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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 in Gabbs Valley (Class A) No. 1313

Last Review Date: 1999-03-24

citation for this record: **Adams, K., and Sawyer, T.L., compilers, 1999, Fault number 1313, unnamed faults in Gabbs Valley, 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	These short, generally subparallel and right-stepping faults bound the northwest side of Cobble Cuesta and the southeast side of the Monte Cristo Mountains from near the Nye and Mineral county line southwest to north of Finger Rock Well No. 1. Some of the northeast-striking faults apparently exhibit evidence for dextral slip and other subparallel faults exhibit evidence for sinistral slip. Range-front faults bounding the Monte Cristo Mountains are expressed as east-facing scarps that ruptured during the 1932 Cedar Mountain earthquake. To the south of these faults is a group of short, subparallel and right stepping en echelon faults on the west side of Cobble Cuesta that ruptured in the 1954 Fairview Peak earthquake. Two right-stepping left-lateral faults to the northeast are expressed as a large drag fold in Pliocene and Miocene rocks of Cobble Cuesta but apparently did not rupture in 1954. The magnitude of the folding in the relatively young rocks

	suggests that the total amount of left slip along this zone is large. Reconnaissance and locally detailed photogeologic mapping of the fault zone and studies of late Cenozoic geology and historical faulting are the sources of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	Refers to faults mapped by Slemmons (1966, unpublished Walker Lake 1? X 2? sheet; 1968, unpublished Reno 1? X 2? sheet), Dohrenwend (#2481; 1982 #2870), Molinari (1984 #1584), Bell (1984 #105), Ekren and Byers (1984 #2902; 1985 #2905), Greene and others (1991 #3487), dePolo (1994 #2458), and Caskey and others (1996 #2439) in Gabbs Valley and along east side of the Monte Cristo Mountains. Caskey and others (1996 #2439) referred to the faults that ruptured in 1954 along the west side of Cobble Cuesta as the Philips Wash fault and the faults that ruptured in 1932 on the east side of the Monte Cristo Mountains as the Eastern Monte Cristo Mountains fault. dePolo (1998 #2845) referred to faults along the west side of Cobble Cuesta as the Cobble Cuesta fault system. **Fault ID:** Refers to WL33A and WL33B (Cobble Cuesta fault system) and possibly WL32 (Monte Cristo Mountain fault) of dePolo (1998 #2845).
County(s) and State(s)	MINERAL COUNTY, NEVADA NYE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* The location of 1932 and 1954 rupture traces are from 1:48,000-scale maps of dePolo (1994 #2458) and Caskey and others (1996 #2439). Both of these studies mapped the rupture traces in the field and on 1:12,000-scale low-sun-angle aerial photographs, transferred by inspection to 1:24,000-scale orthophotoquads and (or) maps, that were then reduced to 1:48,000-scale for publication. Other fault locations are based on field mapping of Ekren and Byers (1984 #2902) and 1:250,000-scale map by Dohrenwend (1982 #2481), which is from photogeologic analysis of 1:58,000-nominal-scale color-infrared photography. Two west-facing scarps, one north of Lower Phillips Well and the other at Cobble Cuesta, are based on unpublished

	1:250,000-scale map of Slemmons; mapping from analysis of 1:60,000-scale AMS photography transferred to mylar overlay on a 1:250,000-scale topographic map using proportional dividers. Faults near the Nye and Mineral County line are from 1:250,000-scale maps of Greene and others (1991 #3487) and Bell (1984 #105).
Geologic setting	These short generally subparallel and right-stepping faults bound the northwest side of Cobble Cuesta and the southeast side of the Monte Cristo Mountains from near the Nye and Mineral county line southwest to north of Finger Rock Well No. 1 (Slemmons, 1966, unpublished Walker Lake 1? X 2? sheet; 1968, unpublished Reno 1? X 2? sheet; Dohrenwend, 1982 #2481; 1982 #2870; Bell, 1984 #105; Molinari, 1984 #1584; Ekren and Byers, 1984 #2902; 1985 #2905; Greene and others, 1991 #3487; dePolo, 1994 #2458; Caskey and others, 1996 #2439). Some of the northeast-striking faults apparently exhibit evidence for dextral slip and other subparallel faults exhibit evidence for sinistral slip (dePolo, 1994 #2458; Caskey and others, 1996 #2439).
Length (km)	27 km.
Average strike	N26°E
Sense of movement	Normal *Comments:* (Slemmons, 1966, unpublished Walker Lake 1? X 2? sheet; 1968, unpublished Reno 1? X 2? sheet; Dohrenwend, 1982 #2481; Ekren and Byers, 1984 #2902; dePolo, 1994 #2458; Caskey and others, 1996 #2439)
Dip Direction	E; W
Paleoseismology studies	
Geomorphic expression	Range-front faults bounding the Monte Cristo Mountains are expressed as east-facing scarps with up to 0.4 m of vertical displacement and from 0.5 to 0.8 m of right-lateral displacement as the result of the 1932 Cedar Mountain earthquake. To the south of these faults is a group of short, subparallel and right-stepping echelon faults on the west side of Cobble Cuesta that ruptured in the 1954 Fairview peak earthquake producing east-facing scarps with up to 50 cm vertical separation and, in one location, 0.8 + 0.2 m of left-lateral displacement (dePolo, 1994 #2458; Caskey

	and others, 1996 #2439). Two right-stepping, left-lateral faults to the northeast are expressed as a large drag fold in Pliocene and Miocene rocks of Cobble Cuesta but apparently did not rupture in the 1954 event (Ekren and Byers, 1984 #2902; #2905).
Age of faulted surficial deposits	upper Pleistocene, middle Pleistocene, lower Pleistocene, Tertiary. Faults have been mapped in Quaternary-Tertiary, Quaternary and late Quaternary piedmont-slope deposits (Dohrenwend, 1982 #2870; Ekren and Byers, 1984 #2902; 1985 #2905) and on Quaternary valley floor deposits (Dohrenwend, 1982 #2481; 1982 #2870).
Historic earthquake	Cedar Mountain earthquake 1932 Fairview Peak earthquake 1954
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Although timing of most recent prehistorical event is not well constrained, a late Quaternary time is suspected based on reconnaissance photogeologic mapping by Dohrenwend (1982 #2870).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate for the faults in this group is inferred from a general knowledge of slip rates estimated for other faults in the region. dePolo (1998 #2845) does not assign a slip rate to these faults.
Date and Compiler(s)	1999 Kenneth Adams, Piedmont Geosciences, Inc. Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#105 Bell, J.W., 1984, Quaternary fault map of Nevada—Reno sheet: Nevada Bureau of Mines and Geology Map 79, 1 sheet, scale 1:250,000. #2439 Caskey, S.J., Wesnousky, S.G., Zhang, P., and Slemmons, D.B., 1996, Surface faulting of the 1954 Fairview Peak (Ms 7.2) and Dixie Valley (Ms 6.8) earthquakes, central Nevada: Bulletin of the Seismological Society of America, v. 86, no. 3, p. 761-787. #2458 dePolo, C.M., 1994, Surface faulting associated with the December 20, 1932 Cedar Mountain earthquake, central Nevada:

Nevada Bureau of Mines and Geology Open-File Report OF-94-4, 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.

#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.

#3487 Greene, R.C., Stewart, J.H., John, D.A., Hardyman, R.F., Silberling, N.J., and Sorensen, M.L., 1991, Geologic map of the Reno 1° by 2° quadrangle, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2154-A, scale 1:250,000.

#1584 Molinari, M.P., 1984, Late Cenozoic geology and tectonics of Stewart and Monte Cristo Valleys, west-central Nevada: Reno, University of Nevada, unpublished M.S. thesis, 124 p., 7 pls., scale 1:62,500.