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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.

Los Piños fault (Class A) No. 2118

Last Review Date: 2016-04-11

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

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Synopsis	The Los Piños fault extends along the steep west flank of the Los Piños Mountains, from near Sepultura Canyon north to the vicinity of Goat Draw and U.S. Highway 60. The only previously mapped offset of Quaternary deposits along the trace of the Los Piños fault is found on a landslide just south of Bootleg Canyon, and small scarps may be present on middle (?) Pleistocene alluvium on either side of Bootleg Canyon. Otherwise, little evidence of faulting is preserved in alluvial deposits along the western front of the Los Piños Mountains. Although the ages of alluvium along the mountain front are poorly known, most of the fans are probably no older than middle Pleistocene. In this case, any evidence of early Pleistocene fault movement is probably

	buried.
Name comments	The Los Piños fault forms the eastern margin of the Rio Grande rift in the southeastern part of the Albuquerque basin. This area was originally mapped by Wilpolt and others (1946 #1424) and subsequently by Kelley (1954 #1222; 1977 #1106), Myers and others (1981 #1407) in the Becker quadrangle, and Myers and others (1986 #1408) in the Becker SW and Cerro Montoso quadrangles. Updated mapping has been completed for the latter three quadrangles (Luther and others, 2005 #7464; Allen and Love, 2013 #7469; Allen and others, 2014 #7470). On most maps, the Los Piños fault is shown as a continuous (but buried) southern extension of the Manzano fault [2119], which occupies a similar geomorphic position to the north (Machette, 1982 #1401; Machette and McGimsey, 1983 #1024). **Fault ID:** Fault no. 8 of Machette (1982 #1401) and fault no. 7 of Machette and McGimsey (1983 #1024).
County(s) and State(s)	SOCORRO COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:24,000 scale. *Comments:* Published maps show fault dotted along most of its length; fault trace from 1:24,000-scale geologic mapping of Becker, Becker SW, and Cerro Montoso 7.5-minute quadrangles (Luther and others, 2005 #7464; Allen and Love, 2013 #7469; Allen and others, 2014 #7470).
Geologic setting	The Los Piños fault forms the eastern margin of the Rio Grande rift in the southeastern part of the Belen sub-basin of the Albuquerque basin. However, more recent fault activity appears to have shifted westward onto intrabasin faults that cut the Llano de Manzano, east of the Rio Grande (unnamed faults on the Llano de Manzano [2117]). A shallow bedrock bench underlies much of the piedmont between the Los Piños fault and the more active faults to the west.
Length (km)	18 km.

Average strike	N32°E
Sense of movement	Normal
Dip Direction	NW
Paleoseismology studies	
Geomorphic expression	In most places, a steep mountain front marks the buried trace of the Los Piños fault, but little or no evidence of scarps in Quaternary deposits is found along most of the fault. Machette and McGimsey (1983 #1024) described a short 5–10 m high scarp on middle (?) Pleistocene alluvium just south of Bootleg Canyon. Also, a landslide mapped just south of Bootleg Canyon (Kelley, 1977 #1106; Myers and others, 1986 #1408; Allen and others, 2014 #7470), may be faulted, but otherwise little evidence of faulting is preserved in alluvial deposits along the front of the Los Piños Mountains.
Age of faulted surficial deposits	Machette and McGimsey (1983 #1024) described several short scarps on middle to late (?) Pleistocene alluvium and Myers and others (1986 #1408) show an intermittent trace of the fault crossing a landslide of probable Pleistocene-Holocene age. The ages of alluvium along the mountain front are unknown, but are probably no older than middle Pleistocene, so any evidence of fault movement in the early Pleistocene is probably buried.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Estimate of middle Pleistocene movement based on mapping of Machette and McGimsey (1983 #1024).
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; slip-rate category based on lack of prominent fault scarps and low rates of slip on other faults in this part of the Rio Grande rift.
Date and	2016

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References	#7470 Allen, B.D., Timmons, J.M., Luther, A.L., Miller, P.L., and Love, D.W., 2014, Geologic map of the Cerro Montoso 7.5-minute quadrangle, Socorro County, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Geologic Map 238, scale 1:24,000. #7469 Allen, D.F., and Love, D.W., 2013, Geologic map of the Becker SW 7.5-minute quadrangle, Socorro County, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Geologic Map 233, scale 1:24,000. #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. #7464 Luther, A.L., Karlstrom, K.E., Scott, L.A., Elrick, M., and Connell, S.D., 2005, Geologic map of the Becker 7.5-minute quadrangle, Valencia and Socorro Counties, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Geologic Map 100, scale 1:24,000. #1401 Machette, M.N., 1982, Quaternary and Pliocene faults in the La Jencia and southern part of the Albuquerque-Belen basins, New Mexico—Evidence of fault history from fault-scarp morphology and Quaternary geology, *in* Grambling, J.A., and Wells, S.G., eds., Albuquerque Country II: New Mexico Geological Society, 33rd Field Conference, November 4-6, 1982, Guidebook, p. 161-169. #1024 Machette, M.N., and McGimsey, R.G., 1983, Map of Quaternary and Pliocene faults in the Socorro and western part of the Fort Sumner 1° x 2° quadrangles, central New Mexico: U.S. Geological Survey Miscellaneous Field Studies Map MF-1465-A, 12 p. pamphlet, 1 sheet, scale 1:250,000. #1407 Myers, D.A., McKay, E.J., and Sharps, J.A., 1981, Geologic map of the Becker quadrangle, Valencia and Socorro

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