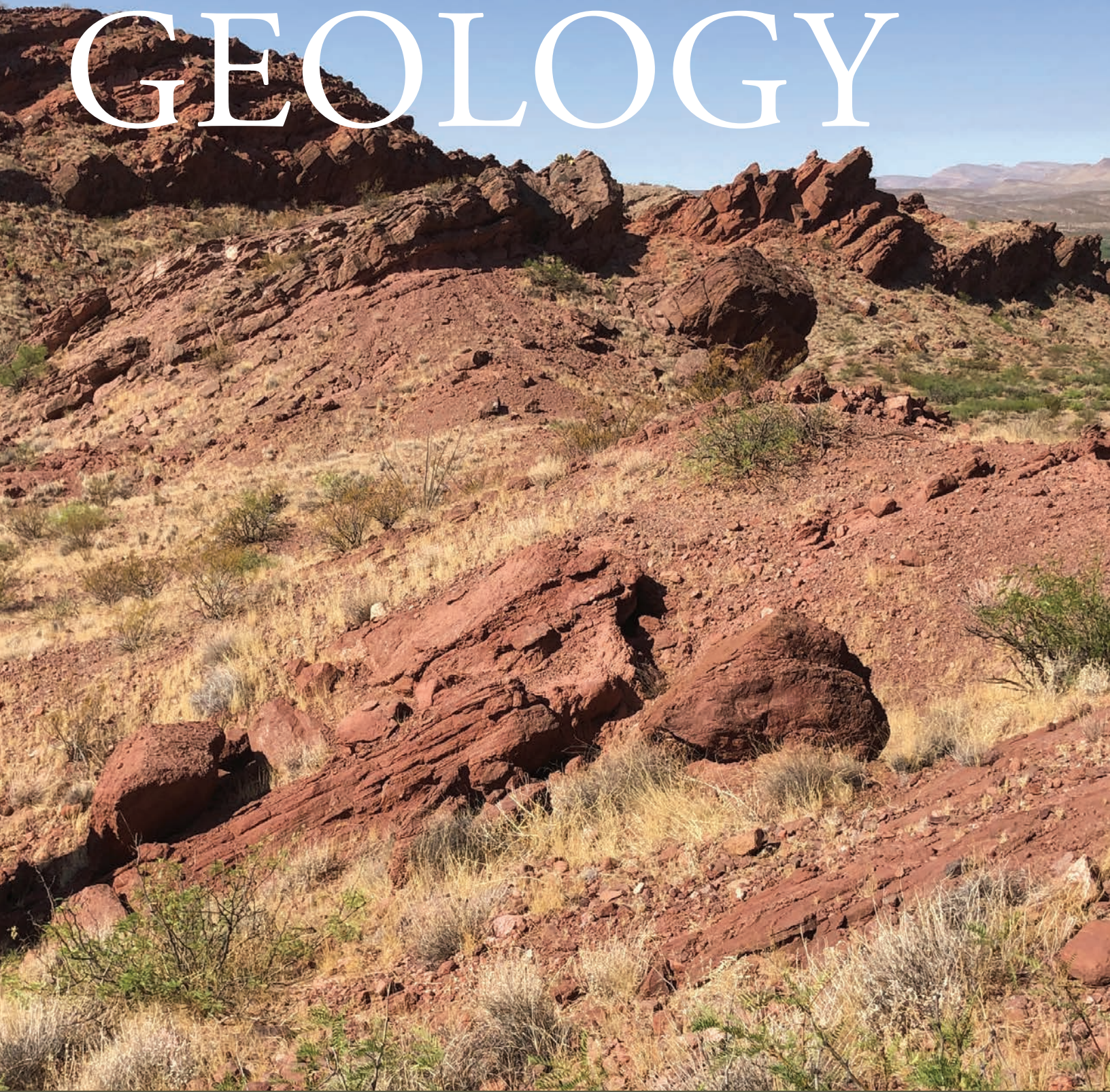


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New Mexico GEOLOGY



NEW MEXICO BUREAU OF GEOLOGY AND MINERAL RESOURCES

Contents

San Diego Mountain: A “Rosetta Stone” for Interpreting the Cenozoic Tectonic Evolution of South-Central New Mexico

William R. Seager, Shari A. Kelley, Jacob O. Thacker, and Richard E. Kelley

For more than 65 years, geologists working in southern New Mexico have recognized that unconformities, volcanic and sedimentary rocks, and structures exposed at San Diego Mountain and in the Tonuco uplift of northern Doña Ana County are keys to understanding the Cenozoic geologic history of the region. Combined with outcrops from neighboring mountain ranges, these outcrops provide a seemingly continuous stratigraphic record of Cenozoic events. Rock exposures at San Diego Mountain and elsewhere document Laramide shortening that produced a large basement-cored block uplift and its complementary basins, all eventually buried by middle Paleogene volcanic and sedimentary rocks. Also revealed by these extraordinary outcrops is the nearly 30-Myr-long, surprisingly complex evolution of the Rio Grande rift in south-central New Mexico.



Hogbacks of the upper Oligocene to middle Miocene Hayner Ranch Formation, located adjacent to San Diego Mountain and along the southern flank of the Tonuco uplift in northern Doña Ana County, New Mexico. As much as 1.1 km in total thickness, only 150–200 m in the middle part of the formation is exposed here. At this location, the formation consists of interbedded mid and distal alluvial fan deposits, derived from a nascent Caballo uplift and deposited in the “early rift” Hayner Ranch half graben. Ridge on left skyline is approximately 35–40 m high; Sierra de las Uvas on the far skyline. View looks southwest.

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