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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.

Judd Mountain fault (Class A) No. 1597

Last Review Date: 1998-09-30

citation for this record: **Oswald, J.A., Sawyer, T.L., Black, B.D., and Hecker, S., compilers, 1998, Fault number 1597, Judd Mountain 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	These short right-stepping, range-front normal faults bound northwestern front of an unnamed range 4 km northwest of Judd Mountain and 5 km north of White Rock Mountain. The fault is expressed along the abrupt, well-defined front of the range by scarps juxtaposing Quaternary alluvium against bedrock and by scarps an (or) 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 (1991 #290). Named the Judd Mountain fault by dePolo (1998 #2845) in Nevada, but contains one fault previously included by Hecker (1993 #642) in Goose Creek Mountains fault zone in Utah. Faults extend along the northwestern front of an unnamed range 4 km

	northwest of Judd Mountain and 5 km north of White Rock Mountain. **Fault ID:** Refers to fault number WE15 (Judd Mountain fault) of dePolo (1998 #2845) and the western fault in number 6-18 (Goose Creek Mountains fault zone) of Hecker (1993 #642).
County(s) and State(s)	ELKO COUNTY, NEVADA BOX ELDER COUNTY, UTAH
Physiographic province(s)	BASIN AND RANGE
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 short right-stepping, range-front normal fault bounds northwestern front of an unnamed range 4 km northwest of Judd Mountain (Dohrenwend and others, 1991 #290).
Length (km)	21 km.
Average strike	N8°E
Sense of movement	Normal *Comments:* (dePolo, 1998 #2845)
Dip Direction	NW
Paleoseismology studies	
Geomorphic expression	The fault is expressed along the abrupt, well-defined front of the range by scarps juxtaposing Quaternary alluvium against bedrock and by scarps an (or) lineaments on Quaternary alluvium adjacent to the range front (Dohrenwend and others, 1991 #290). dePolo (1998 #2845) indicates the there may not be any basal facets along the range front, but if there is, the maximum height they achieve is 134 m.

Age of faulted surficial deposits	Quaternary. The fault displaces alluvium interpreted from photogeologic mapping to be 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 Quaternary time based on reconnaissance photogeologic studies.
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 0.001 mm/yr for the fault based on the absence 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. Bill D. Black, Utah Geological Survey Suzanne Hecker, 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. #642 Hecker, S., 1993, Quaternary tectonics of Utah with emphasis on earthquake-hazard characterization: Utah Geological Survey Bulletin 127, 157 p., 6 pls., scale 1:500,000.