

Carapace

NEWSLETTER FOR THE
Upper Gila Watershed Alliance



SPRING/SUMMER 2022

Vol. 25 No. 1



Photo: Willow Sprague-Robinson

Aldo Leopold Charter School Youth Conservation Corps eco-monitoring crew joyously hold up native Ash, Walnut, and Sycamore seedlings to be used for local restoration projects. From left to right: Josh Estrada, Maya Reeves, Pranay Kyasa, Morgan Chaney, Sonny Sherwood, Mike Fugagli, Kevin Peterson, Lily Heng, Sylvia Myers.

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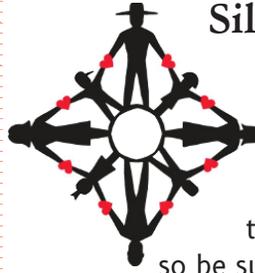
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Carapace is published by the Upper Gila Watershed Alliance. It is sent free to all UGWA members.



Silver City Food Co-Op Round-Up Program

For the month of April, UGWA is the recipient of the Co-op's Round Up Program, so be sure to round up at the register!



Photo: Carol Ann Fugagli



California Sister. Photo: Carol Ann Fugagli



Gila River Update

by Donna Stevens

Tempus fugit! Time may fly, but the work that needs to happen in a given timeframe often does not, unfortunately. To write this article, I reviewed the Gila River update in the November 2021 issue of *Carapace*, and was disheartened to see that not enough has changed. Still, in the interests of keeping readers apprised, here's a brief update.

Water Projects Funding The NM Unit Fund has more than \$90 million of funding, originally from the Arizona Water Settlements Act, that can only be used for water projects in Catron, Grant, Hidalgo, and Luna Counties. The Water Trust Board, an advisory board under the New Mexico Finance Authority, is responsible for analyzing and recommending proposed water projects to the New Mexico Interstate Stream Commission, which ultimately decides which projects to fund. UGWA and our Gila Conservation Coalition partners are watching this process closely to make sure that funds are spent wisely for projects that protect the Gila River while also meeting water demands, conserving water, and benefitting the greatest number of residents equitably. After providing input in 2021 to the Water Trust Board about project evaluation criteria that heavily weight water conservation and climate change impacts, we are still awaiting the decision about how the process will proceed.

50-Year Water Plan For more than a year, the New Mexico Interstate Stream Commission (ISC) has been developing a long-range water plan for the state. As a

foundation for the plan, a Water Climate Advisory Team of professionals from several disciplines compiled a report assessing current and future water resource conditions and risks associated with the impacts of climate change. (Spoiler alert: the future is going to look different than the past.) Next, the ISC convened a series of stakeholder outreach events such as a Tribal Water Summit, the 66th annual Water Conference, and virtual dialogues soliciting information and perspectives of various groups of water users, including conservation nonprofits such as UGWA.

Wild and Scenic River Designation The wheels on the bus go round and round... The Wild and Scenic bus is definitely moving, but it might take a while to reach its destination. Exhibit A: we're still waiting for a hearing on the M.H. Dutch Salmon Greater Gila Wild and Scenic River Act, which was supposed to be heard in the Senate Energy and Natural Resources committee in February. It may be a long journey all through the town and up Capitol Hill. But when we arrive, the Gila and San Francisco Rivers and major tributaries – almost 450 river miles – will receive the ultimate protection of Wild and Scenic River designation, and the long trek will have been worth it. UGWA is definitely along for the ride, and we invite you to get on the bus.

Thank you to our anonymous Major Donor for funding to stay engaged with Gila River and water conservation issues, and to the Conservation Lands Foundation for work on Wild and Scenic River designation.

The Return of the Air Force

by Donna Stevens

Just one year after the community’s hard-fought victory to prevent the Air Force from conducting intrusive military trainings over the Gila National Forest, including the wilderness areas, the Air Force is again targeting the Southwest with a disruptive proposal. Although this proposed action isn’t quite as egregious as the previous one for southwest New Mexico, if implemented, it will still diminish our quality of life, harm wildlife, decrease water quality, and increase risk of wildfires.

Air Force Proposal Details The Air Force has proposed to modify, in acreage and usage, ten existing Military Operations Areas (MOAs) in southern Arizona and southwest New Mexico. The proposal will authorize low-level fighter jet missions and supersonic flights – the ones that cause sonic booms – above rural and tribal communities in some of the Southwest’s most fragile sky island ecosystems. If the new proposal is adopted, supersonic flights will be allowed at 5,000 feet above ground level, much lower – and louder – than the current level of 30,000 feet above ground level.

In southeast Arizona and the New Mexico Bootheel, the Air Force proposal would authorize the release of toxic materials from lower altitudes than currently employed. These materials include flares and chaff – aluminum-coated silica fibers used in evasive maneuvers. Chaff, which even the Air Force acknowledges needs more study, may break down into inhalable particles, causing health problems for humans and wildlife. It may be ingested by wildlife and also deposited in watercourses where it diminishes water quality. Flares dropped from lower altitudes can reasonably be expected to increase the risk of wildfires – no small concern during a megadrought.

What It Means for the Gila Although the Air Force proposal has greater impacts in southern Arizona than in New Mexico, its effect on the Gila region would also be profound. The Morenci and Reserve MOAs are above parts of the Gila National Forest, including the Blue Range and Gila Wilderness Areas, the Hells Hole and San Francisco Canyon Wilderness Study Areas, the Catwalk National Recreation Trail, and 16 miles of the Continental Divide National Scenic Trail. Bureau of Land Management land near the Apache Box Area would also be affected.

Impacts of training missions include extreme noise, especially from sonic booms, that will affect hikers and

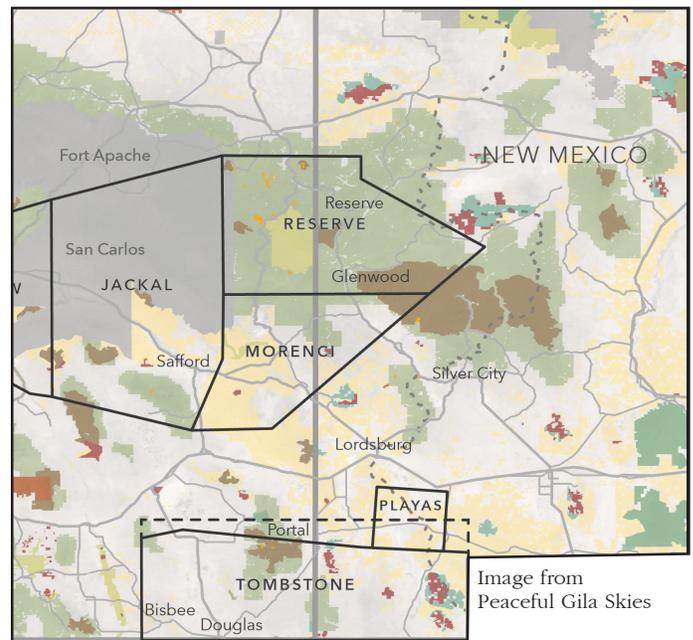
equestrians, veterans and others suffering from PTSD, and animals – horses, livestock, and wildlife. We are very concerned about the increased risk of aircraft crashes and wildfires, and plummets in property values and income from local tourism and outdoor recreation. In short, our quality of life would be undermined by adoption of this Air Force proposal.

Action A coalition of concerned individuals and conservation groups wrote comments on the Air Force’s proposal. UGWA took the lead in writing and coordinating these comments, which were submitted to the Air Force by the March 4 deadline. We made the points listed above, in addition to many others.

Next Steps The Air Force expects to release its Draft Environmental Impact Statement in fall 2023, kicking off a public comment period. UGWA and our partners will carefully review the DEIS, develop talking points about its shortcomings, and convey them to UGWA supporters to facilitate submission of public comments.

For more info, please see the Peaceful Gila Skies website at peacefulgilaskies.com

Thank you to UGWA’s anonymous Major Donor for funding to work on this issue.



- Federal Public Lands
- Area of Critical Environmental Concern
- Conservation Area
- National Forest
- National Monument
- National Park
- National Wildlife Refuge
- BLM Public Lands
- Research Natural Area
- Wilderness Area
- Wilderness Study Area

Federal public lands & tribes affected by Air Force Arizona Regional Special Use Airspace Optimization (edited)



Healthy soils will boost crop yields for increased food security.

Silver City Carboneers

by Carol Ann Fugagli

Imagine you're planning a raft trip down a river. Along with slow water and shallows, your map shows that you will encounter unavoidable rapids and tight turns. How can you safely navigate the rough waters and handle unexpected problems?

Perhaps you would enlist the support of more experienced rafters as you plan your route or rely on the companionship of trusted friends. Maybe you would pack an extra life jacket or consider using a stronger raft. With the right tools and supports in place, one outcome is more certain: You will make it through the challenges of your river adventure and emerge a more confident and courageous rafter.

As we attempt to navigate the changing world and its unstable climate, more and more people are feeling defeated or unempowered in the face of a seemingly dire environmental future. Three Canadian scientists who contributed to the latest report from the Intergovernmental Panel on Climate Change, titled *Impacts, Adaptation and Vulnerability*, argue that building and promoting resilience is important for mental well-being in order to combat feelings of powerlessness. As you did on your hypothetical river trip, it's best to equip yourself with a hefty raft and an accurate map.

Resilience involves thoughts, behaviors, and actions that anyone can learn or develop.

One such action that can have lasting effects for our community involves a grant UGWA recently received:

the Environmental Protection Agency's Commission for Environmental Cooperation (CEC) program to address environmental justice and climate resilience in North America.

Over 375 projects were submitted in North America with just five funded from each country: Canada, the United States, and Mexico. We are honored that UGWA's project is one of only five awarded in the US!

Our project, called Silver City Carboneers, is a two-year grant focusing on food security, soil improvement, carbon sequestration, and food waste reduction. It's a lot to tackle, but the concept is fluid and capitalizes on actions and ideas that locals have been thinking about for many years and is a direct result of the Climathon UGWA hosted in July 2021. The challenge at that workshop was to examine the life cycle of compost, from buying food to producing healthy soil, and to find innovative ways to use food scraps at every stage. Our winning proposal integrates education with innovation by combining elementary school-based food resilience labs with emerging soil restoration technologies. Our goal is to capture biomass from two biomass waste streams (food and forest) and combine it in Johnson-Su composters to be built and managed by our new Civilian Climate Corps contractors.

So how does one go about addressing all these issues simultaneously? First, we need to explain two emerging and innovative technologies that are the basis for our project: the Johnson-Su bioreactor and the biochar furnace.

Continued page 6



Aldo Leopold Charter School students Morgan Chaney and Hawk Fugagli assist in filling a Johnson-Su composter as a part of a Youth Conservation Corps project.

Johnson-Su Bioreactor (composter)

Dr. David Johnson, an Adjunct Professor for the College of Agriculture at Chico State University, is investigating the use of biological soil enhancements and their effects on carbon sequestration for the Institute of Sustainable Agricultural Research at New Mexico State University. In particular, he found that the ratio between fungi and bacteria in the soil is critical to a plant's productivity in healthy agricultural systems and thus to a plant's efficiency in nutrient uptake.

Dr. Johnson and his wife, Hui-Chun Su, realizing that plants need increased mycorrhizal fungi for optimal growth, created a static composter for producing the fungal-rich compost used in their experiments. Their design improves on most composting systems by allowing plant material to be composted aerobically without needing to be turned. It reduces water usage up to six times, produces no odors or associated insects, and is inexpensive and relatively simple to make.

The resulting compost looks different than most compost, depending on the type of material used, and has the consistency of clay rather than mulch. Although it takes about a year to make, the compost greatly improves the biology and nutrient availability of the soil, raises water-retention capacity, increases soil carbon sequestration, and enhances crop yields.

Although this may seem too good to be true, these results are made possible by the mycorrhizal fungi that, once introduced into the garden soil, grow as an extension of plant roots and increase their access to water and nutrients. The fungi can only grow if the soil is left undisturbed; turning the compost or soil breaks these important connections.



Biochar Energy System invented by Gordon West.

Biochar + Energy = Bioenergy

The second innovation that will be used in our project is fondly referred to as a biochar furnace: a pyrolysis-based energy system that burns feedstock at high temperatures in the absence of oxygen. Without oxygen, biomass undergoes a chemical and physical separation into different molecules without producing gaseous byproducts that are harmful to the atmosphere.

The fuel for this system consists of biomass from forest thinning projects, aka trees, that are made into small, condensed wood pellets that burn in the pyrolyzer at around 900 degrees Celsius. The byproducts from this thermal decomposition process are biochar to be directly sequestered into soils and a significant amount of heat energy that can be used in a variety of ways, e.g., to heat a building or water, or, in our case, to dry food waste.

Biochar has a high market value especially when inoculated with compost and can be sold locally to farmers and gardeners. This energy system has been perfected by inventor Gordon West of Trollworks LLC, who has been experimenting with designs for many years and now has developed the ideal model.

Now that the two technologies have been explained, we can enter the "inner sanctum" of the project: how the J-S composter and the biochar furnace will be used to address food security and to restore soils in our area.

The Plan

As in many communities in the US, large volumes of food waste currently go into our county landfill, resulting in anaerobic methane production (a particularly harmful greenhouse gas) while, ironically, many children in Grant County, especially in the Mining District, still go hungry.

Our plan is to take food waste generated in cafeterias from schools in the Cobre and Silver City School Districts, use the heat generated from the biochar furnace to dry the food waste, and then put the dried food into the J-S composter to create compost to be used in local gardens and restoration and tree planting projects.

Each of the participating schools will have three J-S composters located on the school grounds. We envision a drop-off location for parents to bring their yard waste in the form of branches and leaves to be chipped on-site with a transportable chipper purchased with grant funding. This chipper will be taken from school to school to chip the yard waste, which will be mixed with the dry food waste from the cafeterias and then placed inside the J-S reactors.

Education of 3rd – 5th graders in the participating elementary schools will be integrated at every step of the way. UGWA is partnering with 2811, an international organization for social and ecological change and co-organizer of the 2021 Climathon, to educate teachers and students in the participating schools. We will begin by offering an interactive online teacher training to familiarize educators with sustainability practices. Composting, soil as a living ecosystem, permaculture, traditional seeds and growing methods, vermiculture, and circular economy are some of the topics that will be included. These same teachers will then serve as co-facilitators with the 2811 staff for student Climathons at the schools.

How will all these actions be accomplished? The good news is that we will hire two part-time Civilian Climate Corps contractors who will get on-the-job training by facilitating these activities and assisting in education in the schools, all while being a part of a dynamic opportunity to create positive change in their community. If all of this sounds like fantasy, think again. This project is a big step on the road to community resilience and profound personal growth. We welcome you to be a part of the change!

Anyone wishing to apply for the CCC position or to volunteer, please email Carol Ann at: admin@ugwa.org

Special request: We are looking for a used truck, preferably electric or hybrid. If you have one you would like to donate or rent, or you want to contribute to the purchase of a suitable vehicle, please contact Carol Ann. Thank you.

This work was carried out with the financial support from the Commission for Environmental Cooperation.



GIVE GRANDLY!

GIVE A LOT **GIVE A LITTLE**

GIVE GRANDLY!
GIVE LOCAL!

SPONSORED BY The Coast County Community Foundation

MAY 7, 2022

GIVEGRANDLY.ORG



Coming this summer: Eco-camp 2022!

June 20-24 at the Mogollon Box Day Use Area

Students ages 13-18 are invited

FREE! All meals included!

Connect with nature through hiking, swimming, camping, stewardship activities, animal tracking, African drumming, and much more!

Camping equipment will be provided if you don't have your own

Limit: 15 campers

Sponsored by UGWA and The Nature Conservancy

To sign up contact: admin@ugwa.org

Thinking ON a Mountain

by Mike Fugagli

Warm weather at last! You'll forgive me if I put aside my climate woes for a minute and just enjoy the change of seasons: Black Hawks, Vermilion Flycatchers, Lucy's Warblers, and Turkey Vultures! Those are just a few of the species that greeted the Aldo Leopold Charter School eco-monitoring crew on March 25th, the first mid-80s day this year, when the students carpooled out to Eric Leahy's Gone Fishing Farm to dig up the walnut, ash, and sycamore seedlings that Eric overwintered for us there in his now electric green goat pasture.

UGWA's Thinking ON a Mountain youth empowerment project purchased the three hundred bare-root seedlings last fall from the New Mexico Forestry Division, and with the help of Aldo's Youth Conservation Corps (YCC) eco-monitors, the trees were recently dug up, potted up, and will be grown out to sapling size to be used for a variety of regional restoration projects focused on reforestation and community resilience.

Yes, young people are freaked out about climate change. So am I, and you probably are too, but you know what? It never hurts to plant a tree. I've never planted a tree and said to myself, "now that was a crummy day." So we're just going to keep planting trees. We're going to grow them out, stick them in the ground, and help our young people re-wild the world one tree at a time. Thank you, Eric, for taking care of our tree babies, and thank you, eco-punkz – y'all rock!!

Thank you to the Conservation Lands Foundation, Lineberry Foundation, and the Wilderness Society for funding youth empowerment projects.



YCC eco-monitor Kevin Peterson digs up seedlings for repotting.
Photo: Mike Fugagli



YCC eco-monitors Kevin Peterson, Sylvia Myers, and Lily Heng re-pot seedlings. Photo: Mike Fugagli



YCC eco-monitors hard at work re-potting native Ash, Walnut, and Sycamore seedlings for use in local restoration projects.
Photo: Mike Fugagli

CALLING ALL HIKERS! NO BORING MEETINGS REQUIRED!

Want to protect the Gila National Forest in a fun, easy way? If you like to hike, this volunteer project is right up your alley... er, trail. UGWA's new impact monitoring project is looking for a few good people to visit high priority locations close to Silver City and answer a few simple questions on a paper form, your smartphone, or a tablet that we'll provide. We're interested in officially closed roads that are still being used, damage to land or streams, and a few other things. You take photos - we'll take it from there. If you see any problems in the forest, we'll notify the Forest Service.

Intrigued? Please email Carol Ann at: admin@ugwa.org

EARTH MATTERS

with
Allyson Siwik & Donna Stevens
Tuesdays & Sundays @ 10 am
KURU 89.1 FM Silver City

Climate change is here and
New Mexico is feeling
its effects.

What can we do to draw down our
climate-changing carbon emissions, protect and
restore our land and water, and adapt to
harsher, more challenging conditions?

The Gila Resources Information Project and the Upper Gila Watershed Alliance are relaunching Earth Matters, a bi-weekly podcast that will help you understand how New Mexicans are rising to the climate challenge and how you can, too.

Each hour-long episode will bring to you conversations with people working on the ground to address climate change in the Southwest and provide you with information on how you can make a difference and help bring collective action to this global crisis.

Allyson Siwik and Donna Stevens are your hosts for *Earth Matters*, airing every Tuesday and Sunday at 10 am on Gila/Mimbres Community Radio,

KURU at 89.1 FM.



Gila Earth Day & Continental Divide Trail Days Celebration

Gough Park, Saturday, April 23
10am – 2pm

Drop by the UGWA booth and say hi – we'll be the only ones with a bug-eating activity!



A job well done. YCC eco-monitors proudly display the 300 native seedlings to be used in local restoration projects.

Photo: Mike Fugagli

UGWA Membership Application

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

Name(s) _____

Address _____

City _____

State _____

Zip _____

Telephone _____

E-Mail _____

Membership Categories—Annual Dues:

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



Make your check payable to

UGWA

and send to

PO Box 383, Gila NM 88038

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

Name

E-Mail

Thank You!

[November 1, 2021 – March 25, 2022]

New Members

Kay Plavidal & Larry Gieschen • Steve Cary • Randall Bozelle • Lynn DiFore

Monthly Donors

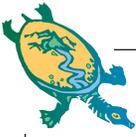
Diane LaFrance and John Rogers

Returning Members & Supporters

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Funder Thank You!

Altman Foundation • Commission for Environmental Cooperation
Conservation Lands Foundation • Lineberry Foundation • National Forest Foundation
Native Plant Society of New Mexico • The Nature Conservancy
New Mexico Environment Dept. River Stewardship Program
New Mexico Outdoor Recreation Division Outdoor Equity Fund • Resources Legacy Fund
Silver City Food Co-op Round-up Program • The Wilderness Society



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.

**Upper Gila Watershed Alliance
PO Box 383
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FIRST CLASS MAIL