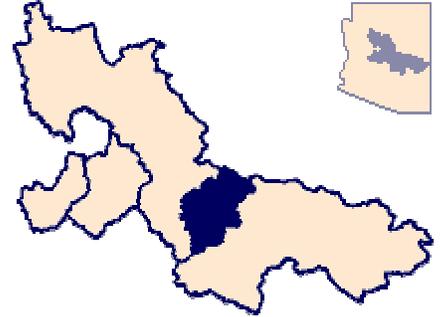


TONTO CREEK BASIN

The Tonto Creek basin occupies about 920 square miles in central Arizona (Figure 3). The basin falls entirely within the Central highlands province, an area of rugged mountains composed of igneous, metamorphic, and sedimentary rocks. Formed by faulting, the basin trends north-south and is drained by Tonto Creek and its tributaries. The basin is bounded on the north by the Mogollon Rim, on the east by the Sierra Ancha Mountains, and on the west by the Mazatzal Mountains. Elevations range from 7,800 feet above mean sea level in the Mazatzal Mountains to 2,200 feet above mean sea level at Roosevelt Lake where Tonto Creek terminates.



There are four general rock types in the Tonto Creek basin: alluvium; basin-fill sands and gravel; Paleozoic sedimentary rocks; and Precambrian igneous, metamorphic, and sedimentary rocks (Denis, 1981). All four general rock units in the Tonto Creek basin contain some groundwater reserves. The amount of groundwater available varies widely, and generally depends on the unit's composition and structure. The main aquifers are the alluvium and the basin-fill sediments which contain an estimated three million acre-feet of recoverable groundwater (Arizona Department of Water Resources, 1988). The Precambrian and Paleozoic rock units either contain very little water or have not been drilled for water; thus, no evaluation of storage can be made. Little groundwater development has occurred in the basin because 97% of the area is National Forest land. Most wells are low-yield domestic and stock wells. A few irrigation wells, located in the lower parts of the basin, pump less than 200 acre-feet per year (Denis, 1981). Overall, it is estimated that less than 500 acre-feet per year is pumped from the basin (U.S. Geological Survey, 1986).

Precipitation falling in the higher elevations of the Tonto Creek basin sustains the base flow of Tonto Creek. The two major aquifers, the alluvium and the basin-fill sediments, receive most of their recharge by infiltration from Tonto Creek. Schumann and Thomsen (1972) estimate that 17,000 acre-feet per year infiltrate into the aquifers from Tonto Creek. Discharges from the basin include 80,000 acre-feet per year of surface flow, 4,000 acre-feet per year of subsurface flow discharged into Roosevelt Lake, and 13,000 acre-feet per year of evapotranspiration from the Tonto Creek floodplain (Schumann and Thomsen, 1972).