



MONSOON MAGIC 2 // PYEATT RANCH 3 // CELEBRATING 10 YEARS 4 // DESERT & SEA 6

## Planting a Seed with Youth

By: **BRN Staff**

Each summer BRN invests in local youth through our summer education programs, Borderlands Earth Care Youth (BECY) and the Sonoran Field Course (SFC). Thanks to the generous support of program partners, funders and donors, this year was no different and provided immersive, one-of-a-kind experiences for borderlands youth inspiring the next generation of conservation leaders on both sides of the border.

To give you a taste of BECY, two participants, Drey Kipnis and Birdie Bauer from Tucson, used their talents to tell the story of their experience for their final BECY project by creating a charming video featuring two charismatic sock puppets highlighting a few projects from the summer.



2023 Sonoran Field Course participants.



BECY Douglas crew members building an erosion control structure at Lee Station Ranch.

Meanwhile in Sonora, Mexico, over nine days, young professionals from Hermosillo, Ciudad Obregón, and Moctezuma, Mexico, participated in the Sonoran Field Course immersed in curriculum focused on holistic approaches to the ecological challenges of the borderlands region. Through lectures, field trips, and hands-on learning, participants learned about ecological restoration, watershed restoration, native plants, permaculture, humanitarian aid, arts and ecology, cross-border collaborations, and much more.

Take a deeper dive in the 2023 Sonoran Field Course report to learn more!

Scan the code to watch the video!




To get the full scoop on BECY 2023, read all about it in the 2023 BECY report artfully created by our staff.



BECY Patagonia crew members Birdie Bauer and Drey Kipnis.

Scan the code to read the 2023 SFC Program Report!




2023 REPORT



“Without a doubt, the Sonoran Field Course is one of the best courses I have attended. Not only because of the great information that was shared, but also because of the great experiences.”

**JOSÉ LUIS SALAZAR,**  
SFC PARTICIPANT

Scan the code to read the 2023 BECY Program Report!








# Monsoon Magic

By: Cholla Rose Duir, Borderlands Wildlife Preserve Manager

Some of my most vivid childhood memories revolve around water, mainly in the form of precipitation. I grew up in central Tucson and had a large mesquite tree in our backyard. During the hottest parts of summer, I would climb the tree and make wishes for rain on the distant clouds, “Please, please, please rain!” The best part was watching the streets flood from the porch and yelling as our neighbor’s floatable objects cruised down the road and, of course, the smell and cooler temps, if only for a moment. Growing up in the desert almost gives you a sixth sense of perceiving when it will rain. You can look at the clouds and know if they are too high or too far away or feel when the wind suddenly picks up just before the downfall.

Several factors cause the monsoons in the southwest, but one of them is the sun heating the land and the nearby Pacific Ocean at different rates. So in

June, when the temperatures felt just a little too comfortable, I began to worry we might not have the best monsoon this summer. This monsoon season has been below average in the Patagonia area. Thanks to Hurricane Hillary, the Tucson area is recording average rainfall. There is an easy-to-use interactive chart on the NOAA website, [weather.gov/twc/Monsoon](https://www.weather.gov/twc/Monsoon), if you want to check it out yourself. You can also see fun facts like the number of lightning strikes and the average dew point.

Monsoon season ended September 15, and the rains at the Borderlands Wildlife Preserve have been sporadic but not non-existent. Many animals that call the preserve home depend on the monsoon season to provide moisture for breeding grounds and increase plant life for foraging. Some species, like the giant vinegarron, are only active during high humidity. Others, like spadefoot

toads, need intense rumblings caused by thunderstorms to awaken them for the breeding season in pools of water created by the rapid fall of rain.

I no longer spend my summer days climbing mesquite trees, but one of my favorite activities in the summer months is coming across images of wildlife in the rain. A series of six wildlife cameras are placed strategically on the preserve. Occasionally, they capture a little monsoon magic and provide a beautiful image of wildlife enjoying the summer moisture. With two ponds and three wildlife drinkers maintained year-round by staff, these lucky animals don’t only have to depend on the rain, they have caring humans like us to depend on too. With ongoing habitat restoration and land conservation efforts in the works, these watering holes will remain a backup plan to wishing on the clouds and waiting for the rain.



A hooded skunk enjoying the monsoon rain at the BWP.



A Coeus deer in the rain captured by a BWP wildlife camera.

Follow the Borderlands Wildlife Preserve at: @BorderlandsWildlifePreserve  





Zach Farley, Watershed Restoration Crew Lead atop a large zuni bowl erosion control structure.

## A Day at *Pyeatt Ranch*

By: **Aspen Thies, Watershed Restoration Program Coordinator**

The Watershed Restoration Program is partnering with the United States Forest Service and Pyeatt Ranch to slow down accelerated erosion in the Canelo Hills.

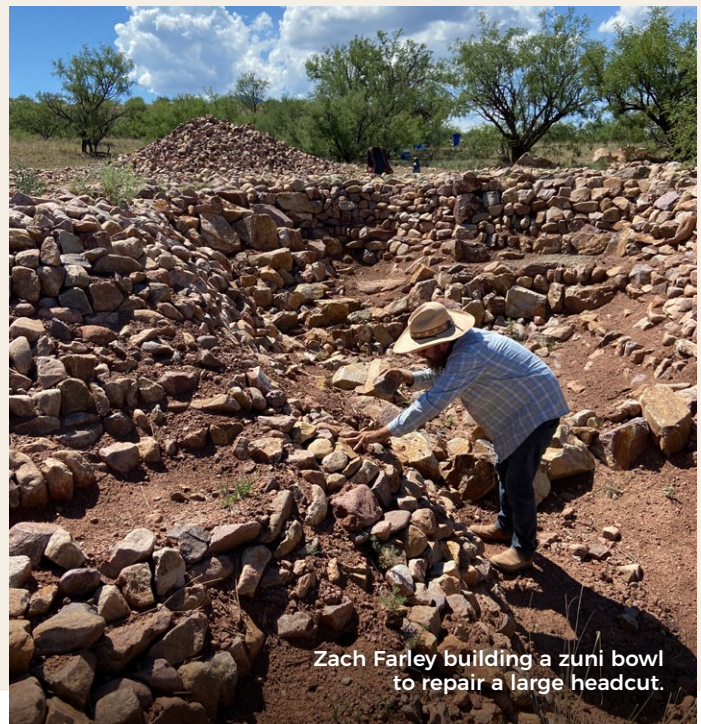
With funding from the Arizona Land and Water Trust we are building six enormous zuni bowls to fix a series of massive headcuts that have been eating away at the land just below a dirt road, and are within feet of destroying it. Our crew, Zach Farley, Eduardo Gracia, Rohan Sorta, and Aspen Thies, take great pride in helping restore our watersheds and the land that people rely on and are excited to take on such a large project.

We begin our day with some stretching, grabbing a snack, and making sure we have our radio set up. By now it is 7AM and already hot. “It’s gettin’ toasty,” Zach says, but we dive right in, almost literally, because the headcuts we are working on are deeper and wider than your average backyard pool. A headcut describes a steep drop in the earth where water flows and strips away loose soil. As more soil is swept away, the drop becomes taller causing water to gain even more erosive force. Headcuts can become large - the six that we are addressing are all at least 5 feet deep and 5 to 20 feet across. Zuni bowls are what we call the structures used to stop them because of the natural bowl shape a headcut creates with steep sides and a basin in the center where water pools before flowing downstream.

Throughout the morning we work on different sections of the headcuts, sometimes rolling boulders into the bottom of a bowl to form the base using our one-of-a-kind wheelbarrow, affectionately named the “Boulder Bully” by Eduardo and Rohan. By laying hundreds of rocks carefully stacked and hammered into place in a mosaic-like fashion, these headcuts become encased in stone which allows flowing water to slide over the rocks and down the natural drainage, instead of picking up and eating away at the soil below. Below the headcuts are a series of one-rock-dams (ORDs) that act as barriers to stop water and allow soil to drop out of the water and settle in the rocks. This builds the soil level back up and creates new habitat. The decelerated water then has a chance to infiltrate the soil which lowers surface-level temperatures.

This new environment stimulates plants to revegetate the area with the increased nutrient and moisture availability.

By lunchtime we are all sweaty and sunbathed. Working through the summer heat is a challenge, but we reap the rewards when basking under the thin but velvety shade of the mesquite trees surrounding our worksite. Rice Krispie treats and special Egee’s deliveries help too! We have spent at least one day a week at this site beginning in May, and over the course of the summer have completed four of the large zuni bowls, a dozen ORDs, and two long media lunas. We still have some details to finish and will revisit the site to repair any damage from the monsoon season. This work requires a lot of rock, and we have moved about 20 tons to reinforce these headcuts and prevent them from unzipping even more of the landscape. While our work is physically demanding, knowing that our structures and their positive impacts on our watersheds will outlast us (and many generations to come) is what makes every day fulfilling.



Zach Farley building a zuni bowl to repair a large headcut.



2014 plant delivery staff:  
Bethany Brandt, Francesca  
Claverie, Molly McCormick, and  
Travis Gerckens.

# NATIVE PLANT PROGRAM *Celebrates 10 Year Anniversary*



By: Francesca Claverie, Native Plant Program Director

The fall of 2023 marks the ten year anniversary at our location of what is now Borderlands Nursery & Seed, the native plant program of Borderlands Restoration Network. Thanks to the tireless efforts of numerous staff, volunteers, and friends of the program, the nursery now includes six nursery structures, a potting shed, two acres of growout fields, and a large seed lab housing production space and seed collections for regional restoration partners and our own restoration projects.

Prior to 2013, we worked out of a small greenhouse at BRN founder Ron Pulliam's home, space at Kate Tirion's Deep Dirt Farm greenhouse, and the seed lab was hosted in supporter Kelly Flemming's backyard shed. These efforts were funded by an early Borderlands Restoration grant in partnership with the Hummingbird Monitoring Network to growout species of pollinator supporting native plants for hummingbirds with a focus on early nectar sources in the hottest months of the year.

At the time, the National Native Seed Strategy was in its early stages of development with restoration practitioners touting the importance of using and sourcing local plant genetics

for effective restoration. Regionally sourced and organically grown plant materials such as our container plants grown from native seeds and seeds either wild-collected or from our grow out fields, are important for our specific local ecosystems because they are especially resilient, having evolved and adapted to support native wildlife and the great biodiversity in this specific ecoregion and climates of the Sky Islands. The BRN Native Plant Program was born as a response to this growing need and the knowledge of the importance of effective and successful ecological restoration. We are proud to say we have grown leaps and bounds from our humble beginnings continuously expanding, fine-tuning our operations, and making native seed and plants for our ecoregion available for restoration and home gardeners alike.

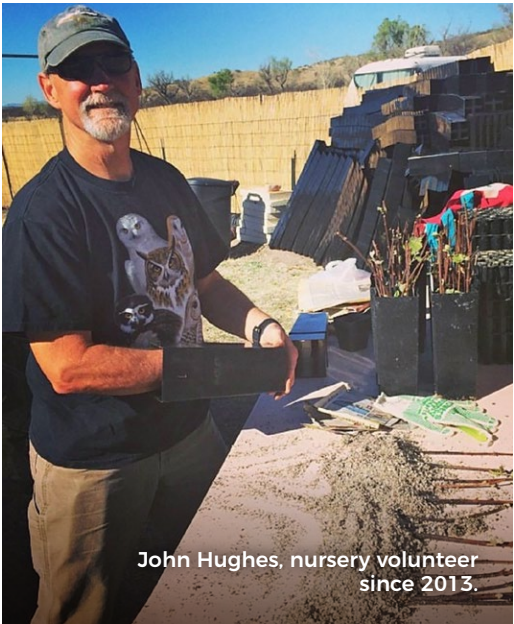
We deeply thank the early supporters of our program including Steve Buckley and Jeff Conn, and early BRN staff David Seibert, Molly McCormick, Caleb Weaver, Andrea Stanley, Anita Clavesko-Wharton, and Allegra Mount for their tireless work and visioning in forming the program. BRN's first Executive Director, Kurt Vaughn, helped lead the program into a new era stabilizing and growing funding. Former staff members, Aishah Lurry and Randy Trantham



Molly McCormick at the first plant sale, Fall 2013.







John Hughes, nursery volunteer since 2013.

Scan the code with your smartphone camera to learn more about the National Native Seed Strategy!



worked tirelessly to ramp up and expand production before 2020, and our current staff, Francesca Claverie, Perin McNelis, Travis Gerckens, James Dennison, and Casey Jacobs are expanding operations, increasing plant accessibility to more borderlands communities, and expanding our seed operations. There have been dozens of short term seasonal hires for seed collection and weekend watering, as well as hard-working interns who have helped keep the lights on and the pumps running. Managing a native plant nursery is a year round, 24/7 endeavor where someone has to be on site every day of the year to ensure infrastructure doesn't fail, and plants get watered and cared for. It takes many hands and the nursery and seed lab we have today is thanks to the hard work and dedication of many.

We also owe thanks to visiting groups and our own dedicated volunteers that have helped collect and clean seed and propagate the hundreds of thousands of plants we have produced over the life of our program. We simply wouldn't exist without our amazing volunteer team of seed cleaning and nursery volunteers. We appreciate these individuals immensely. Many have shown up at least once a week for years and have become not only some of our favorite people, but best friends and kindred spirits in our mission to restore the borderlands. Our current volunteer team include John Hughes, Deb Goff, Chris Gardner, Loren Krebs, Darcy Alexandra, Bets Stover, Rick Dillon, Barb Saulsbury, Juanita Lehman, and Mary Lou Duffy.

Since the inception of our program we have propagated hundreds of thousands of plants for sale and restoration projects including propagating our seed increaser fields, and have recorded over three thousand collections of seed encompassing over 600 species of native plants. Most of our plant materials have gone into restoration projects with public partners such as the US Forest Service, National Park Service, Bureau of Land Management, Arizona Department of Forestry and Fire Management, Arizona Game and Fish, and private partners such as Sky Island Alliance, Watershed Management Group, Tucson Audubon Society, Bat Conservation International, Wildlife Corridors LLC, and many more. Every native plant and seed species is critical for the ecology of our natural environment. Our projects and plant lists to date have included charismatic projects focused on wildlife conservation such as agaves for bats, milkweeds for monarch butterflies, nectar for hummingbirds, restoration on the path of the jaguar, wild crop relatives, quail food plants, and Emory oak plantings.

As we make our way forward we will have more exciting expansions to share and can't wait to see what is possible as we move into the next decade working to restore and support the beautiful and rich landscapes of our special corner of the world. Thank you to all that have supported this important work for our region, we simply wouldn't be here without you!



2019 nursery Staff and volunteers.



2016 plant delivery with Andrea Stanley and Perin McNelis.



# On the Edge of *the Desert and Sea*

Grupo Tortuguero Comcaac  
Ancestral Tides Team.



By: Dr. Laura Monti, BRN Senior Fellow, Comcaac Program Manager

The Salud Comcaac program, an initiative started in 2020 by BRN Senior Fellow Dr. Laura Monti, fosters community and ecological health with the Comcaac Nation, located in the coastal region of northern Sonora, Mexico. The partnership is rooted in the understanding that the desert and sea environment and the indigenous communities that dwell within them are interdependent focusing on community health, renewable energy, food and water security, coastal restoration, and sea turtle conservation.

This year, thanks to support from 11th Hour Racing/The Schmidt Family Foundation, the team is working to protect and reforest coastal mangrove forests and seagrass beds as a strategy for climate change mitigation. The Blue Carbon team made up of university and comcaac community researchers, led by Erica Barnett, Gabriela Suarez, Dr. Zulia Sanchez, and Dr. Laura Monti documented the importance of mangroves and eelgrass for carbon sequestration in the Infiernillo Channel. Mangroves and seagrasses

sequester carbon at much higher rates than land forests. The team collected multiple soil samples and measured water quality in nine estuaries and 10 seagrass areas during the spring and are now collecting and cultivating 2,000 mangrove propagules and exploring seedling transplant methods to expand 1,500 hectares of mangroves stands.

These research and conservation activities will further our understanding of the carbon dynamics of the mangrove and eelgrass ecosystems in the Infiernillo Channel, to guide conservation and management decisions and to protect local fisheries. Conservation and expansion of mangroves also helps protect the villages and coastline from erosion caused by rising sea level.

Mangroves and seagrasses are critical to healthy coastal ecosystems and to the health and wellbeing of local communities as a source of food and medicine for the community. Within their dense stands are the nurseries for the region's fisheries. They also function to buffer the communities



Rey Alfonso Morales and Eliseo Morales taking soil samples. Photo: Gabriela Suarez

against storms and accelerating sea level rise. Indigenous and local community mangrove restoration groups recently convened to exchange experiences and strategies to protect coastal ecosystems as climate change accelerates.

In an effort to protect and care for sea turtles, Salud Comcaac is supporting the Desemboque Tortuguero Group working to protect and care for sea turtle nests, support research, and education efforts. Grupo Tortuguero Comcaac began nightly monitoring of 20 km of coastline in June in

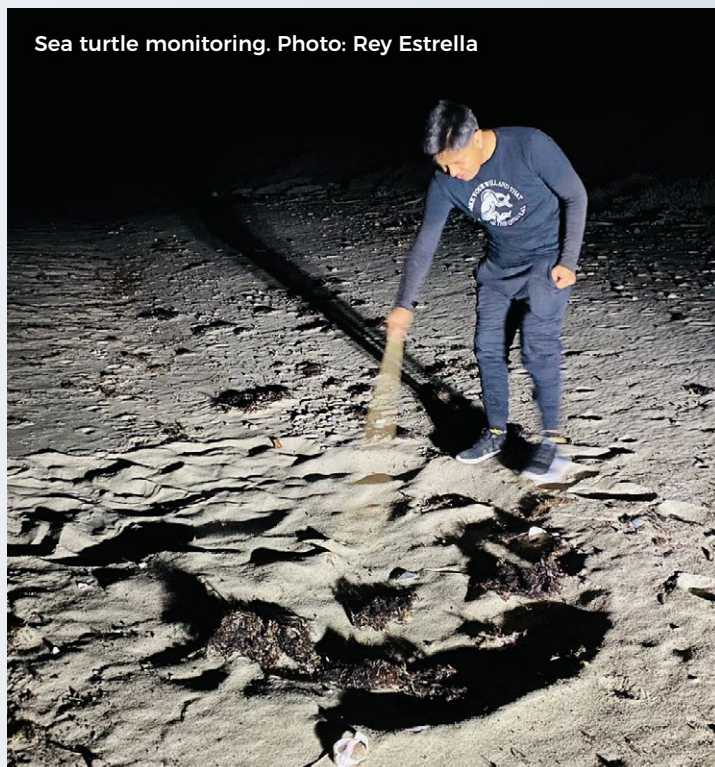


search of sea turtle nests to transport eggs to a hatchery on the outskirts of Desemboque to protect the sea turtles from predation and the effects of climate change. Between 1,500-2,000 sea turtle hatchlings are released each year.

Of the five species of sea turtles that are known in the Infiernillo Channel the primary turtles to arrive are Olive ridley and green turtles. The sea turtles migrate to this region drawn by the abundant seagrass meadows that provide habitat and nourishment. The Comcaac have deep cultural connections with sea turtles.

Members of Ancestral Tides, a network working to protect coastal ecosystems and sea turtles by connecting indigenous-led conservation efforts and revitalizing indigenous knowledge, visited from from Costa Rica to support and strengthen Grupo Tortuguero's work. They worked with the team to improve sea turtle data collection and provided equipment and training. The team constructed a retainer berm to avoid flooding from sea level rise and relocated the sea turtle nursery inland. They also installed shade cloth to reduce heat stress as the turtle eggs incubate. Infrastructure improvements were made to the Casa de Tortuga office and educational space.

In October two young Comcaac will travel to the Osa Peninsula, Costa Rica to gather with other indigenous sea turtle groups from Panama and Colombia. Culture based learning materials were developed by Laura Monti including over 50 sea turtle songs recorded to be used in the upcoming sea turtle festival in November. Sea turtles, a species emblematic of Comcaac culture and their connection between the two great biomes the desert and tropical rainforests, are an indicator of the health of marine and coastal ecosystems.



Sea turtle monitoring. Photo: Rey Estrella



Mayra Astorga Estrella, Jesús Aldair Morales Astorga, and Katia Celika Romero Monroy with consultant Manuel Sanchez learning to use a sea turtle data collection app on cell phones. Photo: Juan Carlos Cruz



**2023 OPEN DATES, PLANT SALES & WORKSHOPS**

**BN&S Open to the Public**  
 Oct 7, 9AM-2PM  
 Oct 14, 10AM-2PM (Sky Island Artisan Market/ Patagonia Fall Festival Weekend)

**Tucson Plant Delivery**  
 @ Exo Roast Co. on Simpson St  
 Nov 4, 11AM-Noon  
 Dec 9, 11AM-Noon

**Native Seed Collection Workshop & Tour of Seed Lab**  
 Oct 14, 10AM-2PM

**Chandler Plant Delivery**  
 @ Chandler Nature Center  
 Nov 18, 10:30AM-11:30AM

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### QUESTIONS?

Sarah Taylor, CFRE Development & Communications Director  
E: [staylor@borderlandsrestoration.org](mailto:staylor@borderlandsrestoration.org) P: (520) 216-4148

## BN&S Open Saturdays

Oct 7, 9AM-2PM

Oct 14, 10AM-2PM

(Sky Island Artisan Market/  
Patagonia Fall Festival Weekend)

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