Teran Watershed Project Details

Ten miles of 4-strand wire fence were built to allow pasture rotation. Game and Fish Department fence specifications were used to minimize effects on wildlife.

To provide water sources, three pipelines were built, two from existing wells and one from a renovated well. A total of 5.3 miles of buried pipeline was installed from the wells to storage tanks and drinking troughs. In addition, two springs and a water collector were developed by installing 3,300 feet of pipeline with storage tanks and drinking troughs. Troughs were provided with wildlife ramps to allow use of water by birds and small animals.

Over 5,000 loose rock dams were constructed in 1,330 acres of the watershed. These dams were located in appropriate tributaries of Teran Wash.

Baseline conditions of the watershed's soil and vegetation were mapped. Aerial photographs were taken and ground-truthed along the main channels to document initial conditions.

A monitoring program was designed to document response to improvements. This monitoring includes:

- ◆ Six frequency transects to document changes in upland vegetation.
- ◆ Two riparian transects to measure streambank vegetation changes.
- ◆ Livestock grazing pattern maps and animal diet monitoring through fecal analysis.
- ◆ Six rain gages to measure monthly and annual rainfall across the watershed.
- ◆ Three crest stage gages to measure maximum flow depth in major channels.
- ◆ Duration, depth, and distance of intermittent surface flow is recorded on one riparian transect.
- ◆ Sediment accumulation and vegetation changes are measured above 30 selected loose rock dams.

The Redington NRCD, with assistance from the NRCS will continue monitoring until 2009 to document the effects of the project.

Sarah B. Lauterbach

The Watershed Approach

It has become evident that problems in one part of a watershed cannot usually be solved without looking at the whole watershed.

Stream flow and groundwater recharge in the main channel may be affected by changes in runoff and sediment production on the upland portions of the watershed, as well as by land use along the main channel itself.

The Teran Watershed project is an example of an approach that could be used over any watershed. It involves an assessment of the condition of the watershed; identification of problems such as erosion, sedimentation, water quality or stream flow; investigating the causes of observed problems; and then treating the source of the problems in an effective way.

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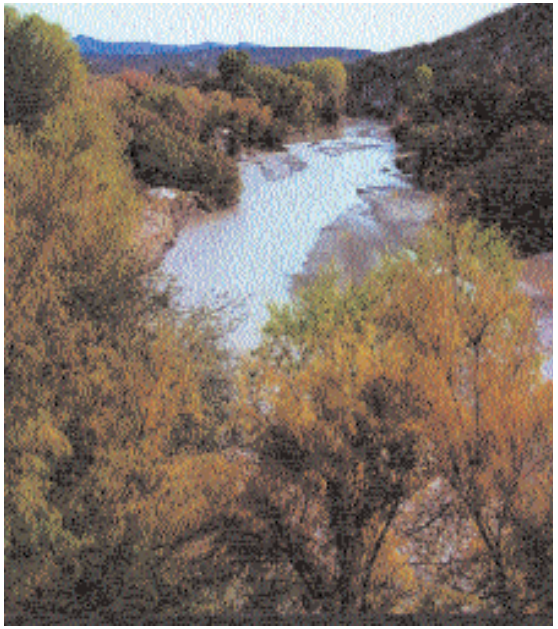
The Teran Watershed Project

An effort of the Redington Natural Resource Conservation District to improve watershed conditions in the San Pedro Valley

Conservation Through Cooperation



The Teran Watershed Project

In 1995 the Redington Natural Resource Conservation District received a grant from the Arizona Water Protection Fund to enhance conditions in the 11,000 acre Teran Watershed, a tributary of the San Pedro River.

This “backyard conservation” project involved the construction of more than 5,000 small, “loose-rock” structures in tributary washes of Teran Wash. In addition, grazing management was improved over the entire watershed by the construction of fencing and water developments to allow for better livestock distribution and timing of grazing.

The Teran Watershed was chosen for several reasons. It is of manageable size with good access, and is Arizona State Trust land. There were plenty of rocks on hand for building loose rock dams. In addition, the owners of VF Ranch and Banderilla Ranch that lease the State land in the watershed were willing to invest their own time and money in the project.

Building Loose Rock Dams

A very simple and effective way to reduce accelerated erosion in the watershed is to build loose rock dams. These dams are built

in the small drainages feeding into the larger main washes and are built of rocks stacked together without mortar. They are intended to slow the runoff and trap sediment rather than to impound water, although some water is retained in the accumulating sediment. Enhanced vegetative growth will generally occur in the trapped sediment. Treatment of the smaller drainages may reduce peak water flows and prolong the duration of flow in larger washes and ultimately in the San Pedro River. It is important to start the dam building at the upper end of a tributary, and choose sites with appropriate channel width and slope, drainage area, and availability of on-site material.

Gloves and a light mattock are suggested tools. Minimize ground disturbance when gathering rocks. A mixture of rock sizes works best for porosity. At least half should be basketball size or larger for stability.

To anchor the structure, dig a shallow trench about a foot wide into the banks and bed of the wash. Lay larger rocks here and continue out and up from this base.

To keep runoff in the channel, make the height of the dam lower in the center than on the sides where it joins the bank. Make the upper and lower sides of this spillway taper gently into the channel bed.

In moderate (4-6% grade) slope channels, distance between each structure will be about 30 feet. The top of the lower dam should be about even with the base of the dam above it.

Grazing Management

The factors controlling the amount of surface runoff and erosion occurring on a semi-arid watershed are rainfall intensity, soil type, topography and cover of rock fragments and vegetation. Of these, vegetation cover is the only one that can be enhanced by livestock grazing management. In particular, increasing the amount and uniformity of cover of perennial grasses reduces surface erosion by slowing runoff and increasing infiltration of rainwater into the soil where it can be used to grow more plants.

To maintain or enhance the cover of perennial grasses over the watershed the distribution of grazing should be as uniform as possible to reduce concentration of grazing in favored areas, and the timing of grazing should be controlled to allow adequate regrowth and reproduction of desirable plants.

This project used cross-fencing and water developments to help meet these objectives. Several large pastures were broken into smaller units to allow rotation of livestock among them, thus reducing the time

of grazing and increasing the length of the resting period. To make this subdivision possible it was necessary to provide additional water so that each new pasture had adequate water sources. These additional watering points also help to improve grazing distribution within the pastures.