CWA Manzanita Erosion Control Project

Benson / St. David, Arizona

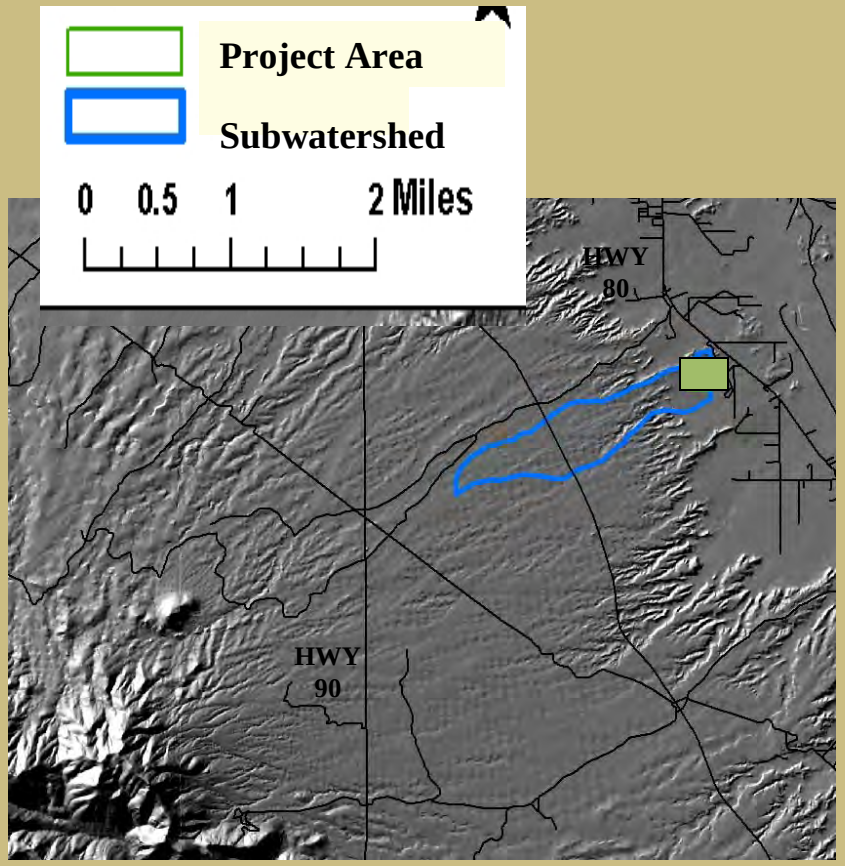
May 2006 – January 2009

Funded by a grant from the United States Environmental Protection Agency and the Arizona Department of Environmental Quality

Problem: Increased natural and human-induced disturbances to the balance of the ecosystem

1. Growth
2. Drought

Action: Community Watershed Alliance (CWA) and partners began implementing best management practices for rehabilitation and restoration of the Manzanita Erosion Control Area to <u>reduce upland erosion and sediment transport to the San Pedro River.</u>



WATER QUALITY ISSUE

Current flow conditions are from an up slope channel system characterized by steep slopes and deep gullies. The slope breaks just west of the project area where the water is cutting down into deep channels and speeding up. Runoff entering the relatively flat project area is forming a network of smaller braided channels and new gullies, dropping high volumes of sediment, and ultimately accelerating erosion within the sub-basin downstream to Highway 80.

Between the slope “break” and Highway 80, run off passes through the project area which covers approximately a square mile of the watershed.

The volume of flow accelerates erosion and streambed aggregation and degradation in tributaries of the San Pedro River which is less than 1 mile away.

Outcomes to include:

- Individual site restoration with erosion control and bank stabilization projects
- Reseeding where warranted with nearby water sources and soil types.
- Network of 100 plus check dams to slow runoff and capture sediment
- Public education and learning lab site to foster cooperation of the City,County, local community, land owners, regulatory agencies, and developers to achieve a larger watershed-based plan for restoration.

PHOTO GALLERY REVIEW

IMPLEMENTATION OF EDUCATIONAL OPPORTUNITIES AND PROJECTS SUPPORTED BY TITLE 319 GRANT

I. Add network of check dams to slow water and capture sediment.

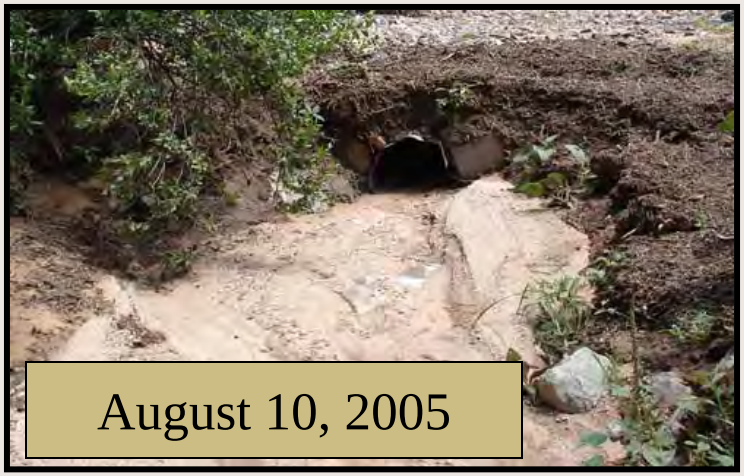
Hands-on Training

Dec. 2007

Three front end loaders, 34 people, 24 tons of rock

II. Restore ground cover by reseeding where appropriate

III. Size culvert to prevent undermining of structure and bank destabilization.



IV. Add permanent bank stabilization

July 22, 2005

July 25, 2005

Photo Monitoring:

412 feet plus Dec. '07

February 2007

VI. CONSTRUCT GULLY PLUGS

to arrest headcutting

Aug. 2005

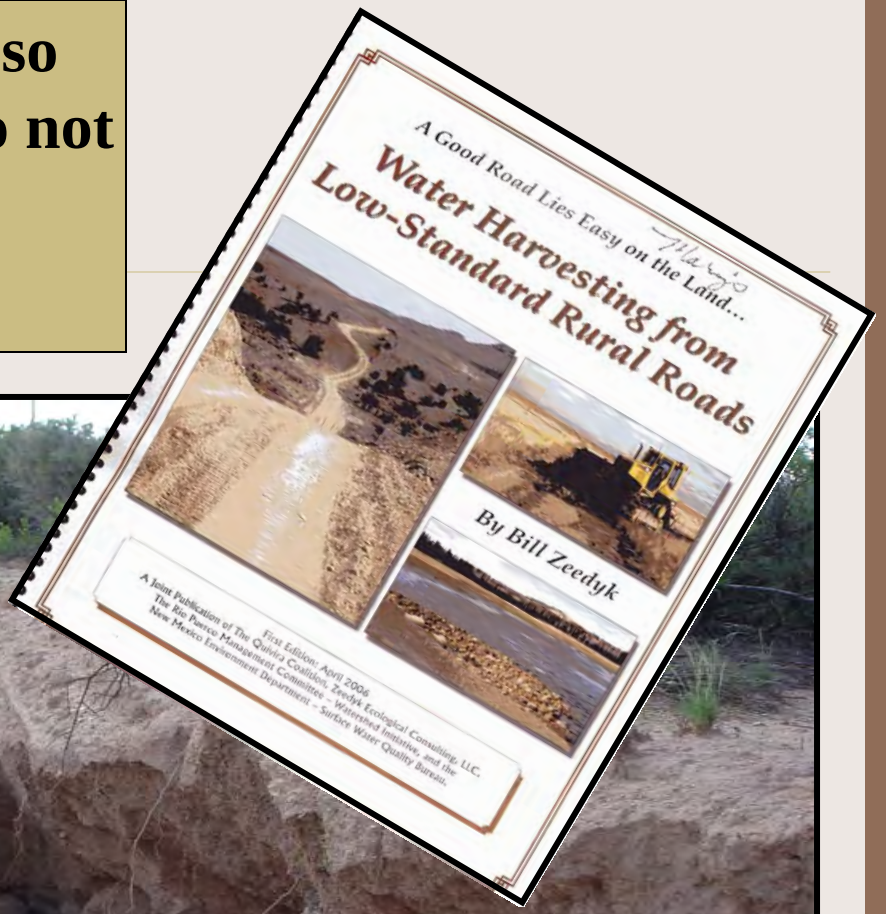
UPSTREAM

DETAILS IN GABION WORKSHOP POWERPOINT

Gabion Baskets and Wire Sausages to arrest headcutting

Feb. 2008

VII. Provide education so that upstream efforts do not cause down stream consequences.



ROAD DESIGN AND MAINTENANCE

Bill Zeedyk, wildlife biologist and 35-year veteran with the Forest Service, introduced strategies to read the land in order to work with natural drainage patterns versus fighting the laws of physics.

Many of the 25 property owners, ranchers, heavy-equipment operators realized how some of their previous efforts may have fallen within the "uninformed maintenance operations" that contributed to eroding conditions.

Participants had an opportunity to develop a management plan for two different sites, identifying key opportunities for rolling dips and multiple lead out ditches based upon slope, soil type, and adjacent vegetation.

It's all about protecting the health of our watershed!

CULMINATING PUBLIC TOUR - NOV. 2008

Thirty folks met for coffee, donuts, and an overview of the project before boarding the wagons for two primary sites.

Riding thru the neighborhood illustrated the challenges faced by the property owners and confirmed the need for a collaborative plan. Great weather, snacks, and friendly faces were a bonus!!!

It was a day for the property owners to tell their story - their erosion issues, what they have learned, their solutions, what changes they have seen, what tweaking needs to done, and what they have planned for the future.

IN SUMMARY:

- **bank stabilization and soil treatments,**
- **culvert sizing to prevent undermining banks and channel scour**
- **gully plugs to prevent head cutting (gabion baskets and wire sausages)**
- **reseeding where appropriate**
- **addition of 100 plus small check dams slowing runoff and capturing sediment up drainage**
- **road blading strategies for low-standard rural roads**
- **public tour of demonstration site**

ADEQ GRANT

Funds Requested	**$ 27,033.00**
Match	**18,376.50**
Total Project	**45,409.50**

PARTNERS:

ADEQ

NRCS

Maccaferri Gabions

Water Wise

Rocking R

Lil' Dons Digging

Judds Landscaping