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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.

Little Fish Lake Valley fault (Class A) No. 1351

Last Review Date: 1998-07-15

citation for this record: **Sawyer, T.L., compiler, 1998, Fault number 1351, Little Fish Lake Valley 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 02:14 PM.**

Synopsis	This long, down-to-the-west, range-front normal fault bounds the west side of the Hot Creek and Antelope ranges. Scarps preserved along the southern section provide evidence for Quaternary movement. Reconnaissance photogeologic mapping of fault-related features and analysis of fault facets are the sources of data. Trench investigations and studies of scarp morphology have not been conducted along the fault.
Name comments	Refers to faults mapped by Dohrenwend and others (1996 #2846) and named the Little Fish Lake Valley fault by dePolo (1998 #2845). The fault extends along the eastern side of Little Fish Lake Valley from northeast of Little Fish Lake, along the front of the Hot Creek Range and Antelope Range, to about 7 km south of south end of Antelope Valley. **Fault ID:** Refers to fault T14 of dePolo (1998 #2845).

County(s) and State(s)	NYE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location is taken from an unpublished map of the Tonopah 1:250,000-scale map by J.C. Dohrenwend published at 1:100,000-scale by Dohrenwend and others (1996 #2846). Mapping based on 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.
Geologic setting	This relatively long, down-to-the-west, range-front normal fault bounds the west side of the Hot Creek and Antelope ranges. More northerly striking southern part of the fault consists of a distributed series of discontinuous scarps bounding the Hot Creek Range and range-front graben.
Length (km)	42 km.
Average strike	N16°E
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement inferred from topography.
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	The fault is marked by abrupt, well-defined scarps juxtaposing Quaternary alluvium against bedrock, moderately high (less than or equal to 6m), well-defined (less than or equal to 26° slope angle) scarps on Quaternary surfaces, and north-trending lineaments on Quaternary alluvium near south end (Schell, 1981 #2844). dePolo (1998 #2845) reports a maximum preferred basal fault facet height of 110 m (85–134 m).
Age of faulted	Early to middle and (or) late Pleistocene. East-facing scarp

surficial deposits	preserved bounding range-front graben (Dohrenwend and others, 1996 #2846) near south end of the fault.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Although timing of the most recent event is not well constrained, Dohrenwend and others (1996 #2846) suggested a Pleistocene time based on estimated age of deposits faulted along central part of the fault.
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 0.214 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	#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. #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. #2844 Schell, B.A., 1981, Faults and lineaments in the MX Siting

	Region, Nevada and Utah, Volume II: Technical report to U.S. Department of [Defense] the Air Force, Norton Air Force Base, California, under Contract FO4704-80-C-0006, November 6, 1981, 29 p., 11 pls., scale 1:250,000.