Wolfe: Big Chino groundwater essential to upper Verde River streamflow

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Groundwater pumping, both past and future, in Big Chino Valley threatens one of the most beautiful sections of the Verde River, from its headwaters springs east of Paulden through Perkinsville, about 24 river miles downstream.

Similarly, year-round flow of the Verde River and the vibrant riparian corridor that it supports in the Verde Valley is threatened by the combination of Big Chino pumping, plus past and future pumping in the Verde Valley.

The Verde River groundwater system underlies and provides virtually all of the domestic and municipal water that supports Chino Valley, Prescott, the Big Chino Valley, the Verde Valley, and part of Prescott Valley. Importantly, this same groundwater is essential to maintaining the perennial (year-round) flow of the Verde River.

Hydrologists understand that removal of water by wells in our area will eventually cause approximately equal reduction of streamflow. We have a tragic example of how this works. Del

Rio Springs, in northernmost Chino Valley, were once-vigorous artesian springs connected by a perennial stream to the Verde River. Thus, the springs were – until about the early 1970s – the headwaters of the Verde River.

Beginning in the late 1930s, many wells were drilled for agricultural irrigation and domestic use in Chino Valley, and in the late 1940s the City of Prescott began drilling wells within Chino Valley. This intensive diversion of groundwater that had flowed to the Verde River has had severe consequences:

• The water table has dropped by about 50 feet in the Chino Valley area.

• Del Rio Springs are greatly diminished and are predicted to be dry by 2025.

• The loss of about 5.7 miles of perennial Verde River streamflow has shifted the river's headwaters from Del Rio Springs to the upper Verde River springs, located about two miles east of Highway 89 near Paulden.

Multiple hydrologic investigations show that groundwater from the Big Chino Valley is the major source of the water that issues from the upper Verde River springs east of Paulden. Indeed, groundwater discharged to the river in its upper few miles provides more than half of the Verde's perennial flow for the first 24 river miles.

Extraction of groundwater from the Big Chino Valley, whether to support development in Prescott and Prescott Valley or in the Big Chino Valley itself, will in time diminish the groundwater contribution to perennial flow of the upper Verde River by an amount essentially equal to the amount of groundwater pumped and consumed. The river's vitality and its continuous perennial flow are clearly dependent upon human actions with respect to the groundwater system. That vitality is at risk from both current and future human actions.

I will explore this linked groundwater-surface water system when CWAG meets on Saturday, May 12. Details are at www.cwagaz.org. Submit your questions to info@cwagaz.org.

Please join the Citizens Water Advocacy Group (CWAG) at www.cwagaz.org as we work to protect the upper Verde River and to ensure sustainability of our long-term water supply.

Ed Wolfe is a geologist, CWAG board member, former chairman of the Verde Watershed Association, and former chairman of the Verde River Basin Partnership.