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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.

Western Hot Springs Range fault zone (Class A) No. 1513

Last Review Date: 1999-01-28

citation for this record: **Adams, K., and Sawyer, T.L., compilers, 1999, Fault number 1513, Western Hot Springs Range 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 02:50 PM.**

Synopsis	This group of short northerly striking range-front faults discontinuously bounding west side of the Hot Springs Range and include a few isolated piedmont faults on the east side of Paradise Valley. Range-front faults juxtapose Quaternary alluvium against bedrock and one piedmont fault is expressed by a west-facing scarp on late Quaternary alluvium near north end of the zone. Reconnaissance photogeologic mapping of the faults is the source of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	Refers to a group of faults on west side of the Hot Springs Range mapped by Willden (1964 #3002), Stewart and Carlson (1976 #3013) and Dohrenwend and Moring (1991 #284). dePolo (1998 #2845) referred to these faults as the Western Hot Springs Range

	fault zone. This group of short northerly striking range-front faults extend from near Hot Springs Peak south to a point a few kilometers north of Mills Canyon. **Fault ID:** Refers to fault MD6 (Western Hot Springs Range fault zone) of dePolo (1998 #2845).
County(s) and State(s)	HUMBOLDT COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault locations are based on 1:250,000-scale map of Dohrenwend and Moring (1991 #284) that was produced by 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. The location of an additional fault was based on the 1:250,000-scale bedrock map of Stewart and Carlson (1976 #3013).
Geologic setting	This group of short northerly striking faults extends from near Hot Springs Peak south to a point a few kilometers north of Mills Canyon has range-front faults discontinuously bounding west side of the Hot Springs Range and a few isolated piedmont faults on the east side of Paradise Valley.
Length (km)	15 km.
Average strike	N12°E
Sense of movement	Normal *Comments:* Not studied in detail; normal sense of movement from Dohrenwend and Moring (1991 #284).
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	Range-front faults juxtapose Quaternary alluvium against bedrock and one piedmont fault is expressed as a west-facing scarp on late Quaternary alluvium near north end of the zone (Dohrenwend and

	Moring, 1991 #284). dePolo (1998 #2845) indicates that there are scarps on alluvium but no basal fault facets.
Age of faulted surficial deposits	Quaternary. Faults in this group juxtapose Quaternary alluvium against bedrock and displace late Quaternary alluvium (Dohrenwend and Moring, 1991 #284).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Although timing of most recent event is not well-constrained, a late Quaternary time is suggested based on the photogeologic mapping of Dohrenwend and Moring (1991 #284).
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)	1999 Kenneth Adams, Piedmont Geosciences, Inc. 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. #284 Dohrenwend, J.C., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the McDermitt 1° by 2° quadrangle, Nevada, Oregon, and Idaho: U.S. Geological Survey Miscellaneous Field Studies Map MF-2177, 1 sheet, scale 1:250,000. #3013 Stewart, J.H., and Carlson, J.E., 1976, Geologic map of

	north-central Nevada: Nevada Bureau of Mines and Geology, Map 50, scale 1:250,000. #3002 Willden, R., 1964, Geology and mineral deposits of Humboldt County, Nevada: Nevada Bureau of Mines and Geology Bulletin 59, 154 p., scale 1:250,000.