

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](#).

Joe Glenn Ranch faults (Class A) No. 1021

Last Review Date: 1998-07-27

Compiled in cooperation with the Arizona Geological Survey

citation for this record: Pearthree, P.A., compiler, 1998, Fault number 1021, Joe Glenn Ranch faults, 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 02:21 PM.

Synopsis	Two north- to northwest-trending faults displace late Pliocene basalt flows and Pliocene-Quaternary alluvium in the northeastern Pedrogosa Mountains, which lie at the western margin of the San Bernardino Valley in southeasternmost Arizona. There has been as much as 15 to 30 m of displacement of Pliocene-Pleistocene alluvium, but no information exists about the timing of most recent faulting.
Name comments	Faults first mapped by Lynch (1972 #2113), but further described by Menges and Pearthree (1983 #2073) and Machette and others (1986 #1033). The geology of this area was mapped by Drewes and Brooks (1988 #2112).

County(s) and State(s)	COCHISE COUNTY, ARIZONA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. <i>Comments:</i> Mapped at 1:130,000-scale on aerial photographs, field-checked on a reconnaissance basis, compiled at 1:250,000 on a topographic base by Machette and others (1986 #1033).
Geologic setting	The fault is on the west side of the San Bernardino Valley in the northeastern part of the Pedregosa Mountains. The geometry of the structural basin associated with this valley is complex, but the basin is deepest along the western side of the valley (Lynch, 1978 #2114). The Pliocene-Quaternary San Bernardino volcanic field, which has flows ranging from about 3 Ma to 270 ka in age, covers much of the valley. A basalt flow that is displaced by these faults has been dated at 3.3 Ma (Lynch, 1978 #2114).
Length (km)	7 km.
Average strike	N7°W
Sense of movement	Normal <i>Comments:</i> Inferred from topography and displacement of basalt flows.
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	Moderately high (15-30 m), gentle scarps are formed on Pliocene-Pleistocene alluvium and Pliocene basalt.
Age of faulted surficial deposits	Late Pliocene to early(?) Pleistocene. A faulted basalt flow has been dated at 3.3 Ma. The ages of surficial deposits are estimated using geomorphic surface characteristics and their topographic position in the landscape.
Historic earthquake	

Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> Faults displace upper Pliocene basalt and Pliocene-Pleistocene alluvium by 15-30 m. There are no meaningful constraints on the timing of youngest fault activity.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> This fault may not have been active in the past 130 k.y. and there has been less than 30 m of vertical displacement in the Quaternary. Thus, the slip rate is almost certainly <0.2 mm/yr.
Date and Compiler(s)	1998 Philip A. Pearthree, Arizona Geological Survey
References	<p>#2112 Drewes, H., and Brooks, W.E., 1988, Geologic map and cross sections of the Pedregosa Mountains, Cochise County, Arizona: U.S. Geological Survey Miscellaneous Investigations Map I-1827, 1 sheet, scale 1:48,000.</p> <p>#2113 Lynch, D.J., 1972, Reconnaissance geology of the Bernardino volcanic field, Cochise County, Arizona: Tucson, University of Arizona, unpublished M.S. thesis, 78 p., 4 sheets.</p> <p>#2114 Lynch, D.J., 1978, The San Bernardino volcanic field of southeastern Arizona, <i>in</i> Callender, J.F., Wilt, J.C., Clemons, R.E., and James, H.L., eds., Land of Cochise—southeastern Arizona: New Mexico Geological Society, 29th Field Conference, November 9-11, 1978, Guidebook, p. 261-268.</p> <p>#1033 Machette, M.N., Personius, S.F., Menges, C.M., and Pearthree, P.A., 1986, Map showing Quaternary and Pliocene faults in the Silver City 1° x 2° quadrangle and the Douglas 1° x 2° quadrangle, southeastern Arizona and southwestern New Mexico: U.S. Geological Survey Miscellaneous Field Studies Map MF-1465-C, 12 p. pamphlet, 1 sheet, scale 1:250,000.</p> <p>#2073 Menges, C.M., and Pearthree, P.A., 1983, Map of neotectonic (latest Pliocene-Quaternary) deformation in Arizona: Arizona Geological Survey Open-File Report 83-22, 48 p., scale 1:500,000.</p>

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