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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.

unnamed fault zone in Long Valley (Class A) No. 1470

Last Review Date: 1998-07-19

citation for this record: **Sawyer, T.L., compiler, 1998, Fault number 1470, unnamed fault zone in Long Valley, 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 distributed zone primarily has left-stepping, northeast-striking intrabasin faults that cut across the floor of Long Valley, from east of Alkali Lake to south end of valley, and continues southward across ridge of low hills and across the floor of Boulder Flat, to Boulder Creek. The zone also has possibly related Class C faults further south on the flanks of Boulder Mountain and other northwest-striking Class C faults within the ridge of low hills, that appear to be cross cut by the northeast-striking faults; although these faults may be related to the Vya fault zone [1467]. The intrabasin faults are expressed as curvilinear lineaments and short scarps on the post-pluvial (approximately 13 ka) floor of Long Valley and Boulder Flat. A few faults in the low hills are expressed as a small cluster of scarps in Button Brush Flat, but primarily the other faults are delineated by prominent topographic escarpments, one borders a

	closed depression on the north flank of Boulder Mountain. 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Name comments	Refers to faults mapped by Slemmons (1966, unpublished Vya 1? X 2? sheet), Bonham (1969 #2999), and Dohrenwend and Moring (1991 #281) in Long Valley, from east of Alkali Lake to south end of valley, and extending southward across ridge of low hills and along east side of Boulder Flat, to north and west flanks of Boulder Mountain.
County(s) and State(s)	WASHOE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault locations are based on 1:250,000-scale maps of Slemmons (1966, unpublished Vya 1?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) 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. Dohrenwend and Moring (1991 #281) mapped 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. A few faults within the low hill separating southern Long Valley from Boulder Flat are based on 1:250,000-scale geologic map of Bonham (1969 #2999).
Geologic setting	This distributed zone primarily has left-stepping, northeast-striking intrabasin faults that cut across the floor of Long Valley, from east of Alkali Lake to south end of valley, and continues southward across ridge of low hills and across the floor of Boulder Flat, to Boulder Creek. The zone also has possibly related faults further south on the flanks of Boulder Mountain and northwest-striking faults within the ridge of low hills, that appear to be cross cut by the northeast-striking faults (Slemmons, 1966,

	unpublished Vya 1? X 2? sheet; Bonham, 1969 #2999; Dohrenwend and Moring, 1991 #281); although these faults may be related to the Vya fault zone [1467].
Length (km)	34 km.
Average strike	N30°E
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement is inferred from topography.
Dip Direction	SE; NW
Paleoseismology studies	
Geomorphic expression	The intrabasin faults are expressed as curvilinear lineaments and short scarps on the post-pluvial (approximately 13 ka) floor of Long Valley and Boulder Flat. A few Class C faults in the low hills are expressed as a small cluster of scarps on piedmont-slope deposits in Button Brush Flat, but primarily the other Class A faults are delineated by prominent topographic escarpments, one borders a closed depression on the north flank of Boulder Mountain (Slemmons, 1966, unpublished Vya 1? X 2? sheet; Dohrenwend and Moring, 1991 #281).
Age of faulted surficial deposits	Holocene; Holocene and (or) latest Pleistocene; Tertiary. The intrabasin faults displace Holocene basin-fill deposits in Long Valley and Boulder Flat. Faults at Button Brush Flat displace Holocene and (or) latest Pleistocene (i.e., post-pluvial?) piedmont-slope deposits and other Class C faults displace only Tertiary basalt and sedimentary rocks (Slemmons, 1966, unpublished Vya 1? X 2? sheet; Bonham, 1969 #2999; Dohrenwend and Moring, 1991 #281).
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Although timing of most recent event is not well constrained, a latest Quaternary time is indicated for Class A faults based on reconnaissance photogeologic mapping by Slemmons (1966, unpublished Vya 1? X 2? sheet) and Dohrenwend and Moring (1991 #281), Dohrenwend and others

	(1996 #2846).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low vertical slip rate is inferred from general knowledge of slip rates estimated for other faults in the region and lack of range-front relief.
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. #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. #2846 Dohrenwend, J.C., Schell, B.A., Menges, C.M., Moring, B.C., and McKittrick, M.A., 1996, Reconnaissance photogeologic map of young (Quaternary and late Tertiary) faults in Nevada, *in* Singer, D.A., ed., Analysis of Nevada's metal-bearing mineral resources: Nevada Bureau of Mines and Geology Open-File Report 96-2, 1 pl., scale 1:1,000,000.