

# Carapace

NEWSLETTER FOR THE

Upper Gila Watershed Alliance

FALL 2025

Upper Gila  
Watershed  
Alliance



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**Inside This Issue: Fashionably Monochrome Mammals • Nature Is My Mentor • The Proof is in the Pudding • NEP Grand Opening • Fountainhead of Possibility • Dream and Do • In Nature Possibilities Abound • Keeping Our Open Spaces Roadless • Safeguarding Our Public Lands**



## 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.

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## Our New Education Director

### Hello! My name is Mary Stone!

I'm passionate about the outdoors, my community, and putting my heart into everything I do! Living in such a diverse and inspiring area has deepened my appreciation for this incredible world and shaped so much of who I am today!

I'm a longtime Silver City resident and experienced community coordinator with a deep love for our region! My early work with the Youth Conservation Corps sparked a lifelong passion for the land and environmental stewardship. Currently, I wear many hats in the service of our community and environment. I hold leadership roles with the Future Forge, Makers Market, and the Silver City Blues Festival, where I've helped organize community events and support local initiatives. I'm especially passionate about conservation, community building, and empowering young people to become environmental caretakers. I teach Ecological Monitoring and assist students in preparing for the New Mexico Envirothon competition at Aldo Leopold High School. I've been accepted into the Environmental Education of New Mexico Fellowship Program to further my education and develop partnerships through a network of mentors, professionals, and like-minded folks like myself.

As the Education Director at the Upper Gila Watershed Alliance, I will oversee



youth-focused programs, including the Children's Water Festival, Eco Camp for Teens, and other educational outings. I have also been working on New Earth Project activities in elementary schools. So far, my experience has been nothing short of life-changing! It's amazing how impactful our work can be! Teaching the 1st graders from Harrison Schmitt Elementary about the remarkable land of City of Rocks is an experience I won't forget. Some students had been there before, and others, clearly, were experiencing this amazing place for the first time! The look of awe in their eyes is what I do this for, and my reward in turn!

I approach my work with creativity, dedication, and a deep love for our community! I'm passionate about uniting people and creating meaningful experiences that celebrate, support, and empower EVERYONE to embrace the outdoors! 🌿

### About the Cover

Preserving Our Public Lands

Original photo taken by Mike Fugagli.

Location: Looking at the Gila River from Brushy Canyon.

Graphic elements added digitally by Rebecca Martin.



### 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

we cherish and that sustains us physically and spiritually.

These challenging moments are a reminder of why we do the work we do.

I've never been drawn to the word "hope" because it feels too passive. Instead, I find the idea of motivation more inspiring. The student authors in this Carapace issue particularly inspired me as they describe how nature serves as their mentor. I'm also motivated by the student interns we work with on the New Earth Project, as they share their new knowledge with others.

Loren Eisley—an anthropologist,

philosopher, and talented writer—was a native of Lincoln, Nebraska, near my hometown of Waverly. I often remind myself of his quote, "In the days of the frost seek a minor sun." The path forward may be shifting, but the work we do ensures that young people have a voice in shaping the future. Let's keep moving forward—thoughtfully and together, finding our minor sun until it shines brightly.

Your support—whether as volunteers, donors, or cheerleaders—is greatly appreciated.

Thank you. 🌱

I took a scuba diving class in college. The murky waters of the Pacific Ocean near Southern California were underwhelming, and I yearned to see the colorful fish and corals of the Great Barrier Reef off the coast of Australia. Recent articles and climate reports indicate that we are losing these vital ecosystems due to rising ocean temperatures. Our changing climate is warming even faster than climate scientists predicted, and we are beginning to notice this locally with the dying of the trees in the Gila National Forest. Combine these facts with the current administration's increasing focus on extractive activities on public lands, the rollback of the Roadless Rule, and recent actions leading to the opening of the entire 1.5 million acres of the coastal plain of the Arctic National Wildlife Refuge to oil drilling—and I am left exhausted, along with many other people. And the big question underneath it all is: what can I do?

While I struggle to answer that question at times, I never find myself short of inspiration. In large part because I know I'm not alone. UGWA members, together with like-minded organizations, have joined together to submit comments opposing environmentally harmful proposals and to utilize the legal system in our fight for the natural world that

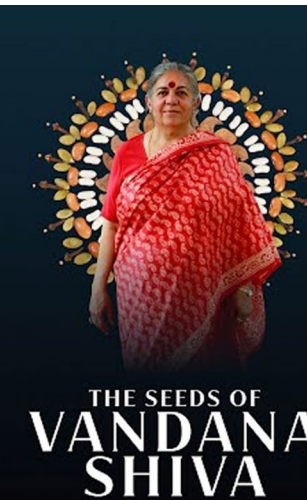
## Coming Soon

Early Spring Showing  
Date to be announced

Be the first to know!  
Sign up for our mailing list  
at [UGWA.org](http://UGWA.org)



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THE SEEDS OF  
VANDANA  
SHIVA

*"You are not Atlas carrying the world on your shoulder. It is good to remember that the planet is carrying you."*

—Vandana Shiva



# Safeguarding Our Public Lands

By Carol Ann Fugagli

Healthy landscapes and resilient ecosystems are vital for multiple-use and sustainable management. Unfortunately, over the past several decades, the Bureau of Land Management's (BLM) 245 million acres have favored extractive uses without guaranteeing sustained yields. This has resulted in increased degradation, fragmentation, and damage to land and water.

As a result, the Public Lands Rule was enacted during the Biden Administration. This policy formally recognizes conservation as an equal "use" of public lands alongside grazing, mining, energy development, and recreation. This Rule provides the BLM guidance to balance its priorities and develop an inclusive conservation approach that includes co-stewardship and co-management with Tribal nations who have cared for these lands and waters for thousands of years.

The Public Lands Rule is critical because data indicate that public lands are currently not in a sustainable condition. Public Employees for Environmental Responsibility (PEER 2022) published a report documenting rangeland health conditions and data for 155 million acres of BLM-managed lands across the

American West. After reviewing data on 21,000 BLM allotments, a full 50% of the assessed acres were failing to meet the minimum rangeland health requirements under the Fundamentals of Rangeland Health and Standards and Guides.

As announced on September 11, 2025, the Department of the Interior now plans to rescind the Public Lands Rule. By proposing to remove this Rule, the administration signals a shift back toward prioritizing extractive and commercial activities, leaving the BLM without the tools needed to protect many of its resources and values.

The BLM has a mandate to manage lands for multiple uses, and this Rule finally gives conservation the equal weight it deserves alongside development. Rejecting this broadly supported Rule would be a grave disservice to the public good.

A 60-day public comment period was open until November 10, 2025, giving advocates a chance to weigh in before the decision is finalized. Thank you to those who made comments. We will provide updates on the outcome of the comment period. 🌱

## Dream and Do!

By Carol Ann Fugagli

What is your vision for your community? What changes would you like to see there?

These are some questions asked of three new interns at Aldo Leopold Charter School (ALCS) who participate in the Youth Civic Infrastructure program offered by Future Focused Education, a nonprofit based in Albuquerque. Future Focused Education provides grants to nonprofit organizations that aim to connect young people and schools to expand their existing work. Through this framework, nonprofits collaborate with schools to develop curricula, internships, and capstone projects that actively improve the communities where students live.

UGWA was one of 16 nonprofits statewide to receive funding to collaborate with a high school to reimagine education, emphasizing community involvement. UGWA will partner with ALCS to expand the learning opportunities of our New Earth Project in two ways: by working with ALCS staff to develop a healthy soils curriculum for the Freshman class and mentoring three Senior interns in a capstone project of their choice.

Okay, this sounds great, but what exactly is a capstone project? It is a comprehensive final academic assignment where a student has the chance to showcase their discoveries and the knowledge they've gained throughout the school year.

The topic is chosen by the student and will focus on the main aspects of the New Earth Project: food security, reducing food waste, regenerative farming practices, mitigating climate change, and improving soil health.

We met with the three senior interns, and this outlines their interest in their capstone project.



Rowan Garcia

Rowan Garcia loves plants and has several years of experience working with a Youth Conservation Corps garden crew. Rowan will serve as a garden educator for students at Jose Barrios Elementary School, using their established garden as a learning space to teach students practical skills like planting, harvesting, nutrition, and regenerative

soil practices through hands-on activities.



Lila Knadler

Lila Knadler is a natural leader and will assist Nan Franzblau and Mary Stone in the 4th-grade classrooms, teaching our healthy soils curriculum. Once she becomes familiar with these activities, she will bring her new knowledge to the middle school at ALCS and teach a new group of eager students.



Ivy Etheridge-Stephens

Ivy Etheridge-Stephens will collaborate with the New Earth staff, visiting farms across our county and region. She will talk with farmers to identify challenges in their operations and work together on methods to rebuild soil organic matter, boost carbon sequestration, and enhance water retention.

The interns will gain practical experience in their chosen field and will share \$5,000 at the end of the school year, which will help them in their pursuits after graduating from high school. We will keep you updated on their progress!

Thank you to Future Focused Education for funding this project. 🌱

# Fashionably Monochrome Mammals: On the Pleasures of Watching Skunks

Sharman Apt Russell Encourages Us to Explore the Wild World Waiting in Our Backyards

By Sharman Apt Russell

Where I live in rural New Mexico, I see striped and hooded skunks regularly throughout the year. I see skunk tracks all the time, every day, around my house, in the fine substrate of the road that leads up to the irrigation ditch, in any bit of dirt or mud, and in the garden enclosed against deer and javelina but not skunk. Skunks regularly explore my wrap-around porch, so that my husband and I watch the animal out one window and then hurry to see it from another. Skunks are often under the bird feeders. We smell them in the morning—the result of some interaction with another animal. We've startled them in the early evening. They jump. We jump. Once, jumping back, a hooded skunk fell off the rise of the porch onto his back. Chagrined, he waved his paws in the air like a baby or a pill bug before more calmly turning over and galumphing away. These skunks have never sprayed or shown us any threat behavior. We don't

have any pets for them to worry about. If we live companionably with any wild mammal, we live companionably with skunks.

Sometimes we see skunk families, mothers and juveniles. Once I saw a mother determinedly waddle and forage while an addled youngster, also determined, dragged under her belly still trying to nurse. Juvenile males finally disperse at three months or so. Juvenile females might stay for almost a year. Mostly we see the solitary skunk. It's like a fashion show. Something from Chanel. A bit of art deco. That black and white aesthetic.

\*

In their discussion of skunks, biologists use the phrase "honest signal." The white lines of a striped skunk point to its rear end, where two anal glands produce and hold about an ounce of musk each. This concentrated

sulfurous fluid can be sprayed with accuracy at targets six feet away and with less accuracy fifteen feet. The four other species of skunk in North America use the same pattern of white on black so as to be easily seen and avoided. This visual cue is enhanced when the skunk raises its tail.

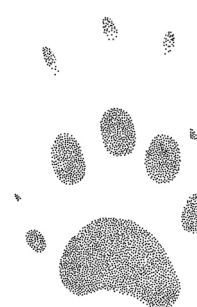


Illustration by Kim Cabrera

Skunks don't want to use up their musk and then have to make more musk. They might instead eject a warning smell. They might hiss and stamp their feet. If these strategies don't work, if that domestic dog keeps barking and barking and coming closer, a striped skunk will twist into a U shape so that both eyes and rump face the threat. From the rump, the skunk emits a stream or multiple streams of a liquid that can burn exposed skin and cause temporary blindness. The odor alone—a mix of rotten eggs, rotting cabbage, burnt garlic, burning tires, and something you can't quite put your finger on—makes some people gag. Everyone, instinctively, backs away.

The result of such a strong defense is that skunks are relatively docile and, as one scientist says, "seemingly carefree." Adult striped skunks, weighing only a few pounds, have been videotaped eating from a carcass while a fox or mountain lion waits nearby. In one scene, three coyotes circled a skunk on top a dead deer. The coyotes approached, retreated, split up, whined, fussed, nipped forward, nipped back. The researcher noted, "It was hilarious."

The abundance of skunks must be galling to other predators. Striped skunks range from southern Canada to northern Mexico at an estimate of five to thirteen a square mile. They vary in size and can weigh up to twelve pounds. Typically they have a white stripe that



Striped Skunk Photo by Elroy Limmer

begins at the ears, splits to form a double stripe down the back and joins again at the tail. But that color scheme can vary, with some striped skunks all black, a very few all white, and some brown. Like all skunks, they are active mostly at night. Where the winters are cold, they enter a dormancy or deep sleep, denning from November to March. During this time, skunks must compete to find good dens: housing is one reason they are moving to the cities and suburbs. They particularly like the space under your porch or shed. They like to eat the grubs and insects in your lawn and garden. Dedicated omnivores, they also like small reptiles, small birds, small mammals, crabs, crayfish, eggs, fruits, roots, crops, kitchen scraps, and much more. When I had outdoor cats, they came in through the cat door because they like cat food.

The smallest of North American species, spotted skunks have coats of partial stripes or spots over their back and sides. Their coloring warns predators who get too close, and they further intimidate by doing a handstand on their front feet, performing a split with their back legs, and walking forward in the imitation of a flying carpet. Stop and imagine that for a moment. Google it on YouTube. Spotted skunks also readily climb up and down trees. Western spotted skunks can be found throughout the western United States and southern Mexico. Eastern spotted skunks should be found throughout the

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Skunks  
*continued from page 5*

eastern United States but are in serious decline for many different reasons—trapping, synthetic pesticides, disease, and habitat lost to agriculture. They are listed as Vulnerable by the International Union for Conservation of Nature (IUCN) which keeps track of the health of species around the world. (The IUCN lists North America’s four other skunk species as Least Concern, although the population trend of Western spotted skunks and hog-nosed skunks is considered to be “decreasing.”)

One of the largest skunks in the world, growing to almost three feet in length, the American hog-nosed lives in the American Southwest and throughout Mexico. This animal has a powerful upper body for climbing in rocky areas, an elongated snout, and long claws for digging. The back of a hog-nosed skunk is often purely and luminously white, from the top of the head to its beautiful white tail.

The hooded skunk is also confined to the American Southwest and Mexico, looking much like a striped skunk but with softer and longer fur, a longer and more luxuriant tail, and a fulsome furry ruff around the neck. Like every species but the hog-nosed, the hooded skunk has an elegant thin white line or dot between the eyes.

But don’t take any of that too seriously. I have a biologist friend who worked on a study of skunks, with images captured by game cameras. He says that neither he nor the other experts could comfortably identify striped, hooded, or hog-nosed skunks from photographs. Their color variants are just too varied.



Illustration by Kim Cabrera

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For some years now, I have been studying the art of wildlife tracking—rather, the identification of wildlife track and sign. My intention is not to follow or trail wild animals. I have no desire to startle or interfere in their secret lives, which are often short and already difficult. Instead, this is the pleasure of standing before a track in the dirt, knowing that a striped skunk or gray fox or long-tailed weasel or

mountain lion or blue heron was here recently. Perhaps an hour ago. Perhaps a day or week. I bend down to look more closely, newly aware that I am not alone but profoundly, blessedly, surrounded by the nonhuman.

This is a democratic thrill, something almost anyone can have almost anywhere, something you can take up at almost any age or physical condition. I examine the track, using my imagination, my mirror neurons, my reading glasses—matching marks and shapes to meaning and story. As hunters and gatherers, we depended on this skill. Perhaps that’s why books and emails are so familiar.

This is pattern recognition. Long-fingered raccoon tracks practically scream, “Raccoon!” Coyote tracks are often (but not always) distinctly different from those of a domestic dog. The bound of a rabbit—two long hind tracks above two smaller fronts—becomes instantly familiar. Also the sinuous curve of a snake, with pushed up areas of dirt or sand that show the direction of travel.

This is empathy and connection. A quarter-inch pocket mouse track is something you’ll never forget. Those five miniature toes and tiny palm and heel pads. You’ve really entered into another world now, everything else so much bigger, frightening and exhilarating at the same time.

And this, again, is aesthetics. The print of an adult striped skunk is about 1½ to 2 inches long and can look, unnervingly, like a small human hand. On both front and back feet, the three middle toes are partially fused to facilitate digging and face forward, with Toe 1 (on the inside of the track, like your thumb) and Toe 5 slightly splayed to the side. Front and hind tracks usually show handsome claw marks, with the digging claws of the front feet much longer than the hind.

In the hind track of a striped skunk, the single large heel pad is separated from the palm pad by a distinct seam, a distinguishing mark of the striped skunk in the event I am thinking this might be a tree squirrel. That distinct seam always gives me a ping of satisfaction. Pattern recognition is its own reward.

I also get excited when I come across the relatively rare track of a Western



Striped skunk track Photo by Kim Cabrera

spotted skunk, about 1 to 1½ inches, showing a complex arrangement of four individual palm pads and two heel pads, roughly in the shape of an ice cream cone.

A perfect track—showing all those details of toes, palms, heels, and claws—is something to celebrate because so many tracks are partial, blurred, obscure, distorted by the animal’s speed or sand or mud or whatever. In that case, knowing the common gait of a species can help determine what animal was just here. The spotted skunk is the most carnivorous of all skunks, and its common gait is a bound, the hind feet lifting up and falling above the tracks made by the front feet. Seeing the pattern of a bound might make you decide this is a large spotted skunk and not a small striped skunk. Striped, hooded, and hog nosed skunks more commonly walk. With short legs and a flat-footed emphasis, they toddle and sway. All five species lope and some can gallop as fast as ten miles an hour.

Around my house, skunks frequently break into a rocking-horse lurch that makes them seem slightly drunk or deliriously happy. This, of course, is pure projection.

\*

Because the life of a skunk is not really carefree. More than half of wild skunks die in their first year. Sometimes young skunks are killed by predators like bobcats, coyotes, and foxes, while the mother is out foraging. Sometimes male skunks—who do not help raise the kits—find and eat a litter. Captive females will also kill their litters if disturbed soon after giving birth. Great horned owls and eagles hunt skunks. Frequently, skunks get diseases like rabies, distemper, and pneumonia, as well as parasites, which can kill them in their communal dens. (Although rabid skunks rarely bite humans, they carry the virus in their saliva and are a vector in wildlife.) Skunks don’t understand

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# Nature Is My Mentor

## Excerpts from Four Student Essays, all Juniors at Aldo Leopold High School



Kale Doherty

In my life, nature has always been a mentor. As long as I can remember, I’d wake up in the morning and look outside to see if it was sunny, and if it was I could feel a sort of craving to be outdoors. Always wanting to be outside reading or drawing, I’d find the greenest tree I could and sit under it for hours. The shade and sunlight twinkling around me and casting shapes on the ground would make me feel as though I wasn’t put on earth to just be here; I was made so that I could grow and change like one of the trees I loved so much. In doing this, I discovered I feel most connected to nature when I sit in my mom’s garden, letting the light absorb into my soul.

Sunlight is one of the most important and addictive things in the world. I always feel better when there is a sunny day and I can go outside and soak up the sun, or go on a bike ride. The world seems to slow down, and I notice things that I wouldn’t normally. I hear the wind rushing more clearly. I smell the rain from the night before as though it was my first time smelling it. Sitting in a warm pool of sunshine feels like stepping into the wilderness, breathing fresh air and seeing clearer once again. In Aldo Leopold’s book, A Sand County Almanac, he states. “The last word in ignorance is the [person] who says of an animal or plant, ‘What good is it?’” and I believe that that is extremely true....



Lulu Bern

Often times I feel strain on my mental wellbeing, with school, extracurriculars, friends, and even getting

I grew up in Los Angeles, so I wasn’t really around the same nature as people who grew up in Silver City. However, I did grow up with the ocean. I like to think that the ocean shaped me to be the person I am today. I think there are lots of different kinds of people raised by different kinds of nature and each one can have different outcomes to what that person turns out to be in life. When I was very young, maybe 2 years old, my dad would take me to the beach and into the ocean. We would wade where the waves were low and I could reach the bottom without drowning. I remember the water being very clear and the color of the sand complimenting the water really nicely. He’d hold me up by my hands, and then when a wave would come, he’d lift me up into the air above the wave as it passed.



Raven MacKenzie

We went to the beach pretty often. It was very refreshing to get there after stressing over the typical Los Angeles traffic, with all the horns honking and just sitting still in the car in total boredom. But then when we finally arrived, with the beach barely crowded since it was a weekday and everyone else either still in school or at work, we would find a nice spot on the sand, set down our beach blanket, and finally relax and breathe in the familiar salty smell of the ocean....

When we moved back to the west coast, up in Northern California, the first thing that me and my dad did when we arrived in town was go check out the beach. We lived just about a mile away from the beach, meaning no more rush hour traffic and we



Ino Casaus

Often times I feel strain on my mental wellbeing, with school, extracurriculars, friends, and even getting

This habit stuck around. I’ve done it since I was old enough to wander off alone, maybe 12 or so. No parents tagging along. Just me and the trails. Nature acts as my guide here. It shows me how to pause, to hush up and really hear what’s going on. Listen to the birds calling, the wind through the branches, the stream trickling by. Sit still on a log and take it all in. That’s the lesson. Trees teach this best. I’ve seen ones with limbs hacked off from storms or old age. Others lie flat on the ground, roots up. Yet they keep going. New shoots pop up from the stumps. Roots dig deeper into the soil. They push through, no matter what hits them.

This hits close to home for me. Some days pain hits me hard, body or mind. I feels like those cut branches—raw and exposed. Other times, stress piles on from school deadlines or family fights. I crash, like a tree toppled in the wind. But then I watch. I see the trees don’t quit. They thrive anyway, bend but don’t break, grow stronger in the cracks. Nature has changed how I handle my own mess. Instead of giving up when it hurts, I remember that. Keep moving forward. Thrive through the ache, the crush of it all. Even when I feel knocked down,

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As the rain eased and monsoon clouds dispersed on the afternoon of September 27th, over 120 community members gathered at the New Earth Project Garden site to celebrate our grand opening event.



People gather for the New Earth project's grand opening. Photo by Carol Ann Fugagli



Tasty mocktails accented the delicious food provided by the Corner Kitchen. Photo by Daniel Ortiz

We have many reasons to celebrate, but on this day, our aim was to show gratitude. Through generous grants from 30something and the Grant County Commission, we are nearing completion



The friendly smile of Rebecca Martin welcomed attendees. Photo by Daniel Ortiz

of a multipurpose pole barn, with a state-of-the-art laboratory, open-air classroom, covered work space, and sealed room for storing food waste.

The wood structure, featuring a pitched ceiling and natural dirt floor, has interior

walls made of Chipcrete — contractor Gordon West's carbon-negative alternative to concrete. For the occasion, the walls were decorated with colorful banners by award-winning artist Silver High School graduate Gavin Galindo and fifth-grade students from Cliff Elementary School.

Unique, nourishing mocktails with colorful names, such as Leaping Leopard Frog and Monsoon Thunder, were offered free of charge alongside a cornucopia of delicacies from the Corner Kitchen, including stuffed artichoke bottoms and coconut vegetable curry.

UGWA director and New Earth Project co-founder Carol Ann Fugagli kicked off the festivities by addressing the crowd, followed by commentary and stories by County Commissioner Nancy Stephens, former Grant County Commissioner Harry Browne, the project's Lead Educator Nan Franzblau, and NEP co-founder Mike Fugagli.

Attendees then had several options to explore. Some toured the area with over 90 Johnson-Su bioreactors, which are

static aerobic cylinders filled with surplus school cafeteria food layered with wood shreds from the community. These bioreactors produce Living Earth, a fungus-dominated, microbial-rich material used to regenerate soils and increase their carbon storage capacity. Others visited the Ring of Fire, a circular metal structure where wood is pyrolyzed to create biochar, another ingredient in the bioreactor mix. Mike Fugagli also guided this group through experimental beds of composting material that contained diverse plant species, concluding his tour with an explanation of NEP's innovative mobile bioreactor tractor, where the contents are removed after the thermophilic phase and left to mature in appropriately sized piles on the ground.



Drone footage of the New Earth garden. Photo by Daniel Ortiz



Harry Browne, Nancy Stephens, and Mike Fugagli give supporting comments at the grand opening.

Photos by Daniel Ortiz



Carol Ann Fugagli is thanking everyone for their efforts in making the New Earth Project a reality. Photo by Daniel Ortiz

Several guests brought soil samples to be analyzed in the New Earth Project's extensive mobile lab. Using a high-powered microscope that projects images onto a large monitor, Carol Ann Fugagli guided participants through the world of soil microscopy, looking for fungal hyphae and spores, protozoa, and beneficial nematodes—just some of the heroes of the soil food web. The more microbes found, the better!

As the sun sank lower, the Silver City String Beans commenced their high-energy set of bluegrass and folk staples. Sharing a microphone, the four musicians dazzled the audience, many of whom were seated on straw bales, with their tight harmonies and intricate instrumentation. Some attendees could not help but dance! At the close of the event, stand-up bass player (and Farmers Market manager) Michael Olson quipped, "We had a good time playing in a barn with compost and creek bottom smells wafting through the air."

Throughout the grand opening, kids and curious adults alike visited the Kids' Corner, where the main attraction was the vermicompost—a cedar box built by 4th graders that contains generations of red wigglers. UGWA Education Director Mary Stone explained how the worms decompose leftover food and shredded paper as she pulled out individual worms for visitors to examine under magnifying glasses. Laura Euler, who recently learned about the New Earth Project, exclaimed, "Everything I've



Artist Gavin Galindo with his amazing artwork showcasing the five target areas of the NEP: carbon capture, youth empowerment, education, healthy planet, and nutrient-dense food. Photo by Daniel Ortiz

seen today inspires me and gives me hope, especially the New Earth Project's education program in local 4th-grade classrooms. And I love the redworms. I want to raise some myself!"

Several participants also visited UGWA's native tree nursery, the foundation of our Seedlings to Saplings program. Trees such as Velvet Ash and Chokecherry, to name a few, were ready for purchase. Several visitors found their match and took trees home, along with our Living Earth, to give the saplings a microbial boost in their new environment.

Thank you, Silver City and Grant County, for celebrating our grand opening with us and for helping make the New Earth Project a resounding success! 🌱



Attendees boogied down to the musical tones of the Silver City String Beans. Photo by Daniel Ortiz



# The Fountainhead of Possibility

By Mike Fugagli

Most things don't happen. In the darkness of night, that is a comforting thought.

The things that do happen manifest themselves from the realm of possibility, and those rarified events - like a hummingbird, or the howl of a wolf - are limited only by the set of possibilities that each successive moment affords; the individual array of actual opportunities and potential pathways that each moment gifts to the future.

The realm of the possible is a one-way street. Each new moment emerging from the last; containing within itself previously unknowable and uncalculable potentialities: each moment's "Adjacent Possible." The universe, as the Greek philosopher, Heraclitus wrote, continually "bubbles forth," constantly emerging and transforming with a "natural magic" or creativity that laughs at Newton's deterministic laws.

The realm of possibility is grounded in reality; where a desired outcome, even if improbable, is actually achievable. Hoping for an outcome disconnected from reality is called "wishful thinking": a schizophrenic split that has far too often proved the Achilles heel for both the individual and the collective human mind.

In each moment, it seems, the creative freedom of our autopoietic universe – the breadth of "The Adjacent Possible" – is dependent, exponentially, on diversity. As the number of "things" increase, so do the potential number of interactions, combinations, and collaborations that define the totality of possibility. Diversity, it turns out, is the fountainhead of possibility.

When more things exist, more possibilities are created; Think of the Cambrian Explosion. Think of humanity's "Great Acceleration" - the exponential increase in the scale of our species' planetary impact made possible by time, a toolmaker's brain, and an opposable thumb.

The Anthropocene, our new geological epoch that we have infamously named after ourselves, is a singularity event where our species has become - in an instant - the principal driver of physical,

chemical, and biological change on a planetary scale. Waking up in the driver's seat fundamentally changes what it means to be human. In the driver's seat, you have to pay attention. That grown-up burden of responsibility now challenges a hominid brain that has taken comfort and refuge for the last several hundred thousand years in the forgiving bosom of Mother Earth.

"Nature has no mercy," says Haudenosaunee Faith Keeper Oren Lyons. Reminding us in warning and solidarity with the late evolutionary biologist, E.O. Wilson, that the current century can be viewed as an hourglass: the diameter of the pinch point determining how much of life's diversity and creative potential might make it safely through to the other side of this accelerating extinction event. Stephen Jay Gould, Wilson's colleague at Harvard, described life's journey through time as being similar to the life of a soldier: long periods of boredom punctuated by rapid periods of terror. Welcome to the Twenty-first Century, indeed.

For the Native American Haudenosaunee, member of a six tribe Confederacy that governs itself under the "Great Law of Peace" that the U.S. Constitution was based on and that can boast proudly of the oldest living constitutional democracy on Earth, the diameter of the pinch point is deliberately maximized, along with diversity, through gratitude, celebration, and a careful consideration of the seventh generation's well-being (seven full lifespans) in all decision making. In contrast, as the modern world accelerates itself out of the high-risk zone and into the very high-risk zone for irreversible planetary change, it is becoming increasingly clear that, collectively, we are failing to even consider this generation—or the next, let alone the seventh.

Gratitude is the glue that holds the Haudenosaunee Confederation together. Gratitude and a relentless celebration of the diversity necessary to possibility. The Haudenosaunee thank and celebrate the wind, the fish, the sky, the birds, the insects, and the flowers. They know that each element of creation plays a role in Heraclitus' bubbling, and that the wellness of the

seventh generation and the health of the regenerative whole amount to the same thing: Peace. ☸


Skunks  
*continued from page 6*

cars at all.

Still, skunks know their own power. Once, looking out on my porch, I saw a small gray fox approach a large striped skunk. The gray fox, I assumed, was an adolescent half-interested in the skunk as prey or playmate. The fox came closer, and closer, and closer, until the skunk stomped with its front feet. This was casual but decisive, up on hind legs, down on the ground. The skunk also emitted a slight odor. A whiff. A warning. And the gray fox catapulted. Just the right verb. Now the fox was a dozen feet away, looking surprised. The skunk may have been laughing. I don't know. It's possible. There's so much we don't know about animals.

I was laughing, anyway. Admiringly. Another skunk gracing me with its beauty and insouciance. ☸

*This essay is adapted from Sharman Apt Russell's new book What Walks This Way: Discovering the Wildlife Around Us Through Their Tracks and Signs, published by Columbia University Press.*



Sharman Apt Russell

Sharman Apt Russell teaches at the low-residency MFA program at Antioch University in Los Angeles and is a professor emerita at Western New Mexico University. She is the author of a dozen books and winner of the 2016 John Burroughs Medal for Distinguished Natural History Writing. She is also serves as Chair for the Upper Gila Watershed Alliance Board of Directors.

# The Proof is in the Pudding

By Carol Ann Fugagli

Have you ever paused mid-pudding spoonful and wondered how the saying "the proof is in the pudding" came about?

The expression "*the proof is in the pudding*" is a variation of an older saying from the 1600s, "*The proof of the pudding is in the eating.*" In other words, you must judge things by trying them yourself or seeing them in action, rather than relying on anecdotes. The proof is in the pudding means that the value, quality, or truth of something should be based on direct experience with it or on its results.

A common question when we sell Living Earth from the New Earth Project is, "How do I know this will work? Is there proof?"

A soil or compost sample might have that desirable chocolate cake texture and appearance, and it might even emit that characteristic "earthy" smell, which is mainly caused by a specific species of




Close up chiles. Photo by Mike Fugagli

bacteria called Streptomyces. However, unless that sample is tested in some way, no one can be certain whether it will deliver the benefits we expect.

The first step is to examine the compost with a microscope. Fortunately, we can do

that! UGWA has a high-quality microscope that easily highlights target fungal spores, testate amoebae, and fungal hyphae in amounts that indicate a valuable soil amendment.

Another way to demonstrate that something works is through experimentation, and we have done exactly that! This past spring, NEP partnered with Viramontes Farms in Deming. This 800-acre farm grows chiles, cotton, and pecans. The owner, Cole Viramontes, is eager to try new methods to boost crop yields and improve soil health. Our goal was to increase chile pepper production and enhance soil health, measured by microbial and fungal diversity. We also aimed to improve the soil on a field that alternates between hardpan and powder. In April 2025, the New Earth team met with Cole at his farm, where we used a bucket of Living Earth. We coated 17 pounds of chile seeds using a seed-coating method involving mixing the seeds with a slurry of Living Earth and water, along with milk and molasses as binding agents. The seeds were then placed in a small cement mixer to ensure even distribution of Living Earth, and then spread on a tarp to dry in the shade. The next day, Cole planted the



Carol Ann Fugagli standing in the Living Earth trial plot at Viramontes Farms in Deming. Photo by Mike Fugagli

seeds, which covered a 5-acre test plot. The results? The treated plot produced 30 tons/acre of chile, compared to 26.5 tons/acre the previous year. That's a significant increase in chile yield! We sent soil samples both before and after treatment to Los Alamos National Laboratory for testing, and we expect to receive a report by the end of 2025.

These initial results are promising but not unexpected, as the best science indicates that adding microorganisms to soil can enhance soil fertility and health by improving nutrient cycling, breaking down organic matter, improving soil structure, and combating plant pathogens. These beneficial microorganisms can also promote plant growth, water retention, and the absorption of essential nutrients such as nitrogen and phosphorus.

Additional experiments with partners from the US Forest Service and Los Alamos National Laboratory are in progress. ☸

"Do not get lost in a sea of despair, do not become bitter or hostile. Be hopeful, be optimistic. Never, ever be afraid to make some noise and get in good trouble, necessary trouble. We will find a way to make a way out of no way."

— Georgia Representative John Lewis



Kale Doherty  
*continued from page 7*

enough sleep, but the sunlight makes me feel like I can keep working hard, and make changes in my life. I think that as a mentor, sunlight inspires me and teaches me that sometimes quiet moments make more of a difference in life than the loud ones. Sunlight teaches me to slow down, and take note of the feelings I wouldn't have noticed otherwise. It teaches me that even a small moment of happiness can make the day better and easier; and that if I try my best to bring a little bit of my own sunshine to everything I do and everyone I interact with, I can make the world a little bit of a better place. ☺

Lulu Bern  
*continued from page 7*

could walk there. It felt refreshing after being away from the ocean for two years, like seeing an old friend. The atmosphere was really nice to take in, what with the surfer culture that Santa Cruz had, the perfect height of the waves, and how pretty the ocean looked almost all the time...I have so many fond memories of the ocean, especially on the west coast, that I think the ocean partly made me who I am today.

I like to think of the ocean as very carefree and flexible. It adapts to its environment and the position the moon is in. The waves feel very untroubled as they gather momentum when they travel to the shore, then they crash and dissipate as if they were never there. I think of myself that way as well. I believe that it's a good trait to have, to be able to be very adjustable to whatever comes my way. ☺

Raven MacKenzie  
*continued from page 7*

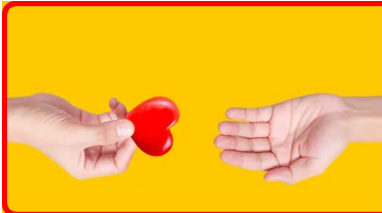
of the forest, not just yet, but a walk through a botanical garden, park, or somewhere local. This ended up being extremely beneficial to me. I found that the natural beauty around me really entranced me. It sounds obvious, simple, ridiculous even, for this is no grand achievement, but natural human life! Except after being stuck inside for so long during an extremely important and developmental part of my life, I was given an entirely different perspective.

As I took my own steps to find nature around me, I also started really appreciating the opportunities given to me. Camping trips suddenly no longer seemed like some drastic peel from society, but a nice and quieter version of home. These trips have given me

some of my fondest memories, and I wouldn't trade them for anything. Being in nature and spending time with the things around me, rather than the things in my head, gave me much more self confidence, motivation, and gratefulness. ☺

Ino Casasa  
*continued from page 7*  
there's a way to stand tall again.

Grass adds to the picture too. Like trees, it gets stomped flat by feet or bikes on the path. Sometimes it sinks into mud after rain, buried deep. But it springs back. Green blades poke through the dirt reaching up still standing strong, taller than before. Grass doesn't fight the mess; it grows right in it....School drowns me too. Papers stack up, tests loom, parents push. It feels like sinking in mud, and I can't catch a breath. Expectations weigh heavy. But grass shows me: thrive while you're under. Tackle one assignment at a time. Study in bursts, not all night. Celebrate the little progress. It keeps me afloat. No matter the trap or the flood, keep growing. That's the quiet power nature hands over. It doesn't yell; it just stands there, doing its thing. And I've leaned on that strength more than I can count. ☺



Your contributions make a positive impact on the lives of young people, help protect our rivers and springs, support our native tree nursery, and safeguard the soil in our watershed. Please consider donating to UGWA this holiday season. We appreciate your generosity!

# Keeping our Open Spaces Roadless

*By Carol Ann Fugagli*

The Roadless Area Conservation Rule was established during the Clinton Administration in 2001. It was hailed as one of America's most successful conservation measures, protecting drinking water, wildlife habitats, and world-class recreation opportunities across 58.5 million acres of national forests in the United States and 1.6 million acres 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.

When the Forest Service developed the Rule, the agency conducted the most extensive public participation in federal rulemaking history. Over 600 public meetings were held across the country,

and more than 1.6 million comments were submitted, with 95% of them in support of the Rule.

In June 2025, President Trump moved to revoke the Roadless Rule. This decision would threaten critical wildlife habitats, clean drinking water, old forests, and the outdoor spaces that millions of people rely on for recreation and solace.

Some people claim that relaxing the Roadless Rule will reduce wildfires, but data show the opposite. Research from the Wilderness Society (now under peer review) indicates that between 1992 and 2024, wildfires were four times more likely to start in areas with roads than in roadless forests.

This summer, a 21-day comment period was provided for people to express their

concerns about rescinding the Rule. Many people saw this short time period as disrespectful to those who care about our public lands and forests. However, many people also responded! The Federal Register reported that the agency received 625,737 comments. This appears to include both individual comments and "batched" or "petition-style" comments. Initial analysis showed that 99% of the comments were in opposition to rolling back the Roadless Rule. For a 3-week comment period, that's incredible engagement and shows how much people care about our forests. Thank you to those who submitted comments! Next steps? We are awaiting the Forest Service's analysis of the comments and will keep you informed of the outcome. ☺

# In Nature, Possibilities Abound

*By Carol Ann Fugagli*

Have you ever needed a screwdriver, and when you didn't have one, tried the end of a pair of scissors instead? Or dropped a necklace into a tight spot and substituted a wire coat hanger to pull it out? We all have done similar things: used our imagination to accomplish a task with an item that wasn't designed for that purpose. This concept is known as the Theory of the Adjacent Possible. As proposed by Stuart Kauffman, a theoretical biologist based in Santa Fe, this theory explains how innovations and possibilities emerge from existing ones, creating new opportunities and driving innovation to expand and accelerate over time.



Oly Sturdevant points out Helgrimites  
Photo by Ila Duffy



A huge imaginary salad created by Harrison Schmitt 5th graders.  
Photo by Carol Ann Fugagli



Students from Hurley model their yucca leaf bracelets. Photo by Carol Ann Fugagli

The key to this idea is imagination. I never tire of watching children's minds come alive with creativity when they are surrounded by the natural world.

This past spring was no exception, when at the Children's Water Festival, several girls from Harrison Schmitt Elementary School wanted to spend their free time making a gigantic "salad" out of plants and materials found nearby. Mullein leaves served as the salad "bed" with sticks representing Parmesan cheese, grass heads as radish slices, and rocks as croutons. In another scenario, students were introduced to tasty native plants such as the leaves of Canyon Grape. Their creative minds called the Canyon Grape bush a "snack bush," and they would frequently leave the Gila River to nibble on some leaves for nourishment. Throughout the day, a yucca bracelet turned into precious jewels, and an animal's skull became the symbol of a successful tribal hunt.

Of course, educational standards were incorporated, covering a range of subjects. Students grasped the significance of a free-flowing river, common riparian tree species, and frequently found aquatic macroinvertebrates. They also mastered the differences between invertebrates and vertebrates, the importance of dissolved oxygen in rivers, and the impact of water temperature on the health and diversity of aquatic life. One day, everything aligned perfectly, and all students



Hurley students love splashing in the Gila River.  
Photo by Carol Ann Fugagli



Girls from Harrison Schmitt enjoy eating leaves of the Canyon Grape  
Photo by Carol Ann Fugagli

experienced a memorable moment: a pair of Downy Woodpeckers feeding their nestlings at our base camp. About every



Hurley students examining skulls.  
Photo by Carol Ann Fugagli

four minutes, one of the adult birds would fly near the nest hole with food, and the young birds would stick out their scruffy heads, making begging sounds, each hoping to be fed first. Even without binoculars, the birds were close enough to see intricate details. Ten-year-old minds were inspired.

Each year, 5th-graders in the Silver City and Cobre School Districts eagerly anticipate their field trip to the Gila River, and we are proud to offer it to them. ☺

*We are grateful to the Conservation Lands Foundation, Lineberry Foundation, The Nature Conservancy, and the Outdoor Equity Fund for funding the Children's Water Festival.*



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	

Upper Gila Watershed Alliance



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).

Fall 2025 CARAPACE 15

*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 April 10, 2025 and October 21, 2025. If we missed you, please let us know!*

New Members

Michael Sheffer • Russell Wiegman • Natalie Hall • Carol Jiron • Steven Chapman • Mary Stoecker  
Susan Coe Brown • Caterina Di Palma • Colleen Kernahan • Robin Romero • Kathryn Kanely • Scott Hennes  
Ellen Mana’ar Johnson • The Black Range Lodge • Donna Magden • Sally Tilton  
Athena & Two Crow Schumacher • Bill Sitkin

Recurring Members

Jene Moseley • Marc Nevas • Diane LaFrance • Andy Payne

Returning Members

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Volunteer Thank You!

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Funder Thank You!

Mango Charitable Fund at Gila Community Foundation  
La Rosa de Plata – DAF at Gila Community Foundation  
Rose Byersdorfer Memorial – DAF at Gila Community Foundation  
Vanguard Charitable recommended by the KGM & RLM Fund  
New Mexico Environment Department: River Stewardship Program  
New Mexico GRO Fund • Tides Foundation • The Nature Conservancy  
Future Focused Education • Lineberry Foundation

Special Thanks

To Richard and Carol Martin for the continued use of their truck aka, the ‘Desert Rat’ for the New Earth Project.  
To Meyoni Geougé for washing and ironing UGWA’s tablecloths.





# **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)**

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