Jump to Navigation

Quaternary Fault and Fold Database of the United States

As of January 12, 2017, the USGS maintains a limited number of metadata fields that characterize the Quaternary faults and folds of the United States. For the most up-to-date information, please refer to the interactive fault map.

Coyote fault (Class A) No. 2128

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Compiled in cooperation with the New Mexico Bureau of Geology & Mineral Resources

citation for this record: **Personius, S.F., and Jochems, A.P., compilers, 2016, Fault number 2128, Coyote fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2020 02:22 PM.**

Synopsis	The Coyote fault forms part of the western range front of the Manzanita Mountains, which are a subset of the Manzano Mountains (to the south). The fault is truncated on the north by the Tijeras-Cañoncito fault system [2033], and displacement appears to die out to the south, where active faulting of the range front along the western margin of the Manzanita and Manzano Mountains steps eastward to the Manzano fault [2119]. Evidence of Quaternary movement along the Coyote fault is equivocal; the fault may cut a Quaternary age terrace near Coyote Springs, and tonal and vegetation lineaments on middle to late Pleistocene alluvial-fan deposits mark the projected trace of the Coyote fault south of Coyote Springs. One or more strands of the Coyote fault

	are exposed in Precambrian and Paleozoic bedrock south of the Sandia National Laboratories southern boundary.
Name comments	The Coyote fault was first mapped and named by Reiche (1949 #1417), and later appeared on compilations by Kelley (1954 #1222; 1977 #1106). Parts of the Coyote fault also appear on more detailed mapping of Myers and McKay (1970 #1406), GRAM, Incorporated and William Lettis and Associates, Incorporated (1995 #1430) and Chamberlin and others (1997 #1768).
County(s) and State(s)	BERNALILLO COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Poor Compiled at 1:24,000 scale. *Comments:* The fault trace is well located where exposed in bedrock (Reiche, 1949 #1417; Myers and McKay, 1970 #1406), but much of the trace is projected across alluvial fan deposits where fault location is poor (GRAM Incorporated and William Lettis & Associates Incorporated, 1995 #1430; Chamberlin and others, 1997 #1768). Fault traces from 1:24,000-scale mapping of Chamberlin and others (1997 #1768).
Geologic setting	The Coyote fault forms part of the western margin of the Manzanita Mountains. This fault is one of several faults (Los Piños [2118], Manzano [2119], Sandia [2037], and Rincon [2036]) that form the eastern margin of the Rio Grande rift and the Albuquerque basin.
Length (km)	11 km.
Average strike	N1°E
Sense of movement	Normal
Dip	55–77° W. *Comments:* Dip measurements are in bedrock as reported by Reiche (1949 #1417), Myers and McKay (1970 #1406), and Chamberlin and others (1997 #1768).

Paleoseismology studies	
Geomorphic expression	The Coyote fault forms part of the deeply embayed western margin of the Manzanita Mountains, which implies a lack of persistent late Quaternary faulting. The trace of the Coyote fault may be marked by tonal contrasts and vegetation lineaments on middle to late Pleistocene alluvial-fan deposits (GRAM Incorporated and William Lettis & Associates Incorporated, 1995 #1430).
Age of faulted surficial deposits	Ages of deposits offset by the Coyote fault are poorly known. Myers and McKay (1970 #1406) mapped a Quaternary terrace deposit faulted against Pennsylvanian sedimentary rocks southwest of Coyote Springs. GRAM, Incorporated and William Lettis and Associates, Incorporated (1995 #1430, p. 2-25) found no conclusive evidence that this Quaternary deposit was faulted, but they mapped tonal and vegetation lineaments on middle to late Pleistocene alluvial-fan deposits and showed the fault as buried by late Pleistocene fan deposits. Chamberlin and others (1997 #1768) showed the Coyote fault trace as buried by middle and late Pleistocene alluvial-fan deposits.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Estimates of fault timing are based on surficial geologic mapping of GRAM, Incorporated and William Lettis and Associates, Incorporated (1995 #1430). They observed that the youngest surface-faulting event probably occurred after the deposition of middle and late Pleistocene alluvial-fan deposits (their unit Pf4.lm), but before the deposition of late Pleistocene alluvial-fan deposits (their unit Pf5.lm).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed studies of fault offset or age of offset deposits are available; the slip-rate category is based on a lack of prominent fault scarps and low rates of slip on other faults in this part of the Rio Grande rift.

Date and Compiler(s)	2016 Stephen F. Personius, U.S. Geological Survey Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources
References	#1768 Chamberlin, R.M., Karlstrom, K.E., Connell, S.D., Brown, C., Nyman, M., Hitchcock, C., Kelson, K.I., Noller, J., Sawyer, T., Cavin, W.J., Parchman, M.A., Cook, C., and Sterling, J., 1997 (revised 2002), Geology of the Mount Washington quadrangle, Bernalillo and Valencia Counties, New Mexico: New Mexico Bureau of Mines and Mineral Resources Open-File Geologic Map 8, scale 1:24,000. #1430 GRAM, Incorporated and William Lettis & Associates, Incorporated, 1995, Conceptual geologic model of the Sandia National Laboratories and Kirtland Air Force Base: Technical report to Sandia National Laboratories, Albuquerque, New Mexico, December 1995, 15 pls. #1222 Kelley, V.C., 1954, Tectonic map of a part of the upper Rio Grande area, New Mexico: U.S. Geological Survey Oil and Gas Investigations Map OM-157, 1 sheet, scale 1:190,080. #1106 Kelley, V.C., 1977, Geology of Albuquerque basin, New Mexico: New Mexico Bureau of Mines and Mineral Resources Memoir 33, 60 p., 2 pls. #1406 Myers, D.A., and McKay, E.J., 1970, Geologic map of the Mount Washington quadrangle, Bernalillo and Valencia Counties, New Mexico: U.S. Geological Survey Geologic Quadrangle Map GQ-886, 1 sheet, scale 1:24,000. #1417 Reiche, P., 1949, Geology of the Manzanita and north Manzano Mountains, New Mexico: Geological Society of America Bulletin, v. 60, p. 1183-1212.