



FIRE & FENCE 2 // FOUNDERS AWARD 3 // TRANSITIONS 4 // SEED PELLETIZATION 6



Left: Women Grow Food tend a verdant crop of winter vegetables. Right: Patagonia youth learn how to use an auger during Borderlands Earth Care Youth.

Stewarding Deep Dirt Farm

By: Caleb Weaver, Community Restoration Program Manager

BRN is very excited to announce the purchase of Deep Dirt Farm, an arid land permaculture demonstration site. This 19-acre farm is situated two miles outside Patagonia, adjacent to the Borderlands Wildlife Preserve. Founder and visionary of Deep Dirt, Kate Tirion, a Patagonia resident since the early 90's, built the farm because "there was just a need for it." Thousands of young people from all over the world have visited and learned at Deep Dirt Farm while giving back to the property and building infrastructure from reclaimed and repurposed materials over time. The farm not only grows food, but also builds community with a series of small residential structures built with repurposed satellite dishes and adobe bricks.

Utilizing a permaculture approach, Kate and Richard Connelly, her husband, took their time observing the land before developing it. First, a road was installed to 'lay lightly on the land' and serve multiple functions - a firebreak, a source to shed rainwater, and access. Before long, a greenhouse was up and Deep Dirt Farm began producing food. Women Grow Food, founded by Kate and Lynn Davison, a Patagonia resident and BRN board

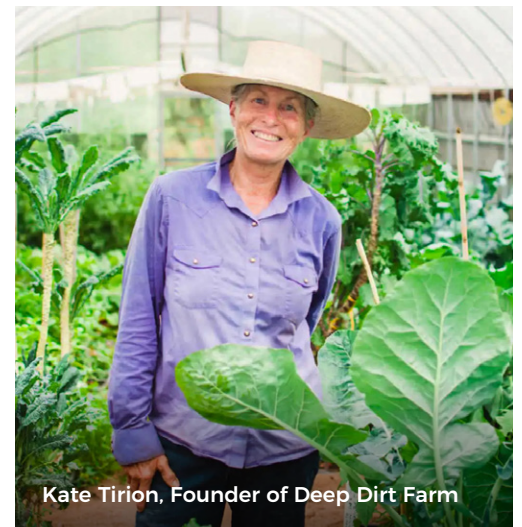
member, was formed in 2013 to empower women to grow organic vegetables and learn about permaculture. "Kate has the unique combination of vision and working uncommonly hard to see her vision through," says Lynn Davison.

For more than 35 years, Kate Tirion's primary focus has been providing healthy food sources to humans and wildlife. By working with the seasonal variations unique to the Sky Islands, Kate focuses on human and nonhuman health, "Restore the Land, Restore Ourselves," a Deep Dirt Farm bumper sticker reads. Walking around the Farm, you'll see repurposed shipping containers, earthen structures with satellite dish rooftops, an outdoor kitchen and shower, along with a permitted composting toilet, garden beds and orchards, and erosion control structures of every size and shape.

In the early years of both organizations, BRN and Deep Dirt Farm forged a strong partnership. In 2012, Deep Dirt Farm began growing native plants in collaboration with BRN to introduce them into the property's landscape. BRN has also engaged over one hundred Patagonia youth to work at the farm as

part of the Borderlands Earth Care Youth program. And recently, BRN stepped in to support the Women Grow Food program.

With the incredible infrastructure already in place at Deep Dirt Farm, BRN looks forward to overseeing its continued maintenance and development, maintaining Women Grow Food, serving as a learning center for visiting groups, and further developing future programming. Thank you to the generous donors who supported BRN's continued stewardship of Deep Dirt Farm.



Kate Tirion, Founder of Deep Dirt Farm



Land management becomes more challenging as the Borderlands Wildlife Preserve (BWP) continues to grow and be restored to a more ideal state for wildlife. Balancing the needs of plant life, animal life, and human life can become a game of Tetris where the blocks don't always line up perfectly. Patience is the winning strategy, even in a world pushing for action now.

With preserve neighbors who own livestock and the potential for fire always looming, these two topics have recently merged with the hiring of contractor Zay Hartigan to help put up fence and take down the fire risk. Zay brings decades of experience working with ranching and fire. Over the next year, with patience and Zay on our side, we hope to fence cattle out of sensitive areas within the preserve and create fuel breaks in different areas in preparation for potential future fires.

This past January, Borderlands Restoration Network co-hosted a fire prevention presentation held at the

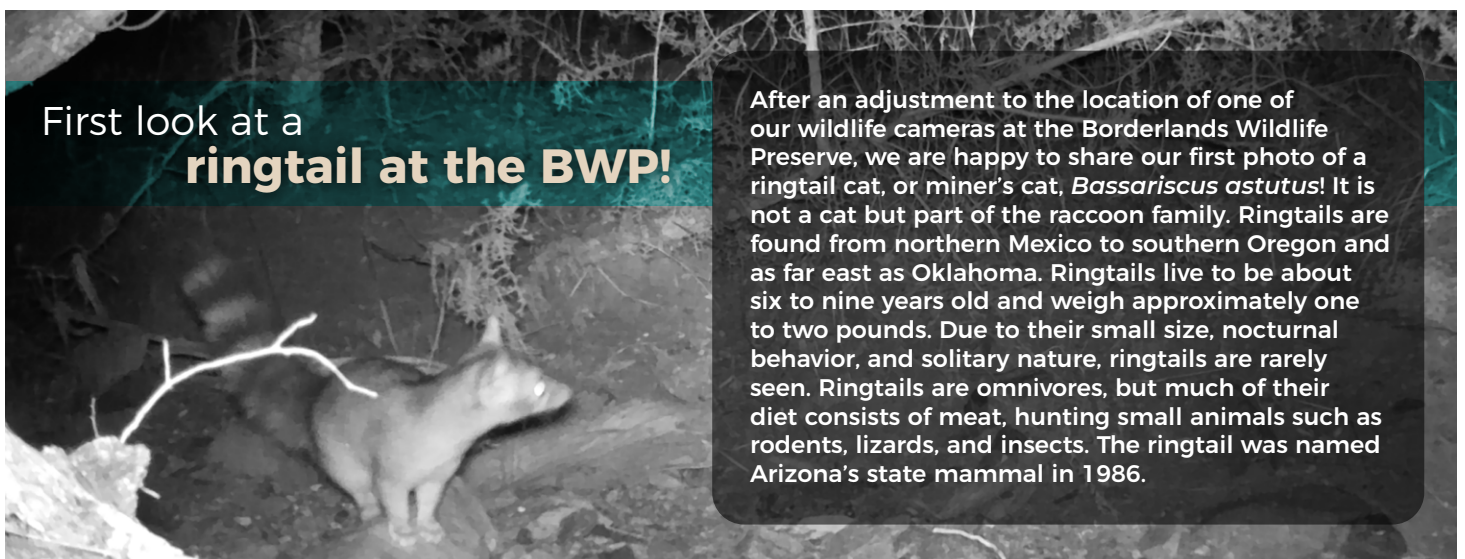
Patagonia Volunteer Fire & Rescue firehouse. Zay Hartigan, the Patagonia Volunteer Fire & Rescue Assistant Chief, along with other experts including Fire Prevention Specialists, explained how a community working together to create defensible space through the implementation of Firewise USA® preparations is the best-case scenario to save lives and property in the event of a wildfire. Through these partnerships and presentations, we hope to make the community and the preserve safer in the event of an inevitable wildfire.

Additionally, this winter and early spring, BWP managers and ranching neighbors have been working on developing a plan to fence out cattle from a vital source of year-round water frequented by wildlife. Arizona is referred to as a “fence-out” state, meaning it is not up to the cattle owner to keep their cows out. It is up to you as the landowner to fence out cattle. BWP and BRN staff are happy to take on this challenge and work with neighbors to further strengthen the relationship with the land and the people sharing it.

In the short term, grazing can most certainly prevent blazing, but this is a case of moving cattle out of areas that need vegetation and moving vegetation out of different areas to protect people and wildlife from fire. This juxtaposition is often the case as cows tend to linger in riparian areas causing erosion and habitat loss and humans tend to build homes in beautiful areas prone to fire. Like many land managers in the west, the BWP managers must become experts in fire and fences to protect life in and around the preserve.

The fire prevention presentation and fencing project have been made possible by generous funding from the Landscape Scale Restoration Program of the US Forest Service and the United States Department of Agriculture.

For more information on what you can do to prevent wildfire in your community, please reach out to wildlife@borderlandsrestoration.org to get in touch with the appropriate experts.



First look at a ringtail at the BWP!

After an adjustment to the location of one of our wildlife cameras at the Borderlands Wildlife Preserve, we are happy to share our first photo of a ringtail cat, or miner's cat, *Bassariscus astutus*! It is not a cat but part of the raccoon family. Ringtails are found from northern Mexico to southern Oregon and as far east as Oklahoma. Ringtails live to be about six to nine years old and weigh approximately one to two pounds. Due to their small size, nocturnal behavior, and solitary nature, ringtails are rarely seen. Ringtails are omnivores, but much of their diet consists of meat, hunting small animals such as rodents, lizards, and insects. The ringtail was named Arizona's state mammal in 1986.



Ron Pulliam to Receive 2023 Buddy Amos Founders Award

We are pleased to announce that Ron Pulliam, founder of Borderlands Restoration Network, has been selected as the recipient of the Community Foundation for Southern Arizona (CFSA) 2023 Buddy Amos Founders Award.

The Buddy Amos Founders Award was established in 2015 in honor of George H. "Buddy" Amos, Jr., a CFSA founder, for his vision and ability to inspire community action and generosity. The award recognizes nonprofit founders who have demonstrated inspirational leadership in community service, philanthropy, mentoring, collaboration,

or systems change that reaches beyond their organization.

Upon being notified that he was selected, Ron said, "I am, of course, honored to receive this award, but I accept it on behalf of not just myself but also in recognition of the hard work, dedication, and foresight of the growing community of people who have guided, supported, funded, volunteered, and worked to make BRN successful."

Ron will be honored at CFSA's 2023 Annual Event on April 27, 2023, from 5:30 to 7:30 PM, at the Community Foundation Campus.

Meet our New Staff Members



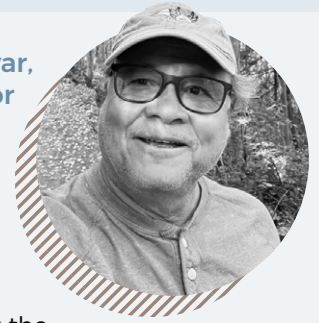
Melissa Fratello,
Program Director

Raised in Niagara Falls, NY, Melissa was lucky enough to live next door to her grandparents and aunts, learning to make sauce and to forage dandelion greens to fry up with garlic. That personal connection to food sparked an interest in local food systems,

inspiring her to study urban planning and community development, earning a Master's from the University at Buffalo.

Her career path has included leading affordable housing efforts in Buffalo, NY, to working as a congressional staffer, and as Executive Director with Grassroots Gardens Western New York and Buffalo Audubon, where she worked to re-connect people to land through food, culture, and community science.

Melissa relocated to central Tucson after years of yearning for mountains and sunshine, where she is currently co-authoring a field guide to the birds of Arizona and New Mexico with her partner, and co-organizes a Feminist Bird Club chapter. She is thrilled to be working in the borderlands at the intersection of community and conservation and looks forward to building relationships here. You can find her in the Sky Islands photographing everything she sees, struggling between looking up for birds and looking down for plants and snakes.



Joaquin Murrieta-Saldivar,
Conservation Director

Joaquin Murrieta-Saldivar was born in the Yaqui Valley in southern Sonora, Mexico and grew up in Hermosillo. He comes from a family of farming ejidatarios which are farmers who farm communally owned land. He studied agronomy at the University of Sonora and specialized in small-scale organic farming and agroecology at the University of California in Santa Cruz. He then moved to Tucson, AZ to get his Master of Science in Agricultural Economics and Natural Resources from the University of Arizona.

After working on several environmental projects with the state government of Sonora he returned to the University of Arizona for his Doctorate in Natural Resource Studies, specializing in human perception and relation to the natural world.

He has collaborated with many regional and international organizations such as the Sonoran Institute, National Geographic Society, Environmental Defense Fund, and formerly worked for Watershed Management Group. Joaquin serves on boards of The Wilderness Land Trust and the Arizona Sonora Desert Museum. He is passionate about the "happiness" of rivers and the continued enhancement of a "culture of conservation-restoration" for the well-being of nature and humans. He resides in Tucson.



Transitions

By: Lynn Davison, BRN Board President

There are some big changes happening at Borderlands Restoration Network (BRN). With gratitude, we say goodbye to our first Executive Director and two founding board members. We also welcome our new Executive Director and three new board members.

Kurt Vaughn led BRN from November 2017 to January 2023. He oversaw the expansion of our three existing program areas, education and outreach, watershed restoration, native plant and seed program, and the creation of a fourth, conservation. During Kurt's tenure, BRN also expanded programming in Mexico by creating the Sonoran Field School and the Bats for Bacanora project in Sonora and Arizona, which was awarded the first-ever Salazar Center for North American Conservation Connectivity Challenge grand prize. Also, under Kurt's leadership, BRN became land stewards and now owns or co-manages over 1823 acres of lands in the Patagonia area, including the Borderlands Wildlife Preserve.

Kurt expanded BRN staff from 15 in 2017 to 25 in 2023 along with the budget growing two fold. He put the financial and human resource policies and systems in place to ensure a stable program growth base. Kurt also championed the ongoing Equity, Inclusion, and Justice initiative and recently led the completion of a five-year strategic plan. It is quite a track record. Thanks, Kurt. We wish you well.

Two founding board members, Ron Pulliam and Kate Tirion, retired from the board at the end of 2022. Ron is a founder of three of the original five BRN network partners, BRN itself, Borderlands Restoration L3C, and Wildlife Corridors. He also serves on the board of network partner Cuenca Los Ojos. Ron's vision for land conservation

and the restorative economy underpins the mission of BRN and its network partners. His combination of vision, risk-taking, fundraising, and leadership have been key to the success of BRN and Wildlife Corridors and has impacted the borderlands region as a whole. Thanks, Ron. While no longer on the BRN board, we are glad you are still working your magic in the borderlands.

Kate Tirion, a permaculturist known as the Queen of Inspiration, is a founding board member of BRN and Borderlands Restoration L3C and the founder and former owner of Deep Dirt Farm. She sold the farm to BRN in 2022 for continued use as a gathering, housing, teaching, and demonstration site. Her focus on youth education, restoration and reuse, and healthy food production has informed the work of BRN. Her enthusiasm for our collective work is infectious, and her remarkable teaching skills are memorialized in the title Queen of Inspiration. Thanks Kate, for all you've done and will do.

Our incoming Executive Director, Rodrigo Sierra Corona, grew up in Mexico and has worked in the borderlands for more than two decades. The new boss has considerable on-the-ground experience in conservation and restoration and a broad network of colleagues and connections in the US and Mexico. He also brings solid management and fundraising credentials.

Rodrigo has a Ph.D. in Ecosystems Management from Universidad Nacional Autónoma de México. He comes to BRN directly from the Santa Lucia Conservancy in Carmel, California where he was Director of Ecological Management. Under his leadership, the Conservancy significantly expanded restoration activities on the 20,000-acre preserve, including wetland restoration,



Dr. Rodrigo Sierra Corona, BRN incoming Executive Director.

native vegetation seeding, invasive weed management, conservation grazing, prescribed fire, fuel management, and fuel break construction and maintenance. Before his time at the Conservancy, Rodrigo was Director of the Arid Grasslands Conservation Program, Instituto de Ecología, Universidad Nacional Autónoma de México, Janos Chihuahua, Mexico. He has also worked with BRN's network partner Cuenca Los Ojos for over 20 years and is currently on their board of directors.

The board and staff are excited to have Rodrigo join the BRN team. His enthusiasm for BRN's work is gratifying, and his energy to build on that work is infectious. With Rodrigo's arrival on March 20 and our recent hiring of Melissa Fratello as Program Director and Joaquin Murrieta as Conservation Director, plus our seasoned leadership team including Sarah Taylor, Development & Communications Director, and Finance Director Alexandra Hawkins, BRN has a solid leadership team.

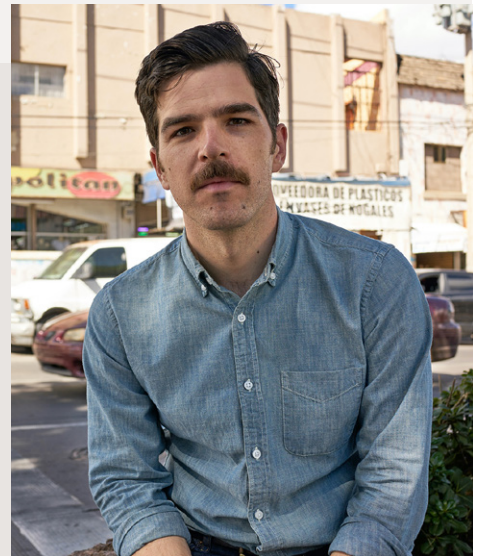
Meet our New Board Members

Francisco Cantú is a writer, translator, and the author of *The Line Becomes a River*, winner of the 2018 Los Angeles Times Book Prize and a finalist for the National Book Critics Circle Award in nonfiction. A former Fulbright fellow, he has been the recipient of a Pushcart Prize, a Whiting Award, and an Art for Justice fellowship. His writing and translations have

Francisco Cantú

been featured in *The New Yorker*, *Best American Essays*, *Granta*, and *VQR*, as well as on *This American Life*.

A lifelong resident of the Southwest, he now lives in Tucson and coordinates the Field Studies in Writing Program at the University of Arizona, a residency that fosters work at the intersection of border justice and environmental issues.



Valeria Cañedo

Valeria Cañedo is a biologist and graduate of the University of Sonora. She is currently Vice President of Centro de Colaboración para la Ciencia y Cultura S.C. In 2015, she started working as a volunteer on conservation projects such as monarch butterfly and wildlife monitoring, and evaluation of springs in Sonora. Through these projects she had the opportunity to gain experience and meet other scientists and organizations working in this field.

In 2020, her organization became a Civil Society organization, under

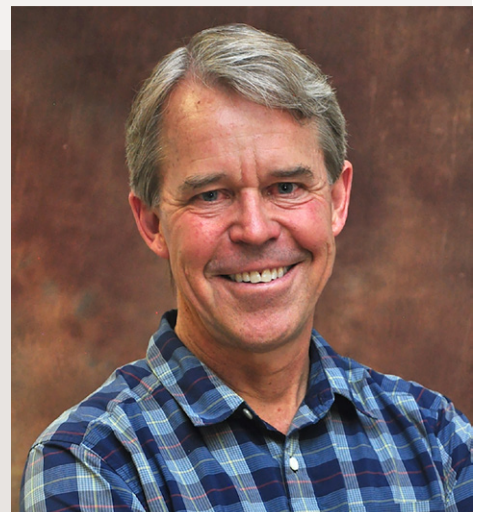
the name of Collaboration Center for Science and Culture. The organization is led by young professionals with different areas of expertise in science and functions as a platform to develop innovative projects that have allowed them to broaden their vision and participate in other important areas such as human rights, the promotion of arts and culture, education, and professional training, among many others.

Tom Sisk is an environmental scientist focusing on landscape conservation and complex land and natural resource management challenges. He works at the interface of science and public policy, while carrying out research in applied ecology. His studies of edge effects and connectivity inform work on cross-border conservation, while a commitment to participatory analysis inspires collaborative approaches to ecological restoration, monitoring, and management. Drawing on international research and policy

Tom Sisk

experience, including senior positions in government, non profit, and academic sectors, Tom focuses his work on western North America, from the Sonoran desert to the Salish Sea.

His professional accomplishments include the design of innovative land protection plans, facilitation of contested natural resource management challenges, development of interdisciplinary educational programs, and service on advisory and management boards for regional, national, and international organizations.



Meet the Staff and
the rest of Board of Directors here:

borderlandsrestoration.org/meet-our-team

Seed Pelletization for Effective Restoration

By: Perin McNelis, Native Plant Program Manager

Seeds are the ideal plant material for use in revegetation projects because, unlike container plants which require consistent rainfall after planting or supplemental irrigation, seeds can sit in the soil with minimal protection until the right combination of environmental conditions trigger their germination. Plants germinated from seeds in situ also tend to be hardier because they start their lives responding to natural temperature and precipitation patterns, versus getting accustomed to unnatural greenhouse conditions and watering schedules and then facing a steep learning curve when it comes to adjusting to conditions at a planting site. However, there are a number of obstacles that restoration practitioners face when using seed as the source material for revegetation in arid systems, like here in the southwestern United States and Northwestern Mexico.

Obstacles to successful seed based revegetation include unpredictable precipitation, drought, hard nutrient poor soils, and project timelines that require seed application that is not aligned with rainy seasons. However the biggest obstacle to seed based revegetation in these arid systems is predation by granivores, especially ants. Granivorous, or seed eating animals, can carry away huge numbers of seeds if they are broadcasted naked, without any protection. Although we must respect ants' need to eat, this can be a tremendous challenge that interrupts the role of germinating seeds in

ecosystem restoration. While hydro-seeding machines seem to be effective in overcoming some of these obstacles, they are expensive and often rendered unusable for more remote planting sites that are not accessible for this kind of machinery.

Seed pellets, also known as seed balls or seed bombs, present a viable solution to the obstacles we face when it comes to using seed successfully in restoration. Seed pellets are a low cost, low tech, and portable propagation method that people have been using all over the world for as long as people have been planting seeds. Seed pellets combine seed, clay, and a soil amendment like compost, then use water to bind the mixture into hard little spherical structures that are allowed to air dry. The protective structure that coats the surface area of the seeds in each little unit makes it very hard for ants to haul away, and this allows seed to evade predation by granivores, even during dry periods, until a large enough rain event or consistent enough precipitation arrives to dissolve the clay and allow the seed to germinate in the nutrient rich media. As the Native Plant Program at Borderlands Restoration Network has expanded our seed program to increase capacity for production, wild collection, and processing, we have also steadily increased the use of seed pellets as the main form of seed application in the revegetation portions of our restoration projects. We currently make a batch of seed pellets every month, which usually equates to over 200lbs of pellets per month!



Travis Gerckens, Farm Manager for the Native Plant Program, mixes a batch of seeds, clay, and compost to be pelletized.



BRN staff uses a small cement mixer to make large batches of seed pellets. The rotating motion naturally encourages the mixture to form spherical structures when the right ratio of dry materials to water is combined.



Eduardo Gracia, BRN Watershed Restoration Technician, deposits seed pellets into an erosion control structure.



Vegetation thrives in microclimates created by the rocks in our erosion control structures and the roots further stabilize the soil, help pull water down, and capture sediment.

What makes BRN's use of seed pellets unique is that we use them in conjunction with erosion control structures constructed by the Watershed Restoration Program. The Native Plant Program collects, cleans/processes, and curates seed mixes based on the goals and site of each restoration project and then we use a cement mixer to pelletize the seeds with a recipe that is based on the volume of the seed mix in order to fully coat the seeds in clay and provide enough compost for each pellet. Sometimes we make the pellets by hand with visiting student groups which is fun, messy, and a great educational tool. The Watershed Restoration Program crew then hikes the bags of dried seed pellets out to their various project sites and deposits the pellets into their erosion control structures, allowing pellets to settle above the structures and into all the nooks and crannies between the rocks. The rocks used in the erosion control structures create favorable microclimates for germinating seedlings because they cool and shade the soil, and provide enhanced moisture retention. As the structures slow flood runoff and catch sediment, the seed pellets dissolve and the roots of the germinating seeds provide additional bank stabilization and sediment catchment as well as water drawdown. The erosion control structures and the seed pellets work in a complimentary fashion in which the rocks provide the perfect conditions for the seed pellets to function successfully and then the roots of the new vegetation knit the landscape together to prevent further erosion.

BRN's Native Plant Program has tweaked and adjusted our seed pellet recipes and application methods over time based on field observations of what works and what doesn't, but BRN is also lucky to be able to draw on the scientific research and expertise about best use protocols and design of seed pellets for optimal success in arid land restoration from the University of Arizona's Cooperative Extension at Dr. Elise Gornish's lab. Dr. Gornish's work continually informs our practices so that we can further improve our methods and use seed pellets as effectively as possible. We recommend that anyone interested in learning more about seed pellets check out the resources page of our Borderlands Nursery & Seed website to find bilingual information about seed pellets and construction guides for a DIY bicycle-powered home pelletizing machine, provided by the Gornish Lab.



Learn More:
www.borderlandsplants.org



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

Tucson Plant Delivery
@ Exo Roast Co. on
Simpson St
Mar 18, 11AM-Noon

**Spring Native Plant
Hike at Borderlands
Wildlife Preserve**
April 8, 9AM-11AM

**In-person Native Plant
Propagation Workshop**
April 15, 10AM-2PM

BN&S Open to the Public
April 15, 8AM-2PM

**Agave Heritage Festival
& Plant Delivery Tucson**
@ Mission Garden
April 29, 8AM-1PM

BN&S Spring Plant Sale
May 6, 8AM-3PM

**Virtual Bilingual Plant
Propagation Workshop**
June 3, 10AM-Noon

BN&S Open to the Public
June 17, 8AM-Noon

Bisbee Plant Delivery
@ The Courtyard
July 9, 11AM-Noon

**BN&S Monsoon Plant
Sale**
July 15, 8AM-3PM

Tohono Chul Plant Sale
July 29, 3PM-7PM
& July 30, 8AM-1PM

**Sierra Vista Plant
Delivery @ Sierra Vista
Food Co-op**
August 5, 11AM-Noon

BN&S Open to the Public
August 19, 8AM-2PM

www.borderlandsplants.org

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Full details:
www.borderlandsrestoration.org/donate

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EMAIL: _____ ST: _____ ZIP: _____

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

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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: taylor@borderlandsrestoration.org P: (520) 216-4148

AZ Gives Day April 4

[www.azgives.org/
BorderlandsRestorationNetwork](http://www.azgives.org/BorderlandsRestorationNetwork)

Spring Plant Sale May 6, 8AM - 3PM

Borderlands Nursery & Seed
42 San Antonio Road
Patagonia, AZ

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