

## HILL-SIDE STEWARDSHIP: REDUCING EROSION, ESTABLISHING VEGETATION, & ENHANCING WATER CATCHMENT

**INTRODUCTION:** As its name suggests, the Texas Hill Country is comprised of innumerable hills carved by creeks and rivers. Effective stewardship of these hill sides warrants long-term management (e.g. of vegetation, animals, and humans) in a manner that is consistent with the landowner's goals and that yields healthy plant communities and soils.

While there are many long-term stewardship practices (e.g. grazing and brush management, mowing, planting native vegetation, controlling ungulates) to be considered for managing healthy hill sides, this document focuses on several types of structures that landowners are creating to slow and sink water.

When landowners can slow and sink water into the land, this physical process provides a variety of benefits, including reduced erosion, increased soil moisture and grass production, flood mitigation, groundwater replenishment, habitat enhancement, and increasing the flow of spring-fed creeks. Used in concert with long-term management, these site-specific structures can be quite effective.

Ultimately, you will want to use methods that are appropriate to your site and consistent with your land goals. If there is an ongoing trigger for initiating erosion (e.g. vehicular use, current grazing or mowing practices), managing these stressors will be critical for success. Otherwise, these structures may simply act as band-aid approaches to long-term stewardship needs.

What follows is a short, visual guide that illustrates a few of the structures that landowners are using to slow and sink water in the Hill Country as well a list of additional resources to learn more about these and other methods. Erosion-control structures should be regularly monitored (especially during and after large rain events) and adapted as needed.

**ROWS OF ROCKS:** Using rock that is on-site, landowners can build rock structures following the contour lines on a hillside. The size and number of these structures will vary (e.g. depending on site needs, available rock materials, access, time, and labor).



At the Selah, Bamberger Ranch and Preserve in Blanco County, for example, hearty volunteers have spent years building miles of rock structures with large rocks. In the image on the right, sourced from the Selah, Bamberger website, J. David Bamberger kneels next to one of the large rock structures at the Preserve.

On the left, a landowner spent an afternoon with a rake forming small rock structures along the contour of the hill behind her house. Note the hat for scale. Two years ago, this site was bare ground; the small rock structures have slowed down water and trapped enough sediment so that seep muhly and several other species of native bunch grasses have established.

**WOODY DEBRIS:** Using woody debris, especially from cedar (Ashe juniper) or trimmings from dead Live Oak trees killed by oak wilt, can be a great practice for slowing and sinking water. Proper methods for brush management are beyond the scope of this resource; however, woody debris that is naturally deposited or leftover from brush management can provide a free, easily accessible tool.

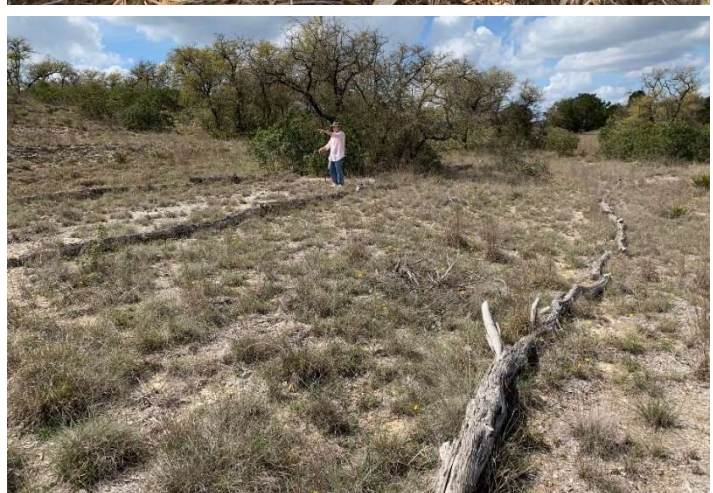
Some landowners will scatter branches on the ground to provide physical structure for trapping water and sediment, while also protecting germinating plants from herbivory.

Others will add a thin layer of mulch (e.g. after chipping cedar slash) for ground cover and water catchment. If feasible, avoid more than a few inches of mulch; too much mulch will inhibit grass germination.

In the top photograph, following cedar control at a state park, land managers have left slash on the ground, similar to how a gardener might use mulch on a garden to protect the soil.

Often, a single row of logs is ineffective for slowing and sinking water. Hence, some landowners will build a series of log berms and/or do a combination of these methods. In the bottom photograph, a landowner used three rows of cedar logs to slow down erosion, trap sediment, and improve conditions for grasses. The logs were placed carefully to follow the contour line along the hillside. In this same site, the landowner also broadcast native grass seed and covered the seed with a very thin layer of cedar mulch.

Not sure how to identify the contour lines on your hillside? Contact your local USDA NRCS District Conservationist to schedule a site visit; they will typically have a laser-level tool to help identify and flag the contour lines.



Using the topography as your guide will greatly enhance your ability to reduce erosion, sink water, and build healthy soil and plant communities.

Given the overabundance of white-tailed deer and other herbivores (e.g. Axis deer, feral hogs) in the Texas Hill Country, landowners are also using woody materials to protect native seedlings and saplings that are vulnerable to heavy browse.

Simply place a barrier of branches around the young tree to deter herbivores.

In addition to protecting the desired tree, this method will also provide protective conditions for natural recruitment of other species through the web of branches.

In the photos to the right and below, the landowner identifies native Redbud, Spanish oak, and Mexican buckeye from seed that she planted that have germinated amidst the protection of the cedar slash.



**Questions? Contact Daniel Oppenheimer, Hill Country Alliance Land Program Manager, at [daniel@hillcountryalliance.org](mailto:daniel@hillcountryalliance.org) or 210-287-0478.**

**ADDITIONAL PRACTICES & RESOURCES:** When done in concert with long-term management, these additional practices can also be used for slowing and sinking water:

- Building more nuanced rock structures such as Rock Rundowns (pictured below), Zuni Bowls, and Media Lunas that slow and sink concentrated flows;
- Siting and scaling ponds appropriately along hill sides;
- Purchasing wood fiber erosion control blankets for highly erodible sites;
- Placing prickly pear cactus pads along the contour or concentrated flow areas; pear is resistant to deer and grazing and will protect emerging grasses. When it has achieved its purpose, pear can be killed, if desired by landowner;
- Improving dirt roads to avoid soil erosion and preserve the natural drainage patterns;
- Installing rainwater harvesting systems, rain gardens, and/or pervious pavers that allow precipitation to sink into the soil and not to runoff the land;
- Using cover crop seedings to improve soil health;
- Seeding with hearty, native upland species to jump-start site recovery and water catchment.

The following are some helpful resources that provide more details on some of the strategies listed here and described in the previous sections.

**Quivira Coalition:** *This non-profit organization has some amazing resources (electronic copies are free), available at <https://quiviracoalition.org/techguides/>. In particular, check out “Erosion Control Field Guide” and “A Good Road Lies Easy on the Land.”*

**Earth Repair Corps:** *Based in Central Texas, this non-profit organization offers permaculture courses, volunteer projects, and other educational opportunities for learning how to improve the soil and ecology. Check out <http://earthrepaircorps.org>.*

**Soil for Water:** *A project of the National Center for Appropriate Technology, Soil for Water provides landowners with technical and educational resources to support adaptive grazing and other land management practices that enhance soil health. Check out <https://soilforwater.org/>.*

**USGS:** *The U.S. Geological Survey offers an online resource, the National Map, which allows users to view a variety of spatial layers (e.g. topographic lines). See <https://viewer.nationalmap.gov/advanced-viewer/>*

