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Quaternary Fault and Fold Database of the United States

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Eastern Bilk Creek Mountains fault zone (Class A) No. 1496

Last Review Date: 1998-07-19

citation for this record: **Sawyer, T.L., compiler, 1998, Fault number 1496, Eastern Bilk Creek 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 02:50 PM.**

Synopsis	This continuous fault zone is comprised of two principal range-bounding normal faults along the east side of the Bilk Creek Mountains that form a 2- to 3-km-wide left-stepover at Dry Creek. Within, east, and northeast of the stepover (from House Creek south to near Cherry Creek) there is a series of distributed piedmont faults that form a complex graben 4-5 km long marked by well-defined scarps. Detailed geologic mapping and reconnaissance photogeologic mapping of the fault zone 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Name comments	Refers to faults mapped by Slemmons (1966, unpublished Vya 1?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), Minor and Wagner (1989 #3004), and Dohrenwend and Moring (1991 #281). dePolo (1998 #2845) referred to these

	faults as the Eastern Bilk Creek Mountains fault zone, the name that is accepted herein. The zone extends along and near eastern front of the Bilk Creek Mountains from east of Ninemile Summit, along the west side of Kings River Valley, to east of Black Diamond Peak in the northwest corner of the Kings River Valley. **Fault ID:** Refers to fault V14 of dePolo (1998 #2845).
County(s) and State(s)	HUMBOLDT COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Locations of range-front faults based on 1:250,000-scale map of Dohrenwend and Moring (1991 #281); mapping by analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic maps enlarged to scale of the photographs. Locations of piedmont faults based on 1:24,000-scale geologic map of Minor and Wagner (1989 #3004).
Geologic setting	This continuous fault zone is comprised of two principal range-bounding normal faults along the east side of the Bilk Creek Mountains that form a 2- to 3-km-wide left-stepover at Dry Creek. There is a series of distributed piedmont faults that form a complex graben 4-5 km long marked by well-defined scarps within, east, and northeast of the stepover from House Creek south to near Cherry Creek.
Length (km)	29 km.
Average strike	N12°W
Sense of movement	Normal *Comments:* Reported as normal faults by Minor and Wagner (1989 #3004) and Dohrenwend and Moring (1991 #281).
Dip Direction	E
Paleoseismology studies	

Geomorphic expression	These faults bound the rather subdued eastern front of the Bilk Creek Mountains and low hills to the east; they are generally expressed as low, apparently subdued topographic escarpments along which piedmont-slope deposits are juxtaposed against Tertiary volcanic and sedimentary rock. Short sections of these faults, at Rodeo Creek and Ninemile Springs, are marked by scarps and (or) aligned springs (Dohrenwend and Moring, 1991 #281). Between House Creek and Cherry Creek a distributed group of piedmont faults exhibits a complex pattern of well-defined scarps, some bounding a graben 4-5 km wide (Minor and Wagner, 1989 #3004).
Age of faulted surficial deposits	Latest Pleistocene and (or) Holocene; Pleistocene; Quaternary and (or) late Tertiary; Tertiary. Dohrenwend and Moring (1991 #281) reported late Pleistocene and (or) Holocene alluvium was faulted along the piedmont faults. Mapping by Minor and Wagner (1989 #3004) shows that the youngest faulted deposits are truncated by the highstand shoreline of pluvial Lake Lahontan (~13 ka) and that undifferentiated Holocene alluvial-fan deposits cover these faults. Faults bounding east front of the Bilk Creek Mountains and low hills juxtapose offset Quaternary alluvium against Quaternary and (or) late Tertiary sedimentary rocks and against Tertiary volcanic rocks (Minor and Wagner, 1989 #3004; Dohrenwend and Moring, 1991 #281).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* The timing of most recent event is not well constrained. Dohrenwend and Moring (1991 #281) suggest that the youngest faulted deposits may be Holocene or late Pleistocene (<30 ka). Geologic mapping by Minor and Wagner (1989 #3004) indicate that the faulted deposits predate highstand shoreline of pluvial Lake Lahontan (~13 ka) and that undifferentiated Holocene alluvial-fan deposits cover these faults. Both lines of evidence indicate that faulting may be older than our youngest age category, thus the next older category has been selected.
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 0.01 mm/yr for the Eastern Bilk Creek Mountains fault zone based on presence 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)	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. #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. #3004 Minor, S.A., and Wagner, M., 1989, Geologic map of the Trident Peak SE quadrangle, Humboldt County, Nevada: U.S. Geological Survey Open-File Report 89-561, scale 1:24,000.