BILL ZEEDYK WORKSHOP DAY

Sponsored by Pecos River Open Spaces
March 28, 2009

MAJOR PROJECTS DISCUSSED:

RIVER FORD

-Bill suggests relocating the road on Greg's side of the river to its far left in the willows, higher up on the bank. Then build up the previous road entry and the entire river-left bank with rock (and eventually vegetation) to gradually nudge the river back to its right and to preserve and re-establish the point. A load of cobble to fill in major holes and to reinforce the new road entry was suggested. No permit would be needed for this action.

RIVER WORK

-Up-stream from the ford, larger rock structures could be implemented to steer the river to the right and narrow it gradually.
- Willows, sedges, trees, etc could be re-introduced to build up the river banks and act as natural erosion control along the entire stretch of the river.
-Removal of problematic junipers and replacement by sedges, grasses and other trees will provide for more soil conservation and growth of more helpful and appropriate vegetation.
- Corps of Engineers 404 Permit will be required for larger in-river projects and grant money will ideally be available for this work.

Possible Grant Sources

1-NM Environment Dept. - Neil Schaeffer
    -319 Program
2-River Ecosystem Recovery Initiative
    -river bank re-establishment
    -re-vegetation of river area
    -habitat promotion/re-introduction
3- National Fish and Wildlife Dept.
    -habitat recovery and development for local species
4- Upper Pecos Watershed - Max Webber
5-NM Soil and Water Conservation Dept - Terry Montez

SWIMMING HOLE

-Working to recover the eroded walls of the swimming hole by building large rock walls and other structures to encourage sediment build-up and vegetation growth.

ROADS

-General water drainage work on all of our roads to keep them in better shape as well as to prevent future erosion.

ARROYO

-Work to build up the deep arroyos, encourage soil accumulation with 1-rock dams and triangle structures in a long-term effort to raise the levels of the arroyos and eventually turn them into gullies filled with vegetation.

GRASSY MEADOWS

-Preservation and re-introduction of meadow areas through managed juniper and pinion removal and improved water harvesting / drainage methods.

STEPS WE CAN TAKE NOW WITHOUT PERMITS OR MAJOR EQUIPMENT:
1-move ford road, fill in old road with cobble and protect the point with rock and vegetation
2-meadow re-introduction/tree removal/grass growth encouragement
3-small arroyo dams and head cut control
4-road maintenance, road shaping, water diversion, erosion control

NEXT PHASE REQUIRING PERMITS, HEAVY EQUIPMENT and GRANT MONEY:
1-Upstream rock installation and river steering
2-Swimming hole erosion protection and bank re-development
3-full stretch of river: erosion control, bank reinforcement, tree planting, tree removal, river narrowing, grass and vegetation re-introduction

***Involve as many people, groups, organizations, species, acres as possible in grant proposals. The more we can affect and involve, the more money we could be given.

DETAILS DISCUSSED ON OUR HIKE:

ROADS
-Start work from highest point of road and work downwards
-The main goal is to keep water off the roads and divert it responsibly to percolate and grow vegetation rather than become run-off.
-Water that stays and flows on roads causes destruction of the road and is a waste of water.
-Simple diversionary structures implemented every 100ft or so along the roads can create efficient, managed drainage.
-Rolling Dip (out slope) structures should be 2 car lengths long: 1 car length of slope up and one car length of raised area.
-Remove ditches, gutters and burms along roadside to allow for a dispersed, even flow of water onto the grassy meadow areas
- Install rolling dips BEFORE terrain becomes steep. Once a road is steep it is too late and the flow of water is too powerful to control effectively.
-Divert as much water as you can as often as you can to maintain optimum road health.
-In bends in the road that have head cuts or arroyos forming on the inner edge, build single rock walls (fan out from big rocks to small rocks) to catch soil and ideally slow/stop the mass erosion.
-Flat roads are not good roads. Roads that are sloped and have rolling dip structures shed their water quickly & resourcefully, are less muddy and are in better shape to drive on.
-In many areas, it is the road and its ditches that CAUSE the erosion. The way a road is managed affects all the surrounding land…especially the land down-gravity from the road.

ARROYOS and STREAMS
-Start work “downstream” and work in an “upstream” direction
-5-row 1-rock dams added over time to encourage soil accumulation and vegetation growth will gradually raise the arroyo floor and reverse the effects of destructive run-off.
-Start point bars from dead trees. Branches pointed downstream to aid in material accumulation.
-Reverse the down-cutting affects of water by letting the water do the work as it flows over tree and rock structures, moving the sediment into areas which need building up.
-It is not a process of filling in holes: rather it is a process of continuous controlled grading.
-When erosion has cut an arroyo down to the bedrock, this is obviously the place where water will gather…so this is the ideal place to build one-rock dams and encourage soil accumulation and grass growth.
-Vegetation growth will lead to more soil accumulation and the gradual rise of the arroyo floor and ideal restoration to a swale/gully instead of a sharp eroded cut in the land.

MEADOWS and GULLIES

-We need to harvest and direct as much water as we can for vegetation growth and sediment catching. Water is much more valuable for vegetation growth and sediment moving than it is sitting in a pond where it will just evaporate. (evaporation rate: 7ft per yr. per sq. ft. of open water)

-In our Savannah areas, we need to do a managed removal of juniper and pinion trees to return these areas to their intended state—rolling thick grasslands. The juniper trees hoard far too much water and deprive the grasses of nutrients thus causing meadows to turn into dirt fields covered in trees subject to even worse erosion. Remove all young trees-they are easiest to deal with. Keep trees out of high water flow areas (gullies) but leave them on rocky areas and hills where they belong. Gullies are ideal for grass re-introduction and grass flourishing.

-Keep some clumps of trees (juniper/pinon mixture) throughout the meadows for wind-block, habitat, animal shelter.

-Trees should be cut to stump or ground level and be laid on the meadows in single layers of 3'-4' lengths to provide ground cover and protection for emerging vegetation.

-Grass encourages percolation. Junipers lead to runoff

-At the start of any head-cut (gouge in the ground that becomes a mini arroyo/drainage area) a zuni bowl and 1-rock dam should be added to slow the flow of water and to encourage sediment build up and eventually grass growth and full recovery from the erosion. The key to stopping a head cut from growing is to starve it of water, divert "upstream" flows into grasses instead of down the chute where gravity wants it to go.

-This "Swale saving" / grass re-introduction on meadows is probably the easiest task of all of our projects and thus should be started first.

-Soil Conservation to promote grass growth is the key.

BILL ZEEDYK informational materials available on-line:

AN INTRODUCTION TO EROSION CONTROL
http://quiviracoalition.org/Detailed/Land_Health/Publications/An_Introduction_to_E..._346.html

AN INTRODUCTION TO INDUCED MEANDERING
http://quiviracoalition.org/Detailed/Land_Health/Publications/An_Introduction_to_I..._347.html

A GOOD ROAD LIES EASY ON THE LAND...
http://quiviracoalition.org/Detailed/Land_Health/Publications/_A_Good_Road_Lies_Ea..._350.html

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