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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.

The Lava Beds fault (Class A) No. 1624

Last Review Date: 1999-03-16

citation for this record: **Sawyer, T.L., and Adams, K., compilers, 1999, Fault number 1624, The Lava Beds 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 nearly continuous zone is comprised of range-front faults bounding the entire eastern side of an unnamed ridge west of the Seven Troughs Range. The faults extend from west of Seven Troughs Mountain north-northeast to Five Troughs Springs; from here, the fault continues as a piedmont fault to a point about 6 km northeast of the springs. Piedmont faults are also present at the south end of the fault zone. The range-front faults juxtapose Quaternary alluvium against bedrock, whereas the piedmont faults are expressed as short east-facing scarps on Quaternary alluvium and as similar but more extensive scarps north of Five Troughs Springs. Reconnaissance photogeologic mapping and regional geologic mapping are the sources of data. Trench investigations and detailed studies of scarp morphology have not been conducted.
Name	Refers to faults mapped in easternmost Kumiva Valley and along

comments	entire eastern side of unnamed range west of the Seven Troughs Range from west of Seven Troughs Mountain to a point approximately 6 km northeast of Five Troughs Springs. dePolo (1998 #2845) referred to this as The Lava Beds fault, the name applied herein. **Fault ID:** Refers to fault number LL15 of dePolo (1998 #2845).
County(s) and State(s)	PERSHING COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault locations are primarily based on 1:250,000-scale map of Dohrenwend and others (1991 #285), which was produced by 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. Fault locations checked against 1:250,000-scale photogeologic map of Slemmons (1974, unpublished Lovelock 1? X 2? sheet) and 1:250,000-scale geologic map of Johnson (1977 #2569).
Geologic setting	This nearly continuous zone is comprised of range-front faults bounding the entire eastern side of an unnamed ridge west of the Seven Troughs Range. Piedmont faults are also present at the south end of the fault zone (Slemmons, 1974 , unpublished Lovelock 1:250,000-scale map; Johnson, 1977 #2569; Dohrenwend and others, 1991 #285). The unnamed ridge is west-tilted fault block (Stewart, 1978 #2866). Piedmont faults also occur at south end of zone.
Length (km)	25 km.
Average strike	N20°E
Sense of movement	Normal *Comments:* Shown as normal faults by Dohrenwend and others (1991 #285).
Dip Direction	E
Paleoseismology	

studies	
Geomorphic expression	The range-front faults juxtapose Quaternary alluvium against bedrock. Piedmont faults are expressed as short east-facing scarps on Quaternary alluvium at the south end of zone and as similar but more extensive scarps, north of Five Troughs Springs (Dohrenwend and others, 1991 #285) and (Slemmons, 1974 unpublished Lovelock 1:250,000-scale map). dePolo (1998 #2845) reports a maximum preferred basal fault facet height of 100 m (80–120 m).
Age of faulted surficial deposits	Dohrenwend and others (1991 #285) mapped faults that displace late Pleistocene and undifferentiated Quaternary piedmont-slope deposits. Johnson (1977 #2569) mapped faults juxtaposing Quaternary alluvium against Tertiary sedimentary rock.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* The timing of most recent event is not well constrained and the map sources differ. Slemmons (1974, unpublished Lovelock 1:250,000-scale map) suggests faulting could be as young as latest Quaternary. Dohrenwend and others (1991 #285; 1996 #2846) indicate late Quaternary. The assigned age category is based on the sole published source.
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 displacement rate of 0.201 mm/yr based on an empirical relationship between his preferred maximum basal facet height and vertical 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)	1999 Thomas L. Sawyer, Piedmont Geosciences, Inc. Kenneth Adams, 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. #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. #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. #2569 Johnson, M.G., 1977, Geology and mineral deposits of Pershing County, Nevada: Nevada Bureau of Mines and Geology Bulletin 89, 115 p., scale 1:250,000. #2866 Stewart, J.H., 1978, Basin-range structure in western North America—A review, *in* Smith, R.B., and Eaton, G.P., eds., Cenozoic tectonics and regional geophysics of the western cordillera: Geological Society of America Memoir 152, p. 1-31, scale 1:2,500,000.