

FIGURE 1. Tectonic map of southeastern New Mexico. MA = Mescalero arch, L=Lincoln, Cap=Capitan Mountains, Rb=Rio Bonito fault; heavy dashed line indicates the approximate boundary of the Pedernal uplift (after Meyer, 1966). Adapted from Kelley (1971, fig. 12).

According to Kelley (1971), there is good evidence that these buckles have undergone right lateral displacement as great as 150 m. The region also contains numerous northeast-trending faults of normal displacement which are generally downthrown to the northwest. In addition, Kelley (1971) mapped a northwest-trending fault in the Rio Bonito valley that is downthrown to the southwest.

Tectonic history

The subsurface in this area is dominated by the Pedernal uplift, which

according to Kelley (1971), began to rise in late Pennsylvanian time and continued to rise during the Wolfcampian. Kelley and Silver (1952) indicated that Montanan time marked the beginning of Laramide disturbances in this region. This is documented by the unconformity between the Late Cretaceous Mesa Verde and early Tertiary Cub Mountain Formation. According to Kelley (1971) and Kelley and Thompson (1964), Laramide reactivation of the Pedernal trends formed broad, north-trending folds across central New Mexico, including the Mescalero arch, the Sierra Blanca basin, the Claunch-Tularosa sag, the Chupadera–San