

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 in Gabbs Valley Range (Class A) No. 1314

Last Review Date: 1998-09-22

citation for this record: Adams, K., and Sawyer, T.L., compilers, 1998, Fault number 1314, unnamed faults in Gabbs Valley 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 02:15 PM.

Synopsis

Group of generally short and discontinuous north-northwest striking range-front and intermontane faults which extend from the vicinity of Llama Mountain in the Pilot Mountains north and then northwest through the Gabbs Valley range past Mount Ferguson to a few kilometers north of Poinsettia Spring in southwest Gabbs Valley. The northwest-striking fault form a series of right echelon steps between Calavada Flat and Whisky Springs. At the southern end, short discontinuous faults appear to splay from the Benton Springs fault [1320], bound the northwestern front of the Pilot Mountains, and cut north across an alluvial embayment occupied by Dunlop and Bettles Well canyons. The faults continue northwest toward Calavada Flat through the intermontane valley of Volcano Canyon. 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	<p>Refers to group of faults extending from near Llama Mountain in the Pilot Mountains north and then northwest through the Gabbs Valley Range past Mount Ferguson to a few kilometers north of Poinsettia Spring in southwest Gabbs Valley. Faults have been mapped by Nielsen (1965 #2544), Slemmons (1966, unpublished Walker Lake 1? X 2? sheet), Dohrenwend(1982 #2481; 1982 #2870; 1982 #2900; 1982 #2909), Stewart and others (1982 #2873), Ekren and Byers (1984 #2902; 1985 #2905), and Bell (1995 #2422). dePolo (1998 #2845) referred to a short part of this fault as the Gabbs Valley Range fault.</p> <p>Fault ID: Includes fault number WL30 (Gabbs Valley Range fault) in dePolo (1998 #2845).</p>
County(s) and State(s)	MINERAL COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	<p>Good Compiled at 1:100,000 scale.</p> <p><i>Comments:</i> Location based on 1:62,500-scale (Dohrenwend, 1982 #2870; 1982 #2900) and 1:250,000-scale maps (Dohrenwend, 1982 #2481; 1982 #2870); small-scale mapping by 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.</p>
Geologic setting	This group of short discontinuous faults bound northwestern front of the Pilot Mountains, cross an alluvial embayment at Dunlop and Bettles Well canyons, continue northwest through the intermontane valley of Volcano Canyon to southwestern Gabbs Valley.
Length (km)	51 km.
Average strike	N24°W
Sense of movement	<p>Normal</p> <p><i>Comments:</i> Not studied in detail; normal sense of movement is from dePolo (1998 #2845).</p>

Dip Direction	NW; SE
Paleoseismology studies	
Geomorphic expression	Along the northwest side of the Pilot Mountains and on the west side of Table Mountain, faults juxtapose Quaternary alluvium against bedrock. Elsewhere they are expressed as aligned drainages and saddles. At the north end, north-striking faults juxtapose Quaternary erosional surfaces against bedrock. dePolo (1998 #2845) reports a maximum preferred basal fault facet height of 98 m (73-122 m).
Age of faulted surficial deposits	Holocene to Tertiary. Faults displace and juxtapose Holocene to late Pleistocene and older Pleistocene alluvium and erosional surfaces against bedrock (Dohrenwend, 1982 #2870; 1982 #2900; 1982 #2909). In the central part of the group, several faults only cut bedrock but Quaternary movement is suspected because of their proximity, continuity and similar orientation to faults with Quaternary offsets in the area.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> The timing of the most recent paleoevent is not well constrained. Age-category assignment based on Dohrenwend and others (1996 #2846) even though Dohrenwend (1982 #2900) shows one scarp on upper Pleistocene alluvium.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.199 mm/yr based on an empirical relationship between his preferred maximum basal facet height and vertical slip rate. The size of the facets (tens to hundreds of meters, as measured from topographic maps) indicates they are the result of many seismic cycles, and thus the derived slip rate reflects a long-term average. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted

deposits, etc.) suggests 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
Kenneth Adams, Piedmont Geosciences, Inc.
Thomas L. Sawyer, Piedmont Geosciences, Inc.

References

#2422 Bell, J.W., 1995, Quaternary map of the Mina quadrangle, Nevada: Nevada Bureau of Mines and Geology Field Studies Map 10, 1 sheet, scale 1:24,000.

#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.

#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.

#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.

#2900 Dohrenwend, J.C., 1982, Preliminary surficial geologic map of the Excelsior Mountains area, west-central Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-1372, scale 1:62,500.

#2909 Dohrenwend, J.C., 1982, Reconnaissance surficial geologic map of the Gabbs-Luning area, west-central Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-1374, scale 1:62,500.

#2846 Dohrenwend, J.C., Schell, B.A., Menges, C.M., Moring, B.C., and McKittrick, M.A., 1996, Reconnaissance photogeologic map of young (Quaternary and late Tertiary) faults in Nevada, *in* Singer, D.A., ed., Analysis of Nevada's metal-bearing mineral resources: Nevada Bureau of Mines and Geology Open-File Report 96-2, 1 pl., scale 1:1,000,000.

#2902 Ekren, E.B., and Byers, F.M., Jr., 1984, The Gabbs Valley Range—A well exposed segment of the Walker Lane in west-

central Nevada, *in* Lintz, J., Jr., ed., Western geological excursions: Geological Society of America, Annual Meeting, Reno, Nevada, Guidebook, v. 4, p. 203-215.

#2905 Ekren, E.B., and Byers, F.M., Jr., 1985, Geologic map of the Gabbs Mountain, Mount Ferguson, Luning, and Sunrise Flat quadrangles, Mineral and Nye Counties, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I-1577, 1 sheet, scale 1:48,000.

#2544 Nielsen, R.L., 1965, Right-lateral strike-slip faulting in the Walker Lane, west-central Nevada: Geological Society of America Bulletin, v. 76, no. 11, p. 1301-1308.

#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.

[Questions or comments?](#)

[Facebook](#) [Twitter](#) [Google](#) [Email](#)

[Hazards](#)

[Design](#) [Ground Motions](#) [Seismic Hazard Maps & Site-Specific Data](#) [Faults](#) [Scenarios](#)

[Earthquakes](#) [Hazards](#) [Data](#) [Education](#) [Monitoring](#) [Research](#)

[Home](#) [About Us](#) [Contacts](#) [Legal](#)