

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](#).

Eugene Mountains fault (Class A) No. 1634

Last Review Date: 1999-03-10

citation for this record: Adams, K., compiler, 1999, Fault number 1634, Eugene 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 02:35 PM.

Synopsis	This short fault bounds the abrupt western front of the Eugene Mountains. The fault juxtaposes Quaternary piedmont-slope deposits against bedrock and is expressed by the abrupt western front of the Eugene Mountains. Reconnaissance photogeologic mapping and regional geologic mapping are the sources of data. Trench investigations and detailed studies of scarp morphology have not been conducted.
Name comments	Refers to faults on the west side of the Eugene Mountains from Bonita Canyon north to Corral Canyon, north of Rye Patch Reservoir. dePolo (1998 #2845) referred to it as the Eugene Mountains fault. Fault ID: Refers to fault number LL20 of dePolo (1998 #2845).
County(s) and	HUMBOLDT COUNTY, NEVADA

State(s)	PERSHING COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	<p>Good Compiled at 1:100,000 scale.</p> <p><i>Comments:</i> Fault locations based on 1:250,000-scale map of Dohrenwend and others (1991 #285) which was produced by 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. Fault locations checked against 1:250,000-scale photogeologic map of Slemmons (1974, unpublished Lovelock 1? X 2? sheet).</p>
Geologic setting	This short fault bounds the abrupt western front of the Eugene Mountains (Dohrenwend and others, 1991 #285).
Length (km)	10 km.
Average strike	N8°E
Sense of movement	<p>Normal</p> <p><i>Comments:</i> Inferred from topography and as shown by Dohrenwend and others (1991 #285).</p>
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	The fault is expressed by the abrupt western front of the Eugene Mountains and by west-facing piedmont scarps on Quaternary alluvium along the front (Dohrenwend and others, 1991 #285). dePolo (1998 #2845) reports a maximum preferred basal fault facet height of 207 m (183-232 m).
Age of faulted surficial deposits	Quaternary alluvium is offset and juxtaposed against bedrock along the range front (Dohrenwend and others, 1991 #285).
Historic earthquake	
Most recent	latest Quaternary (<15 ka)

prehistoric deformation	<i>Comments:</i> The timing of most recent event is not well constrained and the map sources differ. Slemmons (1974, unpublished Lovelock 1° X 2° sheet) suggests faulting could be as young as latest Quaternary. Dohrenwend and others (1991 #285; 1996 #2846) indicate Pleistocene. The assigned age category is based on the sole published source.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.389 mm/yr based on an empirical relationship between his preferred maximum basal facet height and vertical slip rate. The size of the facets (tens to hundreds of meters, as measured from topographic maps) indicates they are the result of many seismic cycles, and thus the derived slip rate reflects a long-term average. However, the late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) suggest the slip rate during this period is of a lesser magnitude. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	1999 Kenneth Adams, Piedmont Geosciences, Inc.
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. #285 Dohrenwend, J.C., McKittrick, M.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Lovelock 1° by 2° quadrangle, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2178, 1 sheet, scale 1:250,000.

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