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Borderlands Earth Care Youth Institute Restoration Work in the U.S./Mexico Borderlands

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ABSTRACT: The Borderlands Earth Care Youth (BECY) Institute is an example of hands-on environmental education where high school students engage with restoration. BECY inspires and trains the next generation of land stewards by hiring borderland youth to restore their home watersheds. The 12-person youth crews, currently located in two rural communities just north of the U.S./Mexico border, are paid to implement hands-on restoration, utilizing science-based techniques, to return biodiversity to the landscape and urban binational communities. During its 8-year program, BECY interns have been hired to refill plummeting groundwater tables, stabilize dwindling native pollinator populations, revegetate barren landscapes, arrest erosion, link fragmented wildlife corridors, and support sustainable food systems. Each BECY crew is led by two young adults, ages 21 to 26, who are graduates of the program. Restoration projects are completed in collaboration with local conservation professionals working in careers accessible to local youth. Along with tiered near-peer mentorship, BECY crews develop leadership and team-building skills while learning critical concepts in watershed, ecosystem, and food system restoration. Youth interns graduate from the BECY crew by completing independent restoration projects and presenting a report of their project at a community graduation ceremony. Through prolonged contact with restoration professionals across the Sky Island Restoration Collaborative, BECY has bridged a gap in establishing viable restoration-based economies in multiple underserved rural border communities, with the goal of catalyzing an ethic of cross-border land stewardship for generations into the future.

KEYWORDS: ecological restoration, youth job training, tiered near-peer mentorship, environmental education, watershed restoration, erosion control

TYPE: Case studies of a grassroots binational restoration collaborative in the Madrean Archipelago Ecoregion (2014- 2019) - Short Communication

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Programmatic Information

The trinational territory encompassing the U.S./Mexico/Tohono O'odham borderlands is among the most culturally and biologically diverse landscapes in the world, home to a vibrant wildlife community including several endangered plant and animal species (Marchese, 2015). However, like many landscapes across the world, complex social, economic, political, and ecological challenges threaten to fragment these ecosystems and the people who call this place home. Borderlands Restoration Network (BRN) has developed a unique approach to facing the vast social and ecological challenges facing the trinational borderlands. BRN is both an independent public charity and a collaborative of multiple organizations working to build a regional restoration-based economy in which diverse, fulfilling livelihoods support the restoration of thriving natural ecosystems and build prosperous, vibrant, healthy communities along the U.S./Mexico border. The mission of BRN is "we partner to grow a restorative economy by rebuilding healthy ecosystems, restoring habitat for plants and wildlife, and reconnecting our border communities to the land through shared learning."

Through study of similar projects across the world coupled with years of experience, BRN has learned that the key to fostering a community-wide ethic of environmental appreciation is to educate and empower youth. For 8 years, BRN has run programming to hire and inspire culturally diverse youth living on the U.S./Mexico border to restore the trans-national watersheds they call home. By working as a team, youth conduct hands-on restoration projects and learn marketable job skills while following a structured ecological restoration curriculum, with the ultimate goal of empowering the community-based ethic of land stewardship in rural borderland communities. The Borderlands Earth Care Youth (BECY) Institute heals the land with ancient technologies proven to last (Fandel et al., 2015).

Like many arid regions across the globe, a combination of large-scale groundwater depletion and land mismanagement has resulted in the loss of more than 95% of historic surface waterflow (Condon & Maxwell, 2019). BECY interns work together to build rock and wood erosion control structures designed to increase surface and base flows, recharge groundwater, stabilize soils, increase vegetative health, increase organic matter in soils, increase soil moisture, and decrease downstream sedimentation (Briggs, 1996; Coy et al., 2019; Fandel et al., 2016; Norman et al., 2014, 2016, 2019; Wilson & Norman, 2018, 2019). Youth combine rock, wood, seeds, hands, and hearts to return flowing waters and riverside ecosystems to the arid borderlands. Adolescents and young adults living in rural communities along the U.S./Mexico border work closely with conservation professionals to make grassroots systemic change in historically overlooked and underserved communities. Simultaneously, youth develop a suite of leadership skills and are empowered in tiered-leadership roles with increased responsibility and accountability. By working and playing in the great outdoors, youth develop lifelong passion and skills to make positive change in their home communities—supporting the people, plants, and animals that call the borderlands home.

Image 1. BECY crew with rock structure.

Image 2. BECY team member with rock structure.

During the summer of 2019, BECY Institute celebrated the eighth year of programming. Since it began, BECY interns have built more than 2,000 erosion control structures across three dozen different restoration sites. Youth have restored 25 miles of riparian areas and 1,000 acres of upland while developing valuable restoration skills. Thanks to support and collaboration from Sky Island Restoration Collaborative partners, intern and community feedback, along with multiple internal and external analyses, the program has improved since its humble beginnings. BECY interns now complete projects at multiple scales: in wild settings, rural working lands, and urban communities. Leadership has completed a 100+ page BECY curriculum, a resource guide for youth interested in pursuing education or careers in conservation, an end-of-program project to literally bring restoration projects home, youth-designed logo, diversified work, projects in home communities (not just the greater watersheds), and scope that includes sustainable food and health. Along with better projects and more support for youth involved with BECY, the program has also expanded into multiple borderland communities and spinoff programs.

In the hope of reaching a broader audience, BRN partnered with Cuenca Los Ojos and the Coronado National Forest (CNF) in 2015 to bring a pilot BECY program to Douglas, Arizona. The satellite program has since been successfully run and built upon for 5 years with plans to continue for a sixth year in 2021. Youth in Douglas began by exclusively restoring the waterways managed by CNF. Now previous BECY graduates run the BECY Douglas crew, focusing more community-based projects in Douglas and surrounding farms and ranches.

Image 3. BECY crew at infiltration basin in Douglas, Arizona.

Image 4. BECY crew making immune-boosting elderberry syrup.

And BECY graduates in Douglas are now pursuing livelihoods in land conservation and restoration.

Since BECY started in 2013, borderland youth have worked together to return functioning ecosystems in communities and landscapes across Southern Arizona (see Images 1-9). High school students have built more than 2,000 erosion control structures out of rock and wood, capturing sediment, regrowing grasses, and allowing water to sink back into the earth across 15 miles of drainages and 3,000 acres. Youth have enhanced five remote mountain springs, removed invasive plants from 25 acres, planted more than 3,000 native pollinator gardens, and installed five rainwater-harvesting cisterns to store water for dry times. Over the years, BECY crews have worked with 23 local farms and ranches to support sustainable agriculture, demonstrating how critical cross-jurisdictional restoration projects are to ecosystem recovery.

After 8 years of successful programming, 133 youth have graduated from BECY, completing hundreds of projects across Southern Arizona. In 2018, BRN surveyed all BECY graduates. Of those in college, 78% responded that BECY helped influence their course of study which range from: sustainability, environmental studies, forestry, agriculture, nutrition, photography, marketing, and social science. When asked if BECY prepared program graduates for academic/professional success, 93% of those surveyed said "yes." When graduates were asked if they still feel prepared to design and implement their own environmental restoration and conservation projects, 76% responded that they still feel confident in leading their own restoration projects. Finally, when asked if BECY inspired graduates to make more environmentally conscious choices in personal and professional lives, 93% replied "yes." As a result of this survey, it is clear that BECY graduates are gaining and retaining value from their experiences in BECY, which has changed academic, career, and livelihood trajectories.

Image 5. BECY crew planting native flowers at Patagonia Flower Farm.

Image 6. BECY crew casts grass seeds on private ranch.

Image 7. BECY with giant Zuni bowl in Dragoon Mountains of Arizona.

Image 8. Before image of Fishscale structure built on eroding slope.

In 2018, representatives from Baboquivari High School, Tohono O'odham Community College, and the Tohono O'odham Nation—a desert Indigenous community located along what is today known as the U.S./Mexico border—visited BRN in Patagonia, Arizona. Tohono O'odham representatives asked BRN to help develop a program for Indigenous youth on the TO Nation. BRN staff collaborated with Baboquivari High

Image 9. Fishscale structure built on eroding slope, 1 year later. Grasses have returned and rocks are barely visible.

School staff to pilot an after-school program that hired Tohono O'odham students to work alongside conservation professionals, designing and installing a rainwater-harvesting native plant and heritage food garden on campus. This program, called Ṣu:dagī 'O Wuḍ Doakag, O'odham for "Water is Life," was designed for Tohono O'odham youth to earn valuable skills, training, and work experience. During the 2018/2019 pilot program, youth worked hard to improve their campus, build habitat for native pollinators, harvest precious rainwater, and sow seeds of hope for future generations of youth. Participants were presented the Stewardship Award at the annual Tohono O'odham Earth Day festival hosted by the Tohono O'odham Environmental Protection Office. A second year of Ṣu:dagī 'O Wuḍ Doakag began in the fall of 2020, led by Tohono O'odham Community College students with mentorship and curriculum development by BRN staff. And simultaneously, BRN has been approached about developing youth restoration programming in the Mexican border city of Agua Prieta, Sonora. Along with healing landscapes, restoration can heal cultural relationships.

While BRN is interested in delivering high-quality restoration programs to as many youth as possible across the borderlands, even more important is maintaining a high quality of engagement that best supports the youth of the borderlands. Prioritizing diverse, community-centric restoration projects, local young adult leadership, and supporting youth after graduation results in programs that costs around US$60,000 per year per community to run. This budget supports youth salaries, young adult leaders, program coordination, travel and lodging expenses, tools and safety equipment, rock, plants, and rain tanks. While funding is always a hurdle to running successful BECY programs, a diverse consortium of funders supports the program: state and federal agencies, private foundations, community grants, corporate grants, contracts, and individual donations sustains BECY (see Figures 1 and 2). Into the future, BECY hopes to collaborate with partners in Mexico and Indigenous nations to deliver youth restoration training across cultural borders, collaborate more with colleges and universities, and develop year-round programming to make the borderlands a more ecologically and economically vibrant place.

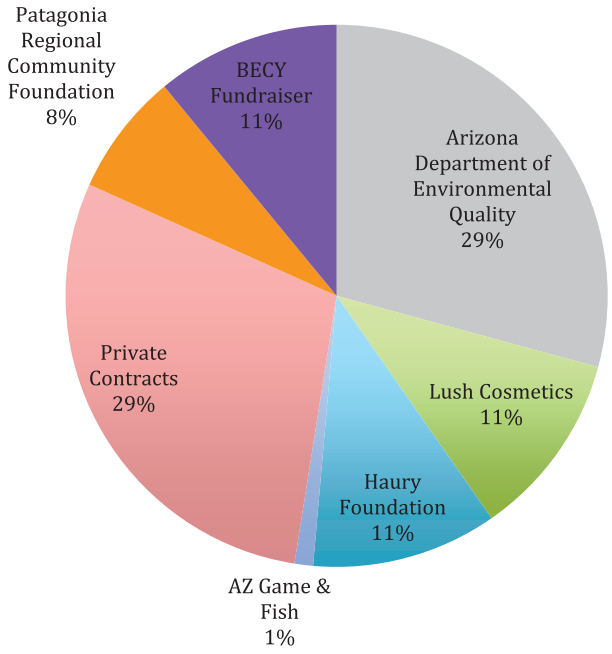

Figure 1. 2019 BECY Patagonia funding sources.

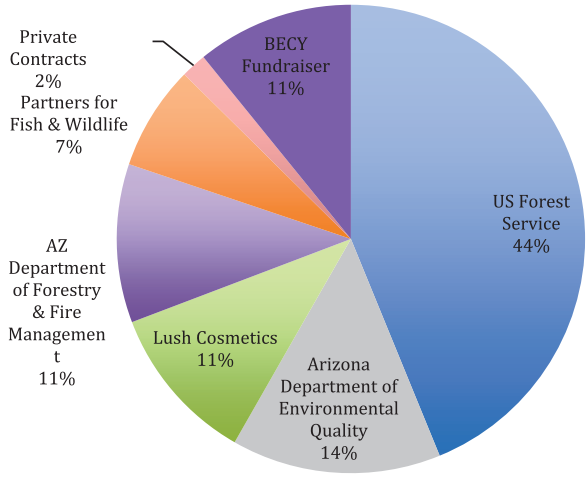

Figure 2. 2019 BECY Douglas funding sources.

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Written Consent

The author has received written informed consent from all participants, or their legal guardians if minors.

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