



# 2021 ANNUAL IMPACT REPORT



Restore the Flow, Go Hydro-Local!  
*Restaurando el Flujo, ¡Se Hidro-Local!*

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*Watershed Management Group acknowledges that we live, learn, work, and engage with community on the ancestral lands of the Hohokam, Sobaipuri, and Apache people and those of the Pascua Yaqui and Tohono O'odham, whose relationship with this land continues to this day. We acknowledge that water in the Sonoran Desert is of great spiritual, physical, and ecological significance to be protected, cherished, and celebrated.*

*Watershed Management Group reconoce que vivimos, aprendemos, trabajamos, y nos relacionamos con la comunidad en las tierras ancestrales de los pueblos Hohokam, Sobaipuri, Apache, y también de Pascua Yaqui y Tohono O'odham, cuya relación con esta tierra continúa hasta el presente. Reconocemos que el agua en el Desierto de Sonora tiene una gran importancia espiritual, física, y ecológica para ser protegida, apreciada, y celebrada.*



# Junior High Kids Get Their Families Digging, Planting, and Mulching to Cool Their School

**WMG taught over 300 students at Flowing Wells Junior High how to design native rain gardens. Then the students and Flowing Wells community brought their designs to life in front of their school.**

“Everyone that contributed played a role in beautifying that area,” says Christopher Hitchings, the Assistant Principal at Flowing Wells Junior High School, who also participated in the workdays. When they are coming to school or driving by, they know that they planted ‘that tree’, and it will be there for many years.”

Rain gardens do far more than just “harvest water.” They create community, collect rushing water that would otherwise flood nearby streets, produce food to harvest, and cool down walking paths. Last spring, WMG’s Schoolyard Program taught these benefits and more to close to 300 students at Flowing Wells Junior High as part of a Build Your Own Basin (BYOB) community workshop, learning-while-doing by building a rain garden with the support of WMG staff in front of their school. The students also invited their family members and neighbors, resulting in two massive, community-building workdays, and an 800-foot-long rain garden along La Cholla Boulevard!

“Everyone that contributed played a role in beautifying that area,” says Christopher Hitchings, the Assistant Principal at Flowing Wells Junior High School, who also participated in the workdays. “When they are coming to school or driving by, they know that they planted ‘that tree’, and it will be there for many years. That’s a powerful legacy. WMG’s work lays the foundation for neighborhood pride,

urban forestry, and sustainability, and these are lessons our students will carry forward to make a powerful impact in Flowing Wells and beyond.”

Many of the issues that rain gardens help with—excessive heat, flooding, food deserts—hit low-income communities and communities of color like Flowing Wells the hardest. At Flowing Wells Junior High about three quarters of students are considered low-income, and approximately 67% of students are of Latinx descent. In one of the first activities of the Schoolyard program lesson, students recorded the temperatures in front of their school and found that it was typically 20 degrees hotter than the actual air temperature due to the heat island effect.

“The Schoolyard program is a fantastic example of our Diversity, Equity, and Inclusion (DEI) work in action,” says Joaquin Murrieta, WMG’s Cultural Ecologist, who led the workdays at Flowing Wells. “By bringing a little piece of nature to the city, there’s so much we’re doing with the power of diverse communities.”

Over 80 volunteers including Flowing

Wells students and their parents, grandparents, aunts, uncles, and siblings worked together to bring the rain gardens to life. Some planted native grasses that soak up water like a sponge. Others shaped rocks and earth, helping to invite water arriving from the street through curb cuts, and planted native trees like mesquites, acacia, and ironwood. Many shoveled mulch, feeding the garden and helping the soil retain water.

Afterwards the students and their families were able to take home BYOB kits with native trees, mulch, shrubs, and an English and Spanish BYOB zine—creating a ripple effect and spreading the benefits of rain gardens beyond the school to the students’ neighborhoods.

Next up, WMG in partnership with the school plans to add rain gardens to four more sections of La Cholla Boulevard by the end of 2022, envisioning a fully green boulevard with water harvesting that makes walking on the street feel safe, easy, and eventually shady.

And how are last year’s rain gardens doing? The gardens are thriving and have needed much less watering than normal to get started, thanks to the monsoon rains!

**Interested in bringing WMG’s Schoolyard Program to a school near you? Contact Joaquin Murrieta at [jmurrieta@watershedmg.org](mailto:jmurrieta@watershedmg.org) to talk about the possibilities!**



Top: Students and their families put in the work to shape basins, plant native shade trees and shrubs, and mulch with organic wood chips.

Bottom: The rain gardens soaked up a lot of rainwater in the 2021 monsoon – irrigating the plants and reducing flooding in a season with record rainfall.





Beaver Dam



Recent Chew



Bank Lodge

# Borderlands Beaver Population Stable and Growing?

## Results and Insights of First Annual Binational Beaver Survey of the San Pedro River

After six days of bushwhacking and creek wading with 40 partners and River Run Network volunteers, we're left awed and even more curious about beavers in the borderlands. Our Binational Beaver Survey covered 70 miles of the San Pedro River and its tributaries in Southern Arizona and Sonora, Mexico.

We saw firsthand extensive beaver complexes built alongside ranch stock ponds, tributaries, and reservoirs in Sonora. We stumbled into vent holes of beaver lodges built into the banks of the San Pedro River and tried to peer into their depths. We pondered together the age of beaver chews—how fresh are they, and how close by are the beavers? We discovered scent mounds, after observing a neatly packed pile of river mud on the bank. We also trudged for many miles of the river without seeing any new beaver evidence, but enjoyed the magical beauty of the flowing water, cottonwoods, and willows on a sunny winter day.

With 93 survey points recorded of

beaver activity along the San Pedro's main stem and several tributaries, we can see that beaver are widely distributed in the watershed and may be continuing to expand their territory. We estimate the population to be 16-20 beavers in the surveyed area in Arizona, and 20-30 beavers in the surveyed area of Sonora. For Arizona, this shows a stable or growing beaver population compared to results from a simpler survey done in 2020. The survey in Sonora shows thriving beaver complexes, but needs more extensive observations along more tributaries and reservoirs to have a better understanding of the larger population.

Through research and peer review, we developed our protocol for estimating beavers: 1) We counted family units based on the presence of an active dam and/or lodge, 2) We estimated one family per 1/2 mile to mile of linear river habitat, and 3) We estimated four beavers making up each family unit, including two adults and two kits.

WMG relied on our experience with community science initiatives, partners in Mexico, local San Pedro River contacts, and motivated interns from the UA to pull off this ambitious, groundbreaking survey. Tyler Routt, a senior in the School of Natural Resources of the Environment and U.S. Air Force veteran, joined WMG as a Conservation Biology intern in late August 2021. His task was clear and urgent: create a smartphone app and protocol for our first Binational Beaver Survey starting in November.

Tyler and WMG staff created the survey and protocol through an ArcGIS-based app that was vetted by all survey group leads in early November. These group leads included beaver believers new and old: Tyler Routt and fellow intern Connal Boyd; longtime beaver surveyor

(SPRNCA) into Mexico, and we think there have likely been border crossings in both directions. After populations expanded in Mexico, they continued up into tributaries, crossing the border again back into Arizona along Bear Creek. That natural migration of the beaver population has recently been cut off by the massive border wall that cuts right through the San Pedro River, preventing beavers and other animals from crossing.

As we consider the health and population of the San Pedro beaver population, we can better prepare for beavers in our neighboring watershed, the Santa Cruz. Plans are still underway to re-establish beavers in Las Ciénegas National Conservation Area, and WMG is advocating to move this process forward. We also recently hosting a beaver-related restoration practitioners workshop at the



Top: Gerardo Carreon brought along Don Castor (the beaver) in the Mexico survey. Bottom: Interns Katerina Sacoman and Marissa Lee waded through water with WMG Watershed Restoration Director Laura Paulson to spot bankside beaver lodges.

Mike Foster; Cochise College Biology Professor Steve Merkley; Mexico-based NGO partners Carlos Valdez Coronel with Naturalia A.C., and Gerardo Carreon with Profauna; as well as WMG staff members. River Run Network volunteers and partners were all trained on the app and survey protocols prior to getting out in the field.

Our survey results made it clear that there is ample habitat for beaver in the borderlands, including many stretches of deep water. Beavers can create their own pools, but they are also opportunistically utilizing pools created by ranchers through stock ponds, as well as pools created by big log jams in the river channel.

The survey also reinforced our understanding that beavers dispersed and migrated from the original reintroduction in the San Pedro Riparian National Conservation Area

### 2021 Beaver Survey Stats

- 70 miles surveyed
- 14 active dams recorded
- 7 active lodges recorded
- 23 recent bank slides recorded
- 53 recent beaver chews recorded

area slated for beaver re-introduction with agencies, non-profits, landowners, and restoration specialists.

**You can help advocate for and sustain WMG's Release the Beavers campaign by joining the River Run Network at [Watershedmg.org/RRN](https://Watershedmg.org/RRN).** RRN membership is free and includes an e-bulletin with invitations to creek walks, family education events, river cleanups, restoration workshops, and community science initiatives like our annual Binational Beaver Survey.



Carlos Valdez and Joaquin Murrieta share the results of the first binational beaver survey. Carlos Valdez y Joaquín Murrieta comparten los resultados del primer monitoreo binacional de castor.

## Mexican Biologist Carlos Valdez Shares His Passion for Beavers

*Carlos Manuel Valdez Coronel is a biologist based in Hermosillo in Sonora, Mexico, and a WMG partner who helped conduct our Binational Beaver Survey in Fall 2021. Carlos works for Naturalia, A.C., a Mexican conservation non-profit, and has extensive experience working for the conservation of beavers. In addition to field science, Carlos shares his love for Mexican flora and fauna through art at his design studio, Procyonidae Creative, and shares the wonders of Sonoran ecosystems by embodying a frog puppet named La Ranota de Nogales on social media.*

*WMG participated in the beaver survey in Mexico, and interviewed Carlos after the survey. The original interview was in Spanish.*



Social media sensation La Ranota De Nogales meets Beto the Beaver out at Ciénega Creek. La sensación de las redes sociales La Ranota De Nogales, conoce a Beto el Castor en Ciénega Creek.

### Carlos, what do you like the most about your job?

I really like when I have the opportunity to explain to someone who doesn't know that here in Mexico, we have beavers! Many people think beavers are only in Canada and the United States, but their distribution also reaches Northern Mexico in border states such as Sonora, Chihuahua, Nuevo León, Tamaulipas, and Baja California.

### Can you share any success stories of places where beavers are doing well?

The first success story that comes to mind is Los Fresnos, where I work.

This is a private reserve where we work to conserve beavers and their habitat, since we know the great benefits that beavers have as a key species within river ecosystems. Another is Cieneguita, one of the ranches where there is a large presence of beavers and they are accepted; they have very good tree cover and beavers build their dams there. One more is La Cuenca Los Ojos, an organization in Agua Prieta where beavers existed many years ago and became locally extinct. We at Naturalia A.C. are collaborating with another environmental organization and some veterinarians, and together we've managed to capture, release, and

successfully reintroduce beavers at La Cuenca Los Ojos.

### We worked together on the first-ever Binational Beaver Survey on both sides of the U.S.-Mexico border. How is the border wall affecting beavers?

When we walked the San Pedro River at the Binational Beaver Survey, there was a huge section of wall covering the entire San Pedro. This will have an impact especially in rainy seasons, since beavers generally swim to travel and rely on water to hide from predators. Since there is no water in biological corridors outside the river, it affects them a lot, and that connection between the beavers of Sonora and Arizona will be lost.

### How do you see the collaboration with WMG in the long term? What is your perspective on binational conservation work for the future of beavers?

For years, I was unaware of Latinos working in the United States in beaver conservation. How cool that we found that part we were missing in the United States! I hope that we continue collaborating, combining efforts to share the importance of beavers, and protecting these architects of our ecosystems. I hope that in the future WMG becomes an example of what collaboration can look like from both sides of the border, so we replicate and grow beaver conservation in other states. This is one small step for man, one giant leap for beaver.

## El Biólogo Mexicano Carlos Valdez Comparte Su Pasión Por Los Castores

*Carlos Manuel Valdez Coronel es un biólogo con sede en Hermosillo, Sonora, México, y socio de WMG que ayudó a realizar nuestro Primer Monitoreo Binacional del Castor en el otoño de 2021. Carlos trabaja para Naturalia, AC, una organización mexicana de conservación sin fines de lucro, y tiene una amplia experiencia trabajando para la conservación de los castores. Además de la ciencia de campo, Carlos comparte su amor por la flora y la fauna mexicana a través del arte en su estudio de diseño, Procyonidae Creative, y comparte las maravillas de los ecosistemas de Sonora al encarnar un títere de rana llamado La Ranota de Nogales en las redes sociales.*

*WMG participó en el monitoreo de castores en México y entrevistó a Carlos después de este evento. La entrevista original fue en español.*

### Carlos, ¿qué es lo que más te gusta de tu trabajo?

¡Me gusta mucho cuando tengo la oportunidad de explicarle a alguien que no sabe que aquí en México tenemos castores! Mucha gente piensa que los castores solo están en Canadá y Estados Unidos, pero su distribución también llega al norte de México en estados fronterizos como Sonora, Chihuahua, Nuevo León, Tamaulipas y Baja California.

### ¿Puedes compartir historias de éxito de lugares donde los castores

### están bien?

El primer caso de éxito que se me viene a la mente es Los Fresnos donde trabajo, es una reserva privada en la cual conservamos a los castores, ya que sabemos los grandes beneficios que brindan al ser una especie clave dentro de los ecosistemas ribereños. Otro caso de éxito sería el rancho La Cieneguita, uno de los ranchos donde hay mucha presencia de castores y son aceptados; tienen muy buena cobertura arbórea y los castores construyen allí sus diques. Otro





With the new wall, beavers are no longer able to move across the border, preventing typical migrations that occur during wet seasons and high flows.

Con el nuevo muro, los castores ya no pueden moverse a través de la frontera, evitando las migraciones típicas que ocurren durante las temporadas de lluvia y los flujos altos.

lugar es La Cuenca Los Ojos, una organización en Agua Prieta donde existieron castores hace muchos años y se extinguieron localmente. En Naturalia A.C. estamos colaborando con otra organización ambiental y algunos veterinarios, y juntos hemos logrado capturar, liberar y reintroducir con éxito castores en La Cuenca Los Ojos.

**Trabajamos juntos en el Primer Monitoreo Binacional del Castor en ambos lados de la frontera entre Estados Unidos y México. ¿Cómo está afectando el muro fronterizo a los castores?**

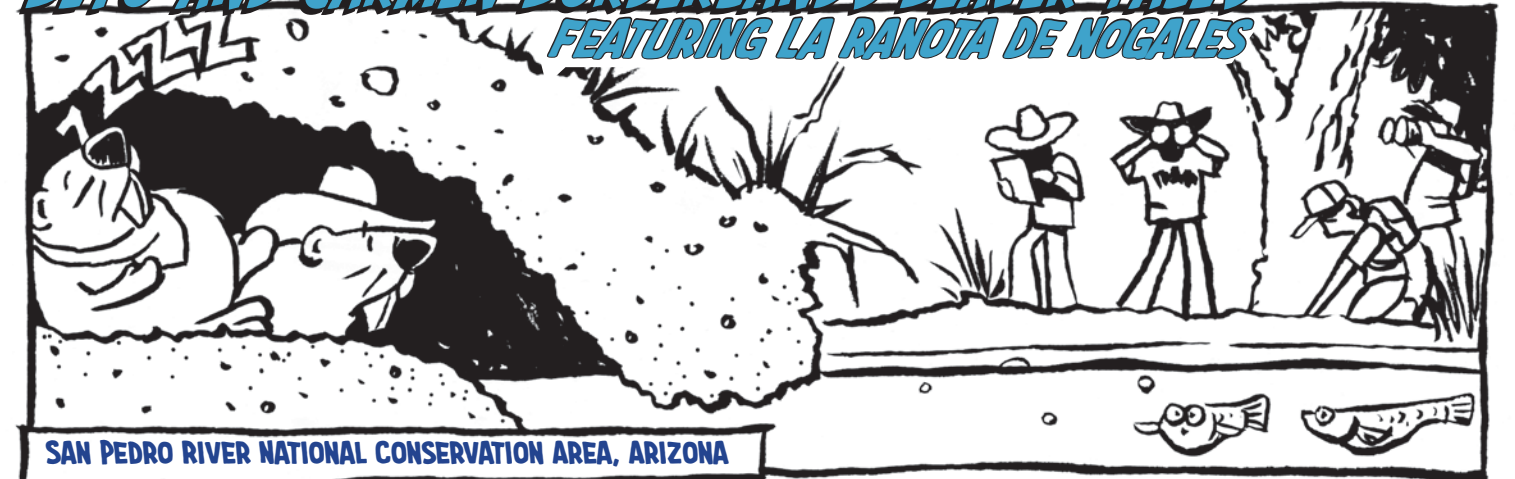
Cuando caminamos por el río San Pedro en el Monitoreo Binacional del Castor, encontramos una gran sección del muro que cubre todo el Río San Pedro. Esto tendrá un impacto especialmente en las temporadas de lluvia, ya que los castores generalmente nadan para viajar y dependen del agua para esconderse de los depredadores. Como no hay agua en los corredores

biológicos fuera del río, les afecta mucho, y se va a perder esa conexión entre los castores de Sonora y Arizona.

**¿Cómo ves la colaboración con WMG a largo plazo? ¿Cuál es tu perspectiva sobre el trabajo de conservación binacional para el futuro de los castores?**

Durante años, no supe de latinos que trabajaran en los Estados Unidos en la conservación del castor. ¡Qué bueno que encontramos esa parte que nos faltaba en los Estados Unidos! Espero que sigamos colaborando, sumando esfuerzos para compartir la importancia de los castores y protegiendo a estos arquitectos de nuestros ecosistemas. Espero que en el futuro esta colaboración se convierta en un ejemplo de trabajo binacional, desde ambos lados de la frontera, para que podamos replicar y hacer crecer la conservación del castor en otros estados. Este es un pequeño paso para el hombre, pero un gran salto para el castor.

## BETO AND CARMEN BORDERLANDS BEAVER TALES FEATURING LA RANOTA DE NOGALES



SAN PEDRO RIVER NATIONAL CONSERVATION AREA, ARIZONA



BETO DO YOU THINK WE WERE COUNTED IN THE SURVEY? MAYBE THEY DON'T KNOW WE SLEEP DURING THE DAY.

¡SÍ CARMEN, THEY DIDN'T SEE NUESTRA MADRIGUERA, BUT THIS DAM WOULD BE HARD TO MISS.



BUENAS DÍAS OIGA! QUÉ BONITA ESTA ESA REPRESA OIGA! I'M READY FOR A SWIM AFTER THE LONG TREK FROM SAN LAZARO.

ORALE QUE SUAVE! ARE THEY COUNTING BEAVERS IN YOUR POND?

NO, NO HAY CASTORES EN EL RÍO SANTA CRUZ OIGA!, BUT I WANTED TO SEE LOS CASTORES DEL RÍO SAN PEDRO WITH MY OWN EYE, OIGA.

DO YOU THINK LA RANOTA DE NOGALES IS A BULLFROG?

SHE'S GRANDE LIKE A BULLFROG, PERO NO, I THINK SHE'S UNA RANA ÚNICA NATIVA DE SONORA!



I WONDER IF OUR PRIMOS WERE FOUND IN THE SURVEY. HOW WILL WE EVER REUNITE?

YA ME VOY! OIGA, I'LL FIND YOUR FAMILIA!

QUE ONDA RAZA! BETO Y CARMEN LES MANDAN SALUDOS DEL OTRO LADO OIGA!

SAN PEDRO RIVER IN ARIZONA AT U.S.-MEXICO BORDER WALL

SAN PEDRO RIVER TRIBUTARY IN SONORA, MEXICO



## River Run Network Removes Thirsty Invasive Plants, Restores Habitat Along Tanque Verde Creek



Relief is on the way for overcrowded native habitat along Tanque Verde Creek! This winter, WMG launched a dedicated effort to remove the invasive *Arundo donax* (aka Arundo, or giant cane) along a 3.85-mile stretch of the Tanque Verde from Tucson's Wildlife Center to Houghton Road. Arundo is a highly flammable invasive weed that crowds out native plants and habitat along creeks, increases fire danger, and uses up far more precious groundwater than native vegetation does. In fact, research shows that during the growing season, **Arundo drinks up 3-4 times more water than similarly-sized stands of native plants like cottonwood, willow, and mesquite — making its removal key to not just**

### **restoring habitat, but also to restoring flow in the Tanque Verde.**

Since last November, River Run Network volunteers have come out in force to Arundo removal workshops led twice a week by Dr. Jim Washburne, WMG's Senior Project Specialist. An expert on Arundo removal, Jim coordinated and led a successful 10-year-effort starting in 2007 to remove Arundo from Lower Sabino Creek. With Jim at the helm, we are already making big progress along the Tanque Verde Creek to restore the native riparian vegetation and ensure there is more water to flow through our creeks and soak into our aquifer.

Since November, we've

hosted 22 workshops with 115 volunteers, and removed over 20,000 pounds of Arundo — over four tons! To add a splash of fun, we invited River Run Network members to participate in our Tanque Verde Challenge: everyone who helped out at four or more Arundo removal workshops was invited to our all-inclusive Pop-Up Picnic at one of our favorite creek stretches in Tucson!

WMG's River Run Network will continue to host Arundo removal workshops through April, and we will launch them again once the cool season returns this November. **You can participate in this effort by joining WMG's River Run Network:**

[Watershedmg.org/RRN](https://watershedmg.org/RRN).

River Run Network volunteers cut and remove arundo stalks to help eradicate them from the creek. Left: Seasonal flows have been restored to Middle Tanque Verde Creek thanks to recovering groundwater levels. The removal of Arundo will leave more water for the creek (Arundo stand on right side of photo.)

# Growing Up With WMG: The Drummond Family

## Growing Up With WMG:

Since they settled in Tucson in 2012, the Drummond family — parents Barbara and Brian, and sons Eric, Bryce, and Tyler — have lived and breathed WMG’s mission with involvement as volunteers, monthly donors, board members, and more!

The Drummonds arrived in Tucson after Brian had served in the U.S. Navy for ten years, and they were elated to be able to get solar panels and rainwater harvesting features at a house they could call their own long-term. While installing their rainwater cisterns, the contractor picked up on the family’s enthusiasm and suggested that they get involved with WMG. Intrigued, Barbara and Brian attended WMG’s Rainwater On Tap event — an annual fundraiser at WMG’s Living Lab where everyone enjoys cocktails and other drinks made from filtered rainwater collected on site.

The following spring, Barbara and Brian brought the whole family to WMG’s Tanque Verde Flow & Feast, where Barbara recalls all of her young sons pitching in to help with the event. “We’d gone to some fundraisers, but at that point we hadn’t volunteered. Eric, who was still in elementary school, volunteered to wash the dishes, and then his younger brothers joined him,” she laughs. The boys helped wash a lot of dishes that night — scrubbing plates from over 150 River Run Network members who enjoyed a potluck and creek walks along the Tanque Verde.

From there, Brian, Eric, and occasionally Bryce and Tyler began volunteering at Co-op workshops, and rainwater harvesting concepts

became staples of the Drummond boys’ school science fair projects. As they learned more and more from WMG workshops, Brian and Eric began bringing hydro-local projects to local community spaces, like schools and hospitals. Together, they designed a rainwater harvesting landscape at their church with elements like a Zuni bowl, multiple overflows, and swales that collected and infiltrated rainwater to feed the landscape. Eric brought their design for the church to life for his Eagle Scout project: at age 17, he led a two-day installation workshop of 40 adults and kids, incorporating all the water harvesting knowledge he’d gained from growing up with WMG.

Now a senior in high school, Eric says WMG played a big role in what he wants to study in college. “All the watershed management experience has been pretty influential for me in reaching out into environmental science,” Eric says. “It’s something I’ve become talented at, and a field where I think I can make a big impact.”

As an educator, Barbara has taught water harvesting lessons at her sons’ elementary schools and coached teams competing in Project WET’s underwater robotics competition. Teams have researched many water issues facing our community, from over pumping groundwater to designing solutions for areas prone to flooding. She volunteered for the

beaver survey to record evidence of beavers along the San Pedro last fall (which she calls “the best day ever”), and Barbara and Brian are also generous monthly donors to WMG.

On top of participating in lots of existing events and as a member of WMG’s board for over four years, Brian has shown enormous initiative in bringing new volunteers to WMG’s work. As an ER doctor, Brian has often brought many of his fellow doctors to our Rainwater on Tap fundraiser. Last fall, he recruited 50 medical residents from his hospital for a WMG work day to give some much-needed love to streetside water harvesting basins and trees planted in the underserved Flowing Wells neighborhood.

Reflecting on her husband’s involvement, Barbara says, “In the ER you see so much of the underbelly of society, and COVID has decimated our hospitals. It’s been tough, and being able to be active with WMG is creating something. It’s very much part of the coping.”

“I see rainwater harvesting as knowledge we can all pass on,” Brian adds, “Whether it’s the kids stopping to ask what I’m working on when I’m maintaining basins at their school, or my sister-in-law in Phoenix FaceTiming me to ask if she’s installing a berm the right way. Because now, she’s talking with the principal at a Title I school about doing a water harvesting project there. This is how it happens: one person talks to the next.”

We are grateful beyond words for the generosity, passion, and long-time service the Drummond family has brought to the WMG community. Thank you!



*“All the watershed management experience has been pretty influential for me in reaching out into environmental science. It’s something I’ve become talented at, and a field where I think I can make a big impact.”*

*-Eric Drummond*



Top: Brian building a rain garden at the boy’s school. Middle left: Eric (in beaver costume) and his mom Barbara at WMG’s Release the Beaver event. Middle right: Drummond boys joined the volunteer crew at WMG’s annual Flow and Feast. Bottom: Planting citrus tree fed with greywater from boys’ shower.



# Building A More Inclusive Hydro-Local Movement



**In 2016, WMG established four “We Are One Watershed” resolutions that formally launched our Diversity, Equity, and Inclusion (DEI) work as an organization. Since that time we have grown in many ways, from ensuring annual DEI training for board and staff;**

Cindy Hu, Community & Youth Education Manager and a working mom at WMG, is spearheading family-friendly infrastructure at the Living Lab for both the public and staff.

Cindy Hu, gerente de educación y madre trabajadora en WMG, encabeza la infraestructura familiar en WMG, tanto para el público como para el personal.

**to hiring a staff member to run our DEI committee; to shifting how we recruit, hire, and onboard staff, board, interns, and docents to ensure we are building a diverse team that includes Latinx, Black, Indigenous, People of Color, and LGBTQIA+ community members.**

Ultimately, we want to build a hydro-local movement where people across all economic, racial, gender, cultural, and ability lines are embraced and recognized. Now, six years later, we have updated our resolutions and prioritized measurable actions to continue and deepen our DEI work.

So what do our updated DEI Resolutions look like in practice? Here are a few examples:

**Resolution: We will uplift all gender identities and fully value their contributions.**

When Cindy Hu, WMG’s Community and Youth Education Manager, began leading events at the Living Lab, she was struck by the fact that there was no diaper changing station in any of the bathrooms. Sometimes having her infant son there, she often found herself changing his diaper

in the backseat of her car. “I asked about a diaper changing station, and was told that no one had ever mentioned it,” Cindy says. “But the organization was very receptive, and a few months after I brought it up, they’d installed a changing station in the main composting toilet area next to the Welcome Center.” The changing station has been especially helpful for families with young children attending events like Family Saturdays.

As a working mom, Cindy adds that having flexible work hours, including early mornings and late nights, has been a huge help in sharing childcare with her husband (who also works full-time), as well as having a locking office with blinds where she can pump. But Cindy says there’s still a lot of room for growth. “Our parental leave policy does not give enough time with your newborn,” she says. “We need to change that. Even if we increased it by a month, that would feel like a big jump.”

**Resolution: We will expand efforts to serve culturally rich, limited income communities.**

While some forms of rainwater harvesting, like tanks and cisterns, can be pricey, Build Your Own Basin (BYOB) workshops are a way to go hydro-local that is more accessible to community members of lower income, who rent their homes or apartments, or who may not have the time and resources to explore rainwater harvesting options.

The program, which began in spring 2021, works like this: community members attend a free BYOB workshop, virtually or in-person, where they learn how to build their own basin and rain garden. When they complete the workshop, participants can take home a kit with materials like a native shade tree and shrubs,

# Construyendo un Movimiento Hidro-Local Más Inclusivo

**En 2016, WMG estableció cuatro propósitos llamados “Somos Una Cuenca” que lanzaron formalmente nuestro trabajo de Diversidad, Equidad e Inclusión (DEI) como organización. Desde entonces, hemos crecido de muchas maneras, desde ofrecer capacitaciones de DEI cada año para la junta directiva y el personal; a contratar a un miembro del personal para dirigir nuestro comité DEI; a cambiar la forma en que reclutamos, contratamos e incorporamos al personal, la junta, los pasantes y los docentes para asegurarnos de que estamos construyendo un equipo diverso que incluye miembros de la comunidad latina, afroamericana, indígena, de color y LGBTQIA+.**

Esencialmente, queremos construir un movimiento hidro-local donde las personas de cualquier situación económica, raza, género, cultura y habilidad, sean aceptadas y reconocidas. Ahora, seis años después, hemos actualizado nuestros propósitos y priorizado acciones medibles para continuar y profundizar nuestro trabajo de DEI.

Entonces, ¿cómo se ven en la práctica nuestros Propósitos de DEI actualizados? Aquí están algunos ejemplos:

**Propósito: Elevaremos todas las identidades de género y valoraremos plenamente sus contribuciones.**

Cuando Cindy Hu, Gerente de Educación Comunitaria y Juvenil de WMG, comenzó a dirigir eventos en el Laboratorio Vivo, le llamó la atención el hecho de que no había una estación para cambiar pañales en ninguno de los baños. A veces, teniendo a su hijo pequeño allí, a menudo se encontraba cambiándole el pañal en el asiento

trasero de su automóvil. “Pregunté sobre una estación para cambiar pañales y me dijeron que nadie la había mencionado”, dice Cindy. “Pero la organización fue muy receptiva, y unos meses después de que mencioné el tema, instalaron un cambiador en el área principal del baño de compostaje al lado del Centro de Aprendizaje”. El cambiador ha sido especialmente útil para las familias con niños pequeños que asisten a eventos como los Sábados Familiares.

Como madre trabajadora, Cindy agrega que tener horarios de trabajo flexibles, incluso temprano en la mañana y tarde en la noche, ha sido de gran ayuda para compartir el cuidado de su hijo con su esposo (que también trabaja de tiempo completo), además de tener una oficina cerrada con persianas donde ella puede bombear. Pero Cindy menciona que todavía hay mucho espacio para crecer. “Nuestra política de licencia parental no da suficiente tiempo para un recién nacido”, dice ella. “Necesitamos cambiar eso. Incluso si lo aumentáramos un mes, se sentiría como un gran salto”.

**Propósito: Expandiremos esfuerzos para servir a las comunidades culturalmente ricas y de ingresos limitados.**

Si bien algunas formas de cosecha de agua de lluvia, como tanques y cisternas, pueden ser muy costosas, los talleres Cuenca Todo (BYOB) son una forma más accesible para volverse hidro-local, sobre todo para los miembros de comunidades de bajos ingresos, que rentan sus casas o apartamentos; o que no tienen el tiempo y los recursos para explorar las opciones de cosecha de agua de lluvia.

El programa, que comenzó en la primavera de 2021, funciona así: los miembros de la comunidad asisten a



Workshop participants pick up Build Your Own Basin kits from WMG’s Green Infrastructure Coordinator Luis Salgado at New Hope Church in the Elvira neighborhood.

Los participantes del taller recogen los kits de Cuéncamelos Todo (BYOB) del Coordinador de Infraestructura Verde de WMG, Luis Salgado, en la iglesia New Hope en el barrio Elvira.



Josefina Cardenas helped organize a rain garden workshop and cultural creek walk in Barrio Kroeger Lane in partnership with WMG.

Josefina Cárdenas ayudó a organizar un taller de jardín de lluvia y una caminata cultural por el arroyo en Barrio Kroeger Lane en asociación con WMG.

wildflower seeds, wood chip mulch, and WMG’s bilingual How-To BYOB guide, all free of charge, to build their own rain garden at their home or community space. Altogether, we distributed 475 BYOB kits throughout the community in 2021!

Hosting these workshops at neighborhood churches, schools, and other community spaces has deepened and expanded relationships in underserved communities like Flowing Wells, Elvira, and the City of South Tucson, where 25-44% of residents live below the poverty line. During our fall BYOB participant survey, we found that more than 1 in 5 participants were limited-income. This is a significant increase from our Co-op workshops in 2021, where 1 in 50 participants qualified for the limited-income program, and we know we’ll continue to see more progress as we invest in holding BYOB workshops directly in limited-income neighborhoods.

To further explore the BYOB approach, we are also pausing our Green Living Co-op workshops this summer, to take the time to redesign and ensure our programming is accessible to limited income communities that are greatly impacted by the effects of extreme heat, flooding, and lack of green spaces.

**Resolution: We will work towards collaborative conservation projects and policy making to restore our rivers and improve watershed health.**

In August 2021, our River Run Network was honored to feature perspectives and ancestral knowledge from two guest speakers: David Tenario, a member of the San Xavier District of the Tohono O’odham Nation, and Josefina Cardenas, a community leader in Tucson’s historic Barrio Kroeger Lane community. David generously shared stories of the Tohono O’odham Nation’s relationship with local rivers: people his father’s

age who played in the river canals when they still flowed, the sadness of an elder who saw trees wash away in the 1983 flood, and the San Xavier District Council’s vision for seeing the river heal itself.

Among many valuable lessons, Josefina shared her perspective on the spiritual significance of desert waters and that the Santa Cruz River is always alive, regardless of flow. She shares:

“If we notice and feel, each body for water, may it be a; river – río, stream – arroyo, spring – manantial, waterfall – cascada, ocean – océano, sea – mar, laguna – lake, even the rainfall has a spirit of its own. It is up to humankind to be caretakers of these sacred sites and all of Mother Earth with all its living beings. They are all just waiting for the seasonal flows of living waters to come through to these sacred lands. It will be even more beautiful if the caretakers continue to appreciate these living bodies of water. And these waters will flow even more.”

We’ve been honored to continue dialogue with Josefina about ways we can support the river and environment in Barrio Kroeger Lane that feel co-empowering and community-led. Josefina invited WMG to lead a BYOB workshop at a lot in the neighborhood, which spurred community interest in continuing to work together to build green spaces. Most recently, we co-hosted a River Run Network Cultural Creek Walk, where Josefina spoke to the history of Barrio Kroeger Lane’s indigenous and Latinx communities, the impact of the freeway and past green stormwater infrastructure efforts on the neighborhood, and ways we can move forward together. We hope this will be the first of many such efforts with the community “steering the ram” of development, as Josefina says.

To read our full DEI Resolutions and planned actions, visit [Watershedmg.org/DEI](https://watershedmg.org/DEI).

un taller Cuencamelado Todo (BYOB) gratuito, virtual o en persona, donde aprenden a construir su propia cuenca y jardín de lluvia. Cuando completan el taller, los participantes pueden llevarse a casa un kit con materiales como árboles de sombra y arbustos nativos, semillas de flores silvestres, mantillo de pequeños trozos de madera y la guía práctica bilingüe BYOB de WMG, totalmente gratis, para construir tu propio jardín de lluvia en tu hogar o espacio comunitario. ¡En total, distribuimos 475 kits BYOB en toda la comunidad en 2021!

La aplicación de estos talleres en iglesias, escuelas y otros espacios comunitarios del vecindario ha profundizado y ampliado las relaciones en comunidades desatendidas como Flowing Wells, Elvira y la ciudad de South Tucson, donde el 25-44 % de los residentes viven por debajo de la línea de la pobreza. Durante nuestra encuesta de participantes BYOB del otoño, descubrimos que más de 1 de cada 5 participantes tenían ingresos limitados. Este es un aumento significativo de nuestros talleres cooperativos en 2021, donde 1 de cada 50 participantes calificó para el programa de ingresos limitados, y sabemos que continuaremos viendo más progreso a medida que invertimos en realizar talleres BYOB directamente en barrios de ingresos limitados.

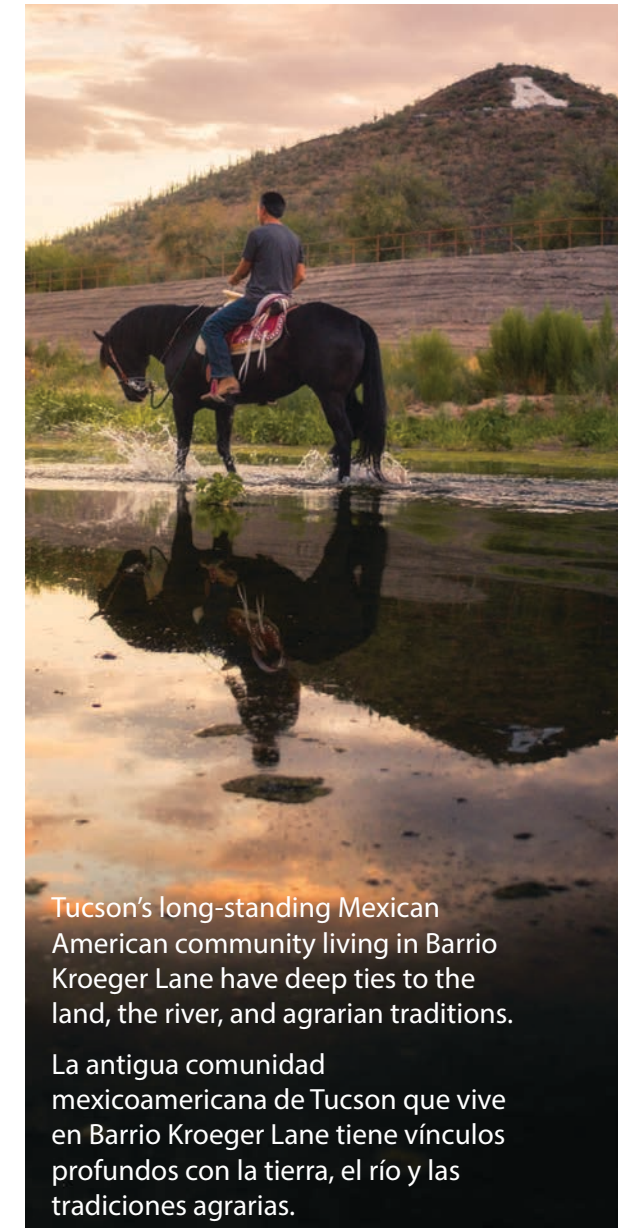
Para explorar aún más el enfoque BYOB, también estamos pausando nuestros talleres de Green Living Co-op este verano, para tomarnos el tiempo de rediseñar y garantizar que nuestra programación sea accesible para las comunidades de ingresos limitados que se ven muy afectadas por los efectos del calor extremo, inundaciones, y falta de espacios verdes.

**Propósito: Trabajaremos hacia la formulación de políticas colaborativas para restaurar nuestros ríos y mejorar la salud de la cuenca.**

En agosto, nuestra Red del Río tuvo el honor de presentar las perspectivas y el conocimiento ancestral de dos oradores invitados: David Tenario, miembro del Distrito San Xavier de la Nación Tohono O’odham, y Josefina Cárdenas, líder comunitaria en el histórico Barrio Kroeger Lane de Tucson. David generosamente compartió historias de la relación de la Nación Tohono O’odham con los ríos locales: personas de la edad de su padre que jugaban en los canales de los ríos cuando todavía fluían, la tristeza de un anciano que vio árboles arrastrados por la inundación de 1983 y la visión del Concejo Distrital de San Xavier de ver cómo el río se cura solo.

Entre muchas lecciones valiosas, Josefina compartió su perspectiva sobre el significado espiritual de las aguas del desierto y que el río Santa Cruz siempre está vivo, independientemente de su flujo. Ella comparte: “Si notamos y sentimos, cada cuerpo por agua, ya sea un: río – river, arroyo – stream, manantial – spring, cascada – waterfall, océano – ocean, mar – sea, laguna – lake, hasta la lluvia tiene un espíritu propio. Corresponde a la humanidad ser guardianes de estos lugares sagrados y de toda la Madre Tierra con todos sus seres vivos. Todos están esperando que los flujos estacionales de aguas vivas lleguen a estas tierras sagradas. Será aún más hermoso si los cuidadores continúan apreciando estos cuerpos de agua vivos. Y estas aguas fluirán aún más”.

Nos sentimos honrados de continuar el diálogo con Josefina sobre las maneras en que podemos apoyar el río y el medio ambiente en Barrio Kroeger Lane, que se sientan co-empoderadores y liderados por la comunidad. Josefina invitó a WMG a dirigir un taller BYOB en el vecindario, lo que estimuló el interés de la comunidad en continuar trabajando juntos para construir espacios verdes. Más recientemente, presentamos en conjunto una caminata cultural como parte de la



Tucson’s long-standing Mexican American community living in Barrio Kroeger Lane have deep ties to the land, the river, and agrarian traditions.

La antigua comunidad mexicanoamericana de Tucson que vive en Barrio Kroeger Lane tiene vínculos profundos con la tierra, el río y las tradiciones agrarias.

Red del Río, donde Josefina habló sobre la historia de las comunidades indígenas y latinas de Barrio Kroeger Lane, el impacto de la autopista y los esfuerzos pasados de infraestructura verde de aguas pluviales en el vecindario, así como distintas formas en que podamos salir adelante juntos. Esperamos que este sea el primero de muchos esfuerzos de este tipo: con la comunidad “guiando el empujón” del desarrollo, como dice Josefina.

Para leer nuestros Propósitos de DEI completos y las acciones planificadas, visite [watershedmg.org/dei](https://watershedmg.org/dei).

# WMG Welcomes New Board Members

WMG welcomed five new board members in January, who not only represent our diverse community but are committed to helping us better engage BIPOC (Black, Indigenous, People of Color) and Latinx communities. This new cohort brings ample skills and connections to the table to advance our long-term vision for a hydro-local future and restoring our heritage of flowing desert rivers.



**Angelica Cruz Favela**

Angelica Favela is the Director of Procurement of the Pascua Yaqui Tribe of Arizona, of which she is also a member. She previously worked in other finance roles for the Pascua Yaqui Tribe for ten years, in consulting and advising, and as the Associate Director of Finance at the Sonoran Institute. In addition to her work life, Angelica is the Vice President of the Canyon Del Oro Booster Club and a volunteer mentor for the Junior El Tour De Tucson cycling team. Angelica is currently pursuing her MBA at Louisiana State University with an anticipated graduation date May 2022.

"I want to cultivate a relationship between the Pascua Yaqui tribe and WMG. A lot of our tenants in the tribe are renters, and they don't know what's out there in terms of rainwater harvesting. We also have a lot of flooding at our location, and we want to know about environmentally safe, savvy, cost-effective solutions so we're prepared for the monsoons. This is a great opportunity to come together and ask, 'What can we do for each other?'"



**Christopher James**

Christopher James likes to joke that he—as most people are—was born a biologist, but he never stopped searching streams and looking under rocks for all the hidden beauty of life. He brings a wealth of international environmental experience to WMG, including working as a nature preserve director in the high Andes of Ecuador, coordinator of a stream research project in collaboration with an indigenous community in the upper Amazon, and a zookeeper with the Smithsonian Institution in Washington, D.C. Chris now lives in Tucson, where he teaches high school Environmental Science.

"I've had the opportunity to work with small communities in water-rich areas, where streams and rivers are vital lifelines and people are fully aware of their connection to them. While the opportunity to collaborate with WMG makes me personally happy (so that I have an excuse to play in the creeks), it is doubly important to help forge that bond between Tucsonans and their watershed, and to create a sustainable water future for all of us."



**Nancy Montoya**

Nancy Montoya is an award-winning broadcast journalist and Arizona native with more than 40 years of experience. Early in her career, Nancy worked at newsrooms in cities including Pittsburgh, Denver, Dallas, Nashville, and Charlotte. She has earned four Emmys, Columbia University's Alfred I. duPont Silver Baton, and the Broadcast Pulitzer for her coverage of civil wars in Central America for ABC News. She has also produced for PBS, CNN, and NBC News, and was the senior reporter for border and immigration issues at Arizona Public Media, with an emphasis on local environmental concerns. Nancy owns Media Source America with her husband, fellow news producer Kirt Ijams, and produces independent documentaries concentrating on Southwest water and environmental issues.

"Water is my life blood. I grew up on the oldest working ranch in Arizona on the Gila River, and water is the source of life for my community. We have to take care of our water, especially in the desert, or that community dies."



**Sara Chavarria, PhD**

As the Assistant Dean of Research Development at the University of Arizona's College of Education, Sara Chavarria designs and conducts educational programming that creates learner-centered, interactive experiences for underrepresented and marginalized students and the educators that serve them. She is especially interested in best practices for attracting and retaining low-income, first generation undergraduate students, and facilitates research on effective learning practices in this realm. Sara has also brought her expertise to WMG's Diversity, Equity and Inclusion Committee, where she serves alongside board and staff members.

"I am energized by the work that WMG is doing in ensuring that it reflects the community we live in by growing their services to minoritized communities, valuing the knowledge our many communities can contribute to building solutions, and committing to changing the face of their own staff to reflect representation from our diverse communities."



**Shaina Shay**

Shaina Shay is a Specialist for Global Water Resources, a company that owns, operates, and manages water, wastewater and recycled water utilities—mainly in metropolitan Phoenix. Shaina manages Global Water's conservation program and facilitates water resources planning, accounting, and regulatory compliance. She holds a BS in Environment and Water Resource Economics and a BA in International Studies from the University of Arizona. Shaina lived and worked abroad in Australia, specializing in water markets for the Victorian Department of Environment, Land, Water, and Planning before returning to Tucson. In addition to strengthening water resource policy in Arizona, her passions include environmental education, public speaking, hiking, and cooking.

"As a Tucson native, I grew up understanding the importance of using water wisely. I am so excited to be working with an organization that is taking action to improve the future of water for our community in an inclusive and sustainable way."

## 2021 FUNDING, SPONSORS, AND PARTNERS

### Grant and Foundation Funding

Arizona Department of Environmental Quality  
 Arizona State Forestry Division  
 Bureau of Reclamation  
 Community Foundation of Southern Arizona  
 Desert Diamond Casino  
 Freeport McMoRan, Inc.  
 Intel Corporation  
 Jeff and Connie Woodman Foundation  
 Lester & Millie Rosen Foundation  
 National Oceanic and Atmospheric Administration  
 Network for Landscape Conservation  
 One Tree Planted  
 Pima County Community Development  
 River Network  
 Southern New Hampshire University  
 Tucson Water Department

### Business Sponsors

Baird  
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 City of Tucson - Tucson Water  
 Corso Law Group  
 EcoSense Sustainable Landscapes, LLC  
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 Gerber Injury Law  
 KXCI Community Radio  
 Mercado District  
 The Nature Conservancy  
 Net Zero Solar LLC  
 Originate Natural Building Materials  
 Pueblo Vida Brewing Company  
 Sierra Club - Grand Canyon Chapter  
 Solar United Neighbors of Arizona  
 Southern New Hampshire University  
 Sun Sprout Cloth Diaper Service  
 Susan Denis, Realtor (Tierra Antigua)  
 Tank's Green Stuff  
 Tap and Bottle  
 Technicians for Sustainability  
 Thompson Law Firm  
 Westgate Garden Design  
 Whiskey Del Bac

### Tucson Region Partners

Amphitheater High School  
 Arizona Game and Fish Department, Tucson Aquatic Wildlife Program  
 Arizona Master Naturalist Association  
 Arizona Project WET

Arizona-Sonora Desert Museum  
 BKW Farms  
 Borderlands Restoration Network  
 Canyon del Oro High School  
 Ciénega Watershed Partnership  
 City High School  
 City of South Tucson  
 City of Tucson Department of Transportation and Mobility  
 City of Tucson Parks and Recreation  
 City of Tucson, Tucson Water Dept.  
 City of Tucson, Ward 1 Council Office  
 City of Tucson, Ward 3 Council Office  
 City of Tucson, Ward 6 Council Office  
 Community Gardens of Tucson  
 Cooper Center for Environmental Learning  
 Devereux Advanced Behavioral Health  
 Drachman Montessori School  
 Flowing Wells Neighborhood Association  
 Freeport-McMoRan Sierrita Operations  
 Girl Scouts of Southern Arizona  
 YWCA House of Neighborly Service  
 Las Milpitas Community Farm  
 Living Streets Alliance  
 Local First Arizona  
 Mission Gardens  
 National Park Service - Saguaro National Park  
 National Phenology Network  
 New Hope Church  
 Palo Verde Neighborhood Association  
 Pima Association of Governments  
 Pima County Community Development  
 Pima County Cooperative Extension, University of Arizona  
 Pima County Office of Sustainability and Conservation  
 Pima County Regional Flood Control District  
 Pima County Regional Wastewater Reclamation Department  
 San Xavier District of the Tohono O'odham Nation  
 Satori Charter School  
 Sky Island Alliance  
 Sonoran Environmental Research Institute (SERI)  
 Sonoran Institute  
 Steele Elementary School  
 Sustainable Tucson  
 The Drawing Studio  
 The Garden Kitchen

The Sierra Club - Grand Canyon Chapter  
 Tohono Chul  
 Tucson Audobon Society  
 Tucson High Magnet School  
 Tucson Village Farm  
 U.S. Forest Service, Coronado National Forest Catalina District  
 United States Bureau of Reclamation  
 University of Arizona Bureau of Applied Research in Anthropology  
 University of Arizona College of Architecture, Planning, and Landscape Architecture  
 University of Arizona Udall Center for Studies in Public Policy  
 University of Arizona Water Resources Research Center  
 University of Arizona, School of Natural Resources and the Environment

### Phoenix Region Partners

City of Glendale  
 City of Phoenix, Water Services Dept.  
 City of Surprise  
 City of Tempe  
 Eighty Eight Acres  
 EPCOR  
 Fountain Hills Community Garden  
 Four Peaks Brewery  
 The Nature Conservancy - Phoenix  
 Trees Matter

### Mexico Partners

Arquitectura Universidad de Sonora  
 Caminantes del Desierto A.C.  
 CBTIS-106 Cananea  
 Cuenca los Ojos  
 EJIDOS - San Pedro Watershed  
 Hispanic Access Foundation  
 Naturalia A.C.  
 POMONA Residencial  
 PROFAUNA  
 Rancho El Aribabi, Sonora

### Other Partners

AmeriCorps  
 Arizona State University  
 City of Cottonwood  
 City of Santa Fe  
 NADBANK  
 The Nature Conservancy

## 2021 FINANCIAL REPORT

### Revenue and Support

Donations	756,675
Capital Donations	118,449
Program Income	448,205
Grants	324,329
<b>Total Income</b>	<b>\$1,647,658</b>

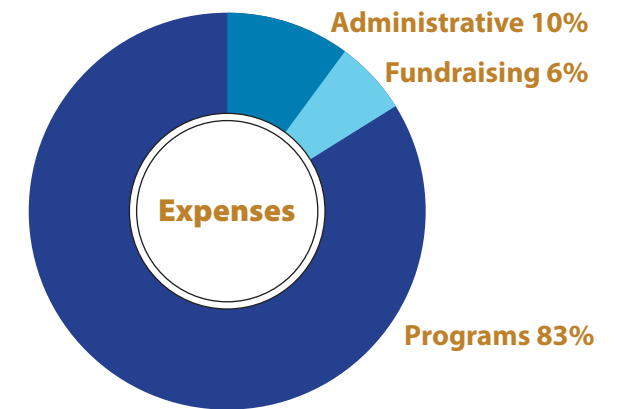
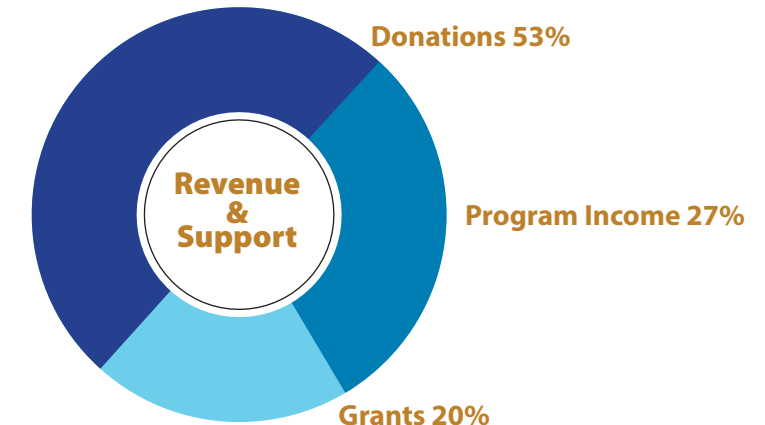
### Expenses

#### Program Services

Living Lab & Learning Center- Programmatic Expense	110,735
Capital Expense	4,148
River Run Network & River Restoration	167,696
Tucson Green Living Co-op	291,748
Scaling Watershed Solutions (Neighborhood & Commercial Green Infrastructure)	204,240
Watershed Education (Schoolyard, Monsoon Squad, Phoenix, Outreach, Water Harvesting Certification)	287,844
<b>Total Program Services</b>	<b>\$1,066,411</b>

#### Supporting services

Administrative	131,602
Development	79,570
<b>Total Supporting Services</b>	<b>\$211,172</b>
<b>Total Expenses</b>	<b>\$1,277,583</b>



WMG's Living Lab and Learning Center is a hub of activity once again for WMG's large community events, like Beavers and Brews: Castoriando con Chelas on April 7th. A capital campaign is underway to fund the construction of the Learning Center, a multi-purpose indoor space essential to expanding our education for families, youth, and adults..



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Help us create a hydro-local future and restore our heritage of flowing desert creeks and rivers. Sustain these efforts by becoming a monthly donor or planning a gift through your IRA, donor-advised fund, stocks, or estate.

Get started at [Watershedmg.org/Give](https://Watershedmg.org/Give)

