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Quaternary Fault and Fold Database of the United States

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Cedar Ridge fault zone (Class A) No. 1717

Last Review Date: 2000-06-28

citation for this record: **Rowley, P.C., and Anderson, R.E., compilers, 2000, Fault number 1717, Cedar Ridge 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 02:26 PM.**

Synopsis	The Cedar Ridge fault zone is comprised of block-bounding structures that lie along the eastern and western sides of Cedar Ridge. On the basis of photogeologic reconnaissance, faults east of Cedar Ridge are on the piedmont slope and cut deposits or surfaces of early to middle Pleistocene age. However, little is known about the geomorphic expression of these faults, no detailed studies have been made, and the latest faulting event can not be constrained other than Quaternary.
Name comments	Modified from dePolo (1998 #2845) who, based on mapping by Dohrenwend and others (1991 #286), applied the name Eastern Cedar Ridge fault to a short (about 10 km long) group of north-northeast-trending lineaments and east-facing scarps on the piedmont slope of western Huntington Valley, about 10 km west of Jiggs, Nevada. Two roughly aligned faults that are parallel to the Eastern Cedar Ridge fault were also mapped by Dohrenwend

	and others (1991 #286) along the western base of Cedar Ridge. They are included herein with the Cedar Ridge fault zone as a matter of convenience. **Fault ID:** Referred to as fault EK3 by dePolo (1998 #2845).
County(s) and State(s)	ELKO COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Compiled at 1:250,000 scale by Dohrenwend and others (1991 #286). The fault locations of Dohrenwend and others (1991 #286), which are followed here, were produced by analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to the scale of the photographs.
Geologic setting	Cedar Ridge marks a north-northeast-trending, east-tilted block of upper Paleozoic rock that is flanked on the east by alluvium and Huntington Valley, and on the west by Tertiary volcanic and sedimentary rocks and Quaternary-Tertiary alluvium (Stewart and Carlson, 1978 #3413). There does not appear to be a major range-bounding fault between Cedar Ridge and the basin beneath Huntington Valley, whereas the Cedar Ridge fault zone consists of block-bounding faults.
Length (km)	24 km.
Average strike	N15°E
Sense of movement	Normal
Dip Direction	E; W
Paleoseismology studies	
Geomorphic expression	Barnhard (1985 #428) did not recognize scarps on alluvium, possibly suggesting the fault's weak geomorphic expression. On the basis of photogeologic reconnaissance, Dohrenwend and others (1991 #286) mapped the eastern (more continuous) fault as having east-facing scarps on Quaternary deposits or surfaces and

	as a lineament, and the western faults as juxtaposing Quaternary alluvium against bedrock. No scarp morphology data are available. Cedar Ridge is not marked by a precipitous bedrock escarpment on either its eastern or western flanks.
Age of faulted surficial deposits	Based on photogeologic reconnaissance, Dohrenwend and others (1991 #286) estimated that the scarps of the eastern (more continuous) fault are formed on deposits or surfaces of early to middle Pleistocene (0.13-1.6 Ma) age. Apparently the age of the deposits along the western fault is known only to be Quaternary/Tertiary (Stewart and Carlson, 1978 #3413).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Based on estimate that the eastern fault cuts deposits or surfaces of early to middle Pleistocene age (Dohrenwend and others, 1991 #286).
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 eastern Cedar Ridge fault (the more continuous of many traces within this fault zone) based on the presence or absence of scarps on alluvium and 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)	2000 Peter C. Rowley, U.S. Geological Survey, Retired R. Ernest Anderson, U.S. Geological Survey, Emeritus
References	#428 Barnhard, T.P., 1985, Map of fault scarps formed in unconsolidated sediments, Elko 1° x 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1791, 1 sheet, 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. #286 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Elko 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2179, 1 sheet, scale 1:250,000. #3413 Stewart, J.H., and Carlson, J.E., 1978, Geologic map of Nevada: U.S. Geological Survey, Special Geologic Map, 1, scale 1:500,000.