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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 Antelope Valley fault zone (Class A) No. 1259

Last Review Date: 2000-11-24

citation for this record: **Redsteer, M.H., compiler, 2000, Fault number 1259, Eastern Antelope Valley 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 02:16 PM.**

Synopsis	The Eastern Antelope Valley fault zone is expressed by scarps and lineaments along the eastern margin of the Antelope Valley, on the northwest side of the South Mountains. This zone has a northeast trend between the Deep Creek Range to the east, South Mountains to the south, and the Antelope Range to the west. Reconnaissance photogeologic mapping, which shows the scarps in a discontinuous pattern of either faulting or preservation, is the source of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	This fault was named by dePolo (1998 #2845) for its location along the eastern side of Antelope Valley. He shows this fault having a length of about 17 km long, although reconnaissance mapping by Dohrenwend and others (1992 #2480) shows more

	limited expression of the zone. **Fault ID:** This fault was referred to as EY13 by dePolo (1998 #2845).
County(s) and State(s)	WHITE PINE COUNTY, NEVADA
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 (1992 #2480). Mapping based on photogeologic analysis of primarily 1:24,000-scale color aerial photography supplemented with 1:60,000-scale black-and-white aerial photography, transferred by inspection to 1:62,500-scale topographic maps and photographically reduced and directly transferred to 1:250,000-scale topographic maps, and subsequent 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	The Eastern Antelope Valley fault zone is located on the western margin of the South Mountains, a southern extension of the Deep Creek Range. The southern Deep Creek Range is composed of Proterozoic metasedimentary rocks, Cambrian to Permian clastic and carbonate rocks, and Eocene to Oligocene volcanic rocks. Volcanic rocks are mostly exposed on the western side of the Deep Creek Range, at the western margin of the Antelope Valley in the vicinity of this fault zone (Nutt and Thorman, 1994 #4400). Tertiary to Quaternary unconsolidated sediments include recent alluvium associated with streams, and alluvial-fan sediment that has been incised, suggesting recent uplift. The southern Deep Creek Range is within a part of the Great Basin that was compressed during Jurassic and Late Cretaceous orogenies, and later extended during the middle to late Tertiary (Nutt and Thorman, 1994 #4400).
Length (km)	18 km.
Average strike	N14°E
Sense of	

Sense of movement	Normal
Dip Direction	W; E
Paleoseismology studies	
Geomorphic expression	The Eastern Antelope Valley fault zone was mapped by Dohrenwend and others (1992 #2480) as being characterized by scarps and lineaments on Quaternary sediments in the eastern Antelope Valley. Most of the fault scarps face west, but the presence of limited east facing scarps suggests horst and graben structures. Offset generally coincides with the western margin of the South Mountains, and a marked change in slope on the eastern side of the Antelope Valley.
Age of faulted surficial deposits	Quaternary and Tertiary. Some of the mapped scarps are on alluvial units Q1 and Q2 of Dohrenwend and others (1992 #2480), which they suggest are Quaternary.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Dohrenwend and others (1992 #2480) classified show faults on deposits of Quaternary age based on geomorphic criteria.
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 poor geomorphic preservation, lack of fairly continuous fault 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 Margaret Hisa Redsteer, 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. #2480 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1992, Reconnaissance photogeologic map of young faults in the Ely 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2181, 1 sheet, scale 1:250,000. #4400 Nutt, C.J., and Thorman, C.H., 1994, Geologic map of the Weaver Canyon quadrangle, Nevada and Utah, and parts of the Ibapah Peak quadrangle, Utah, and Tippett Canyon quadrangle, Nevada: U.S. Geological Survey Open-File Report 96-635, scale 1:24,000.