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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.

unnamed fault zone in Antelope Range (Class A) No. 1720

Last Review Date: 2001-07-17

citation for this record: **Anderson, R.E., compiler, 2001, Fault number 1720, unnamed fault zone in Antelope Range, 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	This fault zone extends north-south through the Antelope Range from near Boone Canyon south to near Chin Creek Spring, which is near the southern boundary of the Elko 1?x2 sheet. Faults in this unnamed zone strike north and north-northwest and are apparently have a down-to-the-east and down-to-the-west sense of displacement. They are mapped as morphologically similar to major range-front faults, but significantly less extensive with lower, shorter, and less continuous scarps. Most traces are located within or at the poorly defined margins of low hills. Tertiary volcanic rock is widely exposed in this part of the Antelope Range, but little is known of the Quaternary geology. Most structures in the zone are probably small-displacement normal faults that bound slightly tilted Tertiary volcanic rock. Some of the faults may have traces in the Tertiary volcanic rock, but little is known of the structural significance of these faults. No detailed

	studies are reported, and recurrence times are unknown.
Name comments	This fault zone extends north-south through the Antelope Range from near Boone Canyon south to near Chin Creek Spring, which is near the southern boundary of the Elko 1?x2 sheet. Some faults in the western part of the zone may have been part of the Boone Spring Hills fault of dePolo (1998 #2845). **Fault ID:** Some faults in the west part of this zone may have been included in dePolo's (1998 #2845) fault EK14.
County(s) and State(s)	ELKO COUNTY, NEVADA WHITE PINE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Compiled from photogeologic reconnaissance map at 1:250,000 scale by Dohrenwend and others (1991 #286). Those maps were 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 according to mapping of 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 northernmost 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 with seismogenic significance is quite subjective. Other fault groups in this area include [1712], [1713], [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) mapped a number of short faults that do not

	have scarps on alluvium on the basis of photogeologic study. dePolo (1998 #2845) connected some faults across large gaps, but did not consider most of these faults in his statewide study of Quaternary faults, possibly suggesting they are of little tectonic significance. Faults in this unnamed zone strike north and north-northwest and are apparently down to the east and west. Most are probably block-bounding structures that juxtapose Quaternary alluvium against bedrock, but some are mapped as lineaments by Dohrenwend and others (1991 #286). Tertiary volcanic rock is widely exposed in this part of the Antelope Range, but little is known of the Quaternary geology. Most of the zone is comprised of probable small-displacement normal faults that bound slightly tilted Tertiary volcanic rock and s Little is known of the structural significance of the faults.
Length (km)	22 km.
Average strike	N3°E
Sense of movement	Normal *Comments:* Inferred from location in extensional tectonic province.
Dip Direction	W; E
Paleoseismology studies	
Geomorphic expression	Faults 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 are identified (Dohrenwend and others, 1991 #286), thus indicating their relative lack of recent movement. Most traces are within or at the poorly defined margins of low hills. These probably have weak geomorphic expression because no scarps were identified by Barnhard (1985 #428) in his map of Quaternary scarps in the Elko quadrangle.
Age of faulted surficial deposits	Not reported, probably Quaternary and Tertiary (Stewart and Carlson, 1978 #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 preserved on Quaternary surficial deposits or erosion surfaces (Dohrenwend and others, 1991 #286).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* This category is the lowest slip rate assigned and is based on the similarity of these faults to other relatively inactive faults in the province.
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.

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