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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.

Las Tablas fault (Class B) No. 2020

Last Review Date: 2016-07-26

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

citation for this record: **Kelson, K.I., and Jochems, A.P., compilers, 2016, Fault number 2020, Las Tablas 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 02:24 PM.**

Synopsis	The Las Tablas fault is a northwest-trending, west-down fault expressed in Pliocene basalt of the Taos Plateau volcanic field and the Miocene Los Pinos Formation on the western margin of the southern San Luis basin. The fault has 50–150 m of displacement in Pliocene basalt.
Name comments	The northernmost end of the Las Tablas fault was mapped but not named by Barker (1958 #7581), Manley and Wobus (1982 #1138), and Manley and others (1987 #1119). The fault was mapped in its entirety but not named by Machette and Personius (1984 #1113) and Personius and Machette (1984 #1124). The Las Tablas fault is informally named herein for the village of Las

	Tablas located about 11 km southwest of Tres Piedras. The Las Tablas fault is a northwest-trending fault on the western margin of the San Luis Basin that extends from a point about 4 km northwest of Las Tablas to a point about 2 km southeast of Servilleta Plaza along the Rio Tusas.
County(s) and State(s)	RIO ARRIBA COUNTY, NEW MEXICO
Physiographic province(s)	SOUTHERN ROCKY MOUNTAINS
Reliability of location	Good Compiled at 1:24,000 scale. *Comments:* Fault trace from 1:24,000-scale geologic maps of the Servilleta Plaza and Las Tablas 7.5-minute quadrangles by Aby (2008 #7579) and Aby and others (2010 #7580), respectively, supplemented with analysis of aerial photographs using stereogrammetric methods. The northernmost end of the Las Tablas fault is also shown on Barker (1958 #7581) at a scale of 1:24,000, Manley and others (1987 #1119) at a scale of 1:250,000, and Manley and Wobus (1982 #1138) at a scale of 1:24,000.
Geologic setting	The Las Tablas fault lies within the southwestern San Luis basin, and likely is related to minor deformation along the western margin of this east-tilted asymmetric rift basin. The sense of vertical separation suggests uplift of the San Luis basin relative to the Brazos Mountains to the west. The total vertical separation of the Dorado basalt (approximately 4.1–4.7 Ma, Aby and others, 2010 #7580) across the fault zone is about 50–150 m (Machette and Personius, 1984 #1113).
Length (km)	21 km.
Average strike	N24°W
Sense of movement	Normal
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	The fault has prominent geomorphic expression where resistant Tertiary basalt is exposed in west-facing scarps. However, the

	fault itself is buried by colluvium, talus, and/or small toreva blocks throughout much of its length.
Age of faulted surficial deposits	Machette and Personius (1984 #1113) and Personius and Machette (1984 #1124) suggested that the fault displaces basalt of early Pleistocene age, but recent Ar-Ar dates for this unit (the Dorado basalt) constrain its age to the Pliocene (4.1–4.7 Ma, Aby and others, 2010 #7580).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Machette and Personius (1984 #1113) and Personius and Machette (1984 #1124) suggested that the most-recent movement occurred during the early Pleistocene, but the youngest displaced rocks are now known to be Pliocene in age (Aby and others, 2010 #7580). It is unknown whether the fault has ruptured in the Quaternary.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip-rate category assigned based on estimated 50–150 m of displacement (Machette and Personius, 1984 #1113) of the 4.1–4.7 Ma Dorado basalt.
Date and Compiler(s)	2016 Keith I. Kelson, William Lettis & Associates, Inc. Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources
References	#7579 Aby, S., 2008, Geologic map of the Servilleta Plaza 7.5-minute quadrangle, Rio Arriba and Taos Counties, New Mexico: New Mexico Bureau of Geology and Mineral Resources, Open-File Geologic Map 182, scale 1:24,000. #7580 Aby, S., Karlstrom, K., Koning, D., and Kempter, K., 2010, Geologic map of the Las Tablas 7.5-minute quadrangle, Rio Arriba County, New Mexico: New Mexico Bureau of Geology and Mineral Resources, Open-File Geologic Map 200, scale 1:24,000.

#7581 Barker, F., 1958, Precambrian and Tertiary geology of Las Tablas quadrangle, New Mexico: New Mexico Bureau of Mines and Mineral Resources Bulletin 45, 104 p., 13 pl.

#1395 Lipman, P.W., 1975, Evolution of the Platoro caldera complex and related volcanic rocks, southeastern San Juan Mountains, Colorado: U.S. Geological Survey Professional Paper 852, 128 p.

#1113 Machette, M.N., and Personius, S.F., 1984, Map of Quaternary and Pliocene faults in the eastern part of the Aztec 1° by 2° quadrangle and the western part of the Raton 1° by 2° quadrangle, northern New Mexico: U.S. Geological Survey Miscellaneous Field Studies Map MF-1465-B, 1 sheet, scale 1:250,000.

#1138 Manley, K., and Wobus, R.A., 1982, Reconnaissance geologic map of the Las Tablas quadrangle, Rio Arriba County, New Mexico: U.S. Geological Survey Miscellaneous Field Studies Map MF-1408, 1 sheet, scale 1:24,000.

#1119 Manley, K., Scott, G.R., and Wobus, R.A., 1987, Geologic map of the Aztec 1° by 2° quadrangle, northwestern New Mexico and southern Colorado: U.S. Geological Survey Miscellaneous Investigations Map I-1730, 1 sheet, scale 1:250,000.

#1124 Personius, S.F., and Machette, M.N., 1984, Quaternary and Pliocene faulting in the Taos Plateau region, northern New Mexico, *in* Baldridge, W.S., Dickerson, P.W., Riecker, R.E., and Zidek, J., eds., Rio Grande rift—Northern New Mexico: New Mexico Geological Society, 35th Field Conference, October 11-13, 1984, Guidebook, p. 83–90.

#1382 Thompson, R.A., and Machette, M.N., 1989, Geologic map of the San Luis Hills area, Conejos and Costilla Counties, Colorado: U.S. Geological Survey Miscellaneous Investigations Map I-1906, 1 sheet, scale 1:50,000.

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