

Apokryptic (Concealed) Karst—A Problem for Resource Management and Rurban Development in Southern Arizona

*William D. Peachey
Colossal Cave Mountain Park
Tucson, Arizona*

Abstract

Historically, potential cave-bearing limestones have been seen to have such limited and xeric exposures in the Sonoran Desert life zone of southern Arizona that little thought or effort has been directed towards determining the actual extent or state of karst development within these “exotic” blocks. Consequently, these same terrains have also been of little concern for either the resource managers of agency lands or the developers of rurban “estates” at the burgeoning urban fringe. However, over the past decade, geological and biological observations in the area of Colossal Cave Mountain Park in eastern Pima County, Arizona, and other sites in the region have begun to reveal some of the details concerning the presence of an undescribed biome hidden at depth within a presently active karst zone of unknown extent. This is an “apokryptic” (a new term from the Greek *apokryphos* – hidden, concealed, obscure) form of karst created by complex geological relationships involving faults, lithologies, aquatards, debris fans, pediments, and more. This karst phenomenon apparently develops over greatly protracted periods of time and operates with such a low frequency of “active” surface events that it has escaped detection until the present. Because of their concealed nature, such apokryptic karst areas may be prone to future conflicts arising between adjacent land owners over water supply or pollution issues or with resource managers over underground habitats.