

Inaugural Sonoran Field Course a Success

Although the BRN field courses have been underway since 2017, this year BRN hosted our first course in Mexico taught entirely in Spanish. The inaugural Sonoran Field Course ran from July 26 through August 1, based in and around Agua Prieta and at BRN partner organization Cuenca Los Ojos (CLO) Rancho San Bernardino in Mexico.

From 34 applicants, eight participants were selected, six of which received a full or partial scholarship thanks to the generosity of donors. Participants were students and young professionals from the University of Sonora, Instituto Tecnológico de Sonora (ITSON), Universidad Estatal de Sonora (UES), and associations such as Caminantes del Desierto and Nature and Culture International.

Two BRN interns from Hermosillo, Anays Blanco and Jorge Chacon, who were graduates of a COVID modified BRN summer internship last year, were trained to facilitate the course.

The course began in Agua Prieta with an introduction to migration, humanitarian aid, and the practical implementation of a restorative economy including guest speakers from Frontera de Cristo and Café Justo.



2021 Sonoran Field Course participants, facilitators and program coordinators. Photos by Sergio Müller

Through hands on work and lectures, participants learned from seventeen different experts about concepts and practices of watershed restoration, native plant propagation, seed collection, sustainable grazing, grassland management, arts and ecology, and cross-border collaboration. The culmination of the course saw participants return to Agua Prieta to partner with the Border Arts Corridor, which is dedicated to cultivating arts and cultural programming that explores the complexities of the borderlands, to help with the installation of a native plant mural designed by local artists and dedicated by the Mayor of Agua Prieta and the director of La Casa de la Cultura. The course concluded with a tour of the impressive permaculture garden at DougaPrieta Works women's cooperative.

Following the course, each participant presented their detailed plan to apply the skills gained during the course in their home communities. The cohort is off to a strong start as they begin to implement their plans at home and continue to share resources and inspiration with each other and their communities. We are looking forward to future field courses that will continue to build community, knowledge and foster future environmental leaders in the borderlands.



“For a week they welcomed us at Rancho San Bernardino, in Agua Prieta, Sonora where we were surrounded by nature, the mountains of the Sierra de San Luis, wildflowers, thrushes and beautiful poplars always in sight. It was not difficult to soak up the energy, learn and be inspired.”

- Sofia Vargas, 2021 Sonoran Field Course Graduate



Eduardo Gracia, watershed restoration technician at BRN, inspects an erosion control structure filled in with sediment.

UPDATE from the PATH OF THE JAGUAR

By: Tess Wagner, BRN Watershed Restoration Program Manager

In early 2021, BRN received a grant from the Wildlife Conservation Society's Climate Adaptation Fund for \$245,000 to enhance and further improve the climate resiliency and adaptability of the Borderlands Wildlife Preserve which is co-managed by BRN and Wildlife Corridors, LLC. The grant is funding the construction of rock erosion control structures, the collection and dispersal of native seeds, planting of native plants, and volunteer opportunities to help with the project, as well as public outreach to engage the general public and share knowledge with restoration professionals and others. This work will ensure a more climate resilient corridor that supports the vast wildlife found in the region.

Erosion control structures are built into eroding drainages, perpendicular to water flow. They slow water, trap sediment, and increase infiltration. This means that more water is retained in the landscape and erosion is reduced. To date, the BRN watershed restoration crew has repaired and built over 75 structures in the U.S. Forest Service headwaters of Smith Canyon for this project. Smith Canyon is the center of the identified critical wildlife corridor, and work in the headwaters will translate downstream through decreased sediment pollution and run-off. Throughout the project, which goes through fall 2022, BRN will build at least 200 erosion control structures in Smith and Stevens Canyon which is just west of Smith Canyon and is also part of the migration corridor. BRN native plant staff will collect local native seed and produce seed pellets which will be incorporated into the structures to

enhance native vegetative communities and provide important wildlife habitat and forage. Additionally, the establishment of native vegetation within the erosion control structures will help anchor and build soil while stabilizing the landscape.

This restoration work aims to heal and stabilize local and landscape-level interactions that have been disrupted and severed through contemporary human activity including historic overgrazing, development, and human-caused climatic changes. These human-caused impacts have resulted in drastic alterations to the flow of water, energy, material, and life across our landscapes, with cascading negative impacts. The spiraling of these flows away from their equilibrium state has resulted in problematic erosion, loss of native species, and infestations of exotic invasive species. The restoration work BRN conducts for this project focuses on restoring the flows and biological components that comprise these systems, helping them regain a trajectory of long-term sustainability, biological richness, and balance.

BRN is actively engaging volunteers in planting and erosion control construction. In July, over 230 plants were planted with volunteer help around Dragonfly Pond. Another planting event was held September 3, and on October 8, BRN will teach volunteers how to build erosion control structures. If you would like to participate or would like more information, please email Tess Wagner, BRN Watershed Restoration Program Manager, at twagner@borderlandsrestoration.org to reserve your spot!



WATER: *The Unappreciated Miracle*

Previously published in the Patagonia Regional Times.

By: Ron Pulliam & Valer Clark

It was called a miracle when manna fell from the sky and fed the wandering Israelites, but when water falls from the sky, we think nothing of it - just another rainy day. We are so used to having as much water as we want that we take it for granted: turn on the tap and water flows, quenching our thirst, irrigating our crops, and filling our backyard swimming pools.

Few of Patagonia's citizens are old enough to remember when Sonoita Creek flowed year round from Monkey Springs near Sonoita to the Santa Cruz River. Stream flow declined gradually, year-round flows in the early part of the last century were reduced by a month or so every decade until now the creek above Patagonia only flows for a few days each year, following heavy rains. Along with the water, the cottonwood-sycamore forest has mostly disappeared, and wildlife populations have declined. We are so used to the current degraded situation that we think that it is the norm and there is nothing we can do about it.

We could learn a lot about water from the Tohono O'odham. Their elders have a saying "Su:daḡi 'O Wud Doakag" that in English means "Water is Life." The Sonoita Creek valley was home to Native Americans long before the first European settlers arrived, by some estimates more people lived here 1000 years ago than do now. The ancestors of the O'odham people understood the importance of water; they not only grew crops in the flood plain and hunted game in the uplands, they actively harvested rainfall with small rock structures like the ancient trincheras that can still be seen at the Cerro Trincheras site, less than 100 miles south of the border. The original human inhabitants of our valley built trincheras that slowed the flow of water on the land and spread it out on their crops, decreased erosion and catastrophic flooding, and recharged the local aquifers, and so can we.

The ancient art of water harvesting appeared lost until one of us (Valer Clark) moved to the Chiricahua Mountains in 1981. Valer noticed the dry, highly eroded creeks and decided to do something about it. She hired indigenous craftsmen from central Mexico who still practiced the old traditions of water harvesting to teach her and her ranch hands how to construct water-harvesting and erosion-control structures. By the 1990s, she saw year-round stream flow return to restored streams, and now over 15 miles of the once dry San Bernardino River flows again, because of her work. Valer is the founder of Cuenca los Ojos, and her work became the inspiration for the founding of Borderlands Restoration Network (BRN) in Patagonia. BRN is a network of organizations including Cuenca los Ojos, Wildlife Corridors, and Deep Dirt Farm that have joined together not only to bring back water and wildlife but to create a model restoration economy in the borderlands region.

In the very recent past, a number of Patagonians, including individual landowners and one whole subdivision, have experienced water shortages. Some have resorted to hauling water, and others have had to dig their wells deeper, trying to chase the declining water table. The problems have mostly occurred in the foothills above town, and fortunately, the town has sufficient water, at least for the near future.

There is no single smoking gun that explains why our creeks are drying up. The very large number of wells drilled in the valley in the past 100 years is surely part of the cause, but poor agricultural practices as well as climate change also contribute to the problem.

Patagonia is a microcosm of what is happening in southern Arizona and in arid lands around the world. In the Sulphur Springs Valley, to the east of Patagonia, fissures have opened up

where large amounts of water have been pumped out of the ground to plant pecan and pistachio orchards, and now the earth is caving in. While ADOT is filling the holes with cement, the growers are ripping up more miles of desert to plant more trees. The ground water table is dropping, and it is only a matter of time until the wells go dry.

Similar things are happening in arid lands around the world but not because someone sets out to destroy the environment. Habitat destruction happens because we want more nuts or more swimming pools, and we either don't think about the unintended consequences, or we think there is nothing we can do about it to change the trends.

The good news is that we can do something about it. BRN and its partner organizations, with support from many state and federal agencies and from private grants and donations, have initiated numerous restoration projects in southern Arizona and have installed many 1000s of erosion control structures. These projects not only provide jobs and contribute to the local economy, they help to secure Patagonia's water future. Studies by USGS have shown that these simple structures reduce erosion, increase water infiltration, contribute to aquifer recharge, and reduce the threat of flooding downstream. In addition to providing good, living-wage jobs, these projects offer many opportunities for volunteers to get involved in helping us secure Patagonia's water future.

The world needs local examples of constructive community actions that restore water resources: examples of people building water catchments, putting in berms, planting grasses on eroding slopes, and returning water to the ground. It may take a miracle to secure our water future, but we believe there is no better place for such a miracle to happen than Patagonia.



Examples of erosion control structures built by BRN following heavy rains.



Looking south over Smith Canyon towards the Patagonia Mountains. Photo by Michele Gisser

Borderlands Earth Care Youth 2021

Maintained **93**
Existing Erosion Control Structures

Built **194**
New Erosion Control Structures

Installed **2**
Water Harvesting Cisterns

Planted **74**
Trees to Establish Community Forest at Doc Mock Park

Planted **128**
Native Plants

Worked in **21**
Unique Locations



This summer was a great success for the Borderlands Earth Care Youth (BECY) program after last year's hiatus due to COVID-19. Two BECY crews based out of Douglas and Patagonia, including participants from Rio Rico, totaled sixteen participants and four facilitators that did a wonderful job helping lead the ninth year of this program.

Throughout the summer, the BECY interns worked on a wide variety of restoration projects alongside staff and our program partners. After six weeks of hard work the program came to a close on July 15 concluding with a graduation celebration in each community where interns presented each of their individual community restoration projects that are a requirement for successful completion of the program.

Community projects spanned many topics including one intern hosting a successful clothing swap event in Douglas where community members exchanged used clothing for free. One intern also worked alongside the BRN Borderlands Wildlife Preserve Lead Technician learning how to identify wildlife through our wildlife cameras, using this experience to teach other interns about fossils, plants, and animals. Others focused on food and pollinator gardens in their backyards and community spaces.

Enjoy some highlights from the BECY 2021 Program Report and visit our website to check out a great video created by one of the interns capturing the BECY experience straight from the participants themselves.

www.borderlandsrestoration.org/becy



Doc Mock Park Community Forest

A culmination of several years of effort and collaboration of many people came together during BECY 2021. Patagonia interns alongside community members and volunteers installed seventy-four native trees, each paid for by residents with a commemorative plaque, at Doc Mock Park in the center of Patagonia to complete a community forest project.

This community forest will provide ecological benefits such as shade, provide wildlife habitat, help clean the air of pollutants, and slow stormwater runoff, as well as provide a beautiful community park for all to enjoy.

A big thank you goes out to the community members who bought trees to add to the park and to those involved in the planting. The park's beauty and ecological benefits will be enjoyed for generations to come.

Douglas High School Land Lab

During the final week of BECY, the Douglas interns worked at the Douglas High School Land Lab to install a water harvesting cistern to collect rainwater off the roof of the greenhouse. Interns dug trenches, installed PVC pipes, and planted a small garden that will be watered by the overflow from the cistern. The roof water captured by the cistern will support the tilapia farm the agricultural and environmental sciences high school students manage.



The impact BECY had on me was opening my eyes to the environment, learning what exactly is around me and how I can give back to it, especially when it comes to restoring the land that is already there and helping out the wildlife that is already here. To give to it is really special.



Diego Soto
1st Year BECY Participant

The BECY program always finds new ways to make such big impacts on everyone involved. The thing that impacted me the most was being able to facilitate such an amazing group of young people. I was able to see their personal development firsthand and it was truly amazing. I am beyond grateful I got to witness each person grow in their own way. There's truly not any experience that compares. This program is so important for the future of the community. The work that we do allows our local ecosystem to thrive. I'm very grateful to have been a part of the program.



Arriana Ochoa-Tovar
1st Year BECY Facilitator
4th year BECY Participant

Scan the QR codes with your smartphone camera!

View the full 2021 BECY Program Report



Watch the video





Images of deer captured in early (left) and late (right) July at the Borderlands Wildlife Preserve.

What a Difference a Little Rain Makes

By: Cholla Rose Nicoll,
Borderlands Wildlife Preserve Lead Technician

It seems that this year's monsoon season keeps giving. Monsoon season in southeastern Arizona, is from approximately June 15 to September 30, during which moist winds from the ocean are pulled in by low-pressure zones created from the summer heat. This moist air then forms thunderstorms and heavy rain. The monsoon fluctuates yearly, and this year we are having an exceptional abundance of precipitation compared to last year, which was one of the driest years on record.

Borderlands Wildlife Preserve is flourishing with all the additional moisture, and as such, we see fewer animals on our wildlife cameras. This may seem counterintuitive, but the preserve's animals now have many water sources and are not as reliant on the wildlife drinkers where we have many of our wildlife cameras. The difference in plant growth from last year to this year and even from the first week of this July to the end of the month is so dramatic we would like to share the images with you.



A coyote seen at one of our drinkers in early July (above) next to a picture taken later at the end of July (below).



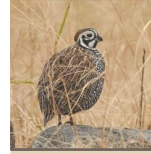
Image of a Cooper's Hawk taken last July (left) and Gray Hawk photo taken this July (right). All comparison pictures taken at the same locations.

Follow

the Borderlands Wildlife Preserve at:
@BorderlandsWildlifePreserve



Volunteer OPPORTUNITIES



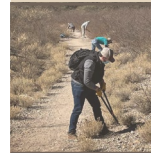
Restoring Montezuma Quail Habitat through Erosion Control

8AM-12PM / Friday, October 8, 2021

BRN's Watershed Restoration crew will give a tour of previously installed structures at the site and teach volunteers the theory and techniques behind building erosion control structures. Structures built during this event will directly improve Montezuma Quail habitat.

This is outdoor physical work that will require navigating uneven terrain, moving and placing rocks, and using hand-tools to dig into the earth.

Please email twagner@borderlandsrestoration.org to reserve your spot today! Space is limited to 20.



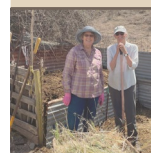
Adopt-A-Trail

8AM-11AM / October 22nd & 23rd

BRN adopted the Millville Historic Townsite and Rock Art Discovery Trail, a 1.8 mile lightly trafficked loop trail located near Sierra Vista, Arizona. This trail is a portion of the greater San Pedro Riparian National Conservation Area (SPRNCA) trail system.

We are seeking volunteers for our fall trail work days to include basic trail maintenance to cut back limbs and obstructions. Volunteers must wear close toed shoes, long pants and be able to provide their own loppers for trimming back limbs. Join our adopt-a-trail team and help keep the San Pedro and this especially historical trail open and in great shape for all to enjoy!

Please email staylor@borderlandsrestoration.org to sign-up. Group size limited to 15 each day.



Join Women Grow Food!

Friday's: Now through November 2021

Meet at the Deep Dirt Farm in Patagonia on Friday's between the hours of 7AM-11AM to grow and harvest fresh, organic herbs and vegetables. Learn how to grow food in the desert, compost, conserve water, and much more. Participants take home fresh vegetables that you helped produce!

Cost: Suggested donation of \$50 per month, sliding fee scale available starting at \$5 per month.

Contact wgf@borderlandsrestoration.org for more information or to sign-up.



BORDERLANDS NURSERY & SEED

FALL PLANT SALE EVERYTHING 10% OFF
OCTOBER 9TH 8AM - 4PM

SAME DAY AS THE SKY ISLANDS ARTISAN MARKET (FORMERLY PATAGONIA FALL FESTIVAL) VENDOR: PATAGONIA PLANTS
Restoration Partners & Founders Society Members enjoy 10% off.

www.borderlandsplants.org

NATIVE PLANT DELIVERY TUCSON

OCTOBER 23 / NOVEMBER 13



BORDERLANDS NURSERY & SEED

To order for Tucson pick-up write "Exo" and the date of pickup (10/23 or 11/13) in the notes section at checkout.

WWW.BORDERLANDSPLANTS.ORG

SUPPORT THE BORDERLANDS

YES, I WANT TO SUPPORT THE ECOLOGICAL WELL-BEING OF THE BORDERLANDS!

Visit our website, www.borderlandsrestoration.org/donate to make your tax-deductible gift, or mail this form and your check made out to Borderlands Restoration Network to: **Borderlands Restoration Network PO Box 121 Patagonia, AZ 85624**

NAME: _____ Please do not publish my name.

ADDRESS: _____

EMAIL: _____ ST: _____ ZIP: _____

Please send my acknowledgment via email to save paper and postage costs.

I WOULD LIKE TO:

MAKE A ONE-TIME GIFT \$ _____

Restoration
MONTHLY GIVING SOCIETY
Partners

Join the RESTORATION PARTNERS monthly giving society
www.borderlandsrestoration.org/donate



Founders
Circle

Join the FOUNDERS CIRCLE special giving society for donors contributing \$1000 or more annually
www.borderlandsrestoration.org/donate

I'm interested in contributing a major gift, please contact me.

I'm interested in making a legacy gift through a bequest, please contact me.

QUESTIONS?

Sarah Taylor, CFRE Development & Communications Director

E: staylor@borderlandsrestoration.org *P:* (520) 216-4148

**Restoration Partners
& Founders Circle
members receive
10% of purchases
at Borderlands
Nursery & Seed**

borderlandsplants.org

US Nonprofit
PAID
Permit #4
Patagonia, AZ

PO Box 121 Patagonia, AZ 85624

BORDERLANDS
RESTORATION
NETWORK
REBUILD. RESTORE. RECONNECT.

