

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 near Pine Grove Flat (Class A) No. 1293

Last Review Date: 1998-07-19

citation for this record: Adams, K., and Sawyer, T.L., compilers, 1998, Fault number 1293, unnamed fault zone near Pine Grove Flat, 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 02:15 PM.

Synopsis	This widely distributed fault zone extends from northeast side of the Pine Grove Hills north across Pine Grove Flat, past the Cambridge Hills and the Gray Hills to a point just north of Pumpkin Hollow. Most of the faults in this group are generally short and have varying strikes. Many of the faults are intermontane, although several of the faults bound the northeast side of the Pine Grove Hills and the east side of the Cambridge Hills, and a few faults are located in Pine Grove Flat. Reconnaissance photogeologic mapping and bedrock mapping of the faults are the sources of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	Refers to a group of faults on north side of the Pine Grove Hills and near the Cambridge and Gray Hills. Faults in this group are

	mapped by Moore (1961 #2879), Slemmons (1966, unpublished Walker Lake 1? X 2? sheet), Dohrenwend (1982 #2481; 1982 #2870), and Stewart and others (1982 #2873).
County(s) and State(s)	MINERAL COUNTY, NEVADA LYON COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. <i>Comments:</i> Locations primarily based on 1:250,000-scale maps of Dohrenwend (1982 #2481; 1982 #2870) and supplemented by bedrock mapping (1:200,000 scale) of Moore (1961 #2879). Mapping by Dohrenwend (1982 #2481; 1982 #2870) 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.
Geologic setting	This widely distributed fault zone extends from northeast side of the Pine Grove Hills north across Pine Grove Flat, past the Cambridge Hills and Gray Hills, to a point just north of Pumpkin Hollow. Most of the faults in this group are generally short and have varying strikes ranging from northwest through northeast (Dohrenwend, 1982 #2481; 1982 #2870).
Length (km)	33 km.
Average strike	N13°E
Sense of movement	Normal <i>Comments:</i> Not studied in detail; normal sense of movement is from Moore (1961 #2879) and Dohrenwend (1982 #2481; 1982 #2870) and inferred from topography.
Dip Direction	W; E; N; S
Paleoseismology studies	
Geomorphic expression	The intermontane faults are expressed as aligned drainages and minor topographic escarpments. The range front faults along northeast side of the Pine Grove Hills primarily displace bedrock, but in places also juxtapose Pleistocene erosional surfaces against

	<p>bedrock. A small east-facing scarp on Pleistocene alluvium is near south end of Pine Grove Flat (Dohrenwend, 1982 #2481). The range front fault on the east side of the Cambridge Hills is expressed as an abrupt topographic escarpment that juxtaposes Holocene and upper Pleistocene alluvium against bedrock (Dohrenwend, 1982 #2870). Other faults in the group displace upper Pleistocene erosional surfaces or juxtapose similar surfaces against bedrock.</p>
Age of faulted surficial deposits	<p>Quaternary. Dohrenwend (1982 #2870) mapped faults juxtaposing Quaternary and Pleistocene alluvium against bedrock. In other places, faults involve Pleistocene erosional surfaces.</p>
Historic earthquake	
Most recent prehistoric deformation	<p>undifferentiated Quaternary (<1.6 Ma)</p> <p><i>Comments:</i> Timing of most recent event is not well constrained. Quaternary time is based on mapping by Dohrenwend and others (1996 #2846). Younger faulting may be implied by the fault shown to juxtapose upper Quaternary alluvium and Pleistocene erosional surfaces against bedrock (Dohrenwend, 1982 #2870).</p>
Recurrence interval	
Slip-rate category	<p>Less than 0.2 mm/yr</p> <p><i>Comments:</i> A low slip rate is inferred from general knowledge of slip rates estimated for other faults in the region.</p>
Date and Compiler(s)	<p>1998 Kenneth Adams, Piedmont Geosciences, Inc. Thomas L. Sawyer, Piedmont Geosciences, Inc.</p>
References	<p>#2481 Dohrenwend, J.C., 1982, Map showing late Cenozoic faults in the Walker Lake 1° by 2° quadrangle, Nevada-California: U.S. Geological Survey Miscellaneous Field Studies Map MF-1382-D, 1 sheet, scale 1:250,000.</p> <p>#2870 Dohrenwend, J.C., 1982, Surficial geologic map of the Walker Lake 1° by 2° quadrangle, Nevada-California: U.S. Geological Survey Miscellaneous Field Studies Map MF-1382-C, 1 sheet, scale 1:250,000.</p>

#2879 Moore, J.G., 1961, Preliminary geologic map of Lyon, Douglas, Ormsby and part of Washoe Counties, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-80, scale 1:200,000.

#2873 Stewart, J.H., Carlson, J.E., and Johannesen, D.C., 1982, Geologic map of the Walker Lake 1° by 2° quadrangle, California and Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-1382-A, scale 1:250,000.

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