

Vetiver Grass used to protect road culverts in Bandera County – Texas
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In 2000 we were given a pickup truck load of vetiver by the Boucard's. The plants came from their cedar (and other essential) oil distillery in Leaky, Texas. We established the plants in an informal nursery along the banks of a seasonal creek that runs through our property in Bandera County in Texas.

In 2002, a hundred year flood (caused by over 800 mm of rainfall in 3 days, which is about 100 mm more than average annual rainfall) buried our informal nursery under about 1 meter of sediments. What was unusual about this was that the rest of the area was scoured and eroded by the flood waters. The vetiver nursery, however, apparently slowed down the flood waters causing coarse sediments to drop out and be trapped on the nursery site. Less than 20% of the nursery plants managed to grow back up through the sediments. These we harvested and used to re-establish the nursery up on the coarse sediment left by the flood. It is now an excellent nursery site as the coarse gravelly sands make digging and lifting the plants very easy.



Photo 1. Informal nursery, with about 50 plants, in recent flood-deposited coarse gravelly sands.

Note, this picture and all the others were taken recently. Being winter, and having had below freezing temperatures in November and December, all the vetiver (and other grasses, shrubs and deciduous trees) are brown.

In 2004 we had the dirt road coming into our property improved by grading, putting in cross-drainage, and surfacing (with caliche) on a critical section. During the floods of 2002, the nearby county road was washed out – the culverts were ripped out by the flood waters. Our neighbors used our entrance road to bypass the section of county road that was destroyed. Our section, which was parallel the county road and only 5 meters away, survived as we had protected that section with vetiver hedges. When we improved the road in 2002, we were forced to put in a culvert in that section as we had raised and surfaced the road bed due to it being a very sticky clay soil in that section. We tied our new culvert into the one going under the county road and have protected it with vetiver.



Photos 2 & 3. Culvert installed on our entrance road (far side, photo 2) and run to tie into culvert under county road. As the new culvert crosses the drain on the side of the county road, it was necessary to cut a drain hole into the culvert to allow the drainage from the county road to enter. A small hedge has been planted upslope to filter out debris and keep the screen from clogging.



Photo 4. Vetiver planted to protect soil : concrete interface of culvert and to take velocity out of runoff in the road drains.



Photos 5& 6. Close-up of culvert protection plantings.



Photo 7. Another culvert that we have protected with vetiver.