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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 faults near Gooch Lake (Class A) No. 1478

Last Review Date: 1999-02-25

citation for this record: **Sawyer, T.L., compiler, 1999, Fault number 1478, unnamed faults near Gooch Lake, 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 02:05 PM.**

Synopsis	These faults are part of a distributed poorly defined group of variously oriented intra-plateau faults has (1) a nearly continuous zone of north-striking faults from south end of Gooch Table northward, across Echo Canyon and State 140, and through the Sage Hen Hills to the Nevada-Oregon stateline; (2) a second more continuous zone of northeast-striking faults that extend from south of the highway along the southeast side of Big Spring Reservoir, the northwest margin of Hawksy Wallsy Valley, and along the west sides of Big Spring Butte and Boundary Butte, to the Nevada-Oregon border; (3) north-northwest-striking faults in a western part of zone crossing North Rock Spring Table and northeast flank of Catnip Mountain; and (4) nearly east-west-striking faults bounding north flank of the mountain. The faults represented here either juxtapose Quaternary deposits against Tertiary rock or displace Quaternary deposits (northeast of Sage

	Hen Hills) suggesting Quaternary movement. Reconnaissance photogeologic of the fault zone and regional geologic mapping are the sources of data.
Name comments	Refers to faults mapped by Dohrenwend and Moring (1991 #281) and Bonham (1969 #2999) in the Sheldon National Wildlife Refuge from south end of Gooch Table northward, passing west of Gooch Lake and across northeast slope of Catnip Mountain through the Sage Hen Hills and Hawksy Wallsy Valley, ending at the Nevada-Oregon state line. These faults have not been shown on compilations in Oregon. The fault zone is highly distributed from Boundary Butte west to North Rock Spring Table.
County(s) and State(s)	HUMBOLDT COUNTY, NEVADA HARNEY COUNTY, OREGON
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Fault locations are based on 1:250,000-scale map of Dohrenwend and Moring (1991 #281), which is from 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 and then reduced and transferred to 1:250,000-scale topographic maps.
Geologic setting	These faults are part of a distributed poorly defined group of diversely oriented intra-plateau faults has: (1) nearly continuous zone of north-striking faults from south end of Gooch Table northward, across Echo Canyon and State 140, and through the Sage Hen Hills to the Nevada border; (2) a second most continuous zone of northeast-striking faults that extend from south of the highway along the southeast side of Big Spring Reservoir, the northwest margin of Hawksy Wallsy Valley, and along the west sides of Big Spring Butte and Boundary Butte, to to the Nevada border; (3) north-northwest-striking faults in a western part of zone crossing North Rock Spring Table and northeast flank of Catnip Mountain; and (4) nearly east-west-striking faults bounding north flank of the mountain (Slemmons, 1966, unpublished Vya 1:250,000-scale sheet).

Length (km)	25 km.
Average strike	N10°E
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement is inferred from topography.
Dip Direction	W; NW; NE
Paleoseismology studies	
Geomorphic expression	Only one fault in this zone, northeast of Sage Hen Hills, is expressed as a short scarp on piedmont-slope deposits. However, three other faults are shown by Dohrenwend and Moring (1991 #281) as being likely Quaternary structures as they juxtapose Quaternary deposits against Tertiary rocks. The remaining faults in the zone are expressed as prominent topographic escarpments on Tertiary volcanic and sedimentary rocks, which suggested Quaternary movement to Slemmons (1966, unpublished Vya 1:250,000-scale sheet). However, these latter faults are considered unproven and are not shown on the map.
Age of faulted surficial deposits	Pleistocene; Tertiary. Based on reconnaissance photogeologic mapping by by Dohrenwend and Moring (1991 #281) one fault on the northeast side of Sage Hen Hills displaces Pleistocene piedmont-slope deposits whereas three others show photogeologic evidence suggestive of Quaternary movement. The remaining faults only displace Tertiary volcanic and sedimentary rocks (Slemmons, 1966, unpublished Vya 1:250,000-scale sheet) and are considered to be Class C structures.
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 greatly. Slemmons (1966, unpublished Vya 1:250,000-scale sheet) shows the western scarps as being late Quaternary in age. Dohrenwend and Moring (1991 #281) show that fault in Tertiary rocks. The assigned age category is based on the sole published source.
Recurrence	

interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate is inferred from general knowledge of slip rates estimated for other faults in the region and height of topographic escarpments on resistant Tertiary volcanic rocks.
Date and Compiler(s)	1999 Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#2999 Bonham, H.F., 1969, Geology and mineral deposits of Washoe and Storey Counties, Nevada: Nevada Bureau of Mines and Geology Bulletin 70, 140 p., 1 pl., scale 1:250,000. #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.