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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.

Eastern Snake Mountains fault (Class A) No. 1576

Last Review Date: 2016-10-05

citation for this record: **Sawyer, T.L., Oswald, J.A., and Haller, K.M., compilers, 2016, Fault number 1576, Eastern Snake Mountains 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 02:36 PM.**

Synopsis	This group of discontinuous, range-front and piedmont normal faults extends from east of Cold Springs Mountain southward along east front of the Snake Mountains to Cold Springs Creek. A graben on the piedmont slope of the Snake Mountains extends from Dry Creek northward for about 4 km to Dry Creek Well. Faults in this group juxtapose Quaternary alluvium against bedrock along the range front. Reconnaissance photogeologic mapping of fault related features is the source of data. Trench investigations and studies of scarp morphology have not been conducted along the fault.
Name comments	Refers to faults along eastern front of the Snake Mountains mapped by Dohrenwend and others (1991 #290). Named the Western (sic) Snake Mountains fault by dePolo (1998 #2845).

	However, the Eastern Snake Mountains name is more descriptive of the location and is adopted herein. Ramelli and dePolo (2011 #7558) describe three sections of the fault separated by northeast-striking cross faults. The southernmost section it the Town Creek section, which strikes more northeasterly and possibly was the source of the 2008 Wells earthquake that did not rupture to the surface and may act as a connector fault between the Eastern Snake Mountains fault and faults to the south. **Fault ID:** Refers to fault number WE8 of dePolo (1998 #2845).
County(s) and State(s)	ELKO COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE COLUMBIA PLATEAU
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location based on 1:250,000-scale map of Dohrenwend and others (1991 #290); mapping by 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.
Geologic setting	This group of discontinuous, range-front and piedmont normal faults extends from east of Cold Springs Mountain southward along east front of the Snake Mountains to Cold Springs Creek. A graben on the piedmont slope of the Snake Mountains extends from Dry Creek northward for about 4 km to Dry Creek Well.
Length (km)	21 km.
Average strike	N3°E
Sense of movement	Normal *Comments:* (Dohrenwend and others, 1991 #290; dePolo, 1998 #2845)
Dip Direction	E; W
Paleoseismology studies	
Geomorphic	The fault is marked by Quaternary alluvium juxtaposed against

expression	bedrock along range-front faults, scarps on early Pleistocene alluvium on the piedmont slope of the Snake Mountains (Dohrenwend and others, 1991 #290). An approximately 4-km-long graben between Dry Creek and Dry Creek well is expressed by piedmont-slope scarps. dePolo (1998 #2845) reports a maximum preferred basal fault facet height of less than 85 m Ramelli and dePolo (2011 #7558) include the "discontinuous expression of Quaternary activity along the southern part of the range….more than doubling the fault's previously mapped length" as part of this fault.
Age of faulted surficial deposits	Pleistocene. The fault displaces alluvium interpreted from photogeologic mapping to be early Pleistocene and undifferentiated Quaternary in age (Dohrenwend and others, 1991 #290).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Although timing of the most recent event is not well constrained, Dohrenwend and others (1991 #290; 1996 #2846) suggested a Pleistocene time based on reconnaissance photogeologic studies.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* 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)	2016 Thomas L. Sawyer, Piedmont Geosciences, Inc. John A. Oswald, Piedmont Geosciences, Inc. Kathleen M. Haller, U.S. Geological Survey
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. #290 Dohrenwend, J.C., McKittrick, M.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Wells 1° by 2° quadrangle, Nevada, Utah, and Idaho: U.S. Geological Survey Miscellaneous Field Studies Map MF-2184, 1 sheet, scale 1:250,000. #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. #7558 Ramelli, A.R., and dePolo, C.M., 2011, Quaternary faults in the 2008 Wells earthquake area: Nevada Bureau of Mines and Geology Special Publication 36, p. 79–88.