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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.

Vya fault (Class A) No. 1466

Last Review Date: 1998-07-19

citation for this record: **Sawyer, T.L., compiler, 1998, Fault number 1466, Vya 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 plateau-bounding fault along west side of Long Valley; however along most of this length, from Mud Lake south, the fault is largely concealed, but inferred from the abrupt curvilinear escarpment of the volcanic plateau bordering the valley on the west. Several faults of fault zone 1468 appear to terminate southeast at or near this plateau-bounding fault, which at the south end intersects intrabasin fault 1470. Evidence of young movement on the fault is provided north of Mud Lake by the juxtaposition of piedmont-slope deposits against Tertiary basalt and sedimentary rocks, and is permissive along the southern part of the fault which appears to be concealed by post-pluvial (<13 ka) piedmont-slope deposits and locally by landslide debris. 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Name comments	Refers to fault mapped by Slemmons (1966, unpublished Vya 1?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) and Dohrenwend and Moring (1991 #281) extending along the west border of Long Valley from west of Mosquito Lake south, passing west of Vya, to west of Central Lake. Fault zone includes the Mosquito Valley fault (V2A) and the Vya fault zone (V2B) of dePolo (1998 #2845); the Vya name is used herein in reference to the entire zone. **Fault ID:** Includes fault V2A (Mosquito Valley fault) and V2B (Vya fault zone) of dePolo (1998 #2845).
County(s) and State(s)	WASHOE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Poor Compiled at 1:100,000 scale. *Comments:* Fault location is based on 1:250,000-scale maps of Slemmons (1966, unpublished Vya 1? X 2? sheet) and Dohrenwend and Moring (1991 #281); mapping by Slemmons (1966, unpublished Vya 1? X 2? sheet) from analysis of 1:60,000-scale AMS photography transferred to mylar overlaid onto a 1:250,000-scale topographic map using proportional dividers. Mapping by Dohrenwend and Moring (1991 #281) is from analysis of 1:60,000-scale AMS photography transferred to mylar overlaid onto a 1:250,000-scale topographic map using proportional dividers. Independent of scale, the plateau-bounding fault is considered to be poorly located because it is everywhere concealed, and Slemmons' (1966, unpublished Vya 1? X 2? sheet) location is inferred.
Geologic setting	This plateau-bounding fault along west side of Long Valley, extends from Mosquito Lake south past Vya to near Central Lake; however along most of this length, from Mud Lake south, the fault is largely inferred from the abrupt curvilinear escarpment of the volcanic plateau bordering the valley on the west (Slemmons, 1966, unpublished Vya 1? X 2? sheet; Dohrenwend and Moring, 1991 #281); several faults of fault zone 1468 appear to terminate southeast at or near this plateau-bounding fault, suggesting that fault 1466 is considerably younger than the largely Tertiary faults of zone 1468.

Length (km)	39 km.
Average strike	N3°W
Sense of movement	Normal
Dip Direction	E *Comments:* Dip direction inferred from basin and plateau margin geometry, and regional extension directions.
Paleoseismology studies	
Geomorphic expression	Evidence of young movement on the fault is recorded north of Mud Lake by the juxtaposition of Quaternary piedmont-slope deposits against Tertiary basalt and sedimentary rocks, and is permissive along the southern part of the fault which appears to be concealed by post-pluvial (~<13 ka?) piedmont slope deposits and locally by landslide debris (Slemmons, 1966, unpublished Vya 1? X 2? sheet; Dohrenwend and Moring, 1991 #281). The preferred maximum basal fault facet is reported as 183 m (177-207 m) by dePolo (1998 #2845) from the north end of the fault zone. The southern part of the fault has no scarps on alluvium and no basal fault facets.
Age of faulted surficial deposits	Quaternary; Tertiary. North of Mud Lake Quaternary piedmont-slope deposits are juxtaposed against Tertiary basalt and sedimentary rocks along the plateau-bounding fault (Slemmons, 1966, unpublished Vya 1? X 2? sheet; Bonham, 1969 #2999; Dohrenwend and Moring, 1991 #281).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Although timing of most recent event is not well constrained, a Quaternary time is suggested based on reconnaissance photogeologic mapping of Slemmons (1966, unpublished Vya 1? X 2? sheet) and Dohrenwend and Moring (1991 #281).
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) reported a preferred reconnaissance vertical slip rate of 0.335 mm/yr for the fault V2A based on empirical relationships. He reported a preferred 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 for V2B. 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 Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#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. #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. #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.