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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.

Lockwood Canyon fault zone (Class A) No. 974

Last Review Date: 1997-01-31

Compiled in cooperation with the Arizona Geological Survey

citation for this record: **Pearthree, P.A., compiler, 1997, Fault number 974, Lockwood Canyon fault zone, 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 03:11 PM.**

Synopsis	Northwest- and north-trending normal faults form narrow, symmetric grabens and shallow valleys, northwest of the the Pliocene-Quaternary San Francisco volcanic field. Quaternary fault activity is likely but not certain. Faults displace Paleozoic bedrock as much as 50 m and the fault escarpment is moderately steep to steep, but there are no Quaternary volcanic rocks along the fault and no displacement of Quaternary alluvium has been documented. Faults with similar surface expression and characteristics to the south have been shown to be active during the Quaternary.
Name	Mapped by Menges and Pearthree (1983 #2073), who grouped

comments	this fault zone with many others in the area of the Gray Mountain fault set; this particular fault zone was named and differentiated from other faults in the area by Pearthree and others (1996 #2153). The geology of this area was mapped by Ulrich and others (1984 #2157).
County(s) and State(s)	COCONINO COUNTY, ARIZONA
Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Trace mapped at 1:250,000 scale; transferred to 1:250,000-scale topographic base map.
Geologic setting	This is one of several fault zones that extend northwest of the Pliocene-Quaternary San Francisco volcanic field, on the erosion surface cut on Paleozoic rocks between the Colorado Plateau margin and the Grand Canyon. The Lockwood Canyon fault zone displaces Paleozoic bedrock by as much as 50 m, but has not been shown to definitively cut Quaternary units.
Length (km)	21 km.
Average strike	N27°W
Sense of movement	Normal *Comments:* Predominantly normal movement is inferred from topographic and regional relations.
Dip Direction	SW; NE; W
Paleoseismology studies	
Geomorphic expression	Faulting is expressed as two northwest-trending grabens and two other southwest- to west-facing scarps are formed on Paleozoic rocks; late Quaternary alluvium covers the bottoms of each depression. The northeasternmost trough is linear, moderately deep (as much as 50 m), and quite narrow (<300 m). The escarpment of the northeastern flank is moderate to steep; downcutting of the stream that drains to the southeast across the Mesa Butte fault [987]may have steepened the scarp slopes; the

	southwestern flank is less steep.
Age of faulted surficial deposits	Paleozoic
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Quaternary fault activity is likely based on the strong, linear expression of the faults and the relative steep slopes of fault escarpments. No Quaternary volcanic rocks cross the fault, and no displacement of Quaternary deposits has been documented.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No data exist to determine a slip rate, but the <0.2 mm/yr category is inferred on the basis of lack of documented Quaternary displacement and slip rates on other Quaternary faults in the region.
Date and Compiler(s)	1997 Philip A. Pearthree, Arizona Geological Survey
References	#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. #2153 Pearthree, P.A., Vincent, K.R., Brazier, R., and Hendricks, D.M., 1996, Plio-Quaternary faulting and seismic hazard in the Flagstaff area, northern Arizona: Arizona Geological Survey Bulletin 200, 40 p., 2 pls. #2157 Ulrich, G.E., Billingsley, G.H., Hereford, R., Wolfe, E.W., Nealey, L.D., and Sutton, R.L., 1984, Maps showing geology, structure, and uranium deposits of the Flagstaff 1° by 2° quadrangle, Arizona: U.S. Geological Survey Miscellaneous Investigations Map I-1446, 2 sheets, scale 1:250,000.

Questions or comments?