

# Erosion control: Start small, start now



## Permaculture in Practice

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Much of Northern New Mexico boasts fascinating views of steep slopes and starkly carved arroyos caused by erosion. Unfortunately, this beauty reveals the butchery of a double-edged sword that has hacked the land nearly naked.

In soil science the bottom soil layer is called the C horizon. The "C" doesn't stand for "caliche" but for the layer below the B horizon, which is the layer of reasonably healthy earth just below the luscious, teeming A horizon. Also known as "good topsoil," the A horizon is what farmers need to consistently succeed.

As a revolutionary design system with the goal of jumpstarting sustainable societies by means of common sense and natural principles, permaculture emphasizes erosion control, because that is essential to build an A horizon. If the wind blows or the rains come and your good soil vanishes, then your land itself is contributing to an array of environmental problems. If, however, your populations of insects, microorganisms, and mycelium increase with time, then your land contributes to the solution.

Revegetation, increased biodiversity, the recharging of the aquifer and decreased sedimentation downstream are all positive effects of any successful erosion-control project. The positives from a property owner's perspective include a more inviting landscape with a parallel benefit to property value, less dust (or mud) to sweep off of the porch, and a reduced chance that your land will slide into a nearby arroyo.

One of permaculture's major principles - Start small - certainly applies to erosion control, not only because big mistakes are avoided with small-scale projects but because the land often responds better to an interconnected system of simple techniques as opposed

to one excessively macho feat of technology. The start-small principle is also very motivating, because by definition the project will be relatively easy to accomplish.

A good start is to carefully contour your land to allow any moisture that does hit the ground to percolate into the soil instead of sheeting off. Permaculturalists do this by building swales. First we flag a level line along a slope. This can be done with a transit, a bunyip, a water level, an A-frame level or any fool that can determine points of the same elevation along a slope.

Next, we dig a ditch along this line and place the dirt on the downhill side of the ditch in the form of a berm. The berm must be tamped so that the next monsoon won't destroy our work. Finally, we sow seed, lay mulch and plant drought-tolerant plants in the swale, being careful to keep the height of the berm strong and level.

It is also critical that, at either end of the swale, the berm bends uphill. These two curves, called "wings," ensure that all of the available runoff will be captured by the swale. Think of these wings as the bow and stern of a ship. Without the curve up from the bottom of any ship, the vessel would look more like a raft, less able to hold cargo and much more prone to disaster.

Swales are best lined out in a fish-scale pattern such that, as the top swales fill up with rainwater and silt, they spill naturally into the swales below. Remember, if the swale is too big, significant water will be lost to evaporation. Sometimes, however, small swales can be destroyed by an overwhelming monsoon, so it is important not to take the start-small principle too literally.

Swales should be reseeded and remulched in mid-June after our brutal yet dependable April winds but before our undependable and sometimes also brutal summer monsoons.

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