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• Wilderness • Wild & Scenic • Springs Spotlight • Growing Up in Gila •
• New Earth Project • Citizen Science •

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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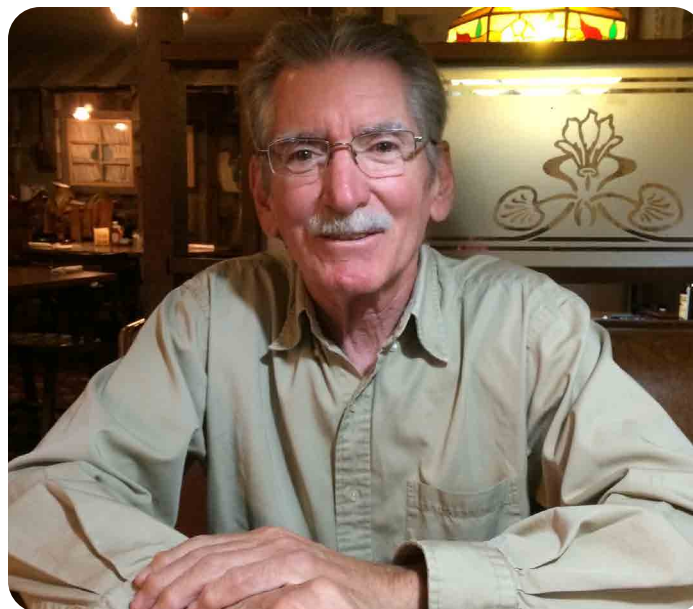
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Dear UGWA Community,

With profound sadness, the Upper Gila Watershed Alliance honors the contributions and the passing of Tom Krohley, longtime board member.

Raised in New York, Tom served in the Marine Corps before his career in investment banking. When he joined the UGWA board in 2010, he brought a pragmatic intelligence to our survival and resilience as an environmental non-profit. During the difficult years of opposing first a dam on the Gila River and then a Military Operations Area over the Gila National Forest, Tom was always steadfast—committed and consistent. His depth of experience in the world of finance made him one of the best treasurers a small grass-roots organization could ever hope for. Importantly, Tom respected the history and Quakerly roots of the Upper Gila Watershed Alliance, with our traditions of consensus on the board and outreach toward community.

Above all, of course, Tom loved to hike in the Burro Mountains, where he lived with his wife Esperanza. He cared deeply about his home here in southwestern New Mexico, and he worked hard to protect its beauty and natural ecology.

He will be much missed.

Board member and chair, Sharman Apt Russell



We'd LOVE to stay in touch!

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

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 and click on the Read Watch & Listen Tab.

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

If you were asked to summarize what wilderness means to you in one word, what would it be?

That's the question my husband Mike and I were asked during an online presentation from the Aldo Leopold Foundation based in Baraboo, Wisconsin. Participants typed their words into their computer and the words most used grew larger on our screen. The results became the cover of our newsletter. Wilderness is not only a geographic area but also a concept. Summing up a concept using just one word is challenging. But when we put all the words together, they bring into focus the true meaning of wilderness.

The Gila Wilderness is now celebrating its 100th year of designation. Milestones in our lives or in history

are a time to pause and reflect as well as to look forward. The centennial celebration of the Gila Wilderness, the first wilderness area designated not only in the United States but in the world, is an opportunity to investigate past accomplishments in tandem with avenues of needed change. Indigenous peoples often see change differently from Anglo-Americans like myself. They speak of changing the direction of thinking. Oren Lyons is a traditional Faithkeeper of the Wolf Clan and a member of the Haudenosaunee Confederacy. He gathered with an international group called the Global Forum of Spiritual and Parliamentary Leaders to discuss global warming. After many meetings, they asked themselves what they had learned and summed up their answer in four words: Value Change for Survival. Oren stated "If we don't change, we will suffer the results. We will be judged by what we do and how we live."

One of Aldo Leopold's strengths was his ability to change his mind when presented with new evidence. Two such examples involved the important role of predators and of fire to maintain ecosystem health. These novel ideas were a bold stance at a time when human dominion and managing forests for human convenience dominated forest management.

We now face a similar situation with managing our National Forest lands using our new knowledge of

the changing climate and biological diversity crisis. Managing these changes within the National Forest is called adaptive management. A technical manual put forth by the U.S. Department of the Interior explains: "Adaptive management promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood."

If ever there was a time for adaptive management, now is the time. Aldo Leopold articulated this passionately when he wrote "Timidity, optimism, or unbending insistence on old grooves of thought and action will surely either destroy the remaining resources or

*"If ever there was
a time for adaptive
management, now is
the time."*

force the adoption of policies which will limit their use to a few."

If we want to uphold the concepts of freedom, peace, wholeness, wild and purity that so many people value in Wilderness, then we must take courageous steps and turn our love for nature into action.

Sincerely,

Carol Ann



Special events to celebrate the Gila Wilderness' 100th birthday will be going on throughout the year including group hikes, virtual/in person speaker series, art shows, and volunteer trail work/clean up days. Wilderness Centennial at Gough Park on June 1, will be a family-friendly event featuring live music, art, interactive games, and a crosscut competition. The Forest and partner organizations also plan to participate in events including the Fourth of July Parade in Silver City, the Grant County Fair and other community events and festivals. Events will be added to the [calendar](#) as details become available, so check back often!



If you haven't yet signed up for UGWA's **Citizen Science** program, please join us soon. If you love **HIKING** and want to help **KEEP** our valued public lands **UNTRAMMELED**, you can share your **OBSERVATIONS!**

Our goal is to support the Gila National Forest staff by providing information to help them protect healthy forests, streams, and wildlife habitat. We make it easy for you to **RECORD OBSERVATIONS** while you are hiking using your smartphone, one of UGWA's tablets, or good 'ole paper and pen. Your observations will be uploaded to the Forest Service's database and **we will follow through** with them.

Whether you are brand new or already part of the program, please join us at one or all of the upcoming outings. We'll gather first at the Visitor Center, 201 N Hudson Street in Silver City, where our staff will help you download the app to get you started, and answer questions. Then we'll take off on a group hike and observe & report together!

MARK YOUR CALENDAR

What: Citizen Scientist Outings

When: April 19, 10:00 AM
May 11, 10:00 AM
July 27, 10:00 AM

Where: Silver City Visitor Center
201 N Hudson Street

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



Each year, the Give Grandly Coalition, with the support of the Grant County Community Foundation, organizes this Give Grandly fundraising event. Over the last 10 years, Give Grandly has raised over \$1.6 million for local area nonprofits, helping them provide sustainability in our wonderful community; local area nonprofits rely heavily on the funds collected for general operating support. Grant County Community Foundation supports and helps organize the Give Grandly event, provides match funds each year, and does not take any fees from the Give Grandly money collected.

Join UGWA at the in-person event on Saturday, May 4th, 2024 from 9:00 am to 2:00 pm, at Main Street Plaza in Silver City, NM. We'll have a stereomicroscope at our booth where you can examine worms and cocoons! There will be fun, food, music, and an opportunity to give in our fabulous community. If you can't make the in-person event, you can visit the online giving platform from April 20 - May 20. www.givegrandly.org/organizations/upper-gila-watershed-alliance



Wilderness

By Steve Morgan

The view as one gazes off to the east is breathtaking. As far as you can see, the land is pierced by deep rugged canyons and clad with dense forest lands. Whitewater Baldy is the highest summit at 10,895 feet high and the canyons fall away to the lowest elevations near the Gila River. Those beautiful stretches are still almost 5,000 feet high. There are no roads, no lights, so signs of civilization. The land here is as wild as it was 100 years ago when Aldo Leopold and Fred Winn cast hopeful eyes over the same wild lands now known as the Gila and the Aldo Leopold Wildernesses. If the adventurer dons a backpack carrying all one needs for several days away from the rigors of urban living, the wildlife memories waiting to be enjoyed, the sheer beauty of towering cliffs and trout filled streams which greet you with each step deeper and deeper into the wilderness, will be waiting for your visit.

Those wild lands are there today for the public to enjoy, but how the idea of setting aside wild lands to be preserved came about is a story needing to be told. The year was 1900. There were 8,000 automobiles driving on mainly gravel roads in rural America. 144 miles of paved roads existed mainly in the cities as did most of the cars. Much of the American Southwest was unreachable by machine. It was still a land of wild canyons and mountains traveled mainly by horse. The cowboys, cows, sheep, loggers, and miners were steadily working on delving deeper and deeper into the wild lands, but compared to the rest of the United States, the Southwest was wild and open country.

By 1910, the number of motor vehicles had soared to 500,000. By 1920, there were 7.5 million cars and trucks plying the mainly gravel roads and ten years later, in 1930, that number had reached 23 million vehicles. Those vehicles were exploring 3.3 million miles of roads and together, drove 206 BILLION miles in one year. Our wild lands were disappearing rapidly as they were being invaded by a growing population on the move. We had already witnessed the slaughter of over 3 billion Passenger Pigeons until the last one, Martha, died in the Cincinnati Zoo in 1914. They are now extinct because we didn't value them for anything other than a meal. The American Bison once numbered 30 million or more but by 1884, there

were only 325 left roaming the western lands. We often have not seen the impact our way of life has had on our surroundings until it is too late.

The person most responsible for recognizing the catastrophic meaning of losing the country's wild country and native residents and for bringing about the formation of our nation's first Wilderness Area was a Forest Service employee named Aldo Leopold. Aldo grew up in Burlington, Iowa on the banks of the Mississippi River. His younger years were spent exploring the heavily wooded creeks and draws that ran steeply down the riverbank and the marshy bottomlands by the river. Aldo knew and treasured the small wilderness tracts that still existed in the late 1890's in Iowa, but it was the incredible expanses of wild land that he found on the Apache National Forest that sparked his deep passion for untouched lands.

On July 2nd, 1909, this 22-year-old Iowan boy, recently graduated from the Yale School of Forestry, arrived in Albuquerque, New Mexico Territory, inexperienced but excited as to what lay before him. On July 16th, after a couple weeks of training, Aldo Leopold found himself on a westbound train heading to adventure. At Holbrook, in the Arizona Territory, he went from riding the rails to bouncing for two days in a stagecoach heading south to the headquarters of the one-year-old Apache National Forest.



Wilderness is a place where people can find peace and tranquility.

Photo by Mike Fugagli

The rough road ended at the little town of Springerville, a community surrounded by wild country. The White Mountains with Mount Baldy, lay to the west. The rugged breaks and canyons of the Blue River lay to the south and the looming purple, flat capped Escudilla Mountain lay to the southeast. Perfectly shaped cinder cones and volcanic flows lay to the north. The town was a tiny stride towards civilization in a sea of wilderness.

His first job was leading a timber marking crew to assess just how much timber the Apache National Forest carried for harvest. It was just three weeks into the project when Leopold had an experience which eventually helped change his thinking about predators and their role in the natural community. He and his crew spotted what they thought was a doe crossing the river below where they sat. Upon realizing that it was a she wolf and her cubs that had come out to playfully greet her return, they pulled out their rifles and let the lead fly. When they reached the river, they found the pups had fled, one badly hurt, and the she wolf in her last moments. As he watched her die, he later recalled that he seen a fierce, green fire die in her eyes, and he realized that his way of thinking was probably different that the wolf's or the mountains. He said, "We were young and full of trigger itch. We thought fewer

continued on page 6

Wilderness
continued from page 5

wolves meant more deer and that no wolves meant a hunter’s paradise.”

In his classic book, *A Sand County Almanac*, published in 1949, he writes about this story in a chapter titled “Thinking Like a Mountain.” In a letter he wrote to his mother the Sunday after the shooting, his description of the incident was, “we shot two wolves.” It was more than 30 years later that he reflected on the shooting and the impact that it had on his thinking about predators and the ecological community.

In the ten-year span from 1909 to 1919, he rode through hundreds of square miles of rugged and remote Southwest forests and grasslands while working for the US Forest Service. His writings from this time period show a constant growth of awareness on the impacts of humans on the natural environment. He witnessed the incredible invasion of vehicles into the backcountry and was appalled by the damage to the land from overgrazing, clearcut timbering and road building. From 1919 into 1924, he was Chief of Operations, Assistant Forester for Region 3. Leopold traveled to each of the 11 National Forests in the region covering Arizona and New Mexico to assess the performance of each forest, the personnel, and make recommendations as he felt were needed.

It was during this period that he really saw the impact which overgrazing and clear cutting had upon the forest lands.

He started writing about the need to change how the USFS was managing the lands they were stewards of. Leopold had begun thinking that portions of the National Forest should be set aside for preservation as early as 1913. But it was not until late 1919 when he met with Arthur Carhart, a young Forest Service Landscape Architect, that he started to think earnestly about this need. Carhart had recommended that the area around Trappers Lake in Colorado be set aside for all to enjoy, not just developed into cabins for the wealthy. His superiors heeded his advice and retained the wild beauty surrounding Trappers Lake for the public to enjoy. Carhart was also responsible for the nations’ second wilderness area to be set aside, the Boundary Waters Canoe Area Wilderness in Minnesota. After his discussion with Carhart, Leopold was infused with a new energy to ensure the setting aside of wilderness areas for protection. He discussed the idea of wilderness areas with several others including Fred Winn, Elliot Barker and Charles Cooperrider and began searching for a piece of National Forest that would meet their requirements.

This was the active beginning of Leopolds’ quest for wilderness to use as a land laboratory; a place where scientists could study and learn about how the natural systems functioned and interacted with each other. Originally the simple desire that drove Leopold and his colleagues to promote the idea of wilderness areas, was the setting aside of a place where it was possible to travel, hunt and fish under frontier conditions. He also realized that unless land was set aside for the

public to appreciate and for nature to flourish, they would cease to exist. He later wrote that *“our ability to perceive quality in nature begins, as in art, with the pretty. It expands through successive stages of the beautiful to values as yet uncaptured by language.”*

In May of 1922, Leopold met with Fred Winn, Forest Supervisor on the Gila National Forest to identify a portion of the Gila National Forest that would meet their requirements. His initial definition of wilderness was, *“By ‘wilderness’ I mean a continuous stretch of country preserved in its natural state, open to lawful hunting and fishing, big enough to absorb a 2-weeks pack trip, and kept devoid of roads, artificial trails, cottages or other works of man.”*

His original proposal for that first wilderness area in 1922 was not well received by his peers. The proposal was “lost” for two years. Finally, in March 1924, Leopold and Morton Chaney together completed a Recreational Working Plan for the Gila Forest. Included in the plan was the setting aside of 755,000 acres for a Wilderness Area. It still needed to be approved by the District 3 Regional Forester Frank Pooler.

Soon after the plan was submitted, a major change for Leopold occurred. It was requested from the Washington office that Aldo Leopold assume the position of assistant director at the Forest Products Laboratory in Madison, Wisconsin. After a series of meetings and for reasons Leopold never really explained, he accepted the transfer.

On May 30, 1924, Leopold and his New Mexico family left Albuquerque for Wisconsin. Five days later, on June 3, Regional Forester Pooler unceremoniously initiated the Recreational Working Plan which established the Gila Wilderness Area. It was both our country’s and the world’s first designated Wilderness Area. After the Gila Wilderness Area was recognized, Leopold continued his work to preserve more of our country’s last remaining wild lands. In 1935, he helped found The Wilderness Society, an organization which almost 90 years later, with over a million members, is very active on a global basis now. Another founding member of the Society, Bob Marshall, said, *“There is just one hope of repulsing the tyrannical*

continued on page 10

Wildness Worth Fighting For

By Luke Koenig



Students from Aldo Leopold Charter school explore and learn about the Gila River. Photo by Mike Fugagli

In 2024, just as in 1924, the Gila remains worth fighting for. As we celebrate the example of wilderness set here in the Gila—an example followed all over the world in how high the bar should be in protecting our most special places—we must ask ourselves what that courage, that humility, and that foresight might look like today.

Of course, much has changed over the last one hundred years, both in the landscape and in our society. Notably, over the last century, we’ve witnessed the height of the dam building era in this country. Today there are over 400 major dams in New Mexico alone, affecting a majority of the state’s rivers. This leaves the Gila River, in 2024, as the only remaining undammed mainstem river in New Mexico. It’s our last wild river. It’s also the world’s first “wilderness river,” with its headwaters flowing free at the heart of the world’s first wilderness.

And so today, perhaps the best way to celebrate the centennial of the Gila Wilderness and honor the legacy of Aldo Leopold is to continue to fight for the protection of the Gila River—

One hundred years after conservation champions led the charge to designate the Gila Wilderness as the first wilderness area in the world, it is truly time to celebrate. Because of the courage, humility, and foresight of Aldo Leopold and allies, the Gila Wilderness is a bastion of ecosystem health, where wild processes reign and the impacts of modern humans are largely absent. The Gila is wild today because of those who stood up to defend it. Because of those who knew the Gila was worth fighting for. Because of those who believed the Gila was too precious to lose.

“This designation of the Gila as Wild and Scenic would permanently protect the Gila from ever being dammed.”

specifically to advocate for the passage of the M.H. Dutch Salmon Greater Gila Wild and Scenic River Act. This designation of the Gila as Wild and Scenic would permanently protect the Gila from ever being dammed. It would prevent us from having to play defense every decade or two, as proposed dams continuously threaten our last wild river. It would give us something to celebrate a century from now, when our community will again be able to say that the Gila remains wild because of the courage, humility, and foresight of those in the past.

The time is now. Because of those who have already stood up, because of the diversity of support for this legislation from families, small business owners, hunters, and boaters, and because those with the deepest multi-generational roots in the area stand alongside tourists who have just seen the Gila for the first time, the M.H.

Dutch Salmon Greater Gila Wild and Scenic River Act is closer than ever before to passing through Congress. The *entire* New Mexico delegation, led by Senator Heinrich in the Senate and Congressman Vasquez in the House, have cosponsored the bill. With any luck, 2024—the centennial year of the world’s first wilderness—will be the *inaugural year* of the next chapter for permanent protections for the Gila River. And in 2124, we will be proud to say that we still have wildness worth fighting for in southwest New Mexico.



Luke Koenig

“This grand show is eternal. It is always sunrise somewhere; the dew is never all dried at once; a shower is forever falling; vapor ever rising. Eternal sunrise, eternal sunset, eternal dawn and gloaming, on seas and continents and islands, each in its turn, as the round earth rolls.”

— John Muir



It feels natural to celebrate beauty when we are in the wilderness. Photo by Mike Fugagli



Bodhi Baker is an astute bioreactor constructor. Photo by Carol Ann Fugagli



Bodhi Baker and Heather Hillyer pretend they are a Pushmi-Pullyu, a character from Hugh Lofting's popular novel, The Voyages of Dr. Doolittle while making a bioreactor chimney. Photo by Mike Fugagli



Xavier Bird and Jordan Apodaca from Cliff Elementary proudly display their red wiggly worms during a NEP class activity. Photo by Riley Olsen



Fifth graders from Harrison Schmitt diligently digging a swale for their permaculture project at their school. The NEP is assisting with this project.. Photo by Carol Ann Fugagli



UGWA teamed up with the Youth Conservation Corps ecomonitors and the Gila Valley Library to enhance their beautiful native garden using our first Johnson-Su bioreactor living earth! Photo by Carol Ann Fugagli



Willow Sprague-Robinson easily finds joy while working for the NEP. Photo by Mike Fugagli

Spreading the Mycelial Network

By Carol Ann Fugagli

Got worms? We sure do...thousands of them and they are working even harder than we are! Composting worms are a delight in the 4th grade classrooms where we work, and they generate smiles when we place them in their new homes: a modified Johnson-Su compost bioreactor. The worms, red wigglers, will help to degrade the school cafeteria food waste collected daily, and the liability biomass (scrap wood) that we source from local silviculture and restoration projects. The resulting product can greatly increase the soil's potential to sequester carbon, increase water infiltration and retention, fix nitrogen, and increase plant growth and food production while greatly reducing the need and high costs associated with nitrogen/phosphorus fertilizers and pesticides. Our project, dubbed the *New Earth Project*, is named for the rich soil that we are creating and the vision we have for the planet.

The *New Earth Project* is designed for replicability, and we are working hard to spread this innovative carbon drawdown project throughout New Mexico, the country and even around the world. Helping us move in this direction, we recently received a two year, composting and food waste reduction grant from the USDA to shift our successful pilot project into permanency located along San Vicente Creek.

Recently, we were honored to host Stuart Kauffman, an American medical doctor, theoretical biologist and complex systems researcher who studies the origin of life on earth and Jan Dijksterhuis, an expert mycologist from Holland, who offered sound advice and who are enthused about spreading information about our project to other countries.

New Earth Project is implemented in tandem with our climate justice and youth empowerment/employment program and a grade school Healthy Soils curriculum. This community-scale project helps mitigate climate change, ties our community's economic development to ecological restoration, and empowers our youth with knowledge, skills, jobs, and hope.

Thank you to Senator Hemphill, USDA, and the Grant County Commission for funding this project. Special thanks to Richard and Carol Martin for the use of their truck.



A beautiful day meeting new friends.
Back row: Heather Hillyer, Mike Fugagli, Sonny Sherwood, Mathew Chaves, Michael Shaw, Willow Sprague-Robinson, Maya Reeves, Bodhi Baker, Nan Franzblau, Jan Dijksterhuis
Front row: Carol Ann Fugagli, Katherine Peil, Stuart Kauffman
Kneeling: Gordon West Photo by Steve Boskin



Heather Hillyer and Mathew Chavez using muscle power to lift buckets of combined food and shredded wood into the modified bioreactor. Photo by Carol Ann Fugagli



Fourth graders at Cliff Elementary participate in a classroom activity learning about zero waste and how to strive towards that goal. Photo by Riley Olsen



Josh Estrada, Mike Fugagli, Monica Rude working together to fill a bioreactor. Photo by Carol Ann Fugagli



Mathew Chaves and Heather Hillyer don't mind working with the cafeteria leftover food. Photo by Carol Ann Fugagli



Willow Sprague-Robinson and Sonny Sherwood sharing a playful moment while working at the NEP. Photo by Mike Fugagli



Fourth graders from Cliff Elementary sport their new T-shirts as participants in New Earth Project healthy soils curriculum. Photo by Nan Franzblau



Elanor Olson, Bodhi Baker and Mathew Chavez enjoy the beautiful day while grinding the food through a garbage disposal. Photo by Carol Ann Fugagli

Wilderness
continued from page 6

ambition of civilization to conquer every niche on the whole earth. That hope is the organization of spirited people who will fight for the freedom of wilderness.”

Aldo Leopold was the driving force to start the wilderness movement but there have been so many people involved since his passing in 1948. Those are stories and people to be remembered in a separate article. Those people and their stories are also a critical part of the Gila Wilderness Centennial, Before and Beyond. The voice of the indigenous peoples who lost sacred lands to the Wilderness Act of 1964 will be thoroughly discussed as will other effects, good and bad that our embracing of some of our wilder lands has had on our land and culture.

Today, our country has 806 designated wilderness areas, preserving most of ecosystems existing in the United States. The original 755,000 acres has grown

to protect 111,889,002 acres of Federal Lands managed by the National Park Service, United States Forest Service, United States Fish and Wildlife Service, and the Bureau of Land Management. As a reminder to all, Federal Lands are public lands managed by these agencies for the public as a whole and not just special interest groups. The whole idea of what Wilderness means in the past, present and the future is open for discussion now as the Gila Wilderness Centennial arrives June 3, 2024.

For a calendar of events for the whole Centennial celebration go to fs.usda.gov/detail/gila. Another source of information related to the Gila Wilderness Centennial is the Gila Ancestral Homelands webpage: gilawildernesscentennial.wordpress.com.

Please help us celebrate the Gila Wilderness 100th birthday and be a part of our Wilderness Areas next 100 years.

hula hoops, and lots more!

At UGWA's booth we'll have our t-shirts, stickers, butterfly guides, and native tree & shrub books for sale. For those curious folks we'll have a composting worm bin with a stereo-microscope to examine cocoons. As part of our youth empowerment program we're hiring youth to help at the compost collection station. We are also hosting Open House Tours of the New Earth Project site, where you can observe the filling of a Johnson-Su Bioreactor and watch a Ring of Fire demonstration. Tour times are 11 am, 12 pm, and 1 pm. Directions are available at our booth.

Other conservation and environmental groups will be at the festival to offer valuable information on how we can collectively and individually invest in our planet's future, including GRIP, Silver City Watershed Keepers, New Mexico Wild, Heart of the

Steve Morgan
Aldo Leopold Living History
Kingston, New Mexico



Steve Morgan

References

Leopold, Aldo. *A Sand County ALMANAC and Sketches Here and There*. Oxford University Press 1949

Meine, Curt. *Aldo Leopold – His Life and Work*. The University of Wisconsin Press 1988

State Motor Vehicle Registrations, by Years 1900 -1995, Federal Highway Administration www.fhwa.dot.gov

Gila and many more. Purchase upcycled and sustainable products as well as a variety of seeds, native plants, and fruit trees.

More information at www.gilaresources.info or on Facebook [@GilaEarthDay](https://www.facebook.com/GilaEarthDay).



For the third consecutive year, Gila Earth Day is partnering with Continental Divide Trail Days for an even grander celebration of the environment and our public lands. Over 60 organizations and businesses will gather to showcase their missions and offer planet-friendly products and services on Saturday, April 20th, 10 am -2 pm at Gough Park in Silver City.

This year's theme "Planet vs. Plastics," unites students, parents, businesses, governments, churches, unions, individuals, and nongovernmental organizations in an unwavering commitment to call for the end of plastics for the sake of human and planetary health, demanding a 60% reduction in the production of plastics.

Fashion forward individuals will show off their outfits of upcycled clothing or even plastic in the Upcycled Fashion Show. Activities offered by booths include nature crafts, recycled art, potato stamping, disc golf, cornhole, jump rope,

Loving the Earth Isn't Enough... We Need to Fix it!

Learn how UGWA is drawing down carbon by attending our **FREE open house tours**

Filling a Johnson-Su Bioreactor

Ring of Fire demonstration

Learn about these innovative, climate smart solutions

11 am

12 pm

1 pm

Tours April 20

Take Hudson (Hwy 90) south to Ridge Road - turn left to Mobile Drive - turn left at pavement end follow signs

Upper Gila Watershed Alliance

Questions: director@ugwa.org

Springs Spotlight: The Hidden Gems of the Gila

by Dylan Duvergé

When our arroyos and tributary streams are bone dry, when the Gila River is stagnant and ankle-deep, and when we haven't had a good wet season for years, it would be natural to assume that the whole landscape is entirely parched. We wonder how populations of animals and plants can survive, with the only reservoir of water existing underground, hidden beneath our feet.

In October of 2023, when I was asked by UGWA to help secure funding for springs protection projects, I was familiar with the well-known springs in the area—those like Gila Hot Springs, Paywood, Jordan, Turkey Creek, and Lightfeather Hot Springs. As I soon discovered, however, the Gila National Forest is host to over 800 lesser-known springs. We know this based on mapping by the U.S. Geological Survey, the Springs Stewardship Institute, and the Gila National Forest. Many of these springs continue to bring water to the surface in the regular dry seasons and, crucially, during extended multi-year droughts. They become rare refuges of riparian habitat supporting drought-stressed wildlife.

I have been in environmental consulting my whole career, specializing in geology, hydrogeology, and water resource management. Places where groundwater comes to the surface scratch my water nerd itch, so to speak! In the consulting world, we term these things "groundwater-surface water interactions," "groundwater-dependent ecosystems," and other terms or acronyms that focus on the groundwater table intersecting with the land surface. It's a wonderful topic which brings together geologists, biologists, hydrologists and other "ists" (who have historically operated in their own silos) to work together in an interdisciplinary way. Having mainly worked in alluvial aquifers (i.e., large basins of sediment), where groundwater is encountered hundreds of feet below the land surface, I welcomed the opportunity to learn more about springs in the volcanic landscape of the Gila and to share what I learned here.

The geology of much of the Upper Gila Watershed can be described as either 1) a flat- to slightly-tilted layer-cake of various kinds of "extrusive" (i.e., erupted) volcanic rock (such as andesite, rhyolite, dacite, ash-flow tuff, basalt, breccia, etc.) or 2) massive bodies of "intrusive" volcanic rock (such as granite, granodiorite, quartz monzonite, etc.) formed by underground magma bodies that later solidify through cooling and get exposed through uplift and/or erosion.

In places, particularly at lower elevations, these

two types of volcanic rock are overlain by the much younger Gila Conglomerate, which consists of the aforementioned rocks that have been eroded, reworked and re-deposited by streams as a thick package of sediment. Gila Conglomerate thins out with proximity to local mountain ranges. Many of the more productive wells in this region have been dug in this loose and porous type of geology.

So why do so many springs occur in the Gila National Forest? Importantly, the bedrock formations in this region are cross-cut by ancient fault lines, as well as dikes. Dikes are tabular or sheet-like bodies of magma that form when magma rises into an existing fracture or creates a new crack by forcing its way through existing rock. In this environment, rainwater that infiltrates deeply enough to recharge the aquifer does not simply sink down as it might in an alluvial aquifer (like the Mimbres Basin). Instead, it takes a tortuous path of least resistance through more porous rock layers and through faults and fractures in bedrock.

Not all volcanic rocks are created equal in terms of their ability to hold and transmit water. Some rocks—such as quartz dikes, basalt, and ash-flow tuffs—can be solid enough to cause groundwater to dam up and flow horizontally or even upward rather than downward. Any local who has observed the basalt-topped mesas east of the Cliff/Gila Valley or the light-colored horizontal layer of tuff across the Twin Sisters has seen the concept of erosion resistance at a landscape level.

Most springs in the Gila, then, occur where groundwater is brought back to the surface by a resistant rock layer, a conducive fracture/fault plane, or a fault that juxtaposes a water-bearing rock layer against a water-resistant one.

One valuable resource I discovered in learning about springs is the Spring Stewardship Institute (SSI), a non-profit organization based out of Northern Arizona that conducts spring research, hosts a spring database and web map application, and collaborates with partners to promote and improve scientific understanding

and the stewardship of spring ecosystems. Their website has online resources to help identify springs into one of 12 classifications, with the help of a dichotomous key. The majority of the cold-water springs in the Gila consist of one of the types illustrated below. SSI's spring database can be accessed at springsdata.org/ and classification scheme can be reviewed at docs.springsdata.org/PDF/SpringsInventoryProtocol2023.pdf

The scientific literature is replete with studies about the negative impacts of livestock grazing on springs and streams, as well as the beneficial results of removing that stressor. Cattle impacts to springs and the perennial reaches of streams that they support include trampled and destabilized streambanks; damage to and

Spring Types Found in the Gila National Forest

Rheocrene springs emerge into a well-defined wet or dry channel. They are commonly subject to regular surface-flow flooding.

Hillslope springs occur where groundwater emerges on gently sloping (16-60°) land.

Helocrene springs are springfed wet meadows, called ciénegas at elevations up to about 2,135 m (7,000 ft), or groundwater-dependent fens at higher elevations.

Limnocrene springs emerge into an open pool of water.

A = Aquifer; I = Impenetrable Stratum; S = Spring Source
Source: Springer and Stevens (2009) as modified by the Spring Stewardship Institute

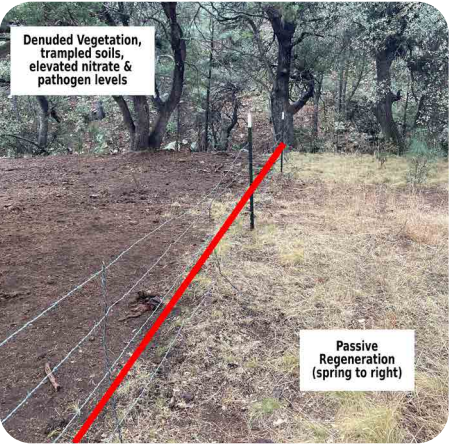
death of riparian vegetation; compacted, impermeable soils that increase storm runoff; excess sediment causing loss of interstitial spaces in streams that provide habitat to critical macro-invertebrates; warmer water that diminishes habitat for aquatic species; depauperate floral and faunal diversity; and more.

Over the past 15 years, UGWA, partner non-profits, and Forest Service staff have learned that the best way to construct fence enclosures protecting riparian habitat is to use high quality, wildlife-friendly, sturdy, nearly maintenance-free pipe and cable fencing. When fences are constructed from T-posts and barbed

continued on page 12

Springs
continued from page 11

wire, they don't tend to stand the test of time. One of the things that struck me as I investigated this issue is how much springs protection is the "low-hanging fruit" in our efforts to face climate change. Stream restoration projects are, of course, worthwhile, but long-term efforts to re-create a naturally functioning system through natural engineering, earthwork, and substantial manual labor is also very costly. In springs protection, all that is required is to avoid cattle trespass through resilient, wildlife-friendly fencing. In most cases, nature does the rest



Family
continued from page 13

until we ran out of food. Clothing was optional. Campfire and knife safety skills imperative. We knew every single turn of the river for miles upstream and down, and how these changed from season to season. Cowpies and goat-heads were our only enemies. In childhood, and as teenagers, we were joyfully feral.

I want this kind of freedom for my daughters too. This confidence that nature is a constant friend, a blood relative, a provider. I want them to feel loved and accepted by their human and non-human relatives. I want them to learn how to give these relatives their love and respect and protection. This is not what they are learning in school. This is not the homework assignments they are given. But it should be. It is my responsibility to teach these lessons to my daughters. Both in the forests they are shaped by in New York, and as often as possible in the river valley and mountains I know so well in New Mexico.

I learned these lessons from my family, too. And by family, I mean both my human

through passive regeneration of the habitat. Furthermore, excluding cattle trespass onto springs does not mean their access to water is cut off. Fencing projects in allotments almost always include piping water outside of the enclosure to a trough or providing access to downstream perennial water outside the fence line.

As I learned more about UGWA's past spring protection projects, and as I visited springs that were targeted for protection, I discovered just how special our springs are, not just as places to explore and enjoy, but possibly as the last places to resist the adverse impacts of climate change on our landscape. Recently, the New Mexico Bureau of Geology and Mineral Resources released a pivotal report — Climate Change in New Mexico Over the Next 50 Years: Impacts on Water Resources (Bulletin 164) — which predicts that snowpack and associated runoff are projected to decline substantially over the next 50 years, generating diminished headwater streamflow. Lower snowpack and the increased frequency of extreme precipitation events, coupled with average conditions that will continue to trend hotter and drier, mean that quality sources of cold-water perennial flow will be harder to come by as time goes on. With year-round water, springs in the Gila sustain critical islands of biodiversity (i.e., refugia). In an otherwise parched landscape, and as flow in mainstem rivers and creeks become less consistent/reliable (and more "flashy"), it seems like a no-brainer

and non-human family. I learned love and respect and gratitude and joy from the Gila River, from the watershed that shaped every plant and rock and animal and cloud living around me. And I learned these lessons from my parents and our

to recognize and protect these hidden gems.

Do you have any stories or concerns about your favorite hidden springs? Email me at dylan@stra.tusenviro.com if you would like to share.



Dylan Duvergé

“There is just one hope of repulsing the tyrannical ambition of civilization to conquer every niche on the whole earth. That hope is the organization of spirited people who will fight for the freedom of wilderness.”

— Bob Marshall

neighbors and friends who created UGWA and worked so hard to teach others to love and protect this special place. Thank you all for shaping me, and for all you teach our next generations about how to live as a family.



It's easy to see family resemblances. My brother looks like our grandfather. Both my daughters have their father's brown eyes. There are other shared traits, less visible, like sense of humor, or musical abilities. We are each shaped by our relatives, by the people in our lives. Everybody knows this. It is common sense.

But I often wonder, why don't we speak of our non-human relatives the same way? Isn't this also common sense - that we are shaped by the places in our lives? That we bear some resemblance to these too? Who would we be without the soil of the place we are raised? Who would we be without the water?

Place. I think about this a lot lately, how the place where I am from shaped me. I'm at an age now where I reflect more on the past, and think less elaborately about my future, except in terms of my children perhaps. How are my children being shaped by the place where they are growing up? Long dark winters in upstate New York. Humid green short summers. Sunsets you have to chase by finding a hilltop with enough open sky to see a horizon. On a visit to New Mexico, my little girl says, "Mom, I can see the sunset from everywhere. We don't have to chase it!"

It turns out sky shapes you. My daughters know how to chase views and be patient with cold grey sky for weeks on end. Not me. But growing up under Gila sky gave me a special knowledge of cloud colors at sunset. Clouds love to hug the Mogollon mountains and hold onto them. They might not let go and give us rain down in the valley. But if they do, we will see it coming across all that open horizon. All this is a special treat for my daughters. They love it.

The dirt of a place shapes you too. My girls know dark brown dirt that is made from decades of autumn leaves, full of mushrooms and roots. They know smooth grey field stones, and sand ground by ancient glaciers. They know deep mud left by melted snow.

In Gila you really get to know the dirt. In March it blows hard right into your eyes. After a rain it becomes heavy and hungry for your shoes - a sticky top layer that dries into pretty puzzle pieces. You can

Family
by Aili Lopez

pick these up and crush them to powder between your fingers. The sand gets so hot in the summer, you can lay on it after a swim if you want to dry off faster. Dirt in Gila comes in lots of different colors and textures. And the rocks you find are infinitely diverse. Often my girls go back to New York with added luggage weight because they don't want to part with all the pretty rocks they've found.

And air! If air is a relative, in New York it is a bossy auntie. My daughters know her as cold and fierce in winter, chasing them indoors. In summer she is heavy and thick with heat, demanding a dip in the lake and keeping them wet for a long time afterwards. Their clothes may smell like mildew. In summer the air is home to mosquitos and fire flies.

In Gila, auntie air is hot and dry and clear. She shaped me to be comfortable with tingly sunburned skin. Gila air let me wash and hang my clothes on the line, knowing they would be dry soon enough for me to wear to school. She taught me that shade and sun can feel like entirely different worlds from one another; to breathe deep on mountain hikes; to appreciate the smell of rain in a desert.

When I first moved to upstate New York, I found local hiking befuddling. People hike on trails, frequently encountering other humans. I thought "I'm not in the woods to meet people! I'll take my walks elsewhere." But off-trail is so full of my plant relatives, dense and determined. They insist I stay on the trails.

I found all these plants overwhelming – how in the world would I ever befriend each one of them? In Gila I was shaped by the scarcity of plants. I knew each plant as special. Not just the species of plant, but the individual plant too. That Cholla on the mesa. That Alligator Juniper tree with the most beautiful bark. Gila was quiet and we had no TV. I drew and pretended and read books, and I made friends with plants. I studied all their parts, peeling the fuzz off the horehound and mullein, collecting various seeds. My daughters are shaped by moss and young forests and fallen trees and wild strawberries. There are so many plant relatives here it is hard to know all their names. I get homesick.

And the relative that shapes us the most? Water. The watershed is our oldest and closest kin. If we are at the non-human family reunion, water is the great-

grandmother from whom we all descend. She pours us all a drink and knows all of us by name. None of us would have a life story without her. She takes many forms, and if we look closely, we can see the family resemblance. Tears, milk, kisses, joy. All these look just like her.

In New York there is so much of her. Lakes, all over. The rivers are huge...there are tugboats on them! To a Gila girl, the creeks in New York are big enough to qualify as rivers. There is a little stream behind our house, a playmate for my daughters, eventually becoming the wetlands behind our woods. Right now, vernal pools dot the forest and frogs are starting to call. This is the water family my daughters know. It requires rubber boots. It is plentiful.

Where I come from water is not plentiful. It is precious. Valuable. Fought over. And it was the single most influential non-human relative to shape my life. When I think of my childhood, it is synonymous with the Gila River. Hot bright summer days in the mud and willows and sought-after swimming holes. Catching & cooking crayfish with my brother. Appreciating the work of our beaver neighbors with my dad. Meditating on the growing things with my mom. As a teenager it was pole planting with the YCC and overnight camping parties with my friends. In autumn the river valley looked like a vein of gold thanks to the cottonwood leaves. In winter we walked the banks to see how the snowmelt had filled it to overflowing.

The degree of freedom the Gila River gave my youth is something unthinkable here in New York. We would set out with camping gear on our backs and not return

continued on page 12



Aili Lopez

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 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, 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.



Pachysphinx occidentalis male



Citheronia splendens sinaloensis

In Celebration of the Gila Centennial

Upper Gila Watershed Alliance invites you to

Learn About Our Local

Moths


Saturday, June 15

7:30 PM


(because moths come out at night)

This **FREE** presentation will take place at

WNMU Global Resource Center - ABC Room



Phaeoura mexicanaria male



Presented by Ron Parry, retired from Rice University, and now an UGWA board member. Learn about the seven moth families found in the Gila region. At the end of the talk, we will move outdoors to see what types of live moths have been attracted to a white sheet illuminated with UV light.

Upper Gila Watershed Alliance

Spring 2024 CARAPACE 15

Thank You!

(October 26, 2023 – March 29, 2024)

New Members

Cindy Asrir • Maree McHugh

Paul Walmsley • Jim & Nancy Coates • Francine Popkin

Recurring Members

Jene Moseley • Marc Nevas

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Mary Barrett & Jeff Arndt • Sue Ann Childers & Randy Harkins • A. T. & Cinda Cole

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Funder Thank You!

Padosi Foundation • Kinder Fund of the Whatcom Community Foundation
Grant County Commission • Siah Correa Hemphill • U.S. Department of Agriculture

Special Thanks

Thank you to Richard and Carol Martin for the use of their truck.

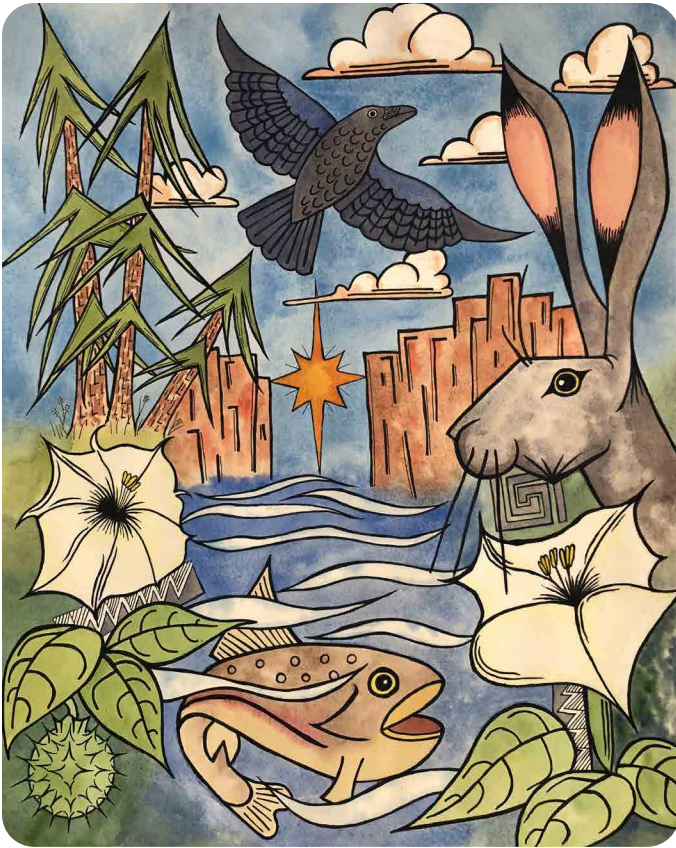
Gila Wilderness Centennial Poster Contest

Dozens of high-quality and meaningful works of art were submitted in response to the Gila National Forest's call for artwork honoring the centennial anniversary of the iconic Gila Wilderness. The three winning pieces of art are:

1. Christina Wilkinson's "Gila Wilderness"
2. Michael Shaw's "Gila Scene"
3. Ben Brown's "Gila Wilderness Centennial Poster"

"There was an impressive variety of artwork submitted, making it difficult to choose only three winners," said Wilderness District Ranger Henry Provencio. "The winning pieces were selected for their creativity and inclusion of representative features, flora, and fauna of the Gila Wilderness."

Each of the winning entries will receive an honorarium in the amount of \$100, and their artwork will be featured on posters, flyers, handouts, social media posts, and other outreach and promotional materials for the Gila Wilderness Centennial celebrations. Go to www.fs.usda.gov/detail/gila/learning/history-culture to see all the winning entries.



Second place winner, "Gila Scene," by Michael Shaw.
We are honored to have Michael as part of our UGWA family
working for the New Earth Project

Upper Gila Watershed Alliance
PO Box 1536
Silver City NM 88062

FIRST CLASS MAIL