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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.

Goshute fault zone (Class A) No. 1713

Last Review Date: 2001-07-17

citation for this record: **Anderson, R.E., compiler, 2001, Fault number 1713, Goshute 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 02:26 PM.**

Synopsis	The Goshute fault zone is located in a large area in the southeast part of the Elko 1?x2? sheet devoid of major Quaternary range-front faults. Other fault groups in this area include Dolly Varden Mountains fault zone [1712], unnamed fault zone in Antelope Range [1720], unnamed fault zone in Ferber Hills [1721], and Boone Spring Hills fault zone [1724]. The two chief faults of the Goshute fault zone, located in the southern Goshute Mountains, strike northeast and bound the White Horse Mountain/Sugar Loaf Mountain structural block on the northwest and southeast. They are presumed to be block-bounding normal faults. Other faults to the south in the zone strike more northerly and do not form the boundaries of conspicuous highlands. Their structural significance is unclear. They may have closer structural ties to faults to the east [1721] than to the northeast-striking faults in the zone to the north. Faults of the Goshute fault zone are mapped as morphologically similar to major range-front faults but

	significantly less extensive with lower, shorter, and less continuous scarps. No scarps formed on Quaternary surficial deposits or erosion surfaces are identified. The north-striking faults comprising the south part of the zone have very subdued physiographic expression. No detailed study is reported, and recurrence times are unknown.
Name comments	Adapted from dePolo (1998 #2845) who applied the name Goshute fault to a highly discontinuous zone of poorly aligned Quaternary fault traces mapped along the western margin of the southernernmost Goshute Mountains. A northeast-striking fault southwest of Little White Horse Pass is also included as part of the fault zone. The zone extends from White Horse Pass south to within 2 km of the Elko/White Pine County line. **Fault ID:** Referred to as fault EK16 by dePolo (1998 #2845).
County(s) and State(s)	ELKO COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault traces taken from the 1:250,000 map of Dohrenwend and others (1991 #286). That map 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 the scale of the photographs.
Geologic setting	The southeastern part of the Elko 1? x 2? quadrangle contains a large (approximately 1750 square kilometer) area that lacks major range-bounding Quaternary faults (Dohrenwend and others, 1991 #286). Quaternary faults in that area are relatively short (<15 km, mostly <5 km) diversely oriented (mostly north-striking) block-bounding structures. The area includes all or parts of several ranges, mountains, and hills including the north-most Schell Creek Range, Antelope Range, Dolly Varden Mountains, southern Goshute Mountains, Kinsley Mountains, Currie Hills, Boone Spring Hills, and Ferber Hills. Most of these highlands are poorly defined physiographically and structurally, so the geologic setting of the Quaternary faults is not obvious, and placing them into groups that may have seismogenic significance is quite subjective.

	Other fault groups in this area include [1712], [1720], [1721], and [1724]. On the basis of photogeologic and field study, Barnhard (1985 #428) recognized no Quaternary scarps in this area whereas Dohrenwend and others (1991 #286), on the basis of photogeologic study, mapped 20 to 30 faults (the number depending on how the faults are connected). dePolo (1998 #2845) connected some faults across large gaps, but did not consider most faults in his statewide study of Quaternary faults, possibly suggesting that most of these faults are of little significance. The two chief faults of the Goshute fault zone strike northeast and bound the White Horse Mountain/Sugar Loaf Mountain structural block on the northwest and southeast. They are presumed to be block-bounding normal faults. Other faults in the zone strike more northerly and do not form the boundaries of conspicuous highlands. Their structural significance is unclear. They may have closer structural ties to faults to the east [1721] than to the northeast-striking faults to the north. Some of these fault traces are probably in Tertiary volcanic rocks (Stewart and Carlson, 1978 #3413).
Length (km)	22 km.
Average strike	N9°E
Sense of movement	Normal *Comments:* Inferred from location in an extensional tectonic province.
Dip Direction	NW; SE
Paleoseismology studies	
Geomorphic expression	Faults of the Goshute zone were mapped by Dohrenwend and others (1991 #286) as morphologically similar to major range-front faults but significantly less extensive with lower, shorter, and less continuous scarps. No scarps formed on Quaternary surficial deposits or erosion surfaces have been identified (Dohrenwend, 1991 #286). The northerly striking faults comprising the south part of the zone have very subdued physiographic expression.
Age of faulted surficial	Not reported, probably Quaternary and Tertiary (Stewart, 1978 #3413)

deposits	#3413).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Little is known of the Quaternary geology of the area, and, based on photogeologic study, scarps are apparently not formed on Quaternary surficial deposits or erosion surfaces (Dohrenwend, 1991 #286).
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 fault based on the 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)	2001 R. Ernest Anderson, U.S. Geological Survey, Emeritus
References	#428 Barnhard, T.P., 1985, Map of fault scarps formed in unconsolidated sediments, Elko 1° x 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1791, 1 sheet, 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. #286 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Elko 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2179, 1 sheet, scale 1:250,000. #3413 Stewart, J.H., and Carlson, J.E., 1978, Geologic map of Nevada: U.S. Geological Survey, Special Geologic Map, 1, scale

	1:500,000.

Questions or comments?

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