

## **Groundwater Concerns**

### **A. ADEQUATE DATA ON COLORADO RIVER AND SPRINGS**

#### **Base flows to the Colorado River**

**Historical Records** – Historical data were reviewed and included in developing the groundwater availability model for the central Carrizo-Wilcox Aquifer. The document cites a 1918 USGS Low Flow study of the Colorado River from about Utley down to Smithville. Base-flow increases across the aquifer outcrop area were estimated to be 36 cfs (26,062 ac-ft/yr). A flow-duration curve generated from the Smithville gage indicated that “even during conditions of extremely low flow, the Colorado River (was) still a gaining reach across the outcrop of the Carrizo-Wilcox aquifer. The flow increase documented in the 1918 study may be compared with the results obtained from the model to estimate the low end of groundwater discharge in the Colorado River across the outcrop (i.e., few, if any, modeled aquifer discharge quantities should be less than this value).”

**LCRA Operations Project** – The LCRA is currently conducting studies on the Colorado River to assist in their management of water releases from the highland lakes to meet water rights and environmental flows obligations. These studies include information on the gains/losses of the river as it flows through Bastrop County and may provide some additional quantification the amount of base flow the river gains during the dry period such as has occurred over the last two years. LCRA has indicated that this information will be made public when analysis of the data is completed (expected later this spring).

In a study related to the LCRA Operations Project released in 2006 the author concluded that “the lower Colorado River is a gaining stream that receives groundwater contributions from major and minor aquifers.” Analysis of USGS data contained in the report, though inconclusive, shows a gain of about 50 cubic feet per second (cfs) in the reaches passing over the Carrizo-Wilcox between Utley and Smithville; about 99 ac-ft/day. Limited field work in 2005 also suggested that the Colorado River has some stream flow gain from groundwater in these reaches; however, since the data were not adjusted for all known gains and losses, the gains cannot be attributed solely to groundwater.

#### **Many undocumented springs flowing during current drought**

There are many documented and undocumented springs in Bastrop and Lee Counties that have continued to flow throughout the last two droughts. These springs are important and should serve as indicators (canaries) of the condition of our aquifers by ensuring that they are documented and monitored in a quantitative manner. Texas Parks and Wildlife Department has an ongoing program to help locate, document, and monitor springs throughout the State.