RESTORATION

Cuenca de los Ojos: Three Decades of Restoring Water Flows on Private Land in the U.S. and Mexico

Cuenca Los Ojos

Erosion Control Berms Seen from the Air

Cuenca de los Ojos (CLO) is a non-profit 501c3 organization with the mission of preserving land and restoring watersheds in the Sky Island ecoregion of the U.S. and Mexico—a region of high biodiversity which is attributed to its varied landscape with isolated mountain ranges surrounded by expanses of deserts and grasslands. CLO's ranches are situated within a broader network of protected lands and serve to connect these lands as corridors for wildlife species and watershed health.

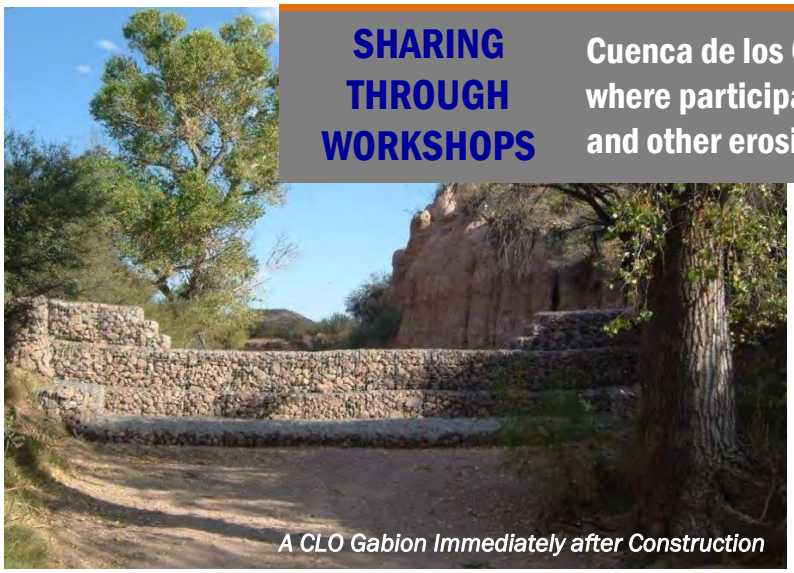
Project Location

KEY ISSUES ADDRESSED

The borderlands of Arizona and Sonora have experienced widespread degradation as a result of changing land use patterns, historic overgrazing, and altered fire regimes. This degradation has had lasting impacts on ecosystems and people. Increased habitat fragmentation, species loss, and accelerated erosion have led to landscapes that are less productive and less resilient to disturbance. For many private landowners, healthy working lands are essential for their livelihood. Conservation-minded stewardship of private lands can support this livelihood and benefit the broader landscape. CLO has installed thousands of erosion control structures to mitigate erosion and restore resiliency to their lands.

PROJECT GOALS

- Reduce the effects of accelerated erosion by installing erosion control structures on hillsides and stream channels
- Raise incised channel beds and promote infiltration by accumulating sediment behind erosion control structures
- Share techniques through workshops and presentations



A CLO Gabion Immediately after Construction

SHARING THROUGH WORKSHOPS

Cuenca de los Ojos hosts workshops in the US and Mexico where participants can learn how to build trincheras, gabions, and other erosion control structures.

PROJECT HIGHLIGHTS

Collaborative Conservation: CLO works across a broad landscape in both the US and Mexico with a diverse set of partners, including scientists, federal agencies, non-governmental organizations, and neighboring landowners, to effect large-scale conservation that could not be done in isolation.

Top-Down Restoration: Starting from the top of the watershed is an effective way to reduce erosion by slowing surface flow that gains energy as it travels downhill. CLO installed small, loose-rock dams called trincheras on hillsides with evidence of vegetation loss and small channel formation. Thousands of structures were installed over a 20-year period. After seeing success in reducing hillside erosion with rock structures, they worked to mitigate erosion in downstream ephemeral washes. Structures in washes were carefully constructed to withstand more intense flows farther down the watershed.

Large-Scale Structures: CLO installed over 50 gabions (large wire baskets filled with rocks) in ephemeral streams in Mexico where channels were deeply incised (8 meters deep or more). Gabions allow water to pass through but slow the force of flow during flood events.

Collaborators and Funding Partners

- Many dedicated individuals, non-governmental organizations, and public agencies in the United States and Mexico have collaborated with CLO and provided in-kind contributions.

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Photos courtesy of Cuenca de los Ojos

LESSONS LEARNED

After 20 years, changes in the landscape were obvious—hillslopes retained moisture with pools of water present in dry months; in washes, sediment deposited around the structures and caused streambeds to rise; vegetation grew more densely; wildlife benefited from the increase in surface water; and in Mexico, a once dry stream is now perennially flowing for 8 miles.

Erosion control structures require maintenance, especially during monsoon season. They must be monitored and modified to withstand heavy rainfall events. Structures must be rebuilt when flooding washes them out.

Increased sediment and moisture retention near structures creates conditions where vegetation can establish and thrive. The roots and canopy of perennial plants help stabilize hillsides and streambanks, eventually removing the need for continued management. For example, when a 500-year flood event in September of 2014 caused some gabions to wash out, vegetation that had established behind the gabions helped stabilize the channel and prevent further erosion.

NEXT STEPS

- Continue installing and maintaining erosion control structures
- Continue to work with researchers to investigate the effects of restoration

PROJECT RESOURCES

For more information on this project, contact Valer Clark: vclark@cuencalosojos.org

For additional project resources and case studies, visit the Collaborative Conservation and Adaptation Strategy Toolbox: WWW.DESERTLCC.ORG/RESOURCE/CCAST

The Same Gabion as Above a Few Years after Installation