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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.

Palisade Mesa fault (Class A) No. 1366

Last Review Date: 1998-06-30

citation for this record: **Sawyer, T.L., compiler, 1998, Fault number 1366, Palisade Mesa 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 02:13 PM.**

Synopsis	These predominantly down-to-the-west normal faults bound and cross low hills (including Palisade Mesa and Lunar Cuesta) and cross east side of Hot Creek Valley and southernmost Big Sand Springs Valley. Reconnaissance photogeologic mapping of these faults and bedrock mapping are the sources of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	Refers to faults mapped by Snyder and others (1972 #2940), Schell (1981 #2844), and Dohrenwend and others (1996 #2846). dePolo (1998 #2845) named the Palisade Mesa fault. The fault zone extends from the south end of the Pancake Range, along the east side of Hot Creek Valley and across U.S. Highway 6, to east of Haligan Mesa in southernmost Big Sand Springs Valley. **Fault ID:** Refers to fault T19 of dePolo (1998 #2845).
County(s) and	

County(s) and State(s)	NYE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location based primarily based on unpublished map of the Tonopah 1?x2? sheet by J.C. Dohrenwend published at 1:100,000-scale by Dohrenwend and others (1996 #2846). Additional fault locations from Schell (1981 #2844). Mapping by Dohrenwend and others (1996 #2846) based on photogeologic analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to scale of the photographs. Mapping by Schell (1981 #2843; 1981 #2844) based on photogeologic analysis of primarily 1:24,000-scale color aerial photography supplemented with 1:60,000-scale black-and-white aerial photography, transferred by inspection to 1:62,500-scale topographic maps and photographically reduced and directly transferred to 1:250,000-scale topographic maps, and subsequent field verification.
Geologic setting	These predominantly down-to-the-west normal faults bound and cross low hills (Palisade Mesa and Lunar Cuesta) and cross east side of Hot Creek Valley and southernmost Big Sand Springs Valley.
Length (km)	39 km.
Average strike	N2°E
Sense of movement	Normal *Comments:* (Snyder and others, 1972 #2940; Schell, 1981 #2844)
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	Fault is marked by abrupt, well-defined and less well-defined fault scarps juxtaposing Quaternary deposits against Tertiary volcanics, and by scarps and lineaments on Quaternary and Tertiary deposits (Schell, 1981 #2844; Dohrenwend and others, 1996 #2846).

Age of faulted surficial deposits	Quaternary alluvium and/or colluvium but locally scarps are mapped on late Pleistocene (Dohrenwend and others, 1996 #2846) and Quaternary basalt is shown as offset by Snyder (1972 #2940.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The timing of the most recent event is not well constrained, and the two sources do not concur. Dohrenwend and others (1996 #2846) indicate scarps on late Pleistocene deposits along the central part of the fault. Schell (1981 #2844) shows faults in the same general area but suggested a late Tertiary but probably Quaternary time based on reconnaissance photogeologic studies. Snyder and others (1972 #2940) showed the fault cutting Quaternary basalt also suggesting a Quaternary time. The conservative age assignment given here is due to the lack of general agreement.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.01 mm/yr for the fault based on the presence of scarps on alluvium and the absence of basal facets. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) support a low slip rate. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	1998 Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p. #2846 Dohrenwend, J.C., Schell, B.A., Menges, C.M., Moring, B.C., and McKittrick, M.A., 1996, Reconnaissance photogeologic map of young (Quaternary and late Tertiary) faults in Nevada, *in* Singer, D.A., ed., Analysis of Nevada's metal-bearing mineral

	resources: Nevada Bureau of Mines and Geology Open-File Report 96-2, 1 pl., scale 1:1,000,000. #2843 Schell, B.A., 1981, Faults and lineaments in the MX Sitting Region, Nevada and Utah, Volume I: Technical report to U.S. Department of [Defense] the Air Force, Norton Air Force Base, California, under Contract FO4704-80-C-0006, November 6, 1981, 77 p. #2844 Schell, B.A., 1981, Faults and lineaments in the MX Siting Region, Nevada and Utah, Volume II: Technical report to U.S. Department of [Defense] the Air Force, Norton Air Force Base, California, under Contract FO4704-80-C-0006, November 6, 1981, 29 p., 11 pls., scale 1:250,000. #2940 Snyder, R.P., Ekren, E.B., and Dixon, G.L., 1972, Geologic map of the Lunar Crater quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I-700, scale 1:48,000.