

## ***PECOS RIVER STRUGGLES***

### **The Health of the Rio Grande River Basin**

The Pecos River is the largest river basin flowing into the Rio Grande River in Texas. As such, its importance historically, biologically and hydrologically to the future of the lower Rio Grande Basin is huge. The flows of the once great Pecos River have dwindled to a mere trickle due to many causes – some natural, but most not. Its upper reaches in Texas now resemble a very poor quality creek rather than a river. If the health of the entire Rio Grande basin below the Pecos is to be improved and maintained, then it is crucial that both the water quality and quantity of Pecos flows be drastically improved and stabilized.

A couple of terms for you, *watershed* = *water catchment*, the area catching rainfall and runoff for a stream or river. And, *riparian* refers to the green vegetation zone along a river or creek.

The Pecos is now a greatly depleted western river which arises from snows in the Sangre de Christos Mountains of northern New Mexico flowing many hundreds of winding miles through hot, dry, semi-desert landscapes in New Mexico and in Texas. Before any “excess” flows – if such exist - should be diverted, the basic health and integrity of the river’s system must be repaired and restored. This will not be a short-term “fix” and prior to developing a plan for riverbasin restoration, a comprehensive inventory and plan of the entire watershed must be developed having wide community support. Goals will be set and if the plan is implemented projects will be developed which will achieve those goals in an economically feasible manner. A Pecos basin watershed plan is the goal of a multi-agency team put together by Dr. Charles Hart, Range Specialist at the Ft. Stockton Extension Center. Will Hatler is Project Coordinator and other team members represent: the International Boundary & Water Commission, Texas Agricultural Experiment Station, Texas Water Resource Institute and four others from the Ft. Stockton Extension Center. Funding for the three year project is from an EPA 319 grant administered by the Texas Soil & Water Conservation Board.

Over the past century the water quality has deteriorated and stream flows decreased. This has caused the aquatic community of the Pecos River to drastically change according to fishery biologists and local users of the river. No longer does it have a healthy diverse community of aquatic plants, invertebrates, micro-organisms, fish, amphibians and waterfowl.

The reduced aquatic diversity has been negatively affected by a combination of many factors over a long period of time, such as changes in river hydrology, riparian plant community destruction, oil and gas activities, irrigation demands, short and long-term droughts, damming of the river and the deterioration of the upland rangeland watershed due to livestock grazing. These factors, both natural and man-made, allowed the introduced exotic plant pest saltcedar, to take over the riparian zones within the watershed. It is now found across the basin, hundreds of miles from the river on dry arroyos and in highway ditches. Saltcedar has not only reduced river flows and shallow groundwater due to its high water use, but it concentrates salt in the soil and river banks and from there into the river itself. Charlie Hart is helping to lead another successful multi-agency project which has concentrated upon spraying thousands of acres of saltcedar along the Pecos River during the past few years.

## **Pecos River, Mecke**

Many rivers and shallow aquifers exchange waters back and forth depending upon several factors such as streamflow or groundwater pumping - *sometimes the river recharges the aquifers and sometimes the aquifers recharge the rivers*. Thus, the lowered water quality of the river can affect the groundwater in the river basin and vice versa.

The downward trend of the Pecos River has not helped the Rio Grande River, which has many problems of its own including saltcedar, water quality and low-flows. Being an international river, the Rio Grande is relied upon by both Mexico and the US for drinking water, irrigation and industry and as such, it depends heavily upon its major Texas tributary – the Pecos River. The health of both the Pecos and the lower Rio Grande River is extremely crucial to hundreds of thousands of residents of several Mexican and US cities.

The lower Pecos River contacts the Trinity-Edwards Aquifer and spring-fed creeks in the lower Pecos region such as Independence Creek are invaluable in reducing salt concentrations and in almost doubling river flows with the addition of pure, sweet spring waters.

### **Riparian and Uplands Vegetation Decline**

Most of the native riparian vegetation along waterways in the Pecos River watershed has been replaced by the exotic introduced saltcedar, which harms the river system by:

- increasing salt in soils of the riparian zone, preventing growth of desirable native riparian plants
- loading salt into stream waters
- reduced beneficial riparian plant functions such as:
  - soil bank binding and stabilization
  - controlled soil erosion, by acting as a buffer zone
  - healthy soil organism populations
  - quality livestock grazing so crucial in a semi-desert region
  - healthy fisheries, including most aquatic life
  - quality wildlife habitat that is vital for life on western rangelands, and
  - a sustainable supply of clean water for other uses
- loss of the natural beauty of the river system formerly available to adjoining landowners, area residents and to potential recreational income production (fishing, hunting, camping, canoeing, etc.) if it were a healthy river
- a great loss of waters from the shallow water tables and stream flow due to the high-water using saltcedar as compared to most native riparian vegetation – this may also have contributed to a loss of previous spring flows crucial to the river and to the region
- reduced property values along the Pecos River system due to its severely damaged riparian zone and watershed and lowered water quality and quantity
- loss of quality, native vegetation from the Pecos River’s riparian zone costing ranchers valuable forage for livestock
- thousands of tons of sediment flowing down the Pecos into the Rio Grande, reducing water quality and filling expensive and vital reservoirs downstream - costing taxpayers many millions of dollars

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**Pecos River Article**

Developing a good watershed plan for the Pecos River basin is a first step in improving this historic and important river. Your input and participation in this process during the next three years is important. Check the Pecos team's website for information and updates:

<http://pecosbasin.tamu.edu/>

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