electricity utility PNM, among others in the state, offers a wide variety of rebates for energy-efficient appliances, and it's possible to sign up for a home energy checkup (https://www.pnm.com/rebates-and-discounts). If any of the appliances in your home are about to fail or you want to go clean energy, visit ECAM, PNM or your local utility company website to be sure you are buying qualified appliances and get the rebates.

Earth Day Festival

The Sierra Club Río Grande Chapter and partners at the Earth Day Festival will focus on how New Mexico's families can access rebates and incentives. Energy Guides, Río Grande Chapter volunteers, will be on hand to help people find resources at the festival. Energy experts will also answer specific questions about EVs, solar, heat pumps, weatherization or whatever questions about going electric you may have about switching to energy-saving electric home appliances. They will be available all day. Just stop by the Energy Expert booth with your questions after visiting some of the vendors and displays—or after taking the kids to the rock climbing wall.

If you are qualified to help, sign up for an Energy Guide or Expert shift (HTTP://BIT.LY/4I9XWRV). All experience levels are welcome and training will be provided.

Earth Day 2025

A Letter from the City of Albuquerque's Sustainability Office

Earth Day is one of the largest environmental events of the year. The celebration is an opportunity to bring us all together to share our commitment to sustainability. The theme nationally and in New Mexico this year is "Our Power, Our Planet: a call to action for all of us to embrace renewable energy and make a lasting impact on our planet's future." In light of changes in Washington, D.C., this theme is more important than ever.

The Earth Day Festival will take place on Sunday, April 13, from 10 a.m. to 4 p.m. at the Albuquerque Balloon Fiesta Park's Sid Cutter facility. There will be educational exhibits, booths and demonstrations, food trucks, cooking demos, rebate information and hands-on activities for children and families, all meant to engage the community in the importance of how we are all connected and contribute to the resilience of the world around us. The festival will also feature students' poetry and an art contest.

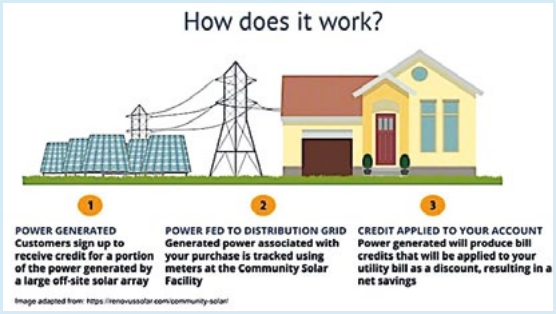
The City of Albuquerque's Sustainability Office, established by Mayor Keller in 2019, works hand-in-hand with our community to develop and pursue climate mitigation strategies and further the city's commitment to fulfilling the greenhouse gas (GHG) reduction goals outlined in the Paris Climate Agreement. The city has pledged to reduce GHG emissions by 50 percent by 2030 and reach net-zero emissions in the 2040s or sooner. The Sustainability Office is also following through with the city's Climate Action Plan, 50-plus strategies that cover sustainable buildings, renewable energy, clean transportation, recycling and waste, economic development and climate-conscious neighborhoods. These strategies are currently being achieved by implementing food scrap pilot projects throughout the city, by utilizing the abundant sunshine that Albuquerque gets for the installation of over 38 rooftop solar units, by installing 36 new electric vehicle charging stations, and by working internally and externally (to the city) to develop heat mitigation strategies to combat the ever-increasing high heat events.

The Sustainability Office is committed to following through with the city's Climate Action Plan.

The city's commitment is ever-evolving, based on the needs of the community. We work to include the voices of residents in decisions and policies that get put into place. By involviing residents in this conversation, we ensure that the needs and priorities of our diverse city are represented. This year's Earth Day Festival is one more way to include the community in the important work of climate action as we become a more resilient and prosperous Albuquerque.

COMMUNITY SOLAR PROJECTS PROCEED

In February, the New Mexico Public Regulation Commission announced that community solar projects have broken ground in Tularosa, Clovis and Belen. The projects are the result of the state's Community Solar Act, passed in 2021.



The program is a way for solar developers to set up micro-scale solar farms and transmit the generated energy to homes, including single-family houses or apartment complexes. People can bypass solar panel installation but still receive solar energy. Those who opt-in can save money on their utility bills. At least 30 percent of the energy generated from the 47 approved projects must go to low-income communities. Public utilities are required to participate in the program by transmitting energy on their power lines.

The New Mexico State Land Office is continuing to approve separate community solar projects on state land. In February, the SLO announced six new long-term community solar leases. The projects will cumulatively generate 30 megawatts across Doña Ana, Grant, Hidalgo, Roosevelt and Valencia counties.

In the state Legislature, at press time, many renewable energy efforts were in process. The House chamber passed a bill to create the Local Solar Access Fund, which would set up a $20 million fund to send grants to local governments and tribal entities. In a statement, House Majority leader Reena Szezepanski (D-Santa Fe) said, "This will allow our communities to save money, reduce their carbon footprint and equip community centers, water utilities and fire stations with stable sources of power."

NEW MEXICO ELECTRIC SCHOOL BUS INITIATIVE

The state of New Mexico and GreenPower Motor Company have signed off on a memorandum of understanding (MOU) for an all-electric school-bus pilot project to be launched in school districts across New Mexico. GreenPower Motor company has teamed up with Impact Clean Power Technology, a Poland-based battery manufacturer that supplies over 20 percent of the European transit market. Impact Clean Power Technology has commited to American-made lithium iron phosphate batteries for GreenPower's electric buses. The partners are considering facilities in Santa Teresa. The initiative will improve the sustainability of daily school bus operations and also signals a new wave of realigning electric vehicle supply chains on American soil.

The state will seek a $5 million capital outlay appropriation to conduct the pilot program, according to the Department of Economic Development. The funding will cover the purchase of the fleet of buses, installation of charging stations and program management costs through the 2027 school year. After successful completion of the two phases of the pilot project, the MOU requires the state to seek an additional $15 million for purchasing more school buses and work with GreenPower to expand the commercial bus fleet at the Department of Transportation and the General Services Department.

"SUSTAINABLE INDUSTRIAL PARK" AT MESA DEL SOL

In August 2024, Ebon Solar LLC and Gov. Michelle Lujan Grisham announced that Mesa del Sol will be the site of a new, $942 million, 834,000-square-foot manufacturing plant. Mesa del Sol is the sprawling, master-planned development south of the Albuquerque Sunport. Ebon Solar is owned by a global holdings company based in Singapore that specializes in microchip and silicon manufacturing technology. Ebon plans to produce solar cells at the Albuquerque plant and primarily sell them to U.S.-based solar module manufacturers.

According to a news release, the near-billion-dollar investment could create over 900 jobs, most of which would be workers in New Mexico. The plant will be used to build "beginning-to-end" advanced-manufacturing solar cells. The company didn't say when work on the facility will start and finish.

The City of Albuquerque, Bernalillo County and the State of New Mexico have all promised money for Ebon's development. Mark Roper, acting cabinet secretary for the New Mexico Economic Development Department, said $10 million in state and $1 million in City of Albuquerque Local Economic Development Act funds could go toward the project, with the city serving as the fiscal agent for those funds. Ebon could also qualify for Job Training Incentive Program support. Bernalillo County has received an Industrial Revenue Bond (IRB) application for Ebon's project.

Ebon Solar follows another Singapore company, Maxeon Solar Technologies Ltd. In August 2023, Maxeon announced that it intends to build its first U.S. solar panel manufacturing site at Mesa del Sol, with a planned investment of approximately $1 billion and over 1,700 jobs. The two plants are located within the same 500-acre "Sustainable Industrial Park." Star Scientific Ltd., an Australia-based hydrogen research and development company, also wants to build its $100 million campus there. Those three developments will total about 275 acres. A 40-acre water treatment facility is also planned.

"We have succeeded in making New Mexico a global center for advanced energy manufacturing," Lujan Grisham said in a statement. "Ebon Solar joins other leading companies in embracing New Mexico's commitment to renewable energy." "We are bringing in more opportunities for our families in industries that will help us build a sustainable economy and a sustainable city," Albuquerque Mayor Tim Keller said. "This means more high-paying jobs for locals as Albuquerque continues to become a leader in clean energy."

INDUSTRIAL-SCALE SOLAR PROJECTS APPROVED

A solar farm in Texas

Despite opposition from neighbors concerned about fire and other risks, Sandoval County commissioners have approved the utility-scale Diamond Trail solar and storage project, about 20 miles northeast of Albuquerque and 30 miles south of Santa Fe. It is expected to generate 220 megawatts with 100 MW of battery storage on an 1,833-acre site. Its output would be more than the entire residential load of Sandoval and Santa Fe counties. The project was proposed by PCR Investments, an Argentina-based company. PCR has maintained that the development will be safe and secure, with no risks to public safety.

Residents in the Eldorado area have opposed a similar, industrial-sized lithium battery facility, the Rancho Viejo Solar project, which received Santa Fe County approval in February. Opponents intend to file an appeal. A Virginia-based energy giant, AES, is behind that project.

New Mexico Solar Energy Association: Past, Present and Future

BY **WALTER GERSTLE**

On a recent splendid and sunny but cold winter Saturday morning, the New Mexico Solar Energy Association held its 53nd annual meeting and a solar-cooking demonstration at the Bachechi Open Space Education Building in Albuquerque. Invitations were emailed to the approximately 200 folks on NMSEA's roster, but only about 15 members attended. They discussed the history of NMSEA, its current state and visions for the future of the formerly thriving organization.

Is the NMSEA still relevant?

The NMSEA was founded in 1972 at a "Life Technics" conference held at Ghost Ranch. The founders included architect Peter van Dresser, businessman Steve Baer and University of New Mexico professor Keith Haggard. Doug and Sara Balcomb led the NMSEA as it grew to include several thousand members between 1977 and 1983. During the following years, NMSEA held solar design workshops, published a monthly newspaper, and taught students in public schools. UNM's Center for Southwest Research has about 20 boxes of NMSEA publications documenting the organization's illustrious history. In 1983, three years after Ronald Reagan took the presidency from Jimmy Carter, federal support for renewable energy diminished, but NMSEA was still able to thrive.

NMSEA continued as a volunteer nonprofit, and in 1994 it built a solar demonstration trailer, called the Sun Chaser. In 1998, NMSEA sponsored the American Solar Energy Society's National Solar Conference in Albuquerque. Between 2000 and 2019, a "Solar Fiesta" trade show and educational forum was held annually, featuring workshops on solar water heaters, PV systems and electric vehicles. In 2022, NMSEA again hosted the ASES Annual Conference, the NMSEA 50th Anniversary celebration, and a large Solar Fiesta at UNM. In 2022-2023, NMSEA built the "SunChaser II," a new solar demonstration trailer.

The commercialization of direct solar for heating of buildings has not been developed as well as electrical PV infrastructure.

With the introduction of the internet in the 1990s, people were enabled to access information from their home computers, and with the advent of social media like Facebook in the 2000s, people have been able to post information directly from their cell phones and laptops. The coronavirus pandemic from 2020-2023 encouraged online meetings. With so much information, videos and online conferences, one wonders whether people are still interested in meeting in person. Several recent NMSEA public in-person gatherings attracted just a smattering of attendees, mostly older retirees. Why has the attendance become so sparse? Is the programming insufficient to attract a big audience? Are there too many competing events? Is NMSEA no longer relevant?

Since NMSEA's early days, the use of solar panels to produce electricity has been transformed from a hobbyist, dilettante activity to a thriving commercial market. With PV salespeople knocking on doors every day, one can understand why people might not need to attend NMSEA events to learn about PV. But the commercialization of direct solar for heating of buildings is certainly important, and it has not yet been developed as well as electrical PV infrastructure.

Since the 1970s, the public has become increasingly aware of the urgency to limit carbon emissions to protect the Earth's climate. Utilization of solar energy is one of the most promising ways to address the climate crisis. As thousand-acre, utility-scale PV fields are developed, the public tends to resist development in their neighborhoods. Some environmentalists are reluctant to cover large wildland areas with solar panels. The promotion of renewable energy has become a political activity that has been taken up by environmental groups like 350.org, the Union of Concerned Scientists, the Sierra Club, YUCCA (Youth United for Climate Crisis Action) and Environmental Defense Fund. These organizations tend to draw people's interest and energy away from NMSEA, which has always had a more technically oriented educational and research slant.

People continue to need education about solar PV because there are dishonest sales tactics that need to be exposed. Also, misinformation is rampant. PV technologies like smart panels and battery storage are swiftly evolving. We are on the cusp of enormous political and technological change. While the economics of solar beats everything (providing the lowest cost electricity in history), political winds are threatening. Solar is still relevant; consider all the bills related to solar and renewable energy in the Legislature this year.

While PV solar energy is certainly effective at helping to minimize carbon emissions, if PV is to replace fossil fuels, it will need to cover large land areas in certain locations. In addition to EVs and home heating, upcoming information technologies like machine learning and cryptocurrency require huge amounts of electrical energy. Solar energy may struggle to cover these energy sinks. Ultimately, we must learn how to be more modest in our energy needs, while still satisfying our human needs.

So, what will be the focus of NMSEA going forward? Should NMSEA enter the political fray—encouraging energy efficiency regulations in all new buildings? Encouraging the public to electrify everything? Or should NMSEA continue to stick with its original educational mission? Should NMSEA cooperate with other worthwhile organizations that are more directly addressing the pressing political issues of the day? These are the questions that must be addressed by the current NMSEA leadership. ■

Walter Gerstle, a licensed professional engineer, is treasurer of the New Mexico Solar Energy Association. He is Professor Emeritus of civil engineering at the University of New Mexico and performed research at NASA, Sandia National Laboratories, Lawrence Livermore National Laboratory and Oak Ridge National Laboratories.

Climate Hope for New Mexico Middle-Schoolers

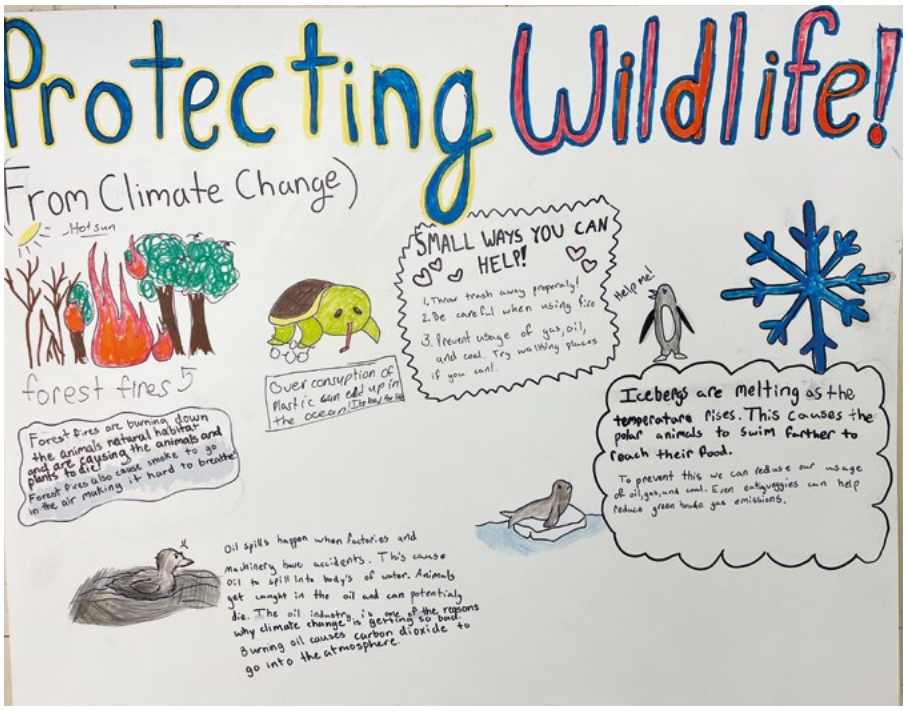
From 350 New Mexico

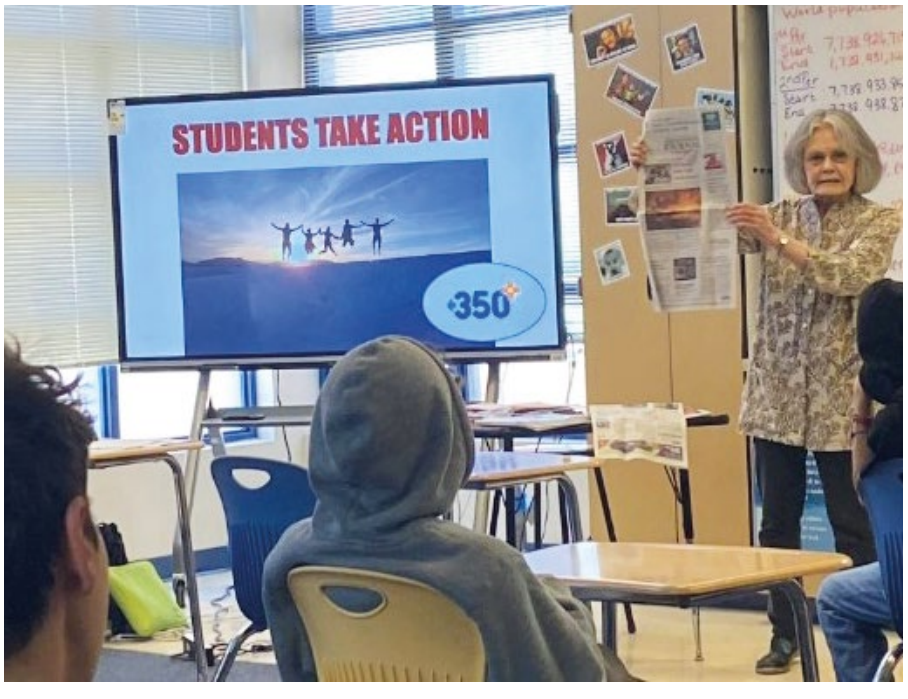
350 New Mexico's Climate Education Committee, whose members are experienced in all forms and levels of education and have extensive climate-change knowledge, collaborated beginning in 2020 to develop *Climate Hope: From Knowledge to Action*, a collection of lesson plans for New Mexico middle-school teachers. The lessons were then piloted in classrooms in the Albuquerque area. Things learned and feedback from the experience were used to redevelop the lessons to be even more impactful and engaging for students.

The Climate Hope lessons address impacts of climate change in New Mexico and beyond, explain the scientific causes of a warming and shifting climate, share myriad solutions for adapting to and mitigating worsening effects, introduce the concept of climate justice, and provide ideas for age-appropriate actions students can take to get involved. Climate Hope culminates in a project for students to undertake to help address climate change and its impacts in their community. The focus and type of project chosen is based on students' interests and abilities.

In one of the lesson's activities, students watch videos of firsthand accounts of how climate change is affecting people and their communities directly. They then share their takeaways and feelings with their class. With a Fossil Fuels to Renewables card game, students analyze fossil-fuel-heavy- and less-efficient methods of things in different facets of life and replace them with clean-energy and more efficient solutions. A climate justice game has students take on the role of a fellow New Mexican and think deeply about how much they add to greenhouse gas emissions and the impacts climate change has on their daily lives compared with the others.

The Climate Hope toolkit was shaped for New Mexico students specifically, aligned to Next Generation Science Standards and Common Core state standards, to involve multiple school disciplines and be grounded in scientific





Student poster; Climate Hope teacher workshop; student action lesson

CITY OF SANTA FE

Santa Fe Area Home Builders Association
Northern New Mexico Builders Association

Invites you to join us for the

36TH Annual

SANTA FE HOME & GARDEN EXPO

+ Remodelers Showcase

March 15 & 16

Sat 10-5pm & Sun 10-4pm

@ THE SANTA FE CONVENTION CENTER

Explore the latest in home comfort & efficiency, get inspired, and speak with the finest home improvement experts in town!

Visit SantaFeHomeShow.com for details

Roosevelt Middle School students, Albuquerque

research and data, with sources provided throughout. It was specifically designed for middle-school students, but it can also be a resource for high-school students.

A Climate Hope teacher workshop was held in summer of 2024. The toolkit was then released for use in classrooms in the 2024-2025 school year. Teachers receive slideshows, scripts, guides, supplemental lessons and resources for each lesson, as well as student project possibilities.

New Mexico middle- and high-school school teachers are invited to fill out a Teacher Interest Form to receive digitally Climate Hope: From Knowledge to Action. The teachers will also have direct access to the 350 New Mexico Climate Education team for support and guidance. You can fill out the form at: https://forms.gle/C8GYcXgd6qsrTgHj7, and you can learn more and access a database of additional climate change education resources for all grade levels and subjects on the Teaching Climate Change section of the 350 New Mexico website: https://350newmexico.org/teaching .

Climate Hope: From Knowledge to Action is supported by 350 New Mexico, the Sandia Mountain Natural History Center (New Mexico Museum of Natural History and Science) and Talking Talons Youth Leadership.

TRIBAL CLEAN ENERGY PROJECTS HALTED

The Environmental Protection Agency has terminated $20 billion in clean energy funding agreements, including $1.5 billion earmarked for Indian Country. EPA Administrator Lee Zeldin announced the decision to end the grants to eight organizations under its National Clean Investment Fund (NCIF) and Clean Communities Investment Accelerator (CCIA) programs. Zelden described the programs as a "gold bar" scheme from the previous administration. Lawmakers on the House Energy and Commerce Committee sent a letter to Zeldin accusing the agency of conducting a "smear campaign" against the programs and awardees without providing "credible evidence or justification." Some of the grant recipients have filed lawsuits, demanding the release of funding that they allege has been illegally frozen.

For Indian Country, the termination of EPA's grant funding represents a significant setback for tribes' energy sovereignty efforts, as projects and development programs have been abruptly halted. The funding of the eight nonprofit recipients included $1.5 billion in clean-energy funds for Native communities, including a $620 million commitment from Climate United and $400 million allocated to the Native CDFI Network (NCN) to support clean energy projects across Native communities in 27 states.

According to EPA documents, the NCN funds would have financed distributed energy projects, net-zero buildings and zero-emissions transportation projects in tribal communities that face some of the nation's highest energy costs. Leaders from tribal nations expressed shock and frustration as planned solar installations, energy efficiency upgrades and critical infrastructure improvements must now be indefinitely postponed or abandoned entirely.

THE MOVEMENT TOWARD A SUSTAINABLE FUTURE

The need to reduce the use of polluting fossil fuels isn't waiting, and neither should we. Transportation accounts for the largest share of greenhouse gas emissions in the U.S. (28.4 percent). Electric power generates the second largest share (around 25 percent), a majority of our electricity comes from burning fossil fuels, mostly coal and natural gas. There is a preconceived notion that we need gas stoves, but over 50 to 60 percent of energy used in gas stoves goes to waste. When using induction, all that energy is going to cooking.

Powering Change One Rooftop at a Time
By going solar, you take control of your energy future, lower your energy costs and reduce your carbon footprint. Regardless of government policy, now more than ever, investing in clean energy is the right thing to do. Plus, there are still government incentives up to 40 percent of system savings (30 percent federal tax credit + 10 percent New Mexico tax credit).

Green Building Promotes Health and Wellbeing
Human health is a longstanding value of the green building movement. Green buildings can promote health and well-being in the near term while preserving resources and protecting the environment for human and non-human benefit in the long term. By intentionally deploying green-building strategies, like those available for use within LEED rating systems, owners and practitioners can simultaneously promote health and well-being at a variety of scales.

These strategies can help create superior environments for building occupants; promote safe and healthy sites for construction workers; reduce toxic exposures throughout the supply chain; advance the health of surrounding communities; and mitigate climate change to benefit global populations. Learn more at HTTPS://LNKD.IN/EWYY_URM (The U.S. Green Building Council).

NEW MEXICO RANKS HIGH FOR OFF-GRID LIVING

Custom Earthship: Off-grid sustainable/regenerative building via thermal dynamics and passive solar made of natural and upcycled materials. Earthships can be completely off-grid or partially off-grid. PANGEABIOTECTURE.COM

Off-grid, passive solar adobe home for sale in Tres Piedras, N.M.
GREENHOMESFORSALE.COM

Ivan Slovic, in a February article he wrote for the website KUHL.COM/BORNIN-THEMOUNTAINS/, analyzed 19 different data factors across five main categories: affordability, climate sustainability, legal regulations, safety and outdoor access. Slovic and his research analysts found New Mexico to be the best state overall for off-grid living, making self-sufficiency more attainable and sustainable. Slovic says that New Mexico is one of the least restrictive states when it comes to off-grid regulations. Rainwater collection is encouraged, there are minimal zoning regulations (laws governing land use, set by local governments), and few livestock and animal restrictions. Additionally, Slovic says that New Mexico is one of the most affordable states for off-grid living, ranking fifth in the category. He cited the low cost of living, the pasture and farm real estate values per acre, which are the cheapest in the U.S., and the cropland values, which are among the most affordable.

A rewarding, but challenging lifestyle that offers independence, sustainability and a deeper connection with nature, community and oneself.

Living off the grid refers to a lifestyle that operates independently of public utilities such as electricity, water and gas. It often involves using renewable energy sources, collecting and purifying water, growing food and adopting a self-sufficient way of life. While some go fully off-grid, others maintain partial connections for convenience. Off-grid living has become increasingly popular among individuals and families seeking a more self-sufficient and sustainable lifestyle. Living off-grid is a rewarding but challenging lifestyle that offers independence, sustainability and a deeper connection with nature, community and oneself.

The legality of off-grid living varies from state to state. In some places, laws require connection to municipal utilities, while in others, off-grid setups are completely legal. Building codes, zoning regulations and water rights must be considered before going off-grid. Researching local laws and obtaining necessary permits is essential.

The cost of going off-grid depends on the state, location, property size and infrastructure. Many off-gridders reduce costs by building their own homes, using recycled materials, and gradually expanding their setup. Solar power is the most popular due to its reliability and affordability. However, wind and hydroelectric energy can be great alternatives, depending on your location. Many off-grid communities offer strong social networks, which can enhance safety and security. Off-gridders often use satellite internet, mobile hotspots, or rural broadband services to stay connected.

Challenges of off-grid living include:

- Reliable energy management: balancing solar or wind power generation with storage
- Clean water access: finding and maintaining a clean and reliable water source
- Food production: growing or sourcing sufficient food year-round
- Legal restrictions: ensuring compliance with local laws and permits
- Planning for extreme weather: preparing for harsh winters, droughts, or storms

OFF-GRID COMMUNITY PROPOSED NEAR TARLETON RANCH SITE IN TAOS COUNTY

In February, Pangea Biotecture, a Taos-based architectural design, construction and development firm, announced an agreement with the Tarleton family to acquire the 330-acre Tarleton Ranch property in the Upper Las Colonias area of Taos County, where the company wants to build a mixed-use, off-grid community. In a news release, Pangea said that "this visionary project reflects a deep commitment to affordable housing, cultural preservation and ecological stewardship."

The project is led by Pangea Biotecture founder Jonah Reynolds, son of Earthship creator Michael Reynolds. Stakeholder meetings have been held in recent months to solicit input and gauge support. Jonah Reynolds said that the proposed community "will have everything off-grid as much as we can, while retaining traditional building forms as well as some of the basic infrastructure associated with subdivisions." Construction costs will be kept low by using 3D printed construction materials manufactured onsite.

The proposed project has a third of the number of structures previously proposed at the site as part of the Tarleton Ranch Eco-Village, which failed to gain Taos County's support. The first phase of the new proposal includes $500-per-month rental units, as well as workforce housing, a hotel, café and visitor center. Subsequent phases include community food production (more than 13 micro-farms), schools and market-value homes. A total of 111 structures are proposed, 63 of which will be residential, and a majority will be affordable, workforce or senior housing units. The average square-footage per unit would range between 350 and 400 square feet. All designated common land would not be developed. ■

EXCERPT FROM EDWARD MAZRIA'S ARCHITECTURE 2030 ARTICLE

Countdown to 2030: The Transformation of the Built Environment Can't Be Derailed

Common Edge Collaborative, Jan. 27, 2025
Read the full article at HTTPS://COMMONEDGE-ORG/COUNTDOWN-TO-2030-WHY-THE-GREEN-BUILDING-REVOLUTION-CANT-BE-DERAILED/

Far from the international and political spotlight, architects, planners and builders are revolutionizing how we design and construct the built environment, demonstrating the significant power of architecture and planning to drive greenhouse gas emissions reductions, address community and social wellbeing, and solve critical local, regional and global challenges.

Solutions to our greatest challenges already exist

Meeting scientific climate targets…requires rapid, comprehensive action across the entire built environment… The next five years will be crucial for scaling-up proven solutions, implementing stronger actions, reducing embodied carbon and adopting a sufficiency mindset—minimizing demand for energy, land, materials and water—to drive deeper emissions reductions. Starting this year, we can take decisive steps to meet these critical climate objectives [such as]:

Actions for a Climate-Positive Built Environment

Integrated Natural Systems
• Protecting and restoring natural environments, including habitat corridors, parks, living shorelines and riparian buffers to foster biodiversity and community welbeing
• Preserving agrarian landscapes and heritage sites
• Minimizing hardscapes and integrating green infrastructure for stormwater management and enhanced climate resilience (e.g., sponge cities)
• Incorporating carbon-sequestering landscapes such as wetlands, bioswales, urban forests and green roofs to mitigate climate impacts
• Prioritizing water-smart landscapes and urban and peri-urban agriculture to enhance food security

Zero-Carbon New Buildings and Major Renovations
• Prioritizing the reuse, renovation and restoration of existing and historic buildings
• Electrifying all buildings and eliminating onsite fossil fuels
• Incorporating passive heating, cooling, daylighting, shading and natural ventilation design strategies
• Integrating on-site and/or off-site renewable-energy sources for building operations
• Using recycled, reclaimed and locally sourced nature-based, low-to-zero embodied carbon or carbon-storing materials
• Designing buildings, landscapes and infrastructure for future disassembly, reuse and circular material flow

Edward Mazria is the founder of Architecture 2030, a Santa Fe-based think tank delivering real-world solutions for 21st century problems. He developed the "Roadmap to Zero Emissions" and is currently working with cities across the United States to drastically reduce greenhouse emissions.

NEW MEXICO ROADMAP: RECOMMENDATIONS FOR DECARBONIZING BUILDINGS

A collection of 26 governmental bodies, utilities, companies and other organizations have released the New Mexico Building Carbonization Roadmap. The roadmap lays out recommendations to eliminate greenhouse-gas emissions and pollution from New Mexico's residential and small commercial buildings by 2050, the year that the state is required by law to have all electricity generated through carbon-free resources. According to a press release from the state's Environmental Health Department, by following these recommendations, New Mexico can create affordable, comfortable, healthy, efficient and resilient homes for all residents, including low-income, disadvantaged and tribal communities.

The 23-page document prioritizes five goals:

- Encourage the development of decarbonization technologies
- Increase customer value by adopting decarbonization measures
- Offer education and training for workers in the decarbonization field
- Incentivize greenhouse-gas reductions through state policies
- Prepare the power grid and housing stock for future electrification

The roadmap identifies six priority actions for advancing building decarbonization:

- Developing on-bill financing options to help reduce upfront costs faced by consumers when purchasing electric appliances
- Prioritizing cash incentives at the point of sale
- Providing free training on building decarbonization technologies to tradespeople
- Strengthening gas planning at the Public Regulation Commission to enable a future clean-heat standard
- Exploring beneficial electrification rate design that can lower electric costs for households
- Supporting grid modernization efforts and distribution system upgrades

"According to our recently published Greenhouse Gas Inventory, we know that 57 percent of our pollution is from our own homes and businesses," said City of Albuquerque Sustainability Officer Ann Simon. "We also know that the strategies in the roadmap will help us reduce this pollution, be it financial incentives that reduce the cost of adopting clean energy, contractors who are trained in the installation of new technologies or a modern grid that can handle the transition."

The roadmap identifies several actors that will be critical to achieving the recommendations, including governmental officials, utilities, educational and training institutions, environmental organizations, state agencies, manufacturers and vendors. Read the full report at NMbuildingdecarb.org .

The roadmap includes this acknowledgment: "This Roadmap represents a starting point and a collective expression of shared views by participating organizations rather than an account of each organization's position on every issue. Although there may not be full alignment on each issue contained herein, participating organizations agree the roadmap provides a reasonable foundation upon which to accelerate the elimination of operational greenhouse gas emissions from residential and small commercial buildings in New Mexico." It may be accessed at: HTTPS://BUILDINGDECARB.ORG/NEW-MEXICO-BUILDING-DECARBONIZATION-ROADMAP .

ENTITIES THAT PARTICIPATED IN THE DEVELOPMENT OF THE ROADMAP

- 350 New Mexico (350NEWMEXICO.ORG)
- Advanced Energy United (ADVANCEDENERGYUNITED.ORG)
- Center for Civic Policy (CIVICPOLICY.COM)
- City of Albuquerque (CABQ.GOV)
- Coalition for Clean Affordable Energy (CCAENM.ORG)
- Coalition of Sustainable Communities New Mexico (COALITIONSCNM.ORG)
- El Paso Electric (EPELECTRIC.COM)
- Housing New Mexico MFA (HOUSINGNM.ORG)
- Kit Carson Electric Cooperative (KITCARSON.COM)
- New Mexico Attorney General's Office (WWW.NM.GOV/ELECTED-OFFICIALS/ATTORNEY-GENERAL/)
- New Mexico Climate Investment Center (NMCLIMATEINVESTMENTCENTER.ORG)
- New Mexico Department of Finance Administration (NMDFA.STATE.NM.US)
- New Mexico Energy, Minerals and Natural Resources Department (EMNRD.NM.GOV)
- New Mexico Home Solutions (NMHOMESOLUTIONS.COM)
- New Mexico People's Energy Cooperative (PEOPLESENERGYCOOP.COM)
- New Mexico Regulation and Licensing Department (RLD.NM.GOV)
- New Mexico Rural Electric Cooperative Association (nmelectric.coop)
- Prosperity Works (PROSPERITYWORKS.NET)
- Public Service Company of New Mexico (PNM.COM)
- Rheem (RHEEM.COM)
- Renewable Energy Industries Association of New Mexico (REIA-NM.ORG)
- Sierra Club (SIERRACLUB.ORG)
- Southwest Energy Efficiency Project (SWENERGY.ORG)
- Xcel Energy Company (CO.MY.XCELENERGY.COM)
- Tri-State Generation & Transmission Association (TRISTATE.COOP)
- Western Resource Advocates (WESTERNRESOURCEADVOCATES.ORG)

In addition to these participants, the Building Decarbonization Coalition (BUILDINGDECARB.ORG) and Natural Resources Defense Council (NRDC.ORG) sponsored the project, and Gridworks (GRIDWORKS.ORG) facilitated the stakeholder process.

GRIDWORKS FACILITATES COLLABORATIVE DISCUSSIONS

Gridworks (GRIDWORKS.ORG) began operating in New Mexico as Affordable Solar in 1998, selling solar systems online. The company became a leader in residential solar. It then developed a utility-scale division in 2014, which now operates independently as Gridworks, providing turnkey solar and energy storage options for developers and utility clients through engineering, procurement and construction, as well as operation and maintenance. Gridworks also offers options for early-stage renewables development.

Gridworks is now a nationwide facilitator on issues related to decarbonization, and has brought advocates, energy providers and utility operators from across the Western U.S. together to help achieve decarbonization goals. Gridworks also provides advice and guidance to policymakers to help states undertake a just transition. New Mexico's Energy Transition Act set a zero-carbon resource standard for investor-owned utilities by 2045. A partnership between Gridworks and the New Mexico Public Regulation Commission (NMPRC) helped make it possible for the understaffed agency to face the challenge of leading utilities toward that ambitious target. To get input from stakeholders with a variety of perspectives, Gridworks facilitated a series of workshops in New Mexico to lay the groundwork for the Building Decarbonization Roadmap. Cathy Bois, a Gridworks director, and other Gridworks staff facilitated the process. The initiative included:

- The New Mexico Advanced Inverter Working Group, which met 12 times over eight months and developed six recommendations. Over 55 individuals representing 25 organizations actively participated.

- A Grid Modernization Workshop Series, which consisted of 10 workshops over six months, followed by discussions among 54 organizations

- A Transportation Electrification Workshop, which engaged 17 organizations, and a Transportation Electrification Summit with 66 participants

These initiatives accelerated New Mexico's clean-energy policy on four fronts:

- Reform of interconnection policies to speed clean distributed generation
Introduction of new guidance for utility investment in transportation electrification

- A Gridworks report and commission briefing recommending new utility investment in a modern grid

- A program advancing customer community solar options

From Gridworks' website: "The decarbonization of our economy is within our reach and is now more important than ever. Shifting America's energy use away from carbon-intensive fuels and toward clean and renewable energy sources will reduce pollution, create economic opportunity and ultimately decrease the cost of energy, resulting in a healthier and more equitable future. The community next to the coal plant, the home next to the highway and the millions of individuals who will be impacted by climate change because of high carbon emissions are at the heart of Gridworks' work."

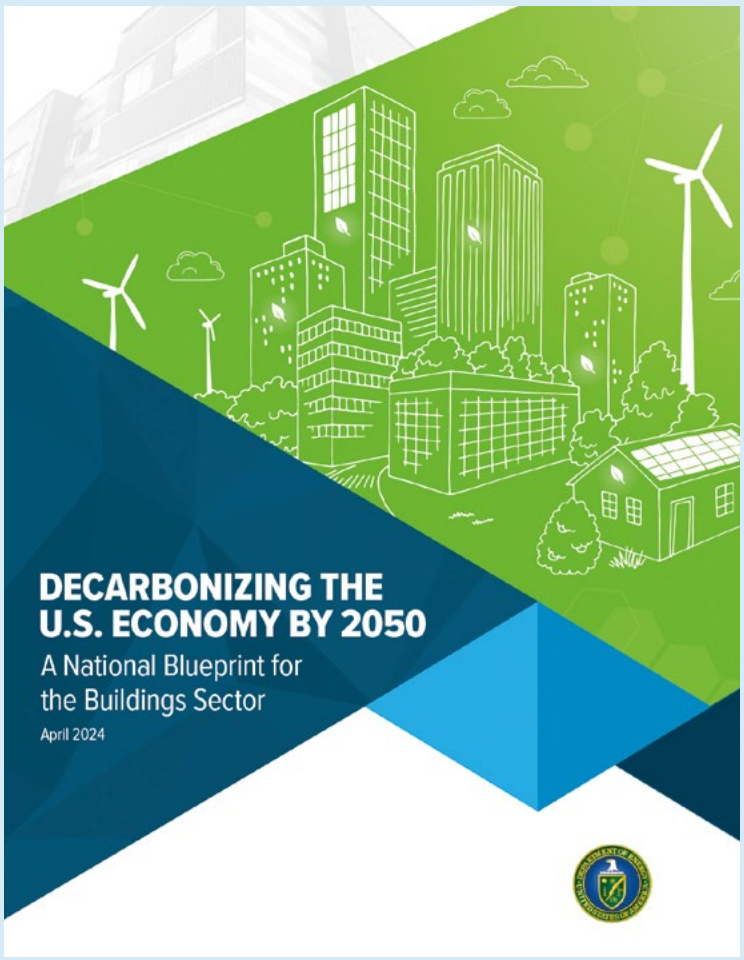
Utility-Scale Solar Replaces Coal-Fired Escalante Station
The coal-fired Escalante Station in Prewitt, near Grants, N.M was retired in 2020. Gridworks, Tri-State Generation and Transmission Association, Inc., and Origis Energy constructed a 238 MW solar project on the site, which began generating carbon-free electricity on June 1, 2024. In August 2024, Gridworks, alongside the Jicarilla Apache Nation and Guzman Energy, celebrated the groundbreaking of the Shallow Basket Energy Project in Río Arriba County. Shallow Basket Energy is owned by National Renewable Solutions. Once operational, the project—consisting of 140 MW solar and 50 MW storage—will produce enough power for 38,000 homes annually and will boost local grid reliability. It will offset carbon dioxide emissions by an estimated 266,000 metric tons annually. Gridworks' 100 MW Encino Solar project in Sandoval County (Río Rancho) will directly power Facebook's Los Lunas Data Center. In December 2024, Gridworks was awarded state Step Up funding in support of job training.

U.S. DOE RESEARCH & DEVELOPMENT TO DECARBONIZE BUILDING TECHNOLOGIES

In September 2024, the U.S. Department of Energy (DOE) announced selections for $38.8 million in funding for 25 projects across 17 states to research and develop high-impact building technologies and practices aimed at decarbonizing, reducing peak demand on the electric grid, enhancing resilience and lowering energy costs.

Advancements made with this funding from the Buildings Energy Efficiency Frontiers & Innovation Technologies (BENEFIT) is for applied research, development and demonstration (RD&D) activities for high-priority building technologies, including next-generation retrofits for building envelope, lighting, heating, ventilation and air-conditioning (HVAC). The funding is to support technologies that enhance the resilience of buildings during extreme weather events and allow them to function as assets to the electric grid.

The BENEFIT projects are intended to provide essential tools for equitable and affordable decarbonization of U.S. homes and businesses. In addition to deep cost savings, as well as increased comfort and performance, they could propel the country toward a new generation of building energy technologies. They were also intended to accelerate progress toward DOE's building decarbonization blueprint goal of reducing 65 percent of building emissions by 2035 and 90 percent by 2050.



ZERO E DESIGN'S DECARBONIZED HOME IN SANTA FE PRODUCES MORE ENERGY THAN IT USES

FROM **ARCHELLO**

Nestled in the breathtaking landscapes of Santa Fe, Zero E Design's latest project stands as a model for decarbonized and sustainable living. At the heart of the design is a commitment to the principles of the Passive House energy standard, which is all about ultra-efficiency and comfort. This approach demands meticulous attention to detail, optimizing every building component for maximum performance. All the different building components have been optimized, resulting in a simplicity that focuses on essentials that truly matter. There are no gimmicks and no fluff. The result is a home that embodies real value.

The sculptural qualities and lightweight structure further enhance its appeal. Sleek lines characteristic of modern architecture are integrated with cutting-edge technologies to maximize efficiency. Every detail has been meticulously considered, from the super-insulated building envelope to the renewable electric systems that power the home and an electric vehicle.

A Net-Positive Passive House in Santa Fe

One of the home's most significant benefits is its whole-house ventilation system with heat recovery, an innovative and trend-setting technology. It not only reduces energy demand by capturing and reusing up to 95 percent of the heat from outgoing air but also ensures clean air free from pollutants, allergens and airborne particles. The Covid-19 pandemic underscored the importance of good ventilation and clean indoor air. This home delivers both, enhancing comfort and health for its residents.

The super-insulated building envelope and airtight construction minimize energy loss, reducing heating and cooling needs by up to 90 percent compared to conventional homes. Roughly 40 percent of fossil fuel consumption in the United States is attributed to buildings. Not only is this house mitigating climate change through architecture; it also provides resilience from the effects of climate change. The Passive House provides peace of mind regardless if there is extreme heat or cold.

Helping to mitigate climate change through architecture

Powered by a small solar system, the house generates more energy than it consumes, even providing enough to charge electric vehicles. This efficiency-driven design almost eliminates utility costs, decreases reliance on fossil fuels, and contributes to a lower carbon footprint, making it as practical as it is sustainable. Inside, the home maintains consistent indoor temperatures throughout the year, free of drafts and cold spots. Triple-pane windows enhance comfort while allowing for abundant natural

light. The design creates a living environment that is not only environmentally responsible but also exceptionally comfortable and functional. ■

This article was originally published on the renowned architectural platform ARCHELLO. https://archello.com . To learn more about Joaquin Karcher's Zero E Design, based in Taos, N.M., visit HTTPS://ZEROEDESIGN.COM .

WHAT MY WORK IS ALL ABOUT

BY **JOAQUIN KARCHER**

New Mexico is at the forefront of building decarbonization, aligning with a global movement to reduce carbon emissions and mitigate climate change. With buildings accounting for nearly 40 percent of the nation's fossil fuel consumption, the opportunity to cut CO_2 emissions in the residential sector is immense. By eliminating operational greenhouse gas emission in homes and small commercial buildings by 2050, we are not only protecting the environment but also ensuring that all New Mexicans have access to affordable, comfortable, healthy and resilient homes.

As our electric grid transitions to renewable energy, it is critical that our buildings do the same. My design philosophy is rooted in the belief that high-performance architecture should not be a luxury but a necessity—one that seamlessly integrates sustainability, beauty and functionality. Passive House building science is central to this approach, reducing energy demand by up to 90 percent for space conditioning while elevating comfort, air quality and durability. My designs embrace simplicity, functionality and efficiency, leaving away excess to focus on what truly matters: wellbeing, longevity and environmental responsibility.

For 19 years, I have championed Passive House principles in New Mexico, proving that cost barriers can be overcome, making sustainable homes accessible at the same price as conventional construction. At this point, the question isn't *why build this way?*—it's *why would you consider anything else?*

Joaqin Karcher co-authored the Adobe, Compressed Earth Block and Rammed Earth Code (Earthen Materials Building Code)*, which has been adopted by the State of New Mexico and the International Building Code (IBC). He was elected to the board of the U.S. Green Building Council—New Mexico Chapter, which he helped establish.*

School for Advanced Research

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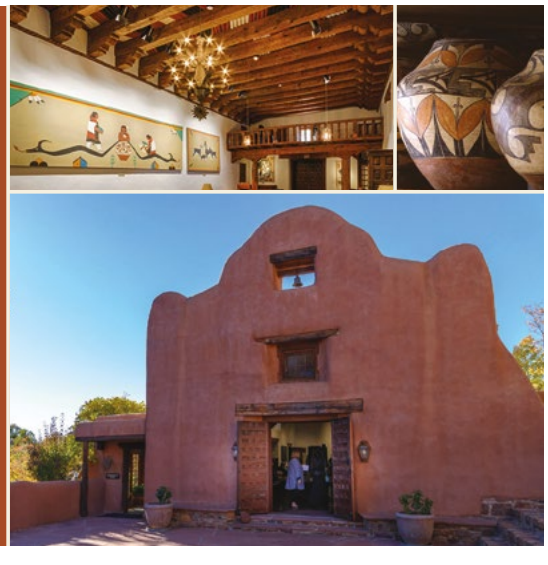

HOME & GARDEN EXPO AND REMODELERS SHOWCASE

The 36th annual Home and Garden Expo and Remodelers Showcase, presented by the Santa Fe Area Homebuilders Association, takes place March 15–16 at the Santa Fe Community Convention Center. Home improvement businesses will offer design help, contracting work, renovations and ideas. There will be merchants, gardeners, landscapers and craftspeople, offering furniture, specialized fixtures, remodels and home rebuilds, as well as a LEGO contest for kids. (BUILDNEWMEXICO.COM)

Photos © Seth Roffman

B.PUBLIC PREFAB AND SANTA FE INSTITUTE PARTNER FOR NEW LECTURE HALL

B.PUBLIC Prefab has announced a project with the Santa Fe Institute (SFI), a new lecture hall on SFI's campus in Tesuque, designed to serve as a space that will accommodate a range of events, from formal talks to collaborative workshops.

The Santa Fe Institute is a diverse intellectual community renowned for pioneering research in complex systems science. The new lecture hall will be a centerpiece of SFI's campus expansion. It will feature energy-efficient systems and a design that integrates with the natural landscape. "B.PUBLIC's emphasis on sustainable design products and practices will be a long-term asset to our community fabric," said Tom Easterson-Bond, SFI's in-house architect.

The Santa Fe-based company is a leader in sustainable modular construction that has a low carbon footprint. By utilizing advanced prefabrication techniques and eco-friendly materials, B.PUBLIC Prefab aims to make sustainable construction accessible and impactful. For more information, visit WWW.BPUBLICPREFAB.COM .

WESTWAY LAUNCHES NET-ZERO HOMES

Westway Homes has launched its Eco Series to bring elements of custom homes to production homebuilding. The self-sustaining homes, located in Albuquerque's Mesa del Sol development, are equipped with solar panels and all-electric appliances, including induction ranges and electric-vehicle charging stations, as well as advanced insulation to provide greater temperature regulation. The homes are built to not allow air passage from the outside to the inside.

To combat potential issues such as toxin from paints, flooring and cabinets, Westway added an energy recovery ventilation (ERV) filtration system to the homes. There is also a high-efficiency particulate air (HEPA) filter that circulates all air inside the house every 24 hours.

The homes will significantly reduce the residents' carbon footprint—and they won't have a gas or electric bill. The only utility to pay for is water usage. "Over time, the homes will pay for themselves relatively quickly," said JP Rael, vice president of operations, in an interview with *Albuquerque Business First*. Rael believes that building this way will be required for all new homes within the next seven years. He also said that two of the new eco-homes sold in the first three weeks they were on the market. The homes are between 1,704 and 1,898 square feet and range in price from $469,900 to $520,000.

OP-ED: SARAH HYDEN

THE CALF CANYON FIRE REVIEW
LESSONS LEARNED

In April of 2022, three wildfires were ignited in the Santa Fe National Forest by three separate U.S. Forest Service prescribed burns that escaped. Three-hundred-seventy-eight-thousand acres of the Santa Fe National Forest, Carson National Forest and private lands were burned. As a result of the two larger of these fires, the Calf Canyon Fire and the Hermits Peak Fire, entire communities were catastrophically impacted—900 structures, including 340 homes, burned down, thousands of people were displaced, and a traditional way of life was forever altered. Three people died in the aftermath from post-fire flooding. The cost of recovery efforts will be well over $5 billion. It is unknown how much conifer regeneration will occur on the approximately 82,000 acres that burned at high severity.

Although a Forest Service review of the Hermits Peak Fire was released in June 2022, I had been waiting for two-and-a-half years for the analysis of the more impactful Calf Canyon Fire to be released. It was strangely delayed.

As most know, the Forest Service prescribed burn that ignited the Hermits Peak Fire was a broadcast burn, set during a New Mexico spring high-wind pattern with red flag warnings in effect in nearby areas. This prescribed fire escaped due to winds and dry vegetation, and it was declared a wildfire on April 6. The Calf Canyon Fire was ignited by piles of thinning debris that had been burned during the winter and had not been fully extinguished. Some of the smoldering piles flared up months later in the spring winds. By the time the Calf Canyon Fire was declared a wildfire on April 19, the Hermits Peak Fire had been considered to be contained. However, the winds also fanned up the Hermits Peak Fire again.

Aggressive mechanical thinning opened up the tree canopy, resulting in increased snowpack evaporation—thereby drying out the treated landscapes.

The two fires proceeded to burn side-by-side to the northeast with the prevailing winds, and then merged during another major wind event on April 23. The Hermits Peak/Calf Canyon Fire continued until late June, at which point it had burned over 533 square miles within three counties.

Recently, the Forest Service quietly released its review of the Calf Canyon Fire. The implications are stunning and yet unsurprising to conservationists who have been critical of the forest management strategy of aggressive cutting and over-burning for years. There was clearly human error involved, but what is most apparent is that the basic paradigm the Forest Service is currently employing to manage forests is highly flawed and backfiring—and in the case of the Hermits Peak/Calf Canyon Fire, it backfired spectacularly.

The Forest Service implemented the prescribed burns that ignited the Hermits Peak/Calf Canyon fire largely out of concern for the City of Las Vegas' water system and water quality. The Calf Canyon fire review states: "In May of 2000, the Viveash Fire highlighted the vulnerability of the city's water system when a small portion of the wildfire burning in the Cow Creek drainage burned into the Gallinas Canyon Watershed. This high-severity wildfire resulted in dramatic impacts to the Las Vegas, New Mexico city water quality."

In 2006, in order to protect the Las Vegas water system from further impacts, the agency proposed and then later proceeded with implementation of the Gallinas Municipal Watershed Wildland Urban

Burning piles in the Gallinas Canyon Piles Prescribed Burn 2022 unit on January 12, 2022, Santa Fe National Forest. Photo: USDA Forest Service

City Nature Challenge is a friendly competition between urban areas across the world to see who can make the most nature observations!

Get outside and document wildlife in **Bernalillo, Valencia and Sandoval Counties**—help scientists collect important data and show the world how much biodiversity we have in the Middle Rio Grande Valley around Albuquerque!

City Nature Challenge ABQ

How to get involved

Join our project "City Nature Challenge 2025: ABQ" in the iNaturalist app or at iNaturalist.org/projects/city-nature-challenge-2025-abq

Facebook & Instagram: @abqcitynaturechallenge

Learn more about the world-wide challenge: CityNatureChallenge.org

OBSERVE! April 25 - 28, 2025

Find Wildlife: Any plant, animal, fungi, slime mold, or any other evidence of life (scat, fur, tracks, shells, carcasses.) No people, pets or potted plants.

Take Pictures of Who You Find: Be sure to note the location of the critter or plant.

Share Your Observations: Create an iNaturalist account and upload your sightings on the iNaturalist app or website.

Identify! April 29 - May 4: Help to identify who everyone found! Results are announced on May 5.

Challenge yourself to find wildlife in and around your home and neighborhood!

Be kind to everyone you see, including ALL the members of our community:

birds plants reptiles amphibians insects mammals fungi lichen fish slime mold

ABQ Backyard Refuge Program

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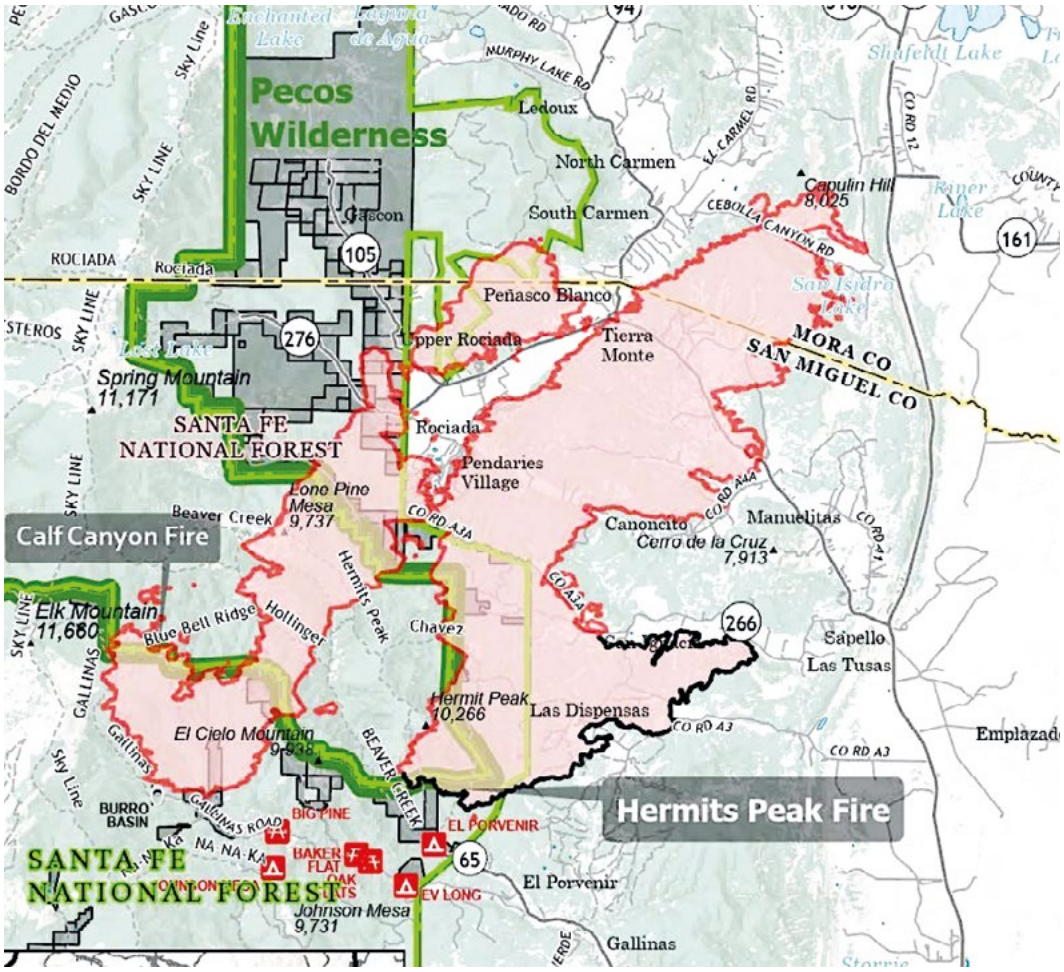

Map showing the Hermits Peak and Calf Canyon Fire perimeters on April 23, when they were starting to merge. USDA Forest Service

Interface Project. The primary purpose of the project was to reduce the severity of future wildland fires by aggressively cutting mixed conifer and applying prescribed fire. The Project Decision states that the potential for an escaped prescribed burn was one of three key issues.

The fundamental strategy of aggressively removing large amounts of biomass from dry forests, and then burning at overly frequent intervals, has not been substantially re-examined.

The ranger who signed the project decision told me that he did not want broadcast prescribed burns included in the project plan because he believed it was too risky. He said that he wanted the post-cutting debris management to include only pile burns and chipping. However, he was under pressure from Forest Service higher-ups to include broadcast burns in the project plan, to the extent that he believed his career was on the line if he did not. He had a family to support, and so he complied.

The Hermits Peak/Calf Canyon Fire occurred due to escaped prescribed burns resulting from the implementation of this project, and it ultimately caused much more destruction to Las Vegas water quality than did the Viveash Fire. The fire burned extensive areas of the Gallinas watershed, the primary source for the city's water, and contaminated it with ash and sediment. The contamination is ongoing and very expensive to contend with.

A primary "lesson learned" provided by the Calf Canyon Fire review team was that the aggressive mechanical thinning opened up the tree canopy, exposing the forest floor to more solar radiation. This resulted in an increased rate of snowpack evaporation and snowmelt—thereby drying out the treated landscapes. Additionally, the review states that the open canopy may have increased "windthrow," which means that trees that were formerly structurally supported by nearby trees were blown over in strong winds. The downed trees provided more fuel on the ground that spread fire from the burning piles.

Such unintended consequences are what conservation organizations and scientists had been warning of. Further drying out forests while the climate is becoming both hotter and drier is not a sound approach. Aggressively dismantling existing forest structures in an effort to create "healthy" and fire-resistant forest has serious side effects, and the Calf Canyon Fire review demonstrates that it's not necessarily possible to compensate for such effects.

The review states that the Forest Service followed "lessons learned" from a prior pile burn escape in the same area in 2018 by carrying out the pile burns in January, and making sure there was a continuous snowpack around the burn piles. Burning piles under such conditions was much better than burning when conditions were dry, but was not sufficient to prevent a wildfire in 2022 that was exponentially larger and hotter than the 2018 pile burn escape.

The Hermits Peak Fire review states that the Forest Service felt compelled to complete the prescribed burn that ignited that fire after numerous delays, despite clearly marginal burn conditions. The delays included government shutdowns, the global pandemic, and a court

A 2018, and subsequent 2021, wind event resulted in additional downed timber in the Gallinas Pile Burn Unit. Note the broken stems; these were broken off in the wind events. This picture does not depict the snow conditions the day of ignition. Photo: USDA Forest Service

injunction due to the Forest Service's non-compliance with Mexican Spotted Owl regulations. The Calf Canyon Fire review states that a primary factor in the Forest Service's inability to contain the spreading fire from the burn piles early on was a lack of resources both for monitoring burn piles for escaping fire, and for fire suppression. This incapacity was largely due to the already limited resources having been taken up by the Hermits Peak Fire.

In the Forest Service's January 2022 publication, *"Confronting the Wildfire Crisis: A Strategy for Protecting Communities and Improving Resilience in America's Forests,"* the agency made its case for the strategy of greatly increasing logging and burning forests, up to four times the current levels in some areas. This mandate was fiscally supported by Congress through the Infrastructure Investment and Jobs Act, with $3.5 billion allocated for "forest management." Yet somehow the Forest Service

continues to be understaffed and under-equipped. It's simple math: The agency can't safely expand the amount and frequency of forest cutting and burning treatments without a corresponding increase in personnel and equipment.

During the two weeks prior to the declaration of the Calf Canyon Fire, the escaping burn piles were being monitored by aerial overflights, utilizing infrared heat-detecting technology. The data obtained from these overflights was not enough to prevent the Calf Canyon Fire from breaking out during the New Mexico spring high winds. The Calf Canyon Fire Review contains the recommendation that, "Where feasible, investigate and utilize new remote sensing technologies (remote cameras and software) for monitoring pile burning." Currently there are very few monitoring overflights per year in the Santa Fe National Forest due to the lack of personnel and equipment, and infrared heat-detecting technology is limited and cannot identify heat deep under piles or down in the ground where smoldering can persist for months.

While I was waiting for the Calf Canyon Fire review to be released, I mused about why the Forest Service did not completely extinguish all the burn piles in early April, when some of the piles were known to be spreading fire—knowing that in this region high winds are the norm in April. The review provided some insight into my question.

The review describes the intense winds during the incident. "April 9th was the beginning of a very windy and dry period with Red Flag Warnings issued almost every day through April 22nd." The Calf Canyon incident commander described the circumstances under which they were attempting to extinguish the burning piles:

> "We found two to three smoldering stump holes burning that were interior. We opened them up and worked on them and cold-trailed the area (feeling for heat with hands and digging out any live spots) to be sure they were completely dead out." The IC observed that there was "smoke below the soil," from underground roots and stumps. Resources gridded up and back on hands and knees through the fire area making six passes. Ash pelted their faces each time they would turn to look back…. "Every time I turned my head to talk to those behind me, a cloud of ash would hit me in the face because the wind was blowing so hard... I still have what I call Calf Canyon cough from that day."

Conditions during the incident were such that the situation quickly became unmanageable, despite the intensive efforts of those on the ground. Fire was spreading underground along tree roots and surfacing as the winds fanned the flames. This points to the inherent risks of implementing pile burns in this dry and windy region.

The Calf Canyon Fire review makes it clear that treating dry forests in this region with aggressive cutting and burning may have many more adverse consequences than benefits. In the past 25 years, the majority of wildfire acres burned in the Santa Fe National Forest were ignited by either Forest Service or National Park Service escaped prescribed burns.

An additional consequence of the Forest Service continuing to go forward with widespread and aggressive fuels treatments is the increasing mistrust and hostility from the public. During the past two falls, the agency had intended to implement a prescribed burn in the North Aztec Springs area, just outside of Santa Fe. This burn would take place near a development of homes. Local residents went to meetings with the Forest Service about the potential burn, expressing high levels of fear and anger. During the fall of 2023, conditions were very wrong for such a burn, with strong winds, legacy slash piles remaining unburned in the area, and the only egress in case of a prescribed burn escape partially blocked by utility work. Residents were appalled that after the Hermits Peak/Calf Canyon Fire, the Forest Service would even consider implementing a burn under such risky conditions. This past fall, conditions seemed much better, but this year's meeting about the burn was just as contentious, if not more so, than last year's. The burn was again postponed.

At this point it appears that the Forest Service intends to go forward with largely the same forest management strategies as before the Hermits Peak/Calf Canyon Fire impacted forest and residents so severely. However, a lesson learned from the Calf Canyon Fire review team was, "As landscapes, or stands, become further removed from their normal range of historical variability (RHV), incrementally changing the stand structure, albeit more expensive, is more prudent than dramatic shifts. Several entries may be required to achieve the desired result." This recommendation indicates that the Forest Service is at least beginning to understand that the sheer amount and intensity of treatments they have been implementing are a serious risk to both forests and local communities. Aggressive treatments are a "shock to the system" that undermines forest health.

Contamination of the city's water [with ash and sediment] is ongoing and very expensive to contend with.

Since the Calf Canyon/Hermits Peak Fire, there are new procedures in place and generally more caution being applied to planning of treatments, but the fundamental strategy of aggressively removing large amounts of biomass from dry forests, and then burning at overly frequent intervals, has not been substantially re-examined. This strategy must be reconsidered from the roots up; the warming climate requires this. If cutting and burning treatments are found to be genuinely indicated in some situations, such treatments must be done with an understanding of the impacts and risks to the specific ecosystem being considered for treatment. It's critical that sufficient canopy cover and

Burned Area Emergency Response specialist assessing soil burn severity in Tecolote Creek Headwaters, within the Hermits Peak/Calf Canyon Fire burn area. Photo: Inciweb

natural understory be left remaining, so that the treated forest ecosystems will retain moisture instead of drying out and becoming even more flammable. Conservation strategies should be utilized to assist forest ecosystems in retaining moisture.

It is incumbent upon the Forest Service to work together with conservation organizations and conservation scientists to develop a holistic land management strategy that truly protects both forests and communities. The stakes are too high to do less. ■

Sarah Hyden is the co-founder and director of The Forest Advocate, which publishes news and provides resources concerning wildfire, forest ecology and forest protection, with a focus on the Santa Fe National Forest. THEFORESTADVOCATE.ORG

Fire's Seasonal Grace

BY **SHELLI ROTTSCHAFER** PHOTOS BY **DANIEL COMBS**

"A tiny smidge of grace was worth the cost of cool."
Ana Maria Spagna, "Confessional Roots" *Uplake* (2018)

The Western United States has been learning grace throughout recent extended fire seasons. My cousin Kerri lives in Oakridge, Ore. Last year, flames again licked the edges of her small town. Oakridge sits in fir and pine country. Original forests had been raised and then replaced, row by row, so that wood could be harvested for lumber and paper products. Fire mitigation has been needed for years.

Since 1990 the U.S. Fish and Wildlife Service in this stretch of the Pacific Northwest listed the northern spotted owl as threatened, and silenced the saws of the timber industry. Today these woods are protected as an owl sanctuary. Trees have been allowed to grow tall, spindly, and they have pined for refreshment from drought. Fire threatens the ridges' sanctuary.

Philip Connors, a fire lookout in the Gila Wilderness Area of Southwest New Mexico explained these forestry decisions' consequences and effects. He noted that "too much fire suppression is not healthy for a forest." All the ingredients for a conflagration have been in place and make for a perfect tinderbox. Decisions made for the sake of wildlife protection (in Oregon's case, the northern spotted owl and in other Western places perhaps, cattle), as well as decisions to maintain a pleasing view of dense green trees from a tourist highway have been made to leave these areas to grow. As a result, some mountainous forest regions are one match stroke or tossed cigarette butt away from disaster. Overgrowth plus unhealthy patches of forest stressed by climate change equates to wildfire.

Overgrowth plus unhealthy patches of forest stressed by climate change equates to wildfire.

One wonders, when choosing to live with fire, what does it feel like to live on the fireline's edge? Like Philip Connors, my cousin is reminded that mountains have always known fire. Connors explained that all mountains are "born in a cataclysm of fire." Mountains in the American West emerged from a volcanic explosion during the Eocene Epoch, magnitudes more dazzling than the wildfires we know now. So, if these ranges were created in fire, then they and the forests that blanket them "would naturally succumb to it for renewal and rebirth," he says.

My cousin's community realized that (in her words), "We're becoming strangely comfortable with catastrophe," as the Coffeepot Fire burned their direction. She reflected, "I feel a strange calm as these fires grow. I think I have much more trust in our process of fighting them." She trusts the professionals, the local volunteer fire crews and those from other agencies who have been sent to help.

Even more so, she puts her worries into Mother Nature's hands, because she knows she has done all that she can. My cousin works for a local mountain bike outfitter. She works trail crew, clearing paths of downed trunks, and she cuts back brush that tightens trails. She volunteers at her local farmers' market, spreading the word about food justice and how to find resources if one is evacuated. She cleans her gutters, freeing them of dried pine needles that would be a perfect igniter.

Still, she knows that her efforts mean little if met with the force of flame. "A very large cedar hangs over my roof. I know it will be *the one* if it lights up." She is resigned to the fact that her choice to live in a beautiful place of pine aromas is also what could be its undoing. She is "still" with this choice. She watches bees drink droplets from freshly watered flower pots. She has no plans to do otherwise, other than to visit some good friends who've made that same choice. To live in community with the pines, the cedars, the bees—because that is what she has.

Near Mount Shasta, Calif., the Park Fire raged due to a pervasive entitlement that plagues us. A man lit a car on fire and pushed it into a gully near a popular swimming hole outside Chico. No one, at that moment, understood why he would do this during a summer of extreme drought. The fire, by Aug. 1, 2024, grew to more than 307,000 acres. Why did he choose to leave his "mark" in this way, rather than in beauty?

My friend Evonne is a fire lookout in that area. She noted that, "This was the quickest moving fire I've ever heard of." Her lookout borders Lassen National Park and Forest. It has views of mountain ranges that begin in California and reach to Oregon. She pulls 12-hour days, peering into the horizon hoping not to detect any "smokes." It is a solitary profession, one where her only communication is the radio traffic reporting fires or a Cal Fire flyover where they "tipped their wing for me"—a private show just for her.

On this particular day, Evonne's view is thick marshmallow smoke. No visibility. The thing that reminds her that she is not the only being within this cotton batten of smoke winding about her tower are the interval visits by winged creatures. Butterflies chase each other. It is monarch migration, after all. Hummingbirds buzz by, as well as hundreds of dragonflies, lured to the potted plants and herbs she keeps on her terraced porch, where she tries to make the lookout a home.

At night she hopes for rain, as do many in the shadows of Mount Shasta's bioregion. Sunsets, rust to carnelian, and ash rises to form pyro-cumulus clouds. These storms created by fire do not produce enough moisture to quell the flames below. Instead, they produce thunder and lightning, which sparks new smokes in their atmospheric path. The winds aren't like blowing candles on a birthday cake. Instead, they move a curtain of fire across the landscape. Virga does not land, and petrichor's metallic smell is burned off to full-on roman candle bonfire.

Because of this smoke however, her lookout feels peaceful. Silenced are the two dispatch channels which typically blast over the radio, since the visibility is

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blanketed in. Lookouts are encouraged to step down from their towers. They can't see anything to report anyway. The fire is out there. It's coming. Only the hotshots and the aircrews with their scarlet slurry can do anything now. It is time to take safety, to patrol from the ground, riding in her government truck with a vigilant eye.

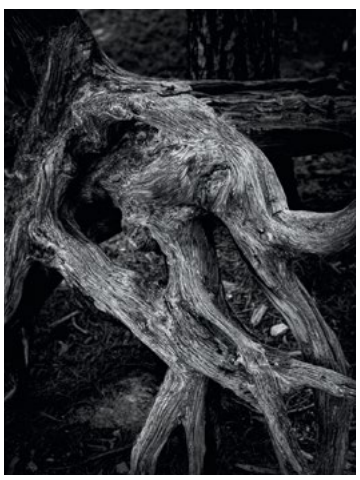
Like Philip Connor, who shares her profession, both notice landscapes they love are "being transformed on a scale that was hard to absorb; entire mountain ranges were burning up... We woke to the mistake, and witnessed fires becoming bigger and more intense… Scorched earth is now the ground we inhabit within the forests of the American West."

Despite the destruction, my friend reminds, our capacity as humans remains extremely powerful. We too, "have the capacity to heal, to renew, to rehabilitate and to remind." For all those who feel entitled to create "cool havoc," there are those who are trying to offer hope by sharing meals, doing all they can to help those in need.

What is it that draws us to the capacity of destruction or construction of community? What sparks that difference? Connor emphasizes resilience is possible if only we let our forests burn, regenerate and learn to grow.

These points are remade by a mentor of mine who grew up near Loveland, Colo. Here is where the Alexander Mountain Fire blazed. Cause, yet to be determined, but over 8,000 acres are now ash. It merged with the Stone Canyon Fire in Lyons, which had mandatory evacuations. Two dozen buildings have been smitten. Fifty horses are now fostered elsewhere. People on the outskirts of Loveland were evacuated, including my mentor's octogenarian mother.

How do we live with an eye for the future concerning our relationship to fire?



Her father, long ago chose this stead at the base of foothills so that it would not be in a floodplain. He wanted the ponderosa speckled rise to buffer his land where elk herds, black bears and garter snakes meandered down to nip or slither among her mother's orange day lilies.

They have taken measures. Their field is mowed short in order to not encourage brush fires that would spread to outbuildings. But they see that is not enough. My mentor, her mom and her neighbors live with, "hope in one hand and fear in the other, pressed together with whispered wishes." Still, only time will tell if their measures provide a sufficient barrier "between childhood home and no childhood home." Her mother is evacuated. Safe at her sister's house, but home is where you put roots rather than where you escape to.

Above: Root system
Photos by Daniel Combs (WWW.DANIELCOMBSPHOTOGRAPHY.COM)

What is it that draws us to the capacity of destruction or construction of community?

These fires I too could see, albeit 18 miles away. This was my first fire season living in Colorado. Driving from the grocery store, I saw white billowing smoke tornados rising atmospherically. At night, the sky turned peach, a sunset mixed with reflective fire. Morning provided a brief reprieve of blue skies, only to turn milky. Ashen clouds socked in, low-lying at the foot of the Flatirons.

As outside observers, as New Mexico-based photographer Michael Bergman states, humanity thought it could, "manage wildfire." Notice the words "manage" and "wild," oft don't go together. In these circumstances. Like the felled pine where char meets ash, this is our way to learn to fall. "As humans, the one thing about falling is, as long as you can get up again, things are still possible". The challenge is, if we want to live near wild places, if we want to live alongside wilderness, doing so will involve things that fall apart.

My question is, how do we live with an eye for the future concerning our relationship to fire? My partner and I, we try to be prepared. We have had this conversation. Before we moved to the Front Range, our neighborhood paralleled what became the 2021 Marshall Fire. In that situation, what would we have done? What is most cherished? We haven't built those memories here that hold our breaths, but we have them symbolically in the things that decorate our home. What would be necessary to carry with us into the future?

Ridge line, Calf Canyon

In noticing what my loved ones have lived and are living through now, this fire season reminds me to give myself grace. Even in our attempts to do the right thing, we may misstep. Regardless, sometimes grace lands right in our laps, unbidden. Allow these moments to happen because maybe, just maybe, fire opens the door to needed grace.

Thanks to: Cousin Kerri Vanden Berg, Lookout Evonne Ellis and Poet CMarie Fuhrman ■

Shelli Rottschafer graduated from the University of New Mexico in 2005 with a doctorate in Spanish. She taught at a small liberal arts college from 2006 to 2023 before returning to the West to live in Louisville, Colo. and El Prado, N.M.

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SEEKING ESTELLA LEOPOLD'S QUERENCIA

BY **DR. RICHARD RUBIN**

Leeanna Torres contributed *"Exploring Querencia as a Land Ethic"* to the recently released "*A New Mexico Land Ethic Handbook* (Nighthawk Press, Taos 2024). The chapter describes her *Nuevomexicana* life, inspired by Aldo Leopold's teaching in *A Sand County Almanac* that "the Land Ethic simply enlarges the boundaries of the community to include soils, waters, plants and animals, or collectively: the land." Torres identifies *querencia's* roots in the Spanish verb *querer, "*to want, to love." Other commentators have described its qualities as a place of safety, happiness and home.

In my chapter, *"A New Mexico Homescape Land Ethic,"* I also follow Leopold's formula in a small setting. Emeritus scholar Enrique Lamadrid, editor of the University of New Mexico Press "Querencia Series," called this chapter "an example of finding [Rubin's] own querencia in the valleys of Taos." Professor Lamadrid also observed, "A deepening understanding of querencia informs these reflections on the ecological writing and activism of Aldo Leopold. The folk concept illuminates how multigenerational love of land and experience in place shape the knowledge that science organizes and ethics tempers."

The philosophy and practice of querencia have often been cited as an essential element of identity. Profound relationships of the land-based culture among northern New Mexico Hispanos in small villages have been applied to environmental advocacy, as in Ernie Atencio's 2004 "*La Vida Floresta: Ecology, Justice, and Community-Based Forestry in Northern New Mexico."* Juan Estévan Arellano and Sylvia Rodríguez have also illuminated the topic. Poets Vanessa Fonseca-Chávez, Levi Romero and Spencer Herrera collected "*Querencia Reflections*." Anglo New Mexican popular writers Steve Bodio and Harrison Fletcher also applied querencia themes to their recent memoirs.

Estella and Aldo's Marriage

After Eastern liberal arts and forestry science graduation in 1908, Aldo Leopold was assigned to new national forests in the Arizona territory, and then New Mexico in 1911. María Estella Otero Bergere's mother descended from the Luna family, royal Spanish land grant heritage. Her early life was spent on the hacienda ranch in their namesake Los Lunas. The extended family then moved to Santa Fe in 1905 with positions of significant leadership in territorial government and developing statehood.

Brought together among the social and political life there, Aldo and Estella married in 1912 and first lived in a Tres Piedras house she named Mi Casita. It is a distinctive craftsman-style bungalow that Aldo built when appointed supervisor of the new Carson National Forest. After nearly fatal harsh weather exposure on range patrol in 1913, he continued a Forest Service career in Albuquerque regional administrative positions while Estella raised their first four children.

"Multigenerational love of land and experience in place shape the knowledge that science organizes and ethics tempers."
– Enrique Lamadrid

Moving to Madison, Wisconsin in 1924, Leopold's career evolved to professorship at the university. Most significant to the Land Ethic legacy, the family became immersed in restoring 80 acres of depleted farmland along the Wisconsin River (now managed by the Aldo Leopold Foundation), centered at their bunkhouse nicknamed "the shack." His natural science studies and restoration efforts there became the basis of *A Sand County Almanac*, published soon after his untimely death in 1948. From his archived late-career unpublished writing, I learned that Leopold expanded his view beyond ethics to profound personal philosophy: "There must be some force behind conservation, more universal than profit, less awkward than government, less ephemeral than sport, something that reaches into all times and places where people live on land, something that brackets everything from rivers to raindrops, from whales to hummingbirds, from land-estates to window boxes." (personal communication, www.aldoleopold.org)

Inspiration at Mi Casita Now

I became immersed in the Leopolds' history as volunteer steward of the historic house. This brought the opportunity to collect a library of the extensive literature about them and modern works inspired by Aldo's legacy. Following the U.S. Forest Service educational mandate from the Mi Casita restoration in 2005-2006, my curiosity became piqued about the influence of querencia. It is fair to ask if I can responsibly explore this topic as an East Coast, USA, traditionally educated Anglo. I have not inherited the immersion that Leeana Torres describes. Nor have I participated in the active scholarship and advocacy of this identity. Rather, I approach this challenge from some similarity to Aldo and his education. I am also a third-generation child of European immigrants who thrived here. I attended schools and lived among remnants of the United States' history and westward expansion from colonial New Jersey to St. Louis to New Mexico. Like Aldo, my education included both literature and science. And I share a desire for multicultural and ethical synthesis.

Until recently, recognition of Estella's contribution to Aldo's fame received limited regard. What relationship to land might Estella have derived from her family heritage? From Aldo's definitive biography by Curt Meine and a memoir by daughter Estella B, the youngest born in Wisconsin, I learned that Estella's heritage begins with an enterprising Spanish naval captain during the long conflict with Moorish occupation of the Iberian Peninsula. In 1091, he attacked an enemy fleet, not by the usual practice at dawn, but by the light of the moon. When he was victorious, the king was impressed and bestowed the honorary name of *de Luna* with attendant prestige and social promotion. Subsequent generations were among the nobility and military leaders. After the Castille y Leon *Reconquista* expelled the Moors in 1492, Luna family officers joined Cortez and Coronado expeditions to *Nuevo España*.

Due to Native oppression, the early settlers in New Spain were killed and driven down to El Paso in the Pueblo Revolt of 1680. Yet Spain pursued a successful *Reconquista* in 1693. Nobility and military officers were then awarded royal land grants. A Luna received part of the San Clemente Grant in the *Río Abajo* region, south of present-day Albuquerque. A generation later, Diego Luna bought the entire million acres. The next significant event occurred in 1850. Related by marriage, Antonio José Luna and Antonio Jose Otero drove 50,000 sheep to California, selling them to gold miners at a good profit. Antonio's sons, Tranquilino and Solomon Luna, became officials in territorial politics. The family moved to Santa Fe in 1905, prompted by Estella's father's appointment as secretary to the governor.

Querencia Evolution Questions

I searched my Leopold books and the Mi Casita library collection for index references to querencia and found none. Yet I perceive various relationships to the land from events. The early Spanish conquistadors would have royal ownership and religious entitlement attitudes. The land grantees' power was enforced by the military. Yet this would have changed with the Mexican Revolution from Spanish rule from 1810-1821. Expanded settlement created many villages living a land-based economy and culture. Various relationships with Pueblos and other Indigenous tribes developed. Then both political control and attitudes toward land changed with United States domination after the Treaty of Guadalupe Hildalgo, the Civil War, Manifest Destiny and the coming of railroads.

"It did not occur to us that we, too, were the captains of an invasion too sure of its own righteousness." – Aldo Leopold

The conversion, often corrupt, of traditional Spanish land grants to U.S. titles influenced a querencia-like identity among the village settlers to distinguish themselves from Americano, Anglo, or Tejano intruders. So, I wonder if our modern view of querencia existed before this 19th-century identity development.

Estella's Life

By the late 19th century, Estella's family status was derived from wealth and political influence. Personally, she had landed culture experience among the gardens, orchards and horsemanship at the hacienda. But she also received cosmopolitan Catholic high school and college education in Cincinnati and St. Louis. Daughter Estella B describes family music sessions taught by her Belgian and Italian-origin father, Alfred Bergere, which included folk songs about Hispanic culture, love, beautiful mountains and happiness. The family also took occasional outings from Santa Fe to the Pecos Mountains to enjoy the forest and river. We have a story Estella Sr. told in later years of her honeymoon with Aldo camping in the mountains. The house in Albuquerque was chosen to have a large garden and to be close to the Río Grande wetlands for bird hunting. In Wisconsin, her life devoted to their shack lands is legendary, including as tree planter, wood sawyer, archer, companion to Aldo and matron of the five children. She also taught them the Hispanic songs learned from her father.

Searching Aldo's Literature

Can we find references in Aldo's extensive writings to the spirit of querencia, if not the word? Of course, his great achievement is an expression of these relationship values with land. But I was curious about Hispanic awareness that may have come from or at least have been enhanced by Estella. In an early-career 1923 originally unpublished essay, *"Some Fundamentals of Conservation in the Southwest,"* Leopold wrote, "Five races-five cultures have flourished here. We may truthfully say of our four predecessors that they left the earth alive, undamaged. Is it possibly a proper question for us to consider what the sixth shall say about us?" From later among the *"Sketches Here and There,"* appended to *A Sand County Almanac,* the "Escudilla" essay describes the last grizzly bear killing in Arizona. Aldo ends with: "We forest officers who acquiesced in the extinguishment of the bear knew a local rancher who had plowed up a dagger engraved with the name of one of Coronado's captains. We spoke harshly of the Spaniards who, in their zeal for gold and converts, had needlessly extinguished the native Indians. It did not occur to us that we, too, were the captains of an invasion too sure of its own righteousness."

In the Introduction to "Wilderness" among "The Upshot" essays that follow *"The Land Ethic,"* I find expansion of regard for land to people. Aldo writes, "Wilderness was never a homogeneous raw material. It was very diverse, and the resulting artifacts are very diverse. These differences in the end-product are known as cultures. The rich diversity of the world's cultures reflects a corresponding diversity in the wilds that gave them birth. For the first time in the history of the human species, two changes are now impending. One is the exhaustion of wilderness in the more habitable portions of the globe. The other is the worldwide hybridization of cultures through modern transport and industrialization. Neither can be prevented, and perhaps should not be, but the question arises whether, by some slight amelioration of the impending changes, certain values can be preserved that would otherwise be lost" (*A Sand County Almanac*, Oxford University Press 2020 edition, p.177).

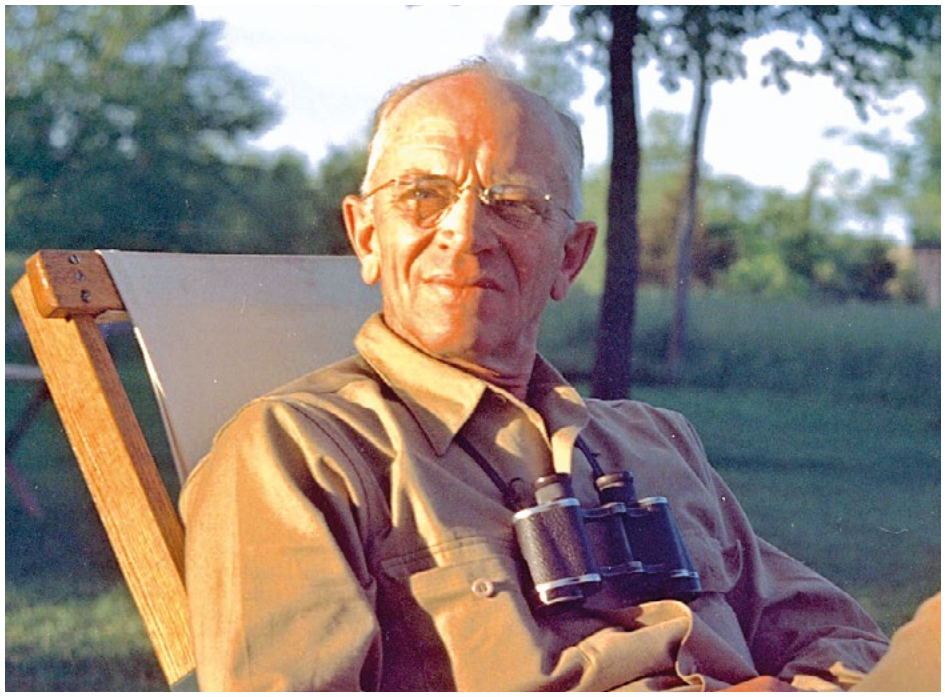
"The land ethic changes the role of Homo sapiens from conqueror of the land community to plain member and citizen of it." –Aldo Leopold, A Sand Country Almanac

A deepening understanding of querencia informs these reflections on the ecological writing and activism of Aldo Leopold.

Summary Speculations

This odyssey survey yields me no proof, but some observations of evolving themes. I see parallels in the progression of Hispanic querencia land-based culture with Leopold's often-cited *A Sand County Almanac* statement, "The land ethic changes the role of Homo sapiens from conqueror of the land community to plain member and citizen of it." While her ancestors were conquistadors, Estella demonstrated profound devotion to these ideas and practices throughout their life together.

Aldo Leopold



Estella Bergere Leopold (1890–1975) was a member of a prominent Santa Fe family. Her mother was a descendant of a Spanish land grant family. Aldo and Estella's daughter, Estella E. Leopold (r), became a prominent paleoecologist and conservationist.
Photos courtesy of the Aldo Leopold Foundation

Their meeting occurred at a time of intense Hispanic and United States immersion, conflict, and for some people, cultural assimilation. It is interesting that Estella had two suitors in 1911, both Yale-educated Anglos. How may her own interests changed as a result of landed *Nuevomexicana rico* life? What influence may have come from her education in Cincinnati and St. Louis? I note her mother, Eloisa, had remarried outside Hispanic lineage. Might she have wished ethical evolution from dominating conqueror of the land to citizen living in community, to echo Aldo's words? I can see querencia in her Wisconsin life and I can see love for the land in Aldo's philosophy. While an important aspect of current Hispanic identity, other cultures have had similar values.

Personally, I admire Aldo's recognition in an early-draft *Sand Country Almanac* introduction to biblical prophets Isaiah and Ezekial preaching for human conduct different from the Abrahamic dominion statements in Genesis. Possibly, Estella was simply a devoted traditional wife and mother of the times whose land-based identity evolved from Nuevomexicana to include other land ethic sentiments.

I welcome scholarship and comments from our diverse community: RLRUBIN46@GMAIL.COM. *Living the Leopolds' Mi Casita Ecology* (2022) and *A New Mexico Land Ethic Handbook* (2024) are available at SOMOS and OpCit shops' local author shelves in Taos and online at www.nighthawkpress.com . Proceeds go to the Friends of Mi Casita Fund at the Taos Community Foundation. ■

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 wife Annette published Living the Leopolds' Mi Casita Ecology *(Nighthawk Press).*

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Big Bend National Park. Photo by Al Braden

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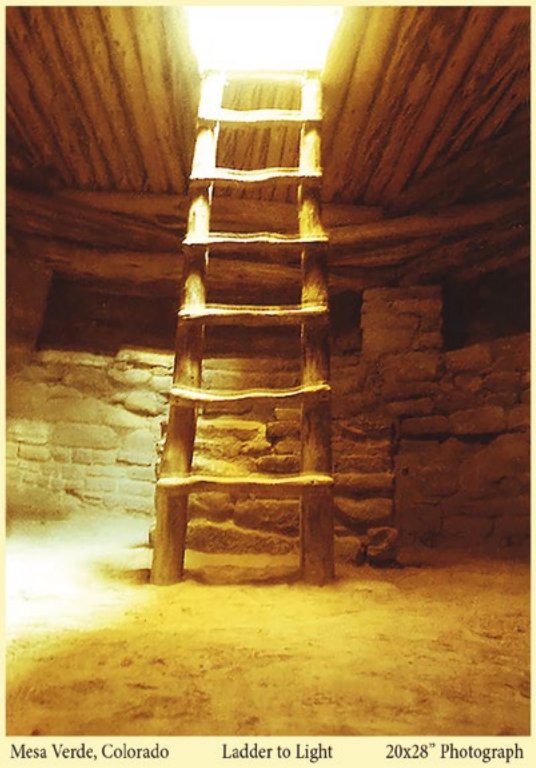

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ALDO LEOPOLD HOUSE AVAILABLE FOR RENT

Carson National Forest has released availability for overnight stays at the Aldo Leopold House in Tres Piedras, N.M. The house, built by Leopold himself in 1912 when he oversaw the forest, is the first cabin rental on National Forest System land in New Mexico.

"Aldo built this cabin, and its bones have stood the test of time," said District Ranger Angie Krall, a former archaeologist with experience restoring cabins on the neighboring Río Grande National Forest in Colorado. "We've put in a considerable amount of work to preserve this treasure."

Leopold is widely known for being the visionary behind the idea of wilderness. His idea to create a protected area on the Gila National Forest in southern New Mexico was celebrated last year when the Gila Wilderness turned 100. He was also a writer, penning dozens of essays on ecology and conservation, most notably collected in the book, "A Sand Country Almanac."

Leopold's long career is lesser known. He was the Carson National Forest deputy forest supervisor, and later forest supervisor, in the early 1910s. He received $650 to build a supervisor's quarters, where he lived with his wife, Estella. They nicknamed it "Mi Casita" ("my little house"). Today, the house is used for administrative purposes and for a partnership with The Leopold Writing Program to host two writers-in-residence each year.

Historicorps completed a full house restoration in 2006. With private and public funding, most recently from the Bipartisan Infrastructure Law, which paid for a new roof and septic system, forest staff were able to get the building up to code for public use. Private funding was provided through the Taos Community Foundation, where local volunteer Dr. Richard Rubin fundraised and led major improvements, including exterior painting, installing stair railings, repairing the porches and purchasing a new gas stove.

The two-story American Craftsman style bungalow is now available for groups of up to eight people. It features four bedrooms, one full bathroom, a kitchen, dining room and living room. It costs $175 a night, with funds going toward managing the rental, ongoing maintenance and building capacity for potentially expanding overnight cabin rental opportunities across the forest.

The cabin is now available in the spring, summer and fall. Two months are blocked off to continue the writers-in-residence program. More information can be found on RECREATION.GOV, where reservations can be made for dates beginning May 1. Reservations can also be made by calling 1-877-444-6777. Guests need to bring their own supplies, including soap, bedding and towels.

To learn more about Aldo Leopold, visit HTTPS://WWW.ALDOLEOPOLD.ORG .

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NEW MEXICO VOLUNTEERS FOR THE OUTDOORS

BY **LARRY BENSON**

By the early 1980s, more and more Americans were seeking opportunities for recreation in natural areas. Outdoor equipment—from boots to backpacks and sleeping bags to snowshoes—was continuing to improve and become more user-friendly. Better roads and highways made it easier for a diversified variety of vehicles to reach public lands. Like today, this was also a time when a conservative administration was endeavoring to reduce the size of the federal government, which is responsible for managing most of New Mexico's public lands.

Building a forest trail; backpacking in the Gila Wilderness; Crosscut sawing fallen tree to open trail; Replacing signage at a national monument; right: Back-Country Horsemen pack train carry supplies

The Appalachian Mountain Club (AMC)—the nation's oldest outdoor recreation organization—had a long history of partnering with the U.S. Forest Service at a time when such close relationships were uncommon. With tightening federal budgets for recreation and land management, the leaders at AMC headquarters in Boston recognized the benefits of having similar partnerships to promote stewardship of public lands in other parts of the country. This led to the establishment of the National Volunteer Project (NVP), funded with a grant from the Richard K. Mellon Foundation to foster the establishment of volunteer groups.

Albuquerque was chosen as the site for the first of an initial seven volunteer groups. In 1982, AMC paid a facilitator to help organize a group that became New Mexico Volunteers for the Outdoors. To get started, NMVFO drew on members and support from existing volunteer and governmental organizations in central New Mexico. These included the New Mexico Mountain Club, the Albuquerque Ski Touring Club, the Sandia Search & Rescue Team, the Albuquerque Open Space Task Force, the Río Grande Chapter of the Sierra Club, the Central New Mexico Audubon Society, the Sandia Ranger District of the Cibola National Forest and the Albuquerque Parks & Recreation Department. NMVFO formed a board of directors, chaired by a University of New Mexico professor of public administration and former city councilor, hired a paid executive director and incorporated as a 501 (C)(3) nonprofit.

NMVFO had initial success in raising money, such as a $25,000 contract with the New Mexico Department of Natural Resources to lead a statewide campaign to encourage volunteering. This included publication of the *"Adopt-A-Trail Handbook: A Guide to Volunteer Trail Maintenance in the Southwest,"* the first such handy reference on the subject. The group hired a summer trail crew boss to supervise weekly groups of young volunteers camping out in the Pecos Ranger District. The NMVFO also embarked on a contract with the Santa Fe National Forest to operate and maintain campgrounds and picnic areas in the Jémez Mountains.

As an all-volunteer organization, NMVFO has relied on two generations of public-spirited private citizens.

By the late 1980s, supported by donations from individuals and businesses, and grants from environmental and civic organizations, the NMVFO focused on a variety of work, especially trail building and maintenance for public land agencies.

Although it's a relatively small organization, averaging about 150 paying members over the years, it is the only outdoor volunteer group working throughout New Mexico with all public land agencies, including almost all of the ranger districts of the state's national forests, national parks and monuments, the wide-open spaces of the Bureau of Land Management (BLM), the wildlife refuges of the U.S. Fish and Wildlife Service, state parks and historical sites, city and county open space areas, municipal parks, soil and water and conservation districts, and both governmental and nonprofit conservancies.

NMVFO has often partnered with other nonprofits on outdoor projects. These include New Mexico Wild, the Sierra Club, the Continental Divide Trail Coalition, Heart of the Gila, friends groups at state parks and the Friends of the Sandia Mountains. The services of the Back-Country Horsemen in carrying tools, food and camping gear for backpacking projects, which last from several days to a week or more in remote roadless and wilderness areas, has been especially valuable.

Since its founding, NMVFO has performed well over 1,000 projects throughout New Mexico. Thousands of volunteers have moved tons of dirt, carried tons of rocks, built walls, cut down trees, sawed timber, planted trees and native plants, removed invasive plants, spread plant seeds, restored wetlands, improved drainage, built bridges, repaired buildings, painted walls, dug postholes, installed signs, put up and removed fences and picked up trash. For the opportunity to enjoy recreation on parts of the Land of Enchantment, we all owe a debt to those volunteers. ■

Larry Benson is a retired civilian employee of the U.S. Air Force who likes to go hiking whenever possible. He has participated in 133 of the NMVFO's work projects.

NONPROFIT ANNOUNCES FUNDING FOR JEMEZ MOUNTAINS RESTORATION PROJECT

Fort Collins, Colorado-based Trees, Water & People (TWP) has announced a $1.1 million commitment from the National Fish and Wildlife Foundation (NFWF), part of $2.172 million in grant funding for an ambitious environmental restoration project in the Jeméz Mountains of New Mexico, located within the ancestral homelands of several Pueblo communities. The project, led by TWP, tribal partners and other diverse stakeholders, aims to address decades of ecological damage. It involves adaptation strategies and innovative remediation of 40 acres in the Santa Fe National Forest.

The Jeméz Mountains have experienced severe environmental degradation due to prolonged droughts, climate-induced megafires, debris flows and post-fire floods. This has highlighted an urgent need for comprehensive restoration and sustainable management practices. By integrating Traditional Ecological Knowledge (TEK) with Western science, the project will restore upland forests, canyon bottoms and stream systems that have provided tribes with water, timber and game for centuries.

Primary activities through 2026 include: data collection and planning; community and cultural collaboration; upland conifer restoration and reforestation; fuels management and wildfire mitigation, and stream remediation and restoration. The project will establish three miles of native riparian vegetation, stabilize 4,500 feet of stream, restore four acres of wetland and protect a unique, 10-acre oxbow-wetland complex along the Jeméz River and Vallecito Creek. It will also create a bosque protection zone, a native seed bank, conservation-based workforce training, community engagement with Pueblo youth, other tribes and local cities, and watershed planning.

TREES, WATER & PEOPLE

The American the Beautiful Challenge also provided TWP with multi-year funding for priority conservation and restoration in the region. This includes the engagement of local tribal natural resource professionals and safeguarding downstream communities and local ecosystems through nature-based solutions. TWP is raising funds to honor matching grant requirements. For information, call 970-233-2459 or email SEBASTIAN@TREESWATERPEOPLE.ORG .

Discover and Showcase New Mexico Wildlife

A Fun Challenge

Join nature enthusiasts in over 700 cities across the world while discovering the biodiversity right here in New Mexico. The City Nature Challenge is an annual, four-day global collaborative effort to document wildlife in and around urban areas. This event, organized by the Natural History Museum of Los Angeles County and the California Academy of Sciences, is in its 10th year. In 2025, the challenge will take place from April 25-28. Identifying everything found will continue through the morning of May 5.

For the seventh year, City Nature Challenge ABQ is taking place in the Albuquerque area. The goal is to find as many wild animals and their evidence (tracks, scat, feathers, bones, etc.), plants and fungi as possible, and document them with photographs and sound recordings. All observations in Bernalillo, Sandoval and Valencia counties made during the challenge days count. For two years, Río Arriba, Santa Fe and Los Alamos counties have also joined the effort to showcase northern New Mexico's wildlife. This year, Silver City is joining as well to include observations in southern New Mexico, including Grant County.

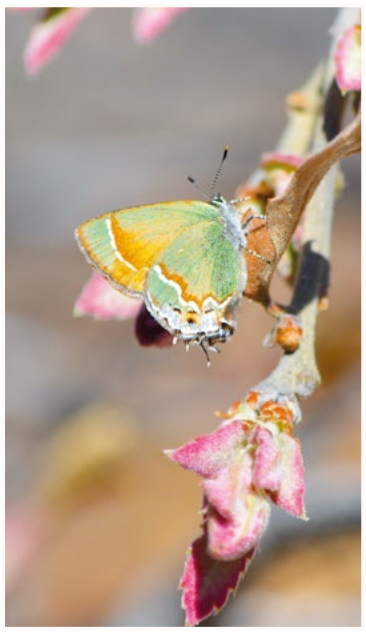
To take part in the challenge, download the free iNaturalist app on a smartphone, or set up an account at INATURALIST.ORG. Take clear photos in cities, parks, open spaces and wilderness areas within the boundaries of the New Mexico challenge areas. Photograph plants from different angles and include parts like leaves, seeds and fruits. Upload your photos (and sounds) to the app or website to have them automatically count toward totals. Leave out non-wild specimens—pets, people, or plants that have been intentionally planted. Also, avoid sharing several observations of the same species in one location. Be as diverse as possible. You can use iNaturalist to document wildlife sightings year-round, anywhere you are, and be ready when the City Nature Challenge rolls around.

For City Nature Challenge ABQ, every day you compete in the challenge or help identify your observations, you will have the chance to win prizes. There are also in-person and virtual events held during and

City Nature Challenge

Hikers in Sandias; cholla cactus in Sandia foothills; ash-throated flycatcher eating a wasp

Sandia Crest trail; western kingbird; albert's squirrel; juniper hairstreak butterfly



around City Nature Challenge dates that people of all ages can attend to hone their skills, learn more, and participate with a group. To find out when these events are taking place and get more information, tips, see observations and more, follow the City Nature Challenge 2025: ABQ iNaturalist project on Facebook and Instagram. Learn more about the global City Nature Challenge at citynaturechallenge.org . ■

Photos courtesy 350 New Mexico

More info:

INATURALIST.ORG/PROJECTS/CITY-NATURE-CHALLENGE-2024-ABQ

FACEBOOK.COM/ABQCITYNATURECHALLENGE

INSTAGRAM.COM/ABQCITYNATURECHALLENGE

THE PRAIRIE GRASSLANDS ENGINEER

BY **EDWARD ASHMEAD**

To suggest a species could go extinct in Thomas Jefferson's day would have elicited laughs out loud. How could that happen to one of God's creatures? If anyone still harbors such an obsolete belief about extinctions, Dan Flores' superb book, *Wild New World: The Epic Story of Animals and People in America*, will quickly disabuse them. It had been utterly unfathomable, for instance, that the world's most populous bird, the passenger pigeon, could be annihilated, until ... blasted from the heavens by the thousands for kitchen tables and restaurants, not so much as a zoo specimen remained.

The prairie dog has come close to the same fate. "Now, instead of numbering in the billions as they once did when buffalo walked the prairies, prairie dogs are on the brink of extinction," asserts Professor C.N. Slobodchikoff in an eye-opening book, *Prairie Dogs: Communication and Community in an Animal Society*, co-authored by Bianca S. Perla and Jennifer L. Verdolin. (All quotes, unless otherwise noted, are from their book). Up to 98 percent of the prairie dog population has been lost over the past 150 years.

In most areas where they're found, prairie dogs are killed regardless of season and without limits. If someone complains in Kansas or Nebraska about prairie dogs on a neighbor's property, the state can intervene, poison the critters, and charge the landowner upon whose property the prairie dogs had comfortably dwelt. Renowned conservationist and author Terry Tempest Williams writes about how as a child she bemoaned the family men she loved so much engaging in the despicable game of "pop-guts"––blasting prairie dogs for fun with their high-powered rifles just to leave them strewn about to rot under the sun. It is still legal in some states––this is considered *recreation* by some people––to use prairie dogs for such target practice! Williams has been the defenseless critters' lifelong "ally" ever since those Utah practices she found so distressing.

Extensive research reveals jaw-dropping facts regarding this fascinating creature.

You might think there can't be much to a mere rodent. Think again. Extensive research reveals jaw-dropping facts regarding this fascinating creature.

This uniquely North American mammal historically ranged from Mexico to southern Canada, covering the western half of Texas up through Oklahoma, Kansas, Nebraska, the Dakotas on the east to the Rocky Mountains on the west, and beyond into Utah and Arizona, thriving in virtually all short-grass prairie regions up to 9,000 feet altitude. Five species exist that per DNA evidence can be divided into two groups––namely, the black-tailed versus white-tailed. In New Mexico, the former dwells in the southern, eastern and northeastern parts of our state; the latter, more specifically the Gunnison's, is found at higher elevations, including the Santa Fe area. We'll treat them here collectively as one.

Like beavers, prairie dogs are a keystone species and ecosystem engineer in that they effect an inordinate and positive influence on their entire ecosystem. Studies show that "forage quality, productivity and nutritional value of grazing land are higher" when prairie dogs are present.

Denuded lands, often blamed by ranchers on prairie dogs, are actually the result of overgrazing and compaction caused by livestock, but these lands are attractive to prairie dogs due to better visibility of predators and nutritious seeds being more conspicuous and accessible on bare ground. Prairie dog activity promotes soil aeration, soil nutrient recycling, water percolation and biodiversity by attracting myriad plants and animals. It thus revitalizes ravaged lands.

The loss of the prairie dog would mean––and has meant where they've been poisoned, shot and their towns obliterated––loss of many other species, some of which, like burrowing owls, ferruginous hawks and the black-footed ferret, are more charismatic than they. Nine such species are heavily dependent upon prairie dogs; all nine are declining in numbers.

My wife and I have seen firsthand, closeup, what happens when developers commandeer a land. Behind our Santa Fe home a developer demolished a small prairie dog town to the loss of all the species that, since I've lived here, have either visited or resided in the 12-acre parcel––some three dozen bird species, including hawks, a great-horned owl and a roadrunner, cottontails and coyotes that denned along the northern acequia, the den extirpated by a bulldozer.

The prairie dog has "a sophisticated communication system that might outstrip monkeys and apes in its complexity, a system on the verge of language." Their communication, both verbal and nonverbal, includes

the "greet-kiss" in which two individuals approach one another and *French kiss*. Two species practice mutual grooming, not unlike some primates. Sonograms have demonstrated prairie dogs can not only communicate the presence of predators but even distinguish among humans, hawks, coyotes and domestic dogs; and each type of communication leads to different responses. "The human elicits a colony-wide running to the burrows and diving inside. The hawk elicits running only in its immediate flight path. The coyote elicits a running to the burrows, standing at the lip of the burrows, and belowground animals emerging. The domestic dog elicits a standing in place, and running to the burrows only when the dog has gotten too close…."

In one of his YouTube videos, Slobodchikoff says, "Prairie dogs never mistake a dog for a coyote and vice versa." Additionally, they have "both regional and local dialects."

One type of call only black-tailed prairie dogs exhibit. Coined the "jump-yip"––simultaneously standing on hind legs while chattering, bobbing the front legs in the air, and wagging the tail––it is not yet fully understood and may simply be expressions of glee; however, this message or something indistinguishably similar is also often utilized to signal the presence of snakes, particularly rattlesnakes and bullsnakes. "And the acoustic structure… appears to vary according to the type and size of snake." Other calls seem to be "acoustically different" for the badger, the gray fox and domestic cats, in addition to non-predators such as pronghorn, elk and cows.

That they have an alarm specifically for humans shouldn't be surprising; the Hopi and Navajo have traditional prairie dog recipes. Other studies have shown "that prairie dogs can describe objects that are completely novel to them."

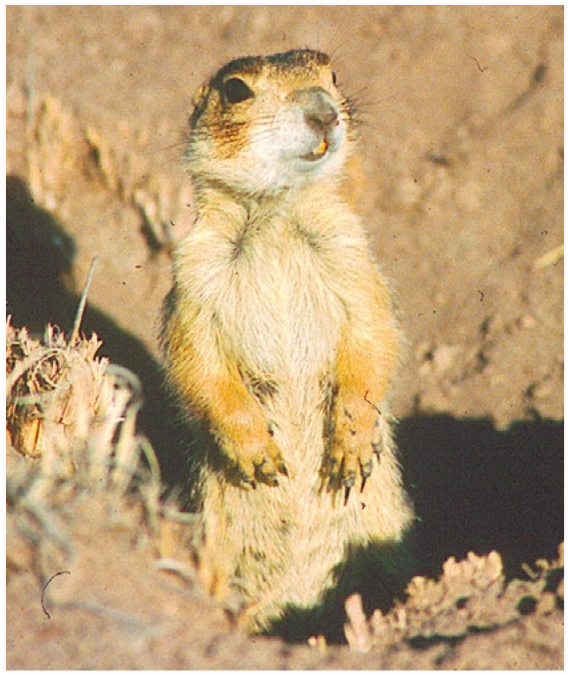
Prairie dogs create habitat for an astounding number of other creatures. Over 160 vertebrate species––mammals, birds, reptiles, amphibians––are known to rely on prairie dogs and their towns for habitat and/or food resources. Buteos––red-tailed, Swainson's, rough-legged and ferruginous hawks––in addition to bald and golden eagles, prairie falcons, harriers and goshawks gyre or streak over grasslands ready to swoop onto an incautious prairie dog, cottontail, or other colony resident or visitor. Coyotes, foxes, badgers and long-tailed weasels prowl about hoping to pounce on one of the rodents, while rattlesnakes and bullsnakes with their cryptic coloration lie coiled among sere grasses and under shrubs waiting for a meal to approach within striking range. The prairie grassland engineers make up close to half the diet of swift foxes and are by far the principal food source of the endangered black-footed ferret, which, as Flores puts it, is "within a whisker of extinction because of our herculean efforts to silence [prairie] dog towns with poison." Besides ready meals, ferrets need prairie dog towns for their pre-built burrows.

With a still-growing human population, increasing immigration and homelessness, clearly housing developments are necessary, but demolishing grassland ecosystems cannot continue unabated. There are remedies, such as building up or down instead of out. Where prairie dogs exist, they can be relocated, as is required in Santa Fe County; however, it can only be done by experienced, certified relocators. One outfit, Ecosolutions, exists in the Santa Fe area and has conducted many relocations. In coordination with the New Mexico Department of Game and Fish, it once transferred 117 Gunnison's prairie dogs to the Arizona Department of Game and Fish, which subsequently settled them into the Petrified Forest National Park, needed there to bolster a diminished population.

Prairie dogs have an inordinate and positive influence on their entire ecosystem.

Private ranchers can qualify as prairie dog recipients. In fact, the remaining three Gunnison's prairie dogs in the development behind our home were adopted by a private ranch south of town that has in place a Conservation Management Plan, has no grazing livestock, bans off-highway vehicles, and is managed entirely for the benefit of wildlife. Not that grazing animals are a problem for prairie dogs. Contrary to popular belief, "Prairie dogs and large herbivores ... coexist quite nicely when the grassland ecosystem is not disturbed by overgrazing." After all, the Great Plains' native bovid, the bison, along with its sidekick the pronghorn, coexisted with prairie dogs for countless millennia before the grasslands were fractionated with barbed wire and roadways.

It's beyond ironic that one federal agency, the U.S. Fish and Wildlife Service, spends untold tax dollars (in concert with over 50 other governmental, tribal and private entities, including zoos) attempting to resurrect the endangered black-footed ferret while another, USDA's misleadingly named Wildlife Services, spends our tax money eradicating the



A prairie dog in a typical pose. Photo by Con Slobodchikoff

base of the whole ecosystem, the prairie dog. From a Program Data Report for fiscal year 2020 (the most recent year that such has been posted at the time of this writing), "More than 54,000 dens and burrows were removed—primarily prairie dog burrows in five states … to protect agricultural crops … and livestock and grazing."

Another exterminator of prairie dogs, sylvatic plague––introduced by flea-carrying rats on sailing ships, the fleas being vectors for the deadly bacterium that causes it––is so lethal that up to 99 percent of individuals in a colony will die within a few weeks of its introduction, and infected individuals, within days. Domestic dogs and coyotes are relatively resistant to it, but black-footed ferrets and many other mammals are not. One beneficial governmental program mitigates the plague hazard by either: 1) dusting prairie dog burrow openings with an insecticide that kills the fleas; or 2) dosing bits of peanut butter bait with a vaccine to distribute about colonies.

Because prairie dogs die so quickly from plague, they are rarely the culprit for transmission to humans. "Most humans contract plague by killing, skinning and preparing animals for consumption, while a percentage of cases are linked to domestic pets. Overall, rock squirrels and ground squirrels account for most cases of plague transmission, followed by domestic cats."17

Instead of condoning such despicable hobbies and utter waste of life as "pop-guts," governments can outlaw them. Establishing wildlife viewing sites would draw many people interested in observing, drawing, photographing and otherwise relishing the wealth of shortgrass prairie plant and animal life.

"There are no explicit economic values yet assigned to the proportion of grassland services that prairie dogs control. Yet, it remains clear that there is a risk to human society in lost grassland services if prairie dogs are removed, and because of their keystone status, the risk is potentially enormous."

Nonprofits promoting prairie dog education and preservation include: New Mexico Sustainably Green; the Prairie Dog Coalition; Prairie Dog Pals, and People for Native Ecosystems. ■

Edward Ashmead, a recently retired teacher, is writing a book on the natural histories of various species, including the prairie dog, in the context of today's challenges.

ENTANGLED CULTURES – HOW HUMANS AND MICROBES CO-CREATE THROUGH FERMENTATION

ON VIEW THROUGH MARCH 14, 2026
MAXWELL MUSEUM OF ANTHROPOLOGY, ALBUQUERQUE
CURATED BY TONI GENTILLI; MAXWELLMUSEUM.UNM.EDU

A new exhibit at the Maxwell Museum of Anthropology, Entangled Cultures: How Humans and Microbes Co-Create through Fermentation, traces the interplay of cultural and microbiological forces from the origin of our species through the development of fermentation across human and microbial cultures.

Although microbes are the most abundant and diverse organisms on our planet, anthropology has paid little attention to the complex web of interactions between humans and these largely inconspicuous living beings. Growing interest in the evolutionary dynamics of humans and microbes, advancements in research methodologies, and the emerging field of ethnomicrobiology are shedding new light on the symbiotic creativity of human and microbial cultures.

Perhaps the most visible and enduring manifestation of human-microbe relations is fermentation. A universally adopted technique, fermentation has been employed for millennia in the creation, enhancement and preservation of all manner of foods and beverages. People across the world and throughout time have developed specialized tools, containers, facilities and processes to make fermented products from local varieties of fruits, vegetables, tubers, legumes, grains, meats, seafood and dairy. Countless human cultures have embraced traditional fermented foods and beverages as integral expressions of identity and kinship, and employ them in communal rituals, as social lubricants, healing elixirs and conduits to the divine.

Drawing from the Maxwell Museum's collections, *Entangled Cultures* presents diverse global examples of traditional vessels used in the creation and consumption of fermented foods and beverages. The exhibit begins with an overview of how fermentation likely served as a catalyst for human ancestors to develop smaller digestive systems and larger brains, and ultimately expand into new environments. It also retraces the origins of many now-ubiquitous products of fermentation, such as wine, beer, bread and cheese. Reflections on the ever-changing nature of human-microbe relations are woven throughout the exhibit, which concludes with a peek into our fermented futures, including novel adaptations to climate change and possibilities for interspecies flourishing in the post-Anthropocene world.

SANTA FE INTERNATIONAL LITERARY FESTIVAL

May 16–18,

Santa Fe Community Convention Center

The second year of this festival will bring together world-renowned authors, thinkers and passionate readers. Authors and other notable people will engage in one-on-one conversations and thought-provoking discussions. Small groups of festivalgoers, along with featured authors, will stretch their legs and their minds during morning meditations, walking tours and other literary-themed activities. Bestselling, prizewinning authors will headline the festival, discussing their work with readings and book signings. Some of the announced authors include Marie Arana, Michael Cunningham, Jonathan Eig, Percival Everett, Miranda July, Colum McCann, Viet Thanh Nguyen, Michael Pollan, Heather Cox Richardson, Deborah Jackson Taffa, Amy Tan, Terry Tempest Williams and Gabrielle Zevin.

Tickets: WWW.SFINTERNATIONALLITFEST.ORG

EARTHQUAKE RATTLES NEW MEXICO RESIDENTS

In February, a magnitude 5.0 earthquake shook western Texas, followed two minutes later by a 3.8 magnitude tremor, the first in a series of aftershocks. The earthquake was felt in Lubbock, El Paso and across southeastern New Mexico, as far west as Las Cruces and Sierra County. Former Bernalillo County Sheriff Darren White even reported feeling it in Albuquerque.

A 5.2 earthquake struck the region in 2023. The Permian Basin region has seen increased seismic activity, with hundreds of smaller earthquakes in the area. According to the *Albuquerque Journal,* geological researchers have linked the higher seismic activity to high volumes of wastewater from oil and gas production injected into subsurface reservoirs, leading to the activation of faults. Last year, saltwater disposal wells in two Texas counties were shut down due to seismic activity.

$1 BILLION IN LOCAL FOOD PURCHASING FOR SCHOOLS, FOOD BANKS CANCELED

The Agriculture Department has canceled two programs that gave schools and food banks money to buy food from local farms and ranchers. More than $1 billion in federal spending has been halted. In a statement, a USDA spokesperson confirmed that funding previously announced last October, "is no longer available and those agreements will be terminated following 60-day notification."

The second round of 2025 funding, about $660 million that schools and childcare facilities were counting on to purchase food from nearby farms through the Local Food for Schools Cooperative Agreement Program (LFS), has been canceled, according to the School Nutrition Association. In previous years, more than 40 states had signed agreements to participate. The Local Food Purchase Cooperative Agreement Program, which supported food banks and other organizations that provide food, has also been axed.

Spending for both programs had been expanded in recent years to build a more resilient food supply chain that didn't just rely on major food companies. School officials have become increasingly concerned about being able to afford healthy food with the current federal reimbursement rate. As costs have risen, more people have turned to food banks.

WHAT'S GOING ON

ALBUQUERQUE / Online

MARCH 6–7
LAND AND WATER SUMMIT
Indian Pueblo Cultural Center
Explore nature-based solutions to land and water resource management as a means of climate change adaption. Register: LANDANDWATERSUMMITNM.ORG, EVENTS@LANDANDWATERSUMMITNM.ORG

MARCH 8–14
ENTANGLED CULTURES
Maxwell Museum of Anthropology, UNM
"How humans and microbes co-create through fermentation." Curated by Toni Gentilli. 3/8 opening with fermented food and beverages, 2–4 pm. HTTPS://MAXWELLMUSEUM.UNM.EDU/

MARCH 13, 6–8 PM
ADDRESSING THE HOUSING CRISIS: LESSONS FROM MINNEAPOLIS
National Hispanic Cultural Center Bank of America Theater
Heather Worthington. Homewise Livability Series. Free. WWW.LIVABILITYSPEAKERSERIES.COM/EVENT/WORTHINGTON

MARCH 13, 6–8 PM
HOMELESSNESS IS A HOUSING PROBLEM
National Hispanic Cultural Center Bank of America Theater
Gregg Colburn. Homewise Livability Series. Free.
WWW.LIVABILITYSPEAKERSERIES.COM/EVENT/COLBURN2

MARCH 15–16, 10 AM–5 PM
RÍO GRANDE ARTS & CRAFTS FESTIVAL
Expo NM, 300 San Pedro Dr. NE
33rd annual. More than 150 artists and makers of hand-crafted works, fine art, home décor and specialty food. Live music. 505-292-7457, HTTPS://RIOGRANDEFESTIVALS.TICKETSPICE.COM/33RD-ANNUAL-RIO-GRANDE-SPRING-FEST

APRIL 11, 7:30 AM–4:30 PM
ELECTRIFY NEW MEXICO CONFERENCE
Sid Cutter Pilot's Pavilion, 4900 Balloon Fiesta Pkwy.
Be part of NM's energy transition. Informative panels, guided discussions, industry booths. General registration: $125. Renewable Energy Industries Assn. of NM. GGALLEGOS@SUNNY505.COM, WWW.ELECTRIFYNEWMEXICO.COM

APRIL 13, 10 AM–4 PM
EARTH DAY FESTIVAL
Balloon Fiesta Park
Our Power, Our Planet: A call for action to embrace renewable energy and make a lasting impact on our planet's future. HTTPS://EARTHDAYFESTIVALNM.ORG

THROUGH MAY 4
PUERTAS FRONTERIZAS / BORDER DOORS
Albuquerque Museum, 2000 Mountain Rd. NW
Cultural exchange can spark positive change. Bilingual exhibition showcases how education fosters understanding and inspires new ways of seeing the world. ALBUQUERQUEMUSEUM.ORG

MAY 8, 6–8 PM
URBANISM AND ENTREPRENEURSHIP
National Hispanic Cultural Center Bank of America Theater
The Role of Small Business in Neighborhood Revitalization. Presented by Eric

Williams. Homewise Livability Series. Free.
WWW.LIVABILITYSPEAKERSERIES.COM/EVENT/WILLIAMS

THROUGH JULY 27
RENDERED PRESENCE – ARTISTAS DE NUEVO MÉXICO
National Hispanic Cultural Center Visual Art Museum, 1701 4th St. SW
The exhibition explores artworks by artists living and working throughout NM. Each artist explores identity and the self, art history and Hispanic, Chicana/o/x and Latina/o/x contemporary art.
505-724-4471, WWW.NHCCNM.ORG

TUES.–SUN. 9 AM–5 PM
"ONLY IN ALBUQUERQUE"
Albuquerque Museum, 2000 Mountain Rd. NW
Permanent exhibit told through four galleries: Spirited, Courageous, Resourceful and Innovative. Hundreds of the city's beloved artifacts are featured. $3–$6., Free Sun., 9 am–1 pm. CABQ.GOV/ARTSCULTURE/ALBUQUERQUE-MUSEUM

TUES.–SUN. 9 AM–4 PM
INDIAN PUEBLO CULTURAL CENTER
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. $12/$10/children under 5 free. 505-843-7270, INDIANPUEBLO.ORG

SANTA FE / Online

STARTS FEB. 3 FOR 12 WEEKS
FULL-TIME 3D PRINTING BOOTCAMP
SF Higher Education Center
The New Collar Network, in association with SF Community College's Dept. of Continuing Education and Contract Training, is offering free tuition and a paid internship. Questions: SERVICE@NEWCOLLARNETWORK.COM, Application: https://newcollarnetwork.com/bootcamps

MARCH 1–29
NM WOMEN IN THE ARTS
Turner Carroll Gallery, 725 Canyon Rd.
Groundbreaking juried exhibition of 33 women artists from around the state. Opening 3/1, 5–7 p.m. NEWMEXICOWOMENINTHEARTS.ORG

MARCH 15, 1–5 PM
RESTYLE – THE NEXT 25 YEARS OF SANTA FE STYLE
SF Convention Center, Second Floor, Nambé Rm.
Two-part design charette. $5–$10 suggested donation. Registration required. Friends of Architecture Santa Fe. WWW.ARCHITECTURESANTAFE.ORG

MARCH 15, 10 AM–5 PM; MARCH 16, 10 AM–4 PM
SF HOME & GARDEN EXPO + REMODELERS SHOWCASE
SF Community Convention Center
Discover the latest in home comfort, style, sustainability and more with manufacturers, suppliers, retailers, design and home energy system professionals. Lego contest. Presented by the SF Area Home Builders Association and the Northern NM Builders Association. SANTAFEHOMESHOW.COM

MARCH 15–16, 10 AM–3 PM
SFCC CONTROLLED AG PROGRAM USED BOOK SALE
Trades and Advanced Tech Center, 6401 Richards Ave.
Faculty, staff and students will sell books. Cash or checks accepted. RICHARD.SHULTZ@SFCC.EDU

MARCH 18–19
BANFF MOUNTAIN FILM FESTIVAL WORLD TOUR
The Lensic
Celebrate the spirit of adventure. 16 films. Giveaways. Tickets support the Santa Fe Conservation Trust. $20 one night / $38 both nights. HTTPS://LENSIC.ORG/

MARCH 19, 11 AM–2 PM
SF SMALL BUSINESS FINANCE FAIR
SF Regional Airport
Focused on equity investment. Presented by the City of SF Office of Economic Development. Free. Registration: HTTPS://LU.MA/EOMCNI7V?UTM_MEDIUM=EMAIL&UTM_SOURCE=GOVDELIVERY

MARCH 25–MAY 6 (PART 2)
COLONIZATION AND DECOLONIZATION IN THE 21ST CENTURY
Online Course
Taught by Institute of American Indian Arts Faculty Emeritus Stephen Wall (White Earth Nation). $59–$146. IAIA.EDU/COURSES

MARCH 26–MAY 21; WEDS., 5:30–8 PM
2025 NM CLIMATE MASTERS COURSE
Randall Davey Audubon Center Classroom
How to build resiliency and take action in your community. Three field trips. JULIE@SANTAFEWATERSHED.ORG, HTTPS://SANTAFEWATERSHED.ORG/EDUCATION-AND-OUTREACH/CLIMATEMASTERS/

MARCH 31 REGISTRATION DEADLINE
ENVIRONMENTAL TECHNICIAN TRAINING
SF Higher Education Center, 1950 Siringo Rd.
New, free SF Community College program made possible by a grant from the U.S. EPA. Classes run April 7–May 8 at the SFCC.EDU/PROGRAMS/ENVIRONMENTAL-JOB-TRAINING

APRIL 2, 9 AM–4 PM
GREEN STORMWATER INFRASTRUCTURE WORKSHOP
NM State Library Piñon Room, 1209 Cam. Carlos Rey
From rooftop to rain garden. $25 suggested donation. 505-820-1696, LORRAINE@SANTAFEWATERSHED.ORG, HTTPS://SANTAFEWATERSHED.ORG/PRODUCT/GSI-WORKSHOP/

APRIL 3, 3–6 PM
SF CHAMBER OF COMMERCE BUSINESS EXPO
SF Community Convention Center
Networking and sales opportunities. Business hiring. Local entrepreneurs, family-friendly activities. Booths. 505-927-2847, KRISTI@SANTAFECHAMBER.COM

APRIL 3–4
NM COALITION TO ENHANCE WORKING LANDS
Institute of American Indian Arts
Annual summit. The theme: Relationships and Tools to Build Capacity for NM Producers. Free. Registration: HTTPS://QUIVIRACOALITION.ORG/

APRIL 9, 12–3:30 PM
SF COMMUNITY COLLEGE CAREER FAIR
Campus Center, 6401 Richards Ave.
Speak with representatives from local employers about job openings. Free for SFCC students and community members. CAREER.SERVICES@SFCC.EDU

THROUGH APRIL 12
CARVED STORIES BY MAVASTA HONYOUTI
Wheelwright Museum of the American Indian
Thirty works by the multi-disciplinary award-winning Hopi carver and painter. Sixteen low-relief panels were made in conjunction with the bilingual children's book, *Coming Home.* 505-982-4636, WWW.WHEELWRIGHT.ORG

APRIL 15
REGIONAL DEVELOPMENT CORP. 2.0 SUMMIT
Jet Center, SF Regional Airport
Speakers, REDI awardees, breakout sessions, working groups will unleash sector partnership strategies, fuel job creation and economic growth to improve standards of living in Northern N.M. HTTPS://WWW.RDCNM.ORG/

THROUGH MAY 4
OFF-CENTER NEW MEXICO ART
Vladem Contemporary, 404 Montezuma Ave.
Surveys three decades of New Mexican art featuring 125 artists. NMARTMUSEUM.ORG/VLADEM-CONTEMPORARY

MAY 10, 11 AM–2 PM
LOVE YOUR WATERSHED DAY
DeVargas Park
Environmental and educational nonprofits, as well as organizations focused on watershed health and awareness. HTTPS://SANTAFEWATERSHED.ORG/LYWD-2025/

MAY 16–18
SF INTERNATIONAL LITERARY FESTIVAL
SF Community Convention Center
Speakers include Michael Pollan, author of *The Botany of Desire.* $27.50–$75 (NM residents); $55–$75 (nonresidents); day and full-event passes available. 505-575-6777, INFOR@SFINTERNATIONALLITFEST.ORG, SFINTERNATIONALLITFEST.ORG

SUNDAYS
RAILYARD ARTISAN MARKET

SF Farmers' Market Pavilion
Gifts, souvenirs and mementos from local artisans and creative small businesses. SANTAFEFARMERSMARKET.COM

MON.–FRI.
POEH CULTURAL CENTER AND MUSEUM
78 Cities of Gold Rd., Pueblo of Pojoaque
Di Wae Powa: They Came Back: Historical Pueblo pottery. *The Why,* group show of Native artists. *Nah Poeh Meng:* core installation highlighting Pueblo artists and history. $7–$10. 505-455-5041

MON.–SAT., 8 AM–4 PM
RANDALL DAVEY AUDUBON CENTER & SANCTUARY
1800 Upper Canyon Rd.
Free guided walks to see birds, Sat., 8:30–10 am. RSVP for Randall Davey House tours. 505-983-4609, RANDALLDAVEY.AUDUBON.ORG

TUES., SAT., 8 AM–1 PM
SANTA FE FARMERS' MARKET
Market Pavilion, 1607 Paseo de Peralta
Farmers and producers from northern NM. 505-983-4098, SANTAFEFARMERSMARKET.COM

WEDS–FRI. THROUGH DECEMBER
NUEVO MEXICANO HERITAGE ARTS MUSEUM
750 Camino Lejo, Museum Hill
100 Years of Collecting/100 Years of Connecting, historical and contemporary artworks and articles representing daily life in New Mexico. Free admission. 505-982-2226, HTTPS://NMHERITAGEARTS.ORG

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/one & under free. 505-989-8359, SANTAFECHILDRENSMUSEUM.ORG

WEDS–SUN.
EL RANCHO DE LAS GOLONDRINAS
334 Los Pinos Rd., La Ciénega
Living History Museum dedicated to the heritage and culture of 18th- and 19th-century New Mexico. 505-471-2261, GOLONDRINAS.ORG

SATURDAYS
SANTA FE ARTISTS MARKET
Santa Fe Railyard
Outdoor arts & crafts booths. SANTAFEARTISTSMARKET.COM

EL RANCHO DE LAS GOLONDRINAS
La Ciénega, N.M.
Living history museum. GOLONDRINAS.ORG

IAIA MUSEUM OF CONTEMPORARY NATIVE ARTS
108 Cathedral Place
"Womb of the Earth: Cosmovision of the Rainforest" through July 19. Closed Tuesdays. $5–$10; under 16, Native and Indigenous peoples free. 888-922-4242, IAIA.EDU/MOCNA

MILAGRO SCHOOL OF HERBAL MEDICINE
Classes and training intensives with experienced herbalists can be a life-changing healing experience. Botany, medicine-making, plant-spirits. 505-820-6321, INFO@MILAGROHERBS.COM

MUSEUM OF INTERNATIONAL FOLK ART
706 Cam. Lejo, Museum Hill
"Protection: Adaptation and Resistance." More than 45 artists explore themes of climate crisis, struggles for social justice, strengthening communities through ancestral knowledge and imagining a thriving future. $3–$12. NM residents free first Sunday of the month.

NEW MEXICO HISTORY MUSEUM
113 Lincoln Ave.
The Lamy Branch of the Atchison, Topeka and Santa Fe Railroad model train; Palace Seen and Unseen: A Convergence of History and Archaeology, photos and artifacts; Telling NM: Stories from Then and Now. Closed Mondays. 505-476-5200, NMHISTORYMUSEUM.ORG

NORTHERN NM ICEBOX CHALLENGE 2025
Youth are being engaged in green building science and a housing solution. Habitat for Humanity, Youthworks, Early College Opportunities High School and SF Community College are offering hands-on experience with energy-efficient building. Tiny homes will provide safe emergency housing for Esperanza Shelter. 505-982-1774, BUILDNEWMEXICO.COM

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

STATE MUSEUMS
Museum of International Folk Art (10 am–5 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

WHEELWRIGHT MUSEUM OF THE AMERICAN INDIAN
704 Cam. Lejo, Museum Hill
Carved Stories, Pablita's Wardrobe; Marcus Amerman. $10. 505-982-4636, WHEELWRIGHT.ORG. 10 am–4 pm. Closed Sundays and Mondays.

YOUTHBUILD / YOUTHWORKS!
Paid training for Youth 16–24. Construction, Culinary, GED. 505-989-1855, WWW.SANTAFEYOUTHWORKS.ORG/SANTA-FE-YOUTHBUILD/

TAOS / Online

MARCH–JULY
REGENERATIVE RANCHING MENTORSHIP PROGRAM
An opportunity for beginning and experienced ranchers in Taos to grow their community, knowledge and business. Taos County Economic Development Corporation. 505-758-8731, ABBY@TCEDC.ORG

THROUGH JUNE 1
NICHOLAS HERRERA: EL RITO SANTERO
The Harwood Museum of Art, 238 Ledoux St.
Herrera comes from a lineage that includes Spanish, Native American and Mexican ancestry. He crafts *bultos, retablos* and mixed-media works. $8–$10 at HARWOODMUSEUM.ORG, 575-758-9626

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.
Tuah-Tah/Taos Pueblo: Home, highlighting the pueblo's culture and artistic achievements. Open daily. MILLIF4N65OY45E.ORG

HERE & THERE / Online

MARCH 8, 1–3 PM
RÍO GRANDE RETURN
Casa San Ysidro, 973 Old Church Rd., Corrales, NM
Learn about the protection and regeneration of NM's wetlands. For five years, Casa San Ysidro's agricultural field has been cultivated by Río Grande Return to yield seeds from over 5,000 native plant species for tributary conservation and restoration. Free.

MARCH 11–MAY 16
PUBLIC COMMENTS ON THE HERMIT'S PEAK/CALF CANYON WILDFIRES EIS
The Environmental Impact Statement will include evaluation of impacts on air, water, wildlife and more. Alternatives to address post-fire impacts and reduce long-term effects on ecosystems. 3/11, 5:30 pm public meeting, NMHU Library, 900 University Ave., Las Vegas, NM, Livestream link: bit.lyHPCCEISPublicMeeting. ID: 993 6237 3611. By phone: 1-346-246-7799. Email comments: HERMITSPEAKCALFCANYONEIS@HDRINC.COM or 505-357-7327

MARCH 15
LEARN TO MAKE TRADITIONAL PAINTS AND DYE
Los Luceros Historic Site, Alcalde, NM
Hands-on workshop presented by the Northern Río Grande National Heritage

Area will teach the art and science of transforming natural materials into pigments. Registration: $50. 505-692-3086, HTTPS://APP.APLOS.COM/AWS/GIVE/NORTHERNRIOGRANDENATIONALHERITAGEAREA/PAINTS&DYES

MARCH 18, 11 AM
EXPLORING THE LIFE AND PASSIONS OF CHARLIE CARRILLO
Casa San Ysidro, 973 Old Church Rd., Corrales, NM
Artist talk presented by Corrales Art Center. Free. CORRALESARTSCENTER.ORG

APRIL 9, 8 AM–5 PM
PRACTICAL SKILLS FOR RESTORATION PROFESSIONALS
NMHU Student Union Bldg., Las Vegas, NM
Workshop on data and GIS. Networking with ecological restoration professionals. NM Forest and Watershed Restoration Institute. AHAN@NMSU.EDU or EYANNAYON@NMSU.EDU

MAY 7–8
2025 NM ENERGY POLICY SYMPOSIUM
Ohkay Hotel Casino, Ohkay Owingeh, NM
A stakeholder convening for NM's 10-year energy strategy, hosted by Rep. Tara Lujan and Vida Mejor Capital. Key energy partners and communities will discuss how federal, state, rural and tribal governments can support clean energy goals with funding sources and economic development. www.ournewmexico.energy

MARCH 28–29
RÍO GRANDE PHYSIOLOGICAL SOCIETY MEETING
Eastern NM University, Portales, NM
Third annual regional conference. World-renowned medical scientists will present recent research findings. Regional high school and college students and teachers are welcome. https://riograndeps.org/2025_AnnualMeeting.html

THROUGH MAY 17, 12–4 PM, WEDS, FRI, SAT.
FRIENDSHIP QUILTS: STITCHING A COMMUNITY
Bond House Museum, 706 Bond St., Española, N.M.
Free exhibition. San Gabriel Historical Society. 505-570-7735, JULIANNE@UCSC.EDU

THROUGH JUNE 2026
AMERICORPS VISTA NM FOREST & WATERSHED RESTORATION INSTITUTE
Las Vegas, NM
AGILKERSON@CONSERVATIONLEGACY.ORG

THROUGH JULY 31
ZUNI YOUTH ENRICHMENT PROGRAM EXHIBITION
David J. Spencer CDC Museum, Atlanta GA./Online
'Health Is a Human Right' spotlights solutions to persistent health inequities. ZYEP programs focus on aspects of wellness, including physical activity, nutrition, leadership development and artistic expression. WWW.CDC.GOV/MUSEUM/EXHIBITS/HHR.HTM

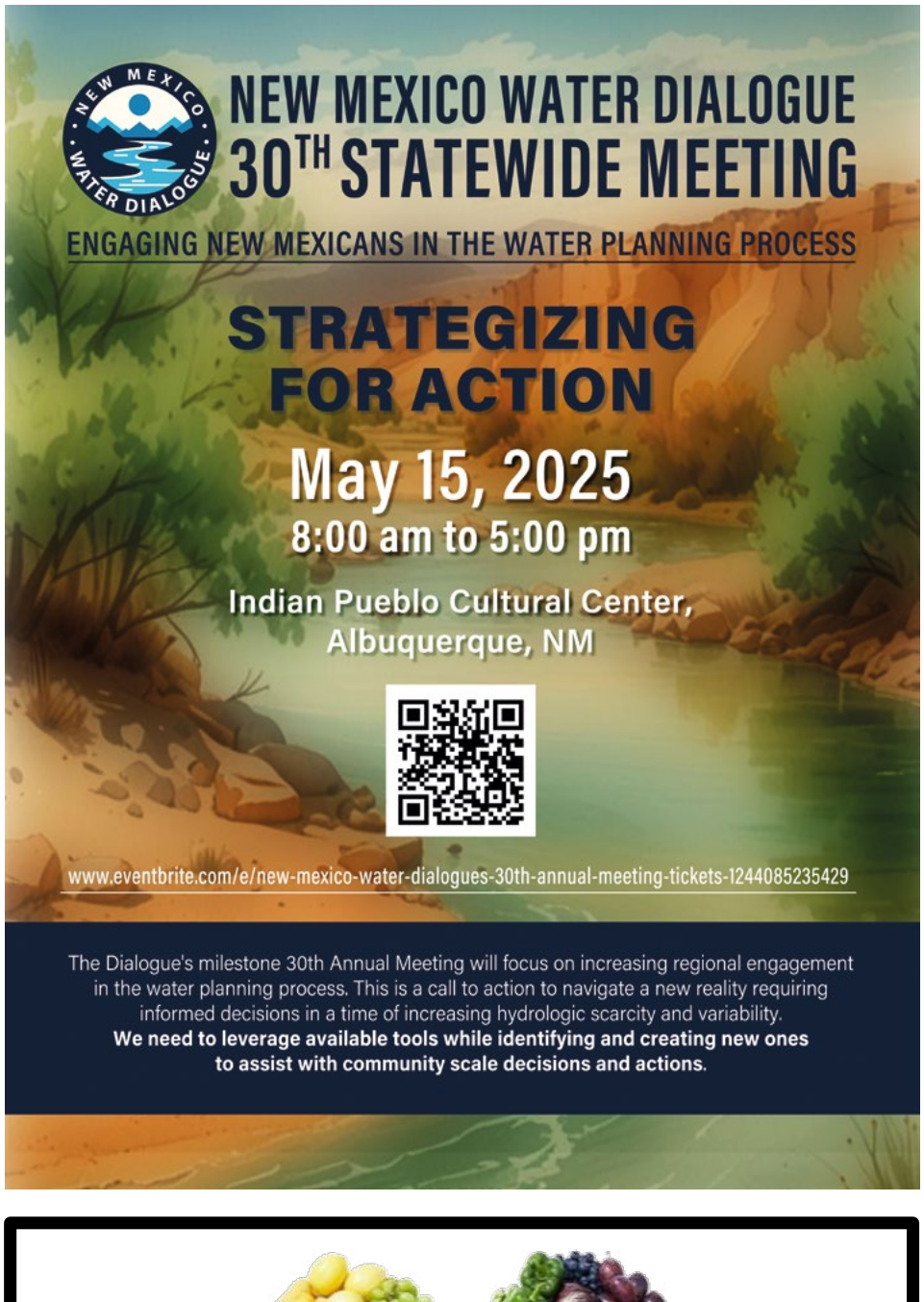
THURS–SUN, 10 AM–4 PM
BOSQUE REDONDO MEMORIAL
Fort Sumner Historic Site, Fort Sumner, N.M.
Exhibit, 30 years in the making, tells the story of 'The Long Walk' and the Bosque Redondo. $7, children 16 and younger, free. NM residents with ID free first Sun. each month. NMHISTORICSITES.ORG/BOSQUE-REDONDO

EARTH KNACK SURVIVAL AND OUTDOOR LIVING SKILLS
Crestone, Colo. and elsewhere
Fiber arts, blacksmithing, hide tanning, Rocky Mtn. Survival, Edible, medicinal plants, internships and more. HTTPS://WWW.EARTHKNACK.COM

SOLAR PANEL TAX CREDITS
Available for systems installed in 2020–2024 that have not previously received credit. WWW.CLEANENERGY.NM.GOV

SUSTAINABLE BUILDING TAX CREDITS
NM residents can apply for tax credits to make homes and businesses more energy efficient. There are extra incentives for upgrades that reduce energy use and lower utility costs in affordable housing or homes occupied by low-income residents. https://wwwapps.emnrd.nm.gov/ecmd/ecpsubmissions/

WEBINAR SERIES WITH MIGUEL SANTISTEVAN
March 5: Soils and Soil Building; March 19: Acequias 101. Entire series: $300. Sliding-scale and scholarships available. Details and registration: ESCUELASOLFELIZ.COM, SOLFELIZENTERPRISES@GMAIL.COM



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