

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](#).

Duck Flat fault (Class A) No. 1472

Last Review Date: 1998-07-19

citation for this record: Sawyer, T.L., compiler, 1998, Fault number 1472, Duck Flat 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 02:05 PM.

Synopsis	This range-bounding normal fault along the west side of Duck Lake valley is largely inferred from the abrupt linear east front of the Coppersmith Hills from southeast corner of Surprise Valley, along the west side of Duck Lake. The northernmost part of the fault appears to juxtapose piedmont-slope deposits against Tertiary basalt. Although this fault is only inferred to underlie the valley floor and narrow piedmont slope flanking the hills, the overlying deposits include significant landslide debris and may be primarily post-pluvial (approximately 13 ka) in age, suggesting young movement (latest Quaternary?) is possible. Reconnaissance photogeologic mapping of the fault zone 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Name comments	Refers to fault mapped by Slemmons (1966, unpublished Vya 1? X 2? sheet), Bonham (1969 #2999) extending from southeast corner of Surprise Valley, along west side of Duck Lake valley

	<p>and east front of the Coppersmith Hills. dePolo (1998 #2845) referred to it as the Duck Flat fault. The fault may extend south of 41° into the Lovelock sheet, although it was not mapped there by Dohrenwend and others (1991 #285).</p> <p>Fault ID: This is fault V5 (Duck Flat fault) of dePolo (1998 #2845).</p>
County(s) and State(s)	WASHOE 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 Fault locations are based on 1:250,000-scale map of Slemmons (1966, unpublished Vya 1° X 2° sheet); mapping from analysis of 1:60,000-scale AMS photography transferred to mylar overlaid onto a 1:250,000-scale topographic map using proportional dividers. The location of the northernmost 4 km of the fault is based on 1:250,000-scale map of Dohrenwend and Moring (1991 #281), which is from 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 and then reduced and transferred to 1:250,000-scale topographic maps. The latter map does not show the southern part of the fault.</p>
Geologic setting	This range-bounding normal fault along west side of Duck Lake valley is inferred from the abrupt linear east front of the Coppersmith Hills from southeast corner of Surprise Valley, along the west side of Duck Lake (Dohrenwend and Moring, 1991 #281).
Length (km)	16 km.
Average strike	N1°E
Sense of movement	<p>Normal</p> <p><i>Comments:</i> Not studied in detail; sense of movement is inferred from topography (Slemmons, 1966, unpublished Vya 1° X 2° sheet).</p>

Dip Direction	E
Paleoseismology studies	
Geomorphic expression	The fault is primarily expressed as the abrupt linear east front of the Coppersmith Hills from southeast corner of Surprise Valley, along the west side of Duck Lake. Although most of this fault is only inferred to underlie the valley floor and narrow piedmont slope flanking the hills, the overlying deposits include significant landslide debris and only latest Quaternary pluvial sediment and piedmont-slope deposits, suggesting young movement is possible. The preferred maximum basal fault facet is reported as 110 m (104-146 m) by dePolo (1998 #2845).
Age of faulted surficial deposits	Quaternary. The northernmost section of the fault appears to juxtapose Quaternary piedmont-slope deposits against Tertiary basalt (Dohrenwend and Moring, 1991 #281). This fault is inferred to displace Quaternary deposits along the west side of Duck Lake valley (Slemmons, 1966, unpublished Vya 1? X 2? sheet; Bonham, 1969 #2999).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> Although timing of most recent event is not well constrained, a Quaternary time is suggested based on reconnaissance photogeologic mapping of Dohrenwend and Moring (1991 #281).
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 0.214 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)	1998 Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	<p>#2999 Bonham, H.F., 1969, Geology and mineral deposits of Washoe and Storey Counties, Nevada: Nevada Bureau of Mines and Geology Bulletin 70, 140 p., 1 pl., scale 1:250,000.</p> <p>#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.</p> <p>#281 Dohrenwend, J.C., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Vya 1° by 2° quadrangle, Nevada, Oregon, and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2174, 1 sheet, scale 1:250,000.</p> <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.</p>

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