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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 Independence Mountains fault zone (Class A) No. 1556

Last Review Date: 2016-10-04

citation for this record: **Oswald, J.A., and Sawyer, T.L., compilers, 1998, Fault number 1556, Eastern Independence Mountains 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 02:35 PM.**

Synopsis	Long discontinuous, down-to-the-east normal fault bounding east front of the Independence Mountains and Lone Mountain to Singletree Creek. This major range-bounding fault places Quaternary alluvium against bedrock, and form scarps and lineaments on Quaternary alluvium adjacent to 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Name comments	Refers to faults mapped by Dohrenwend and others (1998 #2845) and locally also mapped by Slemmons (1964, unpublished Wells 1:250,000-scale map) and Coats (1987 #2861). Named the Eastern Independence Mountains fault zone by dePolo (1998 #2845). Fault zone bounds the east front of the Independence

	Mountains from Wild Horse Reservoir southward along east front of Lone Mountain to north of Singletree Creek. **Fault ID:** Refers to fault number WE1 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 *Comments:* Location based on 1:250,000-scale maps of Dohrenwend and others (1991 #290) and Slemmons (1964, unpublished Wells 1:250,000-scale map), and Coats (1987 #2861). Mapping by Dohrenwend and others (1991 #290) is 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. One piedmont fault east of the Independence Mountains and directly north of Foreman Creek is based on the Quaternary fault map of Slemmons (1964, unpublished Wells 1:250,000-scale map), which is from analysis of 1:60,000-scale AMS photography transferred to mylar overlay on a 1:250,000-scale topographic map using proportional dividers.
Geologic setting	Long, discontinuous, down-to-the-east, range-front normal fault bounding the east side of the Independence Mountains and Lone Mountain (Dohrenwend and others, 1991 #290).
Length (km)	76 km.
Average strike	N1°E
Sense of movement	Normal *Comments:* (Dohrenwend and others, 1991 #290); dePolo, 1998 #2845)
Dip Direction	E
Paleoseismology studies	
Geomorphic	Most of the fault is a major range-bounding fault that juxtaposes

expression	Quaternary alluvium against bedrock and forms scarps and lineaments on Quaternary alluvium adjacent to the range front, and by piedmont faults that form scarps on early to middle Pleistocene alluvium (Dohrenwend and others, 1991 #290).
Age of faulted surficial deposits	Middle to early Pleistocene; Quaternary. The fault displaces alluvium interpreted from photogeologic mapping to be Quaternary in age (Dohrenwend and others, 1991 #290). Slemmons (1964, unpublished Wells 1:250,000-scale map) reported a fault in late Pleistocene piedmont-slope deposits based on photogeologic mapping; this short fault was not shown on map by Dohrenwend and others (1991 #290).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The timing of most recent event is not well constrained and the two map sources suggest very different ages. Slemmons (1966, unpublished Wells 1:250,000-scale map) shows a short scarp interpreted to be late Quaternary in age north of Foreman Creek. Dohrenwend and others (1991 #290) do not map a scarp in the same location. The assigned age category is based on the published sources (Dohrenwend and others, 1991 #290; 1996 #2846).
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 John A. Oswald, Piedmont Geosciences, Inc. Thomas L. Sawyer, Piedmont Geosciences, Inc.

References	#2861 Coats, R.R., 1987, Geology of Elko County, Nevada: Nevada Bureau of Mines and Geology Bulletin 101, 112 p., scale 1:250,000. #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.