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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.

Oneil Basin fault zone (Class A) No. 1571

Last Review Date: 2016-10-05

citation for this record: **Sawyer, T.L., and Oswald, J.A., compilers, 1998, Fault number 1571, Oneil Basin 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 02:36 PM.**

Synopsis	This long group of down-to-the-east, range front and piedmont normal faults bounds east front of the Jarbridge Mountains, from just south of Wildcat Creek to Flat Creek. The fault zone steps right and extends northward along Buckhorn Ridge bounding western side of Oneil Basin and east front of the Elk Mountains. The fault zone is not known to extend northward across the Nevada-Idaho stateline. The fault juxtaposes Quaternary alluvium against bedrock along the range-front, forms scarps and lineaments on Quaternary alluvium adjacent to the range front, and forms prominent topographic lineaments on Tertiary bedrock. Reconnaissance photogeologic mapping of fault related features is the source of data. Trench investigations and studies of scarp morphology have not been conducted along the fault.
Name comments	Refers to faults mapped by Slemmons (1964, unpublished Wells 1:250,000-scale map) and Dohrenwend and others (1991 #290),

	and the western and northern parts of the zone include the Oneil Basin fault zone of dePolo (1998 #2845). Fault bounding east side of Buckhorn Ridge was named the Buckhorn Ridge fault by Fifer (1960 #2867). The fault zone extends along east-front of the Jarbridge Mountains, from south of Wildcat Creek to Flat Creek where it steps right and continues northward along Buckhorn Ridge, bounding the western side of Oneil Basin and east side of Elk Mountains. **Fault ID:** Refers to faults number WE5A and WE5B (Oneil Basin fault zone) of dePolo (1998 #2845).
County(s) and State(s)	ELKO COUNTY, NEVADA TWIN FALLS COUNTY, IDAHO
Physiographic province(s)	COLUMBIA PLATEAU BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location based on 1:250,000-scale Quaternary fault maps of Slemmons (1964, unpublished Wells sheet) and Dohrenwend and others (1991 #290). Map of Dohrenwend and others (1991 #290) is based on photogeologic 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. The Quaternary fault map of Slemmons (1964, unpublished Wells 1:250,000-scale map) is from analysis of 1:60,000-scale AMS photography transferred to mylar overlay on a 1:250,000-scale topographic map using proportional dividers.
Geologic setting	This long group of down-to-the-east, range front and piedmont normal faults bounds east front of the Jarbridge Mountains (Dohrenwend and others, 1991 #290). Fifer (1960 #2867) reported at least 92 m of normal offset along the Buckhorn Ridge constrained by fissure eruptions of rhyolite began in the Miocene.
Length (km)	46 km.
Average strike	N16°E
Sense of movement	Normal *Comments:* (dePolo, 1998 #2845)

Dip Direction	E
Paleoseismology studies	
Geomorphic expression	The fault juxtaposes Quaternary alluvium against bedrock along the range-front, forms scarps and lineaments on Quaternary alluvium adjacent to the range front, and forms prominent topographic lineaments on Tertiary bedrock (Dohrenwend and others, 1991 #290).
Age of faulted surficial deposits	Pleistocene. Dohrenwend and others (1991 #290) show the fault forming scarps on Pleistocene alluvium in one location.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The timing of most recent event is not well constrained and the two map sources differ. Slemmons (1964, unpublished Wells 1:250,000-scale map) suggested a late Pleistocene time for faults east of Gods Pocket Peak based on reconnaissance photogeologic studies; however, Dohrenwend and others (1991 #290) only suggest undifferentiated Pleistocene age for the same scarps. No recognized Quaternary fault extends across the state line into Idaho. The assigned age category is based on the sole published source.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No published data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.001 mm/yr for the fault based on the absence 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.

	John A. Oswald, 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. #290 Dohrenwend, J.C., McKittrick, M.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Wells 1° by 2° quadrangle, Nevada, Utah, and Idaho: U.S. Geological Survey Miscellaneous Field Studies Map MF-2184, 1 sheet, scale 1:250,000. #2867 Fifer, H.C., 1960, Geology of a portion of the Jarbidge I quadrangle, Elko County, Nevada: Eugene, University of Oregon, unpublished M.S. thesis, 48 p.