Environment of the Tonto Basin

FACT SHEET

The Tonto Basin lies about 50 miles east of Phoenix, Arizona. The basin is situated in a transition zone separating the upper Sonoran deserts of the Colorado Plateau to the north from the lower Sonoran deserts of the Basin and Range province to the south. Tonto Basin is surrounded by rugged mountain ranges, including the Mogollon Rim to the north, the Sierra Ancha to the east, the Salt and Supersition Mountains to the south, and the Mazatzal Mountains north and west.

The modern environmental and climatic conditions of the Tonto Basin are thought to be similar to those of prehistoric times. The landforms, climate, faunal and floral communities, and steam flows are fundamentally the same. Major differences include the presence of Roosevelt Dam and the resulting reservoir, and in some places, changes in the distribution and density of plants and animals as a result of historic disturbances and overgrazing (Van West et al. 2000).

Upper and Lower Tonto Basin

Tonto Basin is divided into two sections - Upper and Lower. The upper Tonto Basin lies along either side of Tonto Creek north of its confluence with the Salt River. The lower basin lies along the Salt River and modern Lake Roosevelt. The vegetation of the Tonto Basin ranges from desert species in the lower basin to woodlands and forests in the upper elevations. Indigenous animals of the basin include jackrabbit, desert cottontail, muledeer, white-tailed deer, and bighorn sheep. Also many different kinds of fish, amphibians, reptiles, rodents, carnivores, and birds inhabit the basin.

Upper Tonto Basin

The upper basin surrounds the confluence of Tonto Creek and Rye Creek, which are fed by snowmelt and rainfall runoff from the high country north and west of the basin. Vegetation in this area consists mostly of pinyon-juniper woodlands (Clark and Vint 2004), but above 2000 m (6561 ft) in the surrounding mountains, Ponderosa pine, Douglas fir, white fir, quaking aspen, and a few understory shrubs and grasses are also sustained (Van West et al. 2000).

Lower Tonto Basin

The lower basin lies along the Salt River at both high and low elevations. Along the river and modern Lake Roosevelt

Map of the Tonto Basin and surrounding environment created by Jesse Allen, Earth Observatory, NASA.

below 1050 m (3450 ft), the vegetation consists primarily of desert plants such as saguaro, cholla, prickly pear and barrel cacti, paloverde trees, ocotillo, and bursage. Prior to the construction of Roosevelt Dam, the Salt River also sustained groves of mesquite, cottonwood, and other riparian vegetation such as willows.

Tonto Basin Climate

The Tonto Basin is a semiarid environment. On average the basin receives between 12" to 15" of yearly precipitation. The majority of precipitation, about 56%, falls during the winter storm season from November to March. The rest of the moisture comes from the monsoon thunderstorms from July to September, with some precipitation in October. Temperatures for the lower Tonto Basin range from an average high of 102 degrees Fahrenheit in July, and an average January low around 37 degrees. The growing season is long, often lasting for more than 300 days of the year. The lower basin would have been perfect for growing corn, squash, beans, cotton and other crops. Irrigation canals drawing from the Salt River were used to water these crops. The upper Tonto Basin climate sees an average high of 102 degrees Farhenhiet

View of Lake Roosevelt from the Lower Cliff Dwelling in Tonto National Monument.

in July with the average low in January around 32 degrees. The growing season in the upper basin is shorter than that of the lower basin.

The Prehistoric Environment

The modern environment and climatic conditions of the Tonto Basin is believed typical of ancient conditions in the basin, with the Salt River and Tonto Creek depositing rich soil on the floodplain and nourishing thick stands of mesquite, black walnut, and sycamore. The area around modern Lake Roosevelt would have been ideal for growing corn, squash, beans, cotton, and other crops, with the potential for double-yield in any given year because of the long growing season.

Reconstructions of the prehistoric climatic conditions of the Tonto Basin include estimates of precipitation and stream flow based on tree-ring records. The major occupation period within the basin corresponded to a period of climatic and hydrologic stability between the years of A.D. 950 and 1375 (Dean 2000). However, stability is a relative term, and the Salado people living living the basin faced multiple years of drought during the years of A.D. 1218 to 1299 and a long period of wet years between A.D. 1253 and 1370 (Windes 2007). A near continuous six-year drought followed, as did catastrophic flooding in the A.D. 1380s (Dean 2000; Windes 2007). In combination, these conditions would have spelled disaster for local farmers, who began leaving the basin around A.D. 1350. By A.D. 1450, the Salado people completely abandoned the Tonto Basin, perhaps in search of more stable conditions and fertile ground.

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