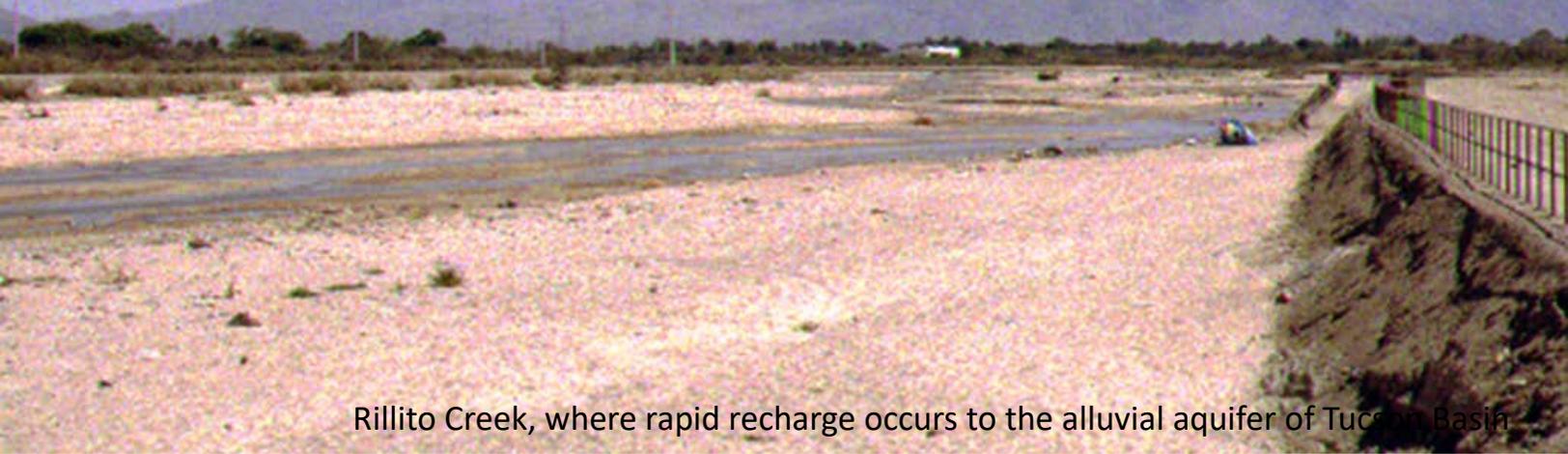


Pima County Regional Flood District Monthly Brown Bag Series



Rillito Creek, where rapid recharge occurs to the alluvial aquifer of Tucson Basin

AGES OF GROUNDWATER IN TUCSON BASIN

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Groundwater sampled from supply and monitoring wells in Tucson Basin ranges in age from a few years to about 20000 years. Ages can be constrained by measurement of tritium and radiocarbon, and in some cases by stable oxygen and hydrogen isotopes. Tritium in groundwater was affected by atmospheric nuclear testing and by industrial tritium releases in the 1970s. Tritium data distinguish groundwater volumes containing some post-bomb recharge from those containing only pre-bomb recharge. Most groundwater containing tritium occurs in the regional alluvial aquifer, adjacent to major washes; a little recharge occurs from minor washes. Radiocarbon was also affected by atmospheric nuclear testing. Groundwater samples containing bomb radiocarbon correspond largely to those containing tritium. Pre-bomb groundwater in the regional alluvial aquifer is broadly zoned in radiocarbon content, indicating semi quantitative zonation of uncorrected ages. Age corrections based on stable C isotopes lead to ages up to 10000 years in the central well field. Other zones of ancient groundwater occur in fractured rock aquifers in the Tucson Mountains and in northeastern Tucson Basin, and adjacent to the Santa Cruz normal fault.