

Grass to reclaim New Mexico circa 2050



Permaculture
in Practice

by Nate
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Let's recap the piñon problem: The railroad relieves itself of an obscene horde of prolific sheep during the late 1800s. Soon our natural grasslands are wiped out. Then, without the periodic, relatively cool, grass fires that would typically destroy the saplings in our meadows, piñons grow too dense for their own good.

Now, experts say, 80 to 90 percent of the piñon population in northern New Mexico will be devoured by the "bark beetle" (whose scientific name, *Ips confusus*, seems so much more appropriate). This means 100 percent of the trees are dead or doomed in many areas.

In addition to aesthetic, economic, and emotional concerns, worries abound about the effects

of soil erosion associated with this dearth. The good news is that piñons are not known for any exceptional erosion-control abilities. The bad news is that the now-naked earth will miss the familiar protection that a healthy piñon forest provides. With their dense needles and branching structures soon to be mere memories, our incessant desert sun, our brutal winds, our pummeling monsoons and our extreme shifts in daily temperature will certainly take their toll on our "topsoil." In addition, we should recognize that what is left of our soil structure is now more susceptible to erosion as it implodes on an extensive web of dead and dying root systems.

Conditions are not ideal, but at the risk of sounding less than sympathetic and overly fruity, I say, "Let's look on the bright side," not only because it's enjoyable but also because it's in our best interest to do so. As a permaculturalist, I am trained to see problems as opportunities (for observing, learning, designing and installing solutions out of miserable situations).

In this case the solution is clear: restore our meadows by building soil using the following strategy:

Prepare your land to harvest rain; sow plenty of grass and wildflower seed; mulch; establish windbreaks; have abundant patience, and let nature work for you. Of course, I won't have space in this column today to tackle all of the elements of this strategy, so let's consider this the first in a long series about restoring our meadows.

One of the best ways to build soil in the desert is to contour your land in order to harvest precipitation. One essential technique is called on-contour swaling. An on-contour swale is a ditch with the excavated earth carefully placed and tamped on the downhill side of the ditch in the form of a berm. In order to prevent runoff spilling out the sides of the swale, the berm curves uphill at each end.

During and after large precipitation events, such swales are like skinny, temporary cisterns. Instead of eroding the soil further, the harvested run-off percolates either into the aquifer where it is stored for future generations, or it remains in the soil just below the surface for use by plants in the newly created microclimate.

Don't forget to build your swales on-contour. Whether determined

using the global positioning system (GPS), a transit, a bunyip, a water level, an A-frame level, or even by the naked eye (which is not recommended), points on the top of the berm should be level. This way, when the swale is full, it will overflow gently over the entire berm. The alternative is a gouging-out process that can quickly destroy any well-meaning swales during even the briefest of monsoons.

But don't worry; in fact, go grab your shovel! You will get your swales right as long as you remember one of permaculture's most important principles: Start small. Small projects allow you to learn from your mistakes, while they prevent wasted energy and resources on systems that fail. And remember, the true emphasis of this principle is on the "starting" part - especially since, if you don't start soon, my words will be forgotten like so much kind, green grass.

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