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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.

Kamma Mountains fault zone (Class A) No. 1626

Last Review Date: 1999-03-10

citation for this record: **Adams, K., and Sawyer, T.L., compilers, 1999, Fault number 1626, Kamma Mountains fault zone, 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 02:27 PM.**

Synopsis	This widely distributed fault zone includes range-front and piedmont faults that bound the southeast and northwest sides of the Kamma Mountains and a small mountain block to southwest. The range-front faults juxtapose Quaternary alluvium against bedrock and are expressed as abrupt escarpments and by a short north-facing scarp on possibly late Pleistocene alluvium preserved against the front of small mountain block. Piedmont faults east of the Kamma Mountains appear to be expressed as east- and west-facing topographic lineaments. 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 range-front faults mapped in, along, and adjacent to the

comments	Kamma Mountains near the southeast edge of the Black Rock Desert and west of the northern Seven Trough Range in Granite Springs Wash valley. Also includes faults are preserved on the northwest piedmont of the Seven Troughs Range and on the Kamma Mountains piedmont from Rabbithole north to west of Wild Rose Spring and from north end of the range northeast to vicinity of Mandalay Spring. dePolo (1998 #2845) referred to many of these faults as the Kamma Mountains fault zone; this term is applied to the entire zone.
County(s) and State(s)	HUMBOLDT COUNTY, NEVADA 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. Additional faults were located from 1:250,000-scale map of Johnson (1977 #2569). Fault locations checked against 1:250,000-scale photogeologic map of Slemmons (1974, unpublished Lovelock 1? X 2? sheet).
Geologic setting	This widely distributed fault zone is comprised of range-front and piedmont faults in and around the Kamma Mountains and a small mountain block to the southwest.
Length (km)	36 km.
Average strike	N66°E
Sense of movement	Normal *Comments:* Inferred from topography and as shown by Dohrenwend and others (1991 #285).
Dip Direction	W; E; N; SE
Paleoseismology studies	
Geomorphic	Range-front faults juxtapose Quaternary alluvium against bedrock

expression	and are expressed as abrupt escarpments (Johnson, 1977 #2569; Dohrenwend and others, 1991 #285) and by a short north-facing scarp on early to middle Pleistocene alluvium against front of small mountain block. Piedmont faults east of the Kamma Mountains appear to be expressed as east- and west-facing topographic lineaments (Slemmons, 1974, unpublished Lovelock 1? X 2? sheet; Johnson, 1977 #2569; Dohrenwend and others, 1991 #285). 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) reported that early to middle Pleistocene (and possibly late Pleistocene) alluvium is offset by faults in this zone. Johnson (1977 #2569) mapped faulted Tertiary sedimentary rocks.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Although timing of most recent event is not well constrained, a late Quaternary time is suggested based on reconnaissance photogeologic mapping of Dohrenwend and others (1991 #285).
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 0.201 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. 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 somewhat lesser magnitude. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	1999 Kenneth Adams, Piedmont Geosciences, Inc. 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. #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. #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.