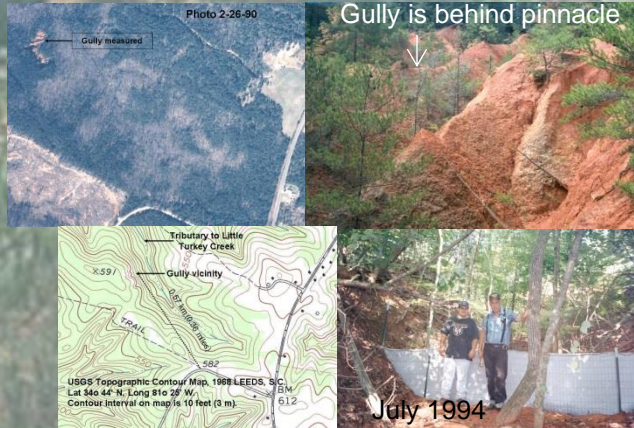




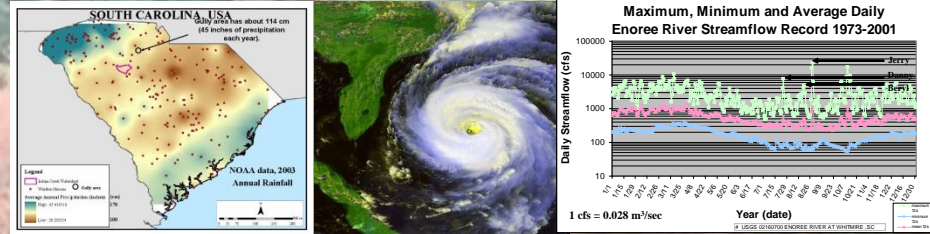
Sediment from a Small Ephemeral Gully in South Carolina

by William F. Hansen and Dennis L. Law, USDA Forest Service

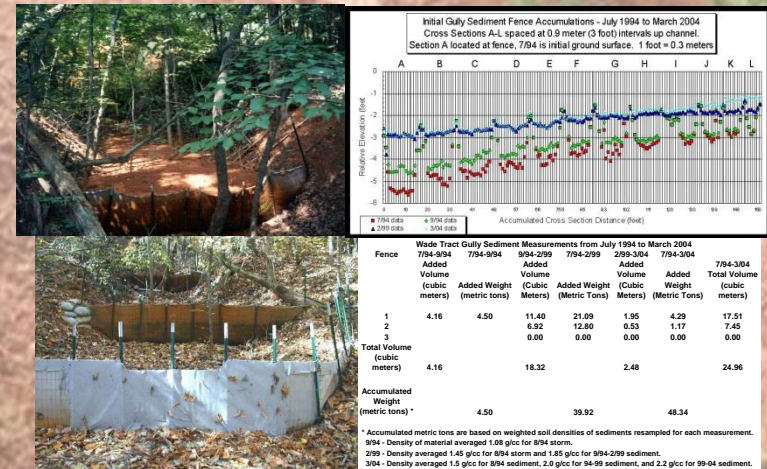


Objective: Address public issue concerning the value of gully reshaping impacts where water quality is not likely a concern.

Methods: A filter fabric dam was installed in July, 1994 in a 0.25 acre (0.1 ha) discontinuous, valley side gully that was eroding, but downstream was covered in leaves and appeared not be delivering sediment. A Criterion 400 Survey Laser was used to measure topographic details (distances, slope, azimuth or x, y, z coordinates) to a prism or to soil, tree or other surfaces. Laser level was used to measure sediment surface changes for the sampling grid in 1994, 1999 and 2004. Samples were taken to estimate sediment density.



Conditions: Average annual rainfall is about 114 cm (45 inches). From 1994 to 2004, the area was affected by numerous Tropical Storms such as Beryl, Jerry and Danny. Reduced activity was noted during the drought years from 1998-2002. **Results:** Total sediment accumulation was 48 tonnes (53 tons), resulting in an average annual sediment delivery rate of 51 tonnes/hectare (22 tons per acre). Two filter dams were added for capacity. The upper channel gradient changed from 9% to 4% due to the filling of the dam with sediments.



Conclusions: Eroding ephemeral gullies may deliver sediment during severe events. Over a decade, about 10 rainfall events may have delivered sediment. Various field indicators helped to highlight erosion and sediment delivery (see poster 2). Fabric dams were simple, effective and productive in storing sediment and provide an excellent visual aid. Survey laser and laser level were valuable measurement tools in defining the gully boundary and sediment surface changes.