

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](#).

California Wash fault (Class A) No. 1118

Last Review Date: 1999-04-28

citation for this record: Anderson, R.E., compiler, 1999, Fault number 1118, California Wash fault, 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 02:17 PM.

Synopsis	The California Wash fault is a curved (concave westward) down-to-the-west fault that appears to be the structural boundary between the basin beneath California Wash on the west and the Muddy Mountains on the east. It strikes northeast in its southern part and curves to a north strike in its northern part. Over most of its trace, it is separated from the bedrock exposures of the Muddy Mountains by fine-grained Tertiary basin-fill sedimentary rock on which pediment gravel of Quaternary age rests. Its trace is marked by discontinuous west-facing scarps that are conspicuous on aerial photos and on the ground during low-sun illumination. Scarp profiles indicate a range in scarp height from 2.1 to 9.8 m, which suggests recurrent Quaternary displacement. The most recent displacement event may be Holocene, but recurrence intervals and slip rates are not reported.
Name	Name applied by Bohannon (1983 #4698) to a fault along the

comments	<p>western base of the Muddy Mountains. The fault appears to be the structural boundary between the basin beneath California Wash on the west and the Muddy Mountains on the east. Pearthree and others (1983 #2083) referred to fault as the northern Muddy Mountains fault. On the basis of mapping at 1:250,000 scale by Anderson and O'Connell (1993 #1440), the fault extends south from near Interstate 15 for about 30 km to near Buffington Pockets.</p> <p>Fault ID: Refers to fault number LV20 of dePolo (1998 #2845).</p>
County(s) and State(s)	CLARK COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	<p>Good Compiled at 1:250,000 scale.</p> <p><i>Comments:</i> Most of the fault was shown on a geologic map at scale of 1:62,500 by Bohannon (1983 #4698). Also mapped as part of a study of Quaternary faults by Anderson and O'Connell (1993 #1440) at 1:250,000 scale on the basis of photogeology, aerial overflights, and reconnaissance geologic studies. Also shown in a 1:250,000-scale photogeologic compilation of Quaternary faults by Dohrenwend and others (1991 #288).</p>
Geologic setting	The California Wash fault is a curved (concave westward) down-to-the-west fault that appears to be the structural boundary between the basin beneath California Wash on the west and the Muddy Mountains on the east. It strikes northeast in its south part and curves to a north strike in its north part. Over most of its trace, it is separated from the bedrock exposures of the Muddy Mountains by fine-grained Tertiary basin-fill sedimentary rock on which pediment gravel of Quaternary age rests (Bohannon, 1983 #4698).
Length (km)	32 km.
Average strike	N15°E
Sense of movement	<p>Normal</p> <p><i>Comments:</i> No slip lines are reported, but the curved trace (Bohannon, 1983 #4698), predominance of down-to-the west</p>

	scarps on alluvium (Dohrenwend and others, 1991 #288), and structural setting suggest a normal sense of movement. dePolo (1998 #2845) indicates normal-oblique movement.
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	The trace of the California Wash fault is marked by discontinuous west-facing scarps that are conspicuous on aerial photos and on the ground during low-sun illumination. The area east of the scarps (the footwall block) consists of erosional remnants of a thin (mostly <2 m) veneer of Quaternary gravel resting of fine-grained basin-fill sediment. Scarp profiles reported by Anderson and O'Connell (1993 #1440) from three localities near Nevada State Highway 169 range in height from 2.1 to 9.8 m. Two high scarps are preserved on surfaces that are about 8-10 m above the active washes, whereas the low scarp (2.1 m high) is on a surface that is only about 3 m above active washes. These relations suggest recurrent Quaternary displacement; however, the age of the faulted deposits is not known.
Age of faulted surficial deposits	Quaternary
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) <i>Comments:</i> Bidgoli and others (2003 #7769) indicate the most recent coseismic surface rupture occurred 3.056 ± 0.286 ka, which supports earlier interpretation by Anderson and O'Connell (1993 #1440) of a Holocene time for the last surface faulting event based on the low (approximately 3 m) elevation difference between the active wash and the surface on which the 2.1-m-high youngest scarp is formed.
Recurrence interval	<i>Comments:</i> Scarp-profile data reported by Anderson and O'Connell (1993 #1440) show evidence for multiple Quaternary displacements, but stratigraphic or age data needed to determine

	recurrence are not available.
Slip-rate category	<p>Between 0.2 and 1.0 mm/yr</p> <p><i>Comments:</i> dePolo (1998 #2845) assigned a preferred reconnaissance vertical slip rate of 0.28 mm/yr based on "known" data. Accordingly, the 0.2-1 mm/yr slip-rate category has been assigned to this fault. However, that data is not presented or are they presented more recently by dePolo and Anderson (2000 #4471); the late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) suggest the late Quaternary slip rate during may be of a lesser magnitude.</p>
Date and Compiler(s)	<p>1999</p> <p>R. Ernest Anderson, U.S. Geological Survey, Emeritus</p>
References	<p>#1440 Anderson, L.W., and O'Connell, D.R., 1993, Seismotectonic study of the northern portion of the lower Colorado River, Arizona, California, and Nevada: U.S. Bureau of Reclamation Seismotectonic Report 93-4, 122 p., 3 sheets.</p> <p>#7769 Bidgoli, T.S., Fossett, E., Knudsen, T.R.2, Kubart Dano, R.K., McEwan, D.J., and Taylor, W.J., 2003, Surface rupture, paleoseismology, and seismic hazard assessment of the Holocene California Wash fault, southern Nevada—Implications for risk to greater Las Vegas area: Geological Society of America Abstracts with Programs, v. 35, p. 476.</p> <p>#4698 Bohannon, R.G., 1983, Geologic map, tectonic map and structure sections of the Muddy and Northern Black Mountains, Clark County, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I-1406, scale 1:62,500.</p> <p>#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.</p> <p>#4471 dePolo, C.M., and Anderson, J.G., 2000, Estimating the slip rates of normal faults in the Great Basin, USA: Basin Research, v. 12, p. 227-240.</p> <p>#288 Dohrenwend, J.C., Menges, C.M., Schell, B.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Las Vegas 1° by 2° quadrangle, Nevada, California, and</p>

Arizona: U.S. Geological Survey Miscellaneous Field Studies
Map MF-2182, 1 sheet, scale 1:250,000.

#2083 Pearthree, P.A., Menges, C.M., and Mayer, L., 1983,
Distribution, recurrence, and possible tectonic implications of late
Quaternary faulting in Arizona: Arizona Geological Survey
Open-File Report 83-20, 51 p.

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