

# Carapace

NEWSLETTER FOR THE

## Upper Gila Watershed Alliance

SPRING 2026



Vol. 30 No. 1

**30** *Years Strong*  
1996 – 2026



**Inside This Issue: Walking Home • A Good Moment in Time • Wild & Scenic River Act • From the Classroom to the Community • Love Letters to the New Earth Project • Earth Detectives • Exploring City of Rocks • Post-flood Bank Stabilization Projects • Compost Microbes Revealed • Scalable River Strategy • What Bird Was That? • Youth Mural at Silva Creek • Defend the Roadless Rule**

## Upper Gila Watershed Alliance

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### Mission Statement

The Upper Gila Watershed Alliance is a non-profit watershed protection and conservation organization working to promote the long-term health of the Upper Gila Watershed and its communities of life. Through advocacy, education, research and restoration projects, we are striving to build communities of stewards in more locally based economies.

### UGWA Staff

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Executive Director

Rebecca Martin  
Administrative Assistant

Mary Stone  
Education Director

Dylan Duvergé  
Springs Protection Manager

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New Earth Project Co-Director

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Jessica Chavez, New Earth Project

Jarrett Marcum, New Earth Project

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Carapace is published by the Upper Gila Watershed Alliance. It is sent free to all UGWA members.

UGWA is a 501(c)(3) organization incorporated in New Mexico. All contributions are tax-deductible.

## Calendar of Events

April 22  
7:00 pm



### Film, *Seeds of Vandana Shiva*

Light Hall, 1000 W College Ave on WNMU campus, Doors open 6:30.  
\$10 suggested donation, no one turned away for lack of funds

Join UGWA, The Lotus Center, and the Silver City Co-Op for a showing of the film *The Seeds of Vandana Shiva*. Be inspired by this documentary that presents the remarkable life story of the Gandhian eco-activist and agro-ecologist, Vandana Shiva.

June 7  
10:00-2:00



### Family day at the Gila River!

Mogollon Box

Join UGWA's education director Mary Stone and the eco-monitoring crew from Aldo Leopold Charter School to explore aquatic macro-invertebrates, prepare leaf rubbings of riparian tree species, and to just splash in the cool waters of the Gila River at the Mogollon Box. This day is geared for children ages 6-12 and their families. Please bring your lunch, water, hats, sunscreen and towels. Aquatic nets provided. Limit: 30 people. To sign up and for questions and directions, please contact Mary: education@ugwa.org

August 22  
7:30-9:30pm



### Secrets of Night-Moths

Location will be announced soon

UGWA board member and moth expert Ron Parry will identify moths and amaze you with fascinating facts about the incredible moths drawn to a black light and a sheet on summer evenings. Ron will give a 30-minute presentation on how to identify the most common moth families. Then we will see which moths and insects are attracted to a sheet under a black light. This program is geared toward families, but everyone is welcome! This event is FREE!

September 10  
7:00 pm



### Increased Forest Drought Stress and Tree Mortality -- From New Mexico to Planet Earth

Global Resource Center, 805 West 12th Street, Silver City  
Doors open at 6:30 pm. Light refreshments will be served.

Dr. Craig Allen, recently retired after 35 years as a federal research ecologist, and Victor Lucero, Forest Health Program Manager with the New Mexico Forestry Division, will present on tree mortality and trends in damage-causing agents in the Southwest. This presentation is hosted in conjunction with The Nature Conservancy and will be held at the Global Resource Center

October 4

### Annual Meeting and 30th Anniversary Dance in Gila

Join the UGWA founders and members to celebrate our accomplishments over the past 30 years! The time and location will be announced soon.

## About the Cover

30 Years Strong

Original photo taken by Mike Fugagli.

Location: A majestic cottonwood beloved by many located near the Nature Conservancy's Lichty Ecological Research Center in Cliff.



We'd LOVE to stay in touch!

And we have a couple of great ways to do that!

**Email** If email is best for you, sign up for our monthly e-newsletter. We promise it's just once-a-month and an important bulletin every so often. Sign up on our website at [ugwa.org](http://ugwa.org) and click on the Read Watch & Listen Tab.

**Social Media** If social media is more your flavor, we're on Facebook and Instagram. Give us a follow!

*Or better yet, do both!*

## Message from the Executive Director



Photo by Mike Fugagli

As I settled into my front-row seat next to my colleague, Nan Franzblau, I had no idea what was in store for us. Thanks to a generous sponsor, we were able to attend the Bioneers conference in Berkeley, California. I had heard of this conference for years, and people spoke about it with enthusiasm. This 37th annual three-day event would be filled with speakers, workshops, musical performances, art, and, of course, opportunities to connect with other like-minded individuals who love and protect Mother Earth.

Attendees had gathered here from around the world and all walks of life. Representatives from 43 states, 6 countries, 121 universities, 120 Indigenous tribes, and over 400 youth attended.

I was ready to listen and learn, but I wasn't prepared for the explosive opening of hearts. Individuals whose joy showered over us with the force of jet engines.

One powerful moment was listening to a unique musical performance. Garth Stevenson is a musician who seeks out humpback whales and then emulates their vocalizations by bowing an electric cello while skillfully steadying himself on a swaying boat in sometimes turbulent seas. The whales' actions show they are interested in these sounds, and they respond as if in conversation.

Yet the video of the whales breaching and swimming with their young left me deeply saddened. Has humanity failed these truly magnificent and sentient beings?

Over the next two days, however, as I heard about the many achievements in various communities, this sadness turned into energy, movement, and hope. I started to remember the good work in our own community by those close to me.

UGWA is celebrating 30 years of

environmental accomplishments. The work began in 1996, led by local residents of the Gila Valley who understood that the community had to unite to reach shared goals. Sometimes we call these folks visionaries—those individuals who don't wait for permission or recognition. Those dedicated people who follow their passion to make things happen: tenders of ecosystems, guardians of place, lovers of the living world. Visionaries make revolutions happen. For decades now, the UGWA board, staff, and members have protected our environmental community, created employment, gathered in song and dance, and celebrated together our love for the natural world.

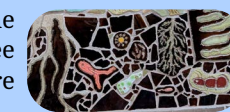
Witnessing the strong, innovative work of so many people at the Berkeley conference was not only invigorating but also allowed me to dream even bigger than I had before. I realize anew that the only limitation to what can be accomplished is the lack of imagination.

Terry Tempest Williams speaks of the Glorians—those individuals who manifest the extraordinary in the ordinary. They find beauty in a broken world. If we are present, we will know what to do. The Glorians are reaching out to us; let's listen. It is time. 🌱



The Youth Mural Program visited the Silva Creek Botanical Gardens this past summer, adding more artwork to the space. The summer camp was led by lead artist Patty Countryman and assistant artist Mia Estrada, with over 30 youth participating. They designed and created three mosaic panels celebrating native plants, animals, people, and climate, completed by a Youth Mural and Youth Conservation Corps crew.

UGWA was proud to educate the youth about the significance of soil microbes in reducing atmospheric carbon and enhancing plant and soil health. These concepts were integrated into the underground scene of the soil food web on the climate and native plants mural. Thank you to the student artists who included these vital microorganisms! Please visit the Silva Creek Botanical Gardens to see these murals and enjoy much more beauty in your backyard!



Microbes!

## A Good Moment in Time

By Zinnia Bessent

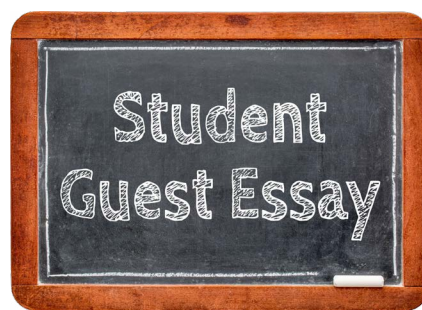
Last week I walked outside to go get something from my car and I saw my mom sitting on the sidewalk. She grabbed my hand and pulled me down to sit beside her, saying hastily, “Don’t scare it!”

“It” was a large yellow butterfly that was flying laps around our little pond. I watched it tip up and down in the air, its big wings lifting its fluffy body. “Whoa, that’s a huge butterfly,” I said.

The last thing I could do was scare it: the creature seemed fearless. The butterfly flew around our yard, soaring only inches away from our sitting bodies as it passed us, over and over again. Then, it would settle on the ground nearby, landing on the freshly watered earth where we were trying to grow grass.

“I think it’s a Swallowtail,” I told my mom. We watched as the insect lifted off and began to do laps around us again. A few minutes later it landed, so close that we could see the texture of its body.

My mom noted that the wings seemed like feathers in their softness. The swallowtail also had big eyes and a long tongue-like proboscis that curled. Its wings were a dusty yellow with blue spots on the rim and dark-black veining and edges like painted on eyeliner. The edges of the wings tapered down like perfectly cut trim and ended in two tails, giving the butterfly its name of Two-tailed Swallowtail. On the underside of the wings we could see more powdery blue spots, like shimmering eyeshadow peeking out each time it beat its wings up and down in a methodical motion. I got the impression it was sunbathing.



This experience was such a special thing, watching the butterfly. I had completely forgotten what I had been going out to retrieve from my car. I was captivated by the swallowtail. My mom described feeling the same sense of awe. The butterfly stayed a good while, repeating its slow pattern of flying around us and landing to rest.

My mom and I talked quietly. She remarked on the miracle of how such a creature even evolves the way it does, fragile and dainty and so eye-catching. This prompted me to do some light research on butterflies later that day. They begin life as tiny eggs laid on the undersides of leaves. They then hatch into caterpillars. Some species of butterfly can only eat one species of plant as a caterpillar, so the eggs must be laid on only that plant. This symbiotic relationship makes their existence and successes seem even more unlikely. Once they eat enough of the host plant, the caterpillars will form a chrysalis where they can safely undergo their metamorphosis phase. They emerge and must rest in the sun, letting their wings unfold and dry. They will often return and pollinate their host plant, ensuring that it can reproduce. On average adult butterflies only live for two weeks. Some species like the Monarch can live for much longer, but that is quite uncommon for insects.

Learning all these facts made my and my mom’s experience feel even more priceless.



Zinnia Bessent  
Zinnia is a Junior  
at Aldo Leopold  
Charter School

## Wild & Scenic River Act

Fort Sill Apache Tribe and community members took time to travel to Washington, DC to tell Congress to pass the Wild Gila River bill.

The group of 10 people seeks to persuade Congress to pass the M.H. Dutch Salmon Greater Gila Wild and Scenic River Act. The act would designate the Gila as Wild and Scenic, enshrining it as one of the Southwest’s last free-flowing rivers.

The delegation met with several members of the New Mexico delegation in Congress, including U.S. Sen. Ben Ray Lujan.

James Buckner is the secretary of the Fort Sill-Chiricahua-Warm Springs-Apache Tribe, who historically lived along the Gila and developed deep ties to it before being forcibly relocated by the U.S. government.

“To the Apache people, it’s a very sacred and holy place,” Buckner said. “It’s one of the last places in the United States that is closest to its natural state when the Creator made it and gave it to us to share with the world.”

Elysha Montoya is from Silver City and grew up going to the Gila River, and said it was what she always looked forward to. Now, she takes her kids to the river. But she said they’re confused why it has to be protected because they don’t understand why anyone would want to threaten it.

This legislation to designate the Gila as Wild and Scenic has been introduced before with bipartisan support, but failed to get over the finish line. The bill was reintroduced last year

by U.S. Sen. Martin Heinrich and Rep. Gabe Vasquez, both Democrats from New Mexico.

For Montoya, the Gila River that has flowed alongside her

*continued on page 13*



Joel Davis, Ft. Sill Apache attorney; Bjorn Fredrickson, New Mexico Wild; Kestrel Kunz, American Whitewater; Nicholas Saiz; Sen. Ben Ray Lujan; Elysha Montoya; Shelby Bazan, New Mexico Wild; James Buckner, Ft. Sill Apache

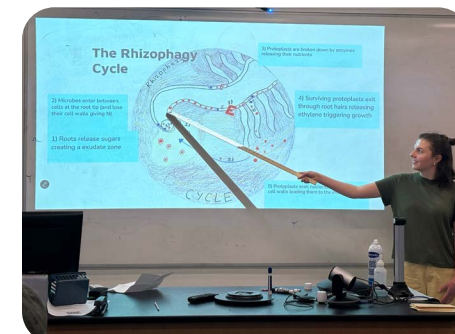
## From the Classroom to the Community: ALHS Senior Interns Take the Lead With Capstone Projects

By Nan Franzblau

The Upper Gila Watershed Alliance strives to empower youth with the skills and knowledge they will need as they journey towards independence. To this end, we obtained funding from Future Focused Education, a non-profit in Albuquerque, to participate in the Youth Civic Infrastructure Program (YCIF) during the 2025-2026 school year. Future Focused Education partners non-profit organizations with schools to provide opportunities for students to work in the community, creating a bridge between their academic and real-world experience. This year, we mentored three senior interns from Aldo Leopold High School (ALHS) who wanted to educate community members about soil health, climate mitigation, and ecological biodiversity, using the New Earth Project education platform as a foundation for their outreach. All three interns worked closely with mentors Carol Ann Fugagli and Nan Franzblau to develop and take the lead on capstone projects in the community.

Ivy Stephens-Etheridge researched the principles of regenerative agriculture, focusing on the symbiotic relationship between plants and soil microbial life. She met with farmers at Viramontes Farm in Deming and Dominguez Farms in Gila to discuss how microbes can enhance plant photosynthetic capacity, increase crop biomass, and sequester carbon in the soil. Ivy learned how to apply microbes to croplands by coating seeds with a mixture of Living Earth, molasses, and milk, or by making a soil inoculant with Living Earth and water.

Ivy also presented her research to members of the Unitarian Universalist



Ivy Stephens-Etheridge presenting the rhizophagy cycle to the Gila Native Plant Society Photo by Nan Franzblau

Fellowship of Silver City and the Gila Native Plant Society. In her presentations, she clearly explained the nitrogen cycle, the liquid carbon pathway, and the negative impacts of modern farming practices on crop nutrition. She created a detailed diagram of the plants’ rhizophagy (“root eating”) cycle, in which plant roots actively cultivate, capture, and break down microorganisms at the root tip to acquire nutrients!



Lila Knadler leading the Soil Food Web Game with ALHS 8th graders  
Photo by Nan Franzblau

For her capstone project, ALHS senior Lila Knadler chose educational outreach at Aldo Leopold Middle School, teaching 8th graders topics from the New Earth Project’s Healthy Soils curriculum. She led students through the Soil Food Web Game, revealing the interdependence of biodiverse organisms living beneath our feet. Eighth graders also learned about the decomposition of organic matter, from small-scale composting with redworms (vermicompost) to large-scale Johnson-Su bioreactors that the New Earth Project uses to create Living Earth. Lila also guided students through the Carbon Game, in which students learned about how their everyday actions can affect the cycling of carbon, and how modern lifestyles can exacerbate climate change.

Lila expanded on the New Earth Project curriculum to include interactive presentations on nutrition, how to calculate a carbon footprint, and an examination of zero-waste communities. In addition, she created a worm anatomy quiz in which students were tasked with locating the five hearts of redworms!

Intern Rowan Garcia tapped into her knowledge and experience from years of working on Youth Conservation Corps Garden Crews to develop a curriculum for 3rd graders at Jose Barrios centered on monarch butterflies. Activities covered topics like monarchs’ migration routes; hazards for migrating butterflies such as development, pesticide use, deforestation, and climate change; and the monarch’s life cycle. Under Rowan’s guidance, students planted seeds, found signs of life in nature during the winter, and learned how monarch butterfly chrysalises are made.

Third-grade teacher Chris Ulufale acknowledged that since the intern began her capstone project last fall, “Rowan has developed strong communication and relationship-building skills, as well as the ability to engage students in meaningful, hands-on learning experiences.” Third-grade teacher Crystal Kennedy agreed: “Rowan consistently demonstrated key leadership qualities, including adaptability and commitment to her project. She led by example, remained respectful, and communicated effectively with both students and adults.”



Rowan Garcia with third grade green thumbs! Photo by Mr. Ulufale

UGWA would like to acknowledge and thank the school staff and community members who supported these students in their endeavors to serve and learn from the community. And congratulations to our YCIF interns for their leadership and dedication to their capstone projects! May these experiences serve you well as you take the next steps in life. 🌱



## UGWA Spotlight

Hi, I'm Lisa Houston. I was born and raised outside of Tulsa, Oklahoma (Creek Nation). I immigrated to the Land of Enchantment (Apache Homelands) with my partner Bob and our two young boys in 1999. We found a welcoming community in Silver City and a healing vibe in the surrounding Gila wilderness.

I followed a path into mental health care, often focusing on children/families and health psychology. My passion is supporting growth in small but meaningful ways. These days, I love being quiet and listening to the spirits in the garden or woods. I also love my family, camping, popcorn, night sky gazing and my amazing dog Kata.

Volunteering with the New Earth Project makes me smile, a lot. 🌱



Alexis Wolfe

Greetings! I'm Alexis Wolfe. I've relocated to Silver City in the last year from the Midwest, and am so ecstatic to have found such dedicated, loving folks all around and meaningful work to participate in. Native to the foothills of Southern California and having lived in Ohio for the past 20 years on a small permaculture-based farm, I have been grateful to land at UGWA and the New Earth Project to not only help the community, but also help with my outrageous learning curve in building the soil and learning my watershed on the land I steward here.

I spent the last 20 years as a Special Educator and Administrator in urban schools, built school gardens throughout the district, and developed a curriculum for teachers to help their students learn in the gardens. I'm currently working with UGWA and New Earth in fourth-grade classrooms at Jose Barrios Elementary, teaching vermiculture and regenerative soil practices, building gardens with first graders in Santa Clara, and occasionally assisting with the maintenance of Johnson Su bioreactors at New Earth Garden. I'm excited to continue working with students both in the classroom and on the water for the upcoming Water Festival and to deepen my relationship with UGWA as I settle into my new life in Silver City. Cheers! 🌱



Lisa Houston

## Love Letters to the New Earth Project

### Three Students Share Their Appreciation



Ila Rose Duffy

Working with the New Earth Project has allowed me to demonstrate initiative, make a meaningful impact in my community, and actively engage with youth. During my time there, I built strong relationships with elementary students from Harrison Schmitt and Stout Elementary Schools, where I shared my passion for environmental stewardship, food security, and soil health. This experience not only strengthened my communication and leadership skills, but also deepened my commitment to creating positive change. Additionally, NEP gave me the opportunity to save money for college while balancing my responsibilities as a high school student-athlete. Being part of the New Earth Project meant contributing to something greater than myself. I was able to get my hands dirty, work toward solutions, and make a lasting difference in my community. My experience with NEP has equipped me with the skills, confidence, and work ethic needed to succeed in any future endeavor. I strongly hope the New Earth Project continues to grow, allowing more young people to access the same meaningful opportunities that shaped my own experience. 🌱



Dara Werber-Raiter

For the past three years, I have had the pleasure of working with the New Earth Project. The experience has taught me so much about our neighboring wilderness, the environment, ecosystems, sustainable food practices, compost, and the importance of educating the next generation. I especially enjoy working in Silver City elementary schools and on our Gila River field trips, where I get to interact with children and see their curiosity spark. This work has given me a sense of purpose in a world that often feels environmentally hopeless.

The New Earth Project has managed to overcome many obstacles, especially when funding was thought to be halted. However, our directors' constant hard work and dedication have managed to keep the project not only alive, but thriving. These inspiring individuals have strengthened the Silver City community while addressing larger environmental issues, showing me what meaningful local contribution looks like. This has made a significant impact on my personal life. Working at the New Earth Project has shaped my career goals.

I plan to become a financial advisor supporting environmental nonprofits similar to the New Earth Project. I made this decision not only because of the organization's positive impact, but also because I have been deeply inspired by the people I work alongside. Carol Ann Fugagli, Mike Fugagli, and Nan Frazblau have been incredibly influential and compassionate leaders for me and many other young people. I truly love the New Earth Project and the people who continue to keep the mission alive. 🌱



Willow Sprague-Robinson

Working with the New Earth Project has been transformative for me on so many levels. Most fundamentally, it's given me an incredible amount of optimism and excitement for our future, and made me so proud to be part of a community which is at the frontier of grassroots, accessible, and people-driven climate resilience. On a personal level, working with New Earth has been exceptionally helpful in refining my ambitions for both my education and the career I intend to build for myself. As I study architecture and environmental policy, I am drawn to grappling with questions about the roles of sustainable infrastructure in rural regions. My time with New Earth has recontextualized the importance and tangibility of community organization to these ends, and critically informed my academic work, the communities which I engage with away from home, and the future I am building for myself. 🌱

## Earth Detectives

By Mary Stone

In the mining district's village of Santa Clara, students have stepped into the role of "Earth Detectives," exploring their school garden as a place full of life and a meaningful space for learning. The Upper Gila Watershed Alliance has partnered with Central Elementary school to offer the Earth Detectives program twice a month, working with first grade students alongside fourth and fifth grade mentors and third-grade journalists. Through hands-on, outdoor learning, students investigate their local environment; explore the importance of healthy soils, water, plant growth, and pollinators; and gain skills to grow their own food.

Students began by asking simple but important questions: What is happening



Three happy girls. Photo by Mary Stone

in the soil? Who lives here? What does a garden need to grow? Using their senses, they observe and record their surroundings to explore these questions, learning that soil is not just "dirt," but part of a living system. They notice seasonal changes, observe soil moisture and texture, and see how these factors influence plant growth and the foods we eat—all while watching their garden grow.

One of the garden's most important helpers is the mighty red worm! Some students eagerly hold these worms, while others observe from a distance using magnifying glasses, practicing care and respect for living things. Through these observations, students see firsthand how worms break down organic matter and cycle nutrients, which supports healthy soil. This naturally connects the concept of soil microbes and their importance in soil health.

Time in the garden also provides opportunities to practice responsibility and teamwork. Students are introduced to basic garden tools and garden etiquette, work together to mulch garden beds with New Earth Project living mulch, and observe how organic material retains moisture, protects soil, and supplements the garden beds with microbes that help seeds and transplants thrive.

This March, students eagerly planted lettuce, radish, carrot and other seeds and transplants in raised beds, participated in a soil drench activity using our New Earth



Mary Stone with students discovering worms. Photo by Nan Franzblau

Project living earth, and gave their newly planted beds a boost of essential microbes!

Students are discovering how planting vegetables with their own hands can be a powerful and meaningful action. They explore the different parts of plants and learn how each part contributes to growth and survival. Movement-based activities illustrate life cycles, helping students visualize how a plant grows from a seed to a mature organism and eventually produces seeds of its own. Students also observe how seasonal changes affect the garden and the organisms living within it, building awareness of the natural rhythms *continued on page 12*

## Exploring City of Rocks

By Mary Stone

On September 24th, 2025, 36 first-grade students from Jose Barrios Elementary embarked on an exciting day trip to City of Rocks. After a walk around the site identifying plants and animals, the group was split into two teams to explore different aspects of this unique landscape.

One group focused on erosion and the unusual formation of the park, learning about the forces that shaped its remarkable rock structures over millions of years—while enjoying our erosion-emulating snickerdoodles baked by our own Rebecca Martin. The other group explored the magic of the local food web, identifying some of the incredible plants and animals that call the area home. (These first-graders got some snickerdoodles, too.) For many students, this was their first time experiencing the wonders of the incredible City of Rocks!

Through hands-on observation, outdoor activities, and guided exploration, students

engaged with their surroundings and practiced curiosity and careful observation. The day provided a memorable opportunity to connect with the natural world while learning about the unique geology and ecology of the City of Rocks area.

### City of Rocks Dark Skies Adventure

On October 24th, 2025, 49 third-grade students from Jose Barrios Elementary set out on an unforgettable Dark Skies program at City of Rocks. Organized by the Upper Gila Watershed Alliance and New Mexico Wild, this field trip offered students the chance to explore the night sky, discover nocturnal wildlife, and experience camping under the stars.

Students arrived at the park to enjoy dinner provided by UGWA. The

evening then kicked off with an introduction to twilight, the natural night sky, and the importance of dark skies, presented by *continued on page 13*



Organized group in grotto. Photo by Mary Stone

When my son Hawk and I decided to hike the 85-mile Gila River Trail from Snow Lake to Mogollon Box this past December, it was Harry Chapin's song "Cat's in the Hat" that sealed the deal. Graduating from college in June, Hawk will soon be off on far-flung adventures. I, shockingly, continue to age. The song's poignancy about postponement and the cycle of missed connections was too much for us to bear, despite the freezing water in the canyon's narrow bottoms where we would chase the possibility of sunlight like a desert mirage.

Our window of opportunity was only eight days wide - eight short days. That meant we had to hike with some purpose, averaging over ten miles a day. Ten river miles.

Years ago, on the radio, a pedometered farm boy was told by a stunned reporter that he had walked over twenty miles behind the plow in a single day. He answered, "Those weren't easy miles neither." Point being, a river mile is not a mile. A river mile is a complex unit of measurement depending on several factors like: how much water is in the river, when the last flood ripped through, where the birds are singing, poison ivy, trail condition, brother beaver, and, despite the linear nature of the undertaking, how many times the trail is lost and you find yourself trapped in a willow thicket.

The Gila River Trail is not an official trail, but it should be (hint, hint). Broken almost perfectly in two by the small community of Gila Hot Springs and the butterscotch ice cream sold at Doc Campbell's Post, the eighty-five miles of the Gila River Trail descend almost 3,000 feet in elevation, encompassing the Gila's entire Middle Fork and mainstem



Mike and Hawk Fugagli are heading down the mainstem from the Grapevine Bridge after feasting and resting in Gila Hot Springs. Photo by Carol Ann Fugagli

wilderness reaches. With hundreds of river crossings between Snow Lake and Mogollon Box, the Gila River Trail is an amphibious adventure best undertaken, even in December, in wool socks and running shoes. For us, it was also a cold adventure with high canyon walls, short days, plunging temperatures at sunset, and twelve-degree nights.

Still, warm fires, hot springs, good food, good company, and the rare chance to see into the heart of the Gila Wilderness gave Hawk and me all the encouragement we needed. Although we saw many wonderful things, including both Spotted Owls and Spotted Skunks, three landscape-scale observations emerged from our trip that we think are worth sharing.

First: the pine die-off in the Gila National Forest is widespread. This is a hard, visually shocking reality: slopes with 80% mortality, dead and dying ponderosa pines even on high-elevation floodplains. Climate change has come to the Gila, as evidenced by the river's recent shattering of record-low flows.

Second: the Middle Fork of the Gila River is bursting with beaver, and their restorative power is on full display. If you're able, get out and hike three or four miles up the Middle Fork this summer and witness for yourself this noble creature's regenerative presence.

## Walking Home

By Mike Fugagli



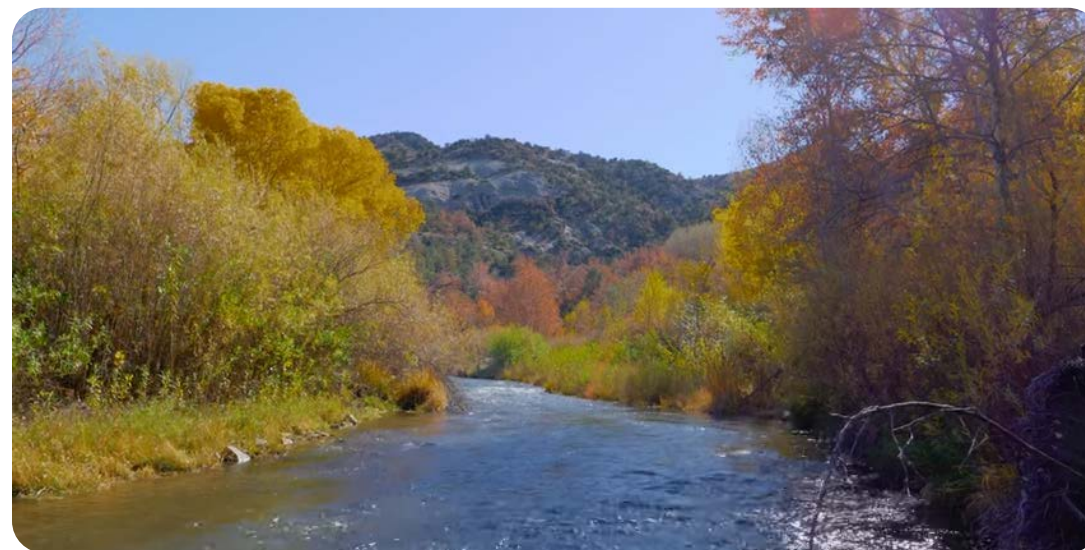
Mike Fugagli looking downstream at a Ponderosa Pine floodplain forest. Photo by Hawk Fugagli



Fantastic fungal flower!. Photo by Hawk Fugagli



Camped at the Granny Mountain Trail Junction upstream of the Sapillo Creek confluence. Photo by Hawk Fugagli



Winter returned to autumn in the lowland riparian forests below Turkey Creek. Photo by Hawk Fugagli



Welcome sunshine on the canyon walls. Photo by Hawk Fugagli

Third: the feral cattle on the Gila's mainstem wilderness reach are really gone. Really, truly gone. The river's banks and its broad floodplains are recovering, even in drought. The cattle's removal, though controversial, was an incredible ecological victory. No tracks, wallows, or cut banks. No smells, bellows, or pies. But unlike the Middle Fork, where willows abound, the mainstem Gila is not yet beaver-friendly. It was hit pretty hard. It's going to take a few years, and it's going to take a few floods.

But that's okay, because the meaning of our father-son adventure was amplified by a simple revelation as we made our way downstream: wilderness doesn't mean chaotic, exotic, or unknown. Hawk and I knew this river. We knew the birds and the trees. We knew places. As we walked, we remembered old camps, old friends, past trips, bears, caves, rattlesnakes, and pictographs. This was our backyard. It was where Hawk was born and where he grew up. We had been playing here together for all of his twenty-two years. Hawk and I don't mind waiting for a few years, waiting for a few floods. We're in it for the long-term. The beaver will be back.

Our longest day was the third day on the Middle Fork. We were both dog-tired hiking all the way from the sun-kissed Meadows to Lightfeather Hot Spring. We slept that night in the small cave above the springs and watched as the temperature dropped and steam, illuminated by a full moon, rose in huge columns against the opposing canyon wall. In the morning, as we lay in our bags and watched the moon disappear behind the rimrock, Hawk lowered his camera and said, "You know, all we're really doing is walking home."



Sitting in the cave to the left, a Mexican Spotted Owl guards a rare tricolor pictograph. Photo by Hawk Fugagli

## Post-flood Bank Stabilization Projects

By Martha Cooper and Gregor Hamilton

At the request of UGWA, The Nature Conservancy's State Field Director of Freshwater in New Mexico, Martha Cooper, and Gregor Hamilton, Southwestern NM Field Director, kindly agreed to tell the community a little more about a recent stabilization project in the Gila Valley.

Flooding that occurred on the Gila River in August, 2022 – in excess of 30,000 cubic feet per second – rearranged a lot of the floodplain in the Cliff-Gila Valley and accelerated existing bank erosion in some reaches. Private land and irrigation ditches were impacted. As a result of the flood, Grant County and the Gila Basin Irrigation Commission (GBIC) – an entity representing ditches on the Gila River in NM – held community meetings and sought support for impacted people and entities. The Natural Resources Conservation Service (NRCS) was one partner invited to address private



Bank Stabilization.  
Photo by Gregor Hamilton

land concerns. The NRCS's Emergency Watershed Protection Program offers technical and financial assistance to help local communities relieve imminent threats to life and property caused by floods and other natural disasters.

Members of the Gila Oak Land Trust and the Woodrow Family requested

support from Grant County, GBIC and NRCS to stabilize the eroding riverbank to protect their property and the Upper Gila ditch. At both properties, the river was within 10 feet of the ditch and water was seeping through the ditch to the river. NRCS engineers assessed this reach of the river, explored different alternatives, and designed bank stabilization structures at both sites. The structures are designed to withstand a 25-year flood event. As a neighboring landowner, a request was made to The Nature Conservancy to provide access through the Gila River Farm and allow these projects to extend onto our land. Formal access agreements were formed between the Conservancy and Grant County to provide this permission.

The bulk of funding for these projects was provided through NRCS's Emergency Watershed Protection Program and the State of NM through Grant County. GBIC provided Arizona Water Settlement Act NM Unit funding as a match; this funding had been originally set aside to construct a new irrigation diversion but was re-directed towards the post-flood work. Combined, both projects cost approximately \$6 million dollars. The objectives of both projects were to protect the Upper Gila ditch, private land and homes.

Rocks, 30 inches in size or less, comprised the most significant project cost for both projects and involved significant rock-hauling. For the Gila Oak Land Trust project, 10,000 tons of rocks were used, building a solid trapezoid approximately 12 feet high. Imagine a long triangular pile of rocks with a flat top, 900 feet long. Willows have been planted at the base of the rocks. The soil behind the rock-armored bank was built up in layers

by compacting every 6 inches until a 3:1 slope was reached behind the rock wall, and then the area was seeded with native grass species. Because this reach of the river goes dry at low flows (with all the water directed to irrigation ditches), it will take effort and time to support re-vegetation at this project site.

The Woodrow Project used 9,000 tons of rock placed in a large trench at the edge of the river channel and then placed on top of the sculpted bank. The most upstream end of this structure was reduced by 120 feet because of nesting habitat. Large cottonwoods were not present within the footprint of either project, so none were removed for the construction. With the bank stabilization structure in place, the ditch and Woodrow property are better protected from future floods. Construction of both projects concluded on March 22nd.

Community members shared concerns about these projects. Future projects like these would benefit from project proponents sharing information in advance of and during project implementation. This would also provide a way for concerns to be addressed.

The river in the Cliff-Gila Valley retains a broad and accessible floodplain in most reaches. These structures were constructed to protect existing and valuable infrastructure.

At the Gila River Farm, The Nature Conservancy is planning to use funding from the National Fish and Wildlife Foundation to remove part of the levee that juts out into the floodplain. An analysis of floodplain inundation shows that expanding floodplain width downstream of the bank stabilization projects should further reduce the erosive power of floods. This work will likely occur next fall. 🌱

## Compost Microbes Revealed

By Carol Ann Fugagli

It's a flagellate! It's an amoeba! NO, it's a rotifer!

Those were just some of the exclamations—or thought bubbles—as curious people from across New Mexico participated in a workshop this April hosted by the New Mexico Healthy Soils Working Group at the New Earth Project site adjacent to San Vicente Creek in Silver City.



Navona Gallegos from the New Mexico Healthy Soils Working Group talks about soil microbes.  
Photo by Carol Ann Fugagli

New Earth Project staff were proud to showcase their innovative technologies related to microbially healthy soil, including a bioreactor tractor, new bioreactor inputs, and a novel structural design for the bioreactors.

Participants worked together to fill a bioreactor while learning how to grind food in a garbage disposal to achieve sufficient moisture without adding too much water.

The Corner Kitchen served a scrumptious lunch, and then we dove into soil microscopy, examining compost at different ages: one month, three months, six months, one year, two years, and three years (mature compost). The results were fascinating!

Younger material showed nematodes, while intermediate-aged compost was loaded with flagellates and amoebae with a test, or a protective shell. Mature compost aged at least two years revealed numerous fungal hyphae and



Rotifers are microscopic organisms that play an important role in organic matter decomposition. This rotifer was found in a soil sample of a workshop participant and was so fun to watch!  
Photo by Carol Ann Fugagli



Mike Fugagli describes a bioreactor tractor to workshop participants.  
Photo by Carol Ann Fugagli

spores, indicating a finished, superior-quality product.

Mature compost is like a fine wine or cheese; it takes time. Only time can develop fungal spores that can withstand decades of marginal conditions before sporulating when requisites are favorable for growth. This process cannot be rushed, and backyard compost that is turned regularly does not contain the essential microorganisms that work with plant roots to provide numerous benefits.

As a result of the workshop, New Earth staff were invited to present in Las Cruces and Albuquerque to share our innovations and help other municipalities begin their own New Earth Project! 🌱

## Help Us Defend the Roadless Rule!

By Luke Konig and Carol Ann Fugagli

The Roadless Rule, established in 2001, protects millions of acres of undeveloped Forest Service land nationwide, including more than 700,000 acres in the Gila National Forest. This acreage is by far the largest in any forest in New Mexico. This Rule provides legal guidance for the US Forest Service to manage these lands in a way that preserves their roadless features, particularly by prohibiting commercial timber cutting, with some exceptions. In June 2025, President Trump moved to revoke the Roadless

Rule, which would threaten critical wildlife habitats, clean drinking water, old forests, and the outdoor spaces that millions of people rely on for recreation and solace.

When the Rule was developed, the Forest Service conducted the most extensive public participation in federal rulemaking history. More than 600 public meetings and 1.6 million comments were submitted, with 95% supporting the Rule. In stark contrast to this process, the United States

Department of Agriculture is not expected to host any public meetings on the Rule's rescission. **In response, groups across the country are hosting their own public meetings to gather testimony and ensure their voices are heard. We are partnering with several organizations to host a local meeting in Silver City this spring.** As soon as the EIS is released, we will announce the hearing date to ensure it falls within the comment period. Please stay tuned, and we'll see you there! 🌱



**"There comes a time when humanity is called to shift to a new consciousness... a time when we must pay back what we owe to the Earth."**

**— Chief Oren Lyons (Onondaga Nation Faithkeeper)**

# What Bird Was That?

By Carol Ann Fugagli

Have you wondered which birds migrate at night or which birds are nearby when you're indoors? Cornell Lab has developed an AI bioacoustics device that records and reports the birds heard at a specific time, along with the accuracy percentage.

BirdNET processes raw acoustic data through a multi-stage pipeline designed for ecological accuracy. By transforming diverse soundscapes into standardized feature representations, the system can isolate and identify subtle vocal signatures across thousands of species while accounting for biogeographical variation in species distributions.

Earth Detectives  
*continued from page 7*

that influence both plants and people.

Through the Earth Detectives program, students form a new relationship with their surroundings, seeing our unique Southwestern ecology of plants, animals, and soil with a fresh perspective. The program encourages them to slow down, observe closely, and ask questions about the natural world, fostering curiosity, responsibility, and a deeper connection to the ecosystems that sustain them. By exploring the garden as a living system, students are not just learning about plants, they are developing an awareness of the vital role healthy soils, water, and biodiversity play in their local environment.



Many kids transplanting  
Photo by Mary Stone

These early experiences plant the seeds of stewardship and an understanding that caring for the land is essential! 🌱

Canyon Towhee (100%)	Common Raven (94%)	White-breasted Nuthatch (85%)
Gambel's Quail (99%)	Ruby-crowned Kinglet (93%)	Chihuahuan Raven (84%)
Say's Phoebe (99%)	Hairy Woodpecker (92%)	Red-breasted Nuthatch (84%)
House Finch (99%)	Violet-green Swallow (92%)	Yellow-rumped Warbler (84%)
Black Phoebe (99%)	Spotted Towhee (92%)	Bewick's Wren (83%)
White-crowned Sparrow (99%)	American Kestrel (91%)	Bushtit (82%)
Mourning Dove (98%)	American Pipit (91%)	Common Loon (81%)
Townsend's Solitaire (98%)	Song Sparrow (88%)	Anna's Hummingbird (81%)
Cooper's Hawk (97%)	Mountain Chickadee (88%)	White-throated Swift (78%)
Woodhouse's Scrub-Jay (97%)	Western Bluebird (88%)	Pinyon Jay (77%)
Northern Flicker (97%)	Broad-tailed Hummingbird (88%)	Rock Wren (76%)
Vermilion Flycatcher (97%)	American Crow (88%)	Canada Goose (75%)
Ladder-backed Woodpecker (96%)	Juniper Titmouse (88%)	Belted Kingfisher (75%)
Canyon Wren (96%)	Bridled Titmouse (88%)	Brown Creeper (75%)
Lucy's Warbler (96%)	American Goldfinch (88%)	Lesser Goldfinch (73%)
Mallard (95%)	White-winged Dove (86%)	Pygmy Nuthatch (72%)
Great Horned Owl (95%)	Pine Siskin (86%)	House Sparrow (70%)
Steller's Jay (94%)	American Robin (86%)	Barn Swallow (70%)

These are the bird species most reliably recorded with the confidence level noted.

UGWA's New Earth Project now features BirdNET at our New Earth Garden along San Vicente Creek! It is called New Earth BirdNET and can be accessed via the links below. Since installing this device, we have confirmed 54 species with thousands of vocal detections, including the most common House Finch and others like the Common Loon, Lucy's Warbler, Mountain Chickadee, Hairy Woodpecker, Brown Creeper, White-breasted Nuthatch, Pinyon Jay, and Vermilion Flycatcher! You can see which species were detected on a specific day or compile data into a weekly report.

See the links below and listen to our feathered friends' activities!

Here is the url for our birdnet

<http://subscriptions-demanded.withplayit.plus:1066/>

for a map of different stations (including ours) go here

<https://app.birdweather.com/>



Vermilion Flycatcher  
Photo by Mike Fugagli



Yellow Warbler  
Photo by Mike Fugagli

# New Study Identifies Simple, Scalable River Strategy to Boost Habitat Resilience in the West

By Ellen Soles, Martha Cooper, and Laurel Saito

As ongoing drought and heightened water demand continue to put pressure on Western rivers, new research by The Nature Conservancy points to a straightforward solution: give rivers more room to move and sustain low flows.

A decade long ecological study of the Gila River found that secondary channels, which are small side channels formed during high flows, significantly improve conditions for native plants like cottonwoods, willows and other groundwater dependent vegetation. From 2011 to 2021, researchers collected groundwater, vegetation and topographic data along the river and found that areas near secondary channels consistently maintained shallower groundwater, critical for native plant survival during prolonged dry periods. Secondary channels proved especially important for young native plants. Even low and steady flows kept these zones viable for seedlings because the channels helped maintain shallower groundwater, bringing moisture close enough to the surface for native vegetation to survive their most vulnerable early growth stages.

"The Gila River supports a wide expanse of native riparian forest, even during long periods of low flow," said Ellen Soles, an affiliate at Northern Arizona University and lead author of the paper. "It's the floodplain's complex topography that makes that resilience possible by storing and delivering water across the landscape."

Although some stretches affected by irrigation withdrawals saw sharper

groundwater declines, seepage from diversion structures and unlined ditches helped offset losses and sustain native vegetation.

"When rivers are connected to their floodplains, with adequate space to move, large and small floods move sediments, recharge groundwater and sustain native vegetation," said Martha Cooper, TNC's Freshwater Program Director in New Mexico. "When groundwater levels remain high, they retain flows in our rivers that help native species thrive by outcompeting non-native species."

"This study highlights the importance of long-term datasets," said Laurel Saito, a co-author on the study and water strategy director for TNC in Nevada. "Having data over periods of floods and droughts demonstrated the importance of shallow groundwater in this system, even with diversions for human use."

The Gila is unique among Western rivers because it still retains extraordinary flow variability, including very large floods that continue to shape its channels and floodplain.

From the 1940s through the early 1980s, the Gila River was confined by levees and heavily altered, cutting it off from much of its historic floodplain and reducing native cottonwood and willow forests. By about 1960, the active floodplain had narrowed to less than half its original width, and by the 1980s, native floodplain forest cover had dropped to roughly half of what it



Side channels from the Gila River flow across the Cliff-Gila Valley in southwestern New Mexico.  
Photo by Martha Cooper

had been earlier in the century. After channel engineering work stopped in the mid 1980s and livestock were removed from most of the floodplain in the 1990s, the river began to rebuild itself. A series of large floods in the late 1980s and 1990s reformed secondary channels, reconnected flows across the valley floor, and restored the shallow groundwater conditions native plants need. By the early 2000s, the active floodplain had returned to near its historic width, and a new generation of cottonwoods, willows and other native species were once again established across the area.

"This study highlights the delicate relationships between streamflow, groundwater, and riparian plants," said Dr. David Propst, adjunct professor for the Department of Biology at University of New Mexico. "It shows how critical natural flow patterns are to replenish groundwater and sustain vibrant riparian communities, giving valuable insight into how freshwater ecosystems function in arid environments." 🌱

Wild & Scenic  
*continued from page 4*

and her family is more than just a part of home; it's a lifeline. "It provides for so many, for the animals, for the fish, for people, everything. It is this source of life that flows in the desert." Montoya said. "And once that is gone, that's gone. Everything that it gives life to will also be dead."

The bill was heard by the Senate Energy and Natural Resources Committee in

early February. 🌱

City of Rocks  
*continued from page 7*

Executive Director Carol Ann Fugagli and dark-sky advocate Derek Wallentinsen.

Students rotated through hands-on activities in small groups, scouting for bats with a bat detector, learning about nocturnal animals, and examining bones and skulls. Red lights were provided to allow students to see "in the dark" while minimizing disruption to

the natural environment. Discussions and activities emphasized how to protect the night sky and highlighted the connections between wildlife, habitat, and human activity.

The night wrapped up around a campfire with popcorn and stories, giving students a chance to relax, reflect, and connect with their peers and the natural world. Families had the option to camp overnight and also experience firsthand the magic of the dark sky and the rhythm of nighttime in the park. 🌱

**UGWA Membership Application**

Your membership and additional financial support sustain UGWA and are critical to the organization's ongoing health. Share in the protection and conservation of our watershed and become an UGWA member today.

Name(s) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_

E-Mail \_\_\_\_\_

**Membership Categories—Annual Dues:**

Chiricahua Leopard Frog	\$ 20
Gila Trout	30
Mexican Gray Wolf	50
Beaver	100
River Otter	250
Other Amount	_____



**Make your check payable to UGWA and send to**

**PO Box 1536, Silver City NM 88062**

I don't wish to join at this time but please notify me of upcoming events.

Name \_\_\_\_\_

E-Mail \_\_\_\_\_

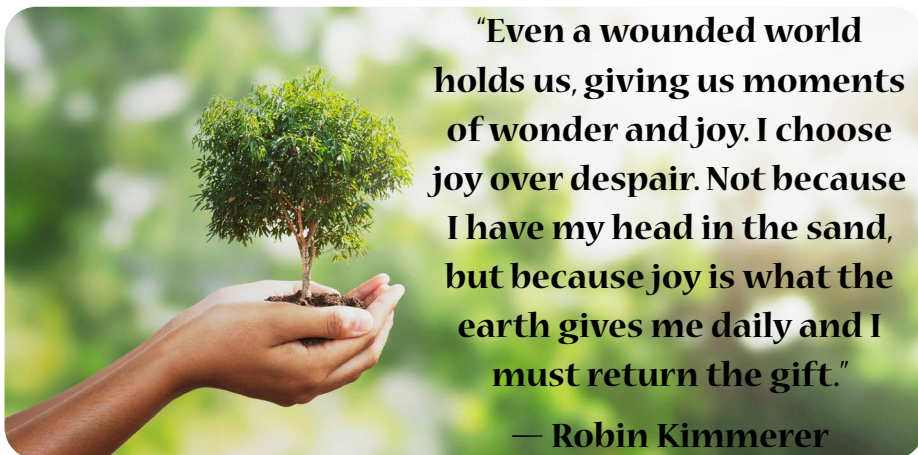
**UGWA's Statement of Philosophy**

The members of the UGWA recognize a vital and necessary connection between our individual and collective rights and responsibilities as landowners and community members and the long-term stewardship of the Upper Gila River Valley and Watershed.

The members of the UGWA share a love and concern for our community which is an integral part of our lives and, therefore, seek to harmonize our presence and activities within the watershed for the health and integrity of the entire "community," which includes the soil, the air, the water, the people, the plants, and animals.

The members of the UGWA share the conviction that men and women work best together in a spirit of cooperation, conflict resolution, and consensual agreement that builds upon a common ground that benefits from the views and concerns of each individual acting as uncoerced free agents.

To realize our vision for the common benefit of the entire community served by the Upper Gila Watershed, and for the sake of future generations, the UGWA seeks ways and means to bring people and organizations together in constructive dialogue and activities aimed at clear communication, education, land restoration, research, and local economic health.



**So Many Ways to Donate**

**ONLINE:** Do you prefer online payment instead of paper checks? We've got you covered! Simply go to our website at [ugwa.org](http://ugwa.org) and click the Donate Button.

**RECURRING:** We'd love to see you again. And again. To become a Recurring Member, go to our website at [ugwa.org](http://ugwa.org), click the Donate Button and choose "Make this a monthly donation."

**PROGRAM SPECIFIC:** Do you have a favorite program you want to support? Include a note with your donation and we'll apply your donation to that program! Donating online? Let us know by an email to [admin@ugwa.org](mailto:admin@ugwa.org).

**THE SEEDS OF VANDANA SHIVA**  
WHEN YOU CONTROL SEED YOU CONTROL LIFE ON EARTH

Light Hall  
WNMU  
Campus

April 22nd  
7:00p.m.-8:30p.m

Suggested  
Donation  
of \$10

This presentation made possible by the Lotus Center of Silver City, the Upper Gila Watershed Alliance, and the Silver City Food Co-Op. No one will be turned away due to lack of funds. All are welcome to attend.

For Questions: [lotuscentersc@gmail.com](mailto:lotuscentersc@gmail.com) (575) 956-6647 [www.lotuscentersc.org](http://www.lotuscentersc.org)



**Thank you to everyone who supported UGWA over the past several months. This list includes new members and renewing members, recurring members (monthly donations), volunteers and funders that provided support between October 22, 2025 and April 4 2026. If we missed you, please let us know!**

**New Members**

Loretta Thwaite • Fiona Davis • Starr Belsky • Naomi Laffinghans  
Julian Lopez • Clarice Hedrick • Jennifer Tepper • Angelica Page

**Recurring Members**

Jene Moseley • Marc Nevas • Diane LaFrance • Andy Payne  
Karen Watson & Tom Weller • Andrea & Jon Walker

**Returning Members**

Cissy McAndrew • Carol & Richard Martin • Madge Slavec • AT & Cinda Cole • Pamela Lichty  
Marguerite Bellringer & Bill Schum • Ron Parry • Marty Eberhart & Philip Hastings • Jon & Andrea Walker  
John Lathrop • Meyoni Geougé • Sandra & Glenn Griffin • Mary Barrett • Sue Ann Childers & Randy Harkins  
Spike & Angela Flanders • Susan Van Auken • Betty Lawson • Patricia Taber • Victoria Reece  
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Kathryn Haase & Jac Estes • Randall Bozelle • Nena & Stephen MacDonald  
Kay Plavidal & Larry Gieschen • Anthony Walent • Torie Grass & Jim Goodkind

**Volunteer Thank You!**

Lisa Houston • Barb Stone • Zoe Wolf • Chris Jepson • Alexis Wolf

**Funder Thank You!**

John & Laurie Egbert via Kinder Fund of the Whatcom Community Foundation  
Jonathan & Kathleen Altman Foundation  
Conservation Lands Foundation  
New Mexico GRO Fund  
U. S. Department of Agriculture  
Tides Foundation  
Future Focused Education  
New Mexico Environment Department: River Stewardship Program  
Lineberry Foundation





# **NEW EARTH KIDS RADIO SHOW**

**As part of the Kindred Continuum series, UGWA hosts a monthly radio show on Gila Mimbres Community Radio KURU 89.1FM called *New Earth Kids*. *New Earth Kids*, features students of all ages who talk about the challenges facing our planet today and how they are creating and implementing solutions.**

**Listen to archived shows on our website at [ugwa.org](http://ugwa.org)**

Upper Gila Watershed Alliance  
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Silver City NM 88062

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