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.**

Alkali Flat fault (Class A) No. 1604

Last Review Date: 1999-03-02

citation for this record: Sawyer, T.L., and Adams, K., compilers, 1999, Fault number 1604, Alkali 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 02:29 PM.

Synopsis	This short arcuate fault is comprised of discontinuous range-bounding normal faults and a piedmont fault. These faults lie on the southeastern margin of Honey Lake Valley, a sediment-filled basin. The range-bounding faults bound the western front of the northern Virginia Mountains from Double Check Well south to Cottonwood Creek. The piedmont fault extends north of Sugarloaf and Vinegar Peak to southwest of the mouth of Anderson Canyon. The piedmont fault is expressed as a north-facing scarp on Quaternary alluvium and the range-front faults juxtapose Quaternary alluvium against bedrock and cut Quaternary alluvium. Detailed and regional geologic mapping and reconnaissance photogeologic mapping are the sources of data. Trench investigations and detailed studies of scarp morphology have not been conducted.
Name	Refers to faults mapped by Bonham (1969 #2999), Slemmons

comments	(1974, unpublished Lovelock 1? X 2? sheet), and Grose (1984 #3022) along the western side of the northern Virginia Mountains and southeastern margin of Honey Lake Valley, from Double Check Well south to Cottonwood Creek and southwest to near mouth of Anderson Canyon. dePolo (1998 #2845) referred to these faults as the Alkali Flat fault zone; the Alkali Flat name is used herein. **Fault ID:** Refers to faults LL3A and LL3B of dePolo (1998 #2845).
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 based on 1:24,000-scale mapping of Grose (1984 #3022) and 1:250,000-scale bedrock mapping of Bonham (1969 #2999).
Geologic setting	This short arcuate fault lies on the southeastern margin of Honey Lake Valley, a sediment-filled basin (Bonham, 1969 #2999; Grose, 1984 #3022). The fault is comprised of range-bounding normal strands that bound the western front of the northern Virginia Mountains from Double Creek Well south to Cottonwood Creek and a piedmont fault that extends north of Sugarloaf and Vinegar Peak to southwest of the mouth of Anderson Canyon.
Length (km)	15 km.
Average strike	N28°E
Sense of movement	Normal *Comments:* Normal sense of movement inferred from topography.
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	The piedmont fault is expressed as a north-facing scarp on Quaternary alluvium and the range-front faults juxtapose

	Quaternary alluvium against bedrock along the abrupt front of the northern Virginia Mountains and possibly as scarps on Quaternary alluvium (Bonham, 1969 #2999; Grose, 1984 #3022). dePolo (1998 #2845) indicates that there may not be scarps on alluvium and there are no basal fault facets.
Age of faulted surficial deposits	Bonham (1969 #2999) mapped one of the faults as juxtaposing Quaternary alluvium against bedrock. Grose (1984 #3022) mapped the other faults in Quaternary alluvium.
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 mapping of Grose (1984 #3022), Slemmons (1974, unpublished Lovelock 1? X 2? sheet), and Bonham (1969 #2999).
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 0.001 mm/yr for the fault based on the absence of scarps on alluvium and the absence of basal facets. 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)	1999 Thomas L. Sawyer, Piedmont Geosciences, Inc. Kenneth Adams, 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.

#3022 Grose, T.L.T., 1984, Geologic map of the State Line Park quadrangle, Nevada-California: Nevada Bureau of Mines and Geology, Map 82, scale 1:24,000.

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