

# 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 Fourmile Flat (Class A) No. 1680

Last Review Date: 1999-04-07

*citation for this record:* Sawyer, T.L., compiler, 1999, Fault number 1680, unnamed faults in Fourmile 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 02:25 PM.

<b>Synopsis</b>	This distributed short group of faults include intra basin faults in western parts of Fourmile and Turupah Flats, in western Eightmile Flat, and near southern margin of Lahontan Valley near Fish Cave, and has a cluster of short piedmont faults in Wyemaha Valley; rupture pattern of the 1954 Rainbow Mountain earthquakes suggests that the southern faults in this group may to be related to the Rainbow Mountain fault zone [1679]. Reconnaissance photogeologic mapping of the faults is the source of data. Trench investigations and detailed studies of scarp morphology have not been conducted.
<b>Name comments</b>	Refers to faults mapped by Slemmons (1968, unpublished Reno 1? X 2? sheet), Bell (1984 #105), Greene and others (1991 #3487), and Caskey (1999, written commun.) from Fourmile Flat

	northwest north of the Lahontan Mountains in southern Lahontan Valley.
<b>County(s) and State(s)</b>	CHURCHILL COUNTY, NEVADA
<b>Physiographic province(s)</b>	BASIN AND RANGE
<b>Reliability of location</b>	<p>Good Compiled at 1:100,000 scale.</p> <p><i>Comments:</i> Fault locations are primarily based on 1:250,000-scale map of Bell (1984 #105); mapping is from photogeologic analysis of 1:40,000-scale low sun-angle aerial photography, supplemented with 1:12,000-scale aerial photography of selected areas, several low-altitude aerial reconnaissance flights, and field reconnaissance of major structural and stratigraphic relationships. The eastern fault traces in western Fourmile Flat are based on 1:50,000-scale map of Caskey (1999, written commun.); mapping based on detailed photogeologic analysis of 1:10,000- to 1:12,000-scale vertical, low-sun-angle aerial photography, reducing photo overlays and directly transferring photo-center information to 1:24,000-scale topographic maps, and then reducing maps 1:48,000-scale; mapping also based on detailed field mapping and numerous measurements of fault offset.</p>
<b>Geologic setting</b>	This distributed short group primarily has intra basin faults in western parts of Fourmile and Turupah Flats, in western Eightmile Flat, and near southern margin of Lahontan Valley, and has a cluster of piedmont faults in Wyemaha Valley (Bell, 1984 #105; Caskey, 1999, Slemmons, 1968, unpublished data, Greene and others, 1991 #3487). Rupture pattern of the 1954 Rainbow Mountain earthquakes suggests that the southern faults in this group may to be related to the Rainbow Mountain fault zone [1679].
<b>Length (km)</b>	24 km.
<b>Average strike</b>	N23°E
<b>Sense of movement</b>	<p>Normal</p> <p><i>Comments:</i> Not studied in detail; normal sense of movement from Slemmons (1968, unpublished Reno 1? X 2? sheet) and inferred from topography; evidence of reverse stratigraphic offsets on</p>

	northeast-striking piedmont faults in Wymaha Valley was shown by Bell (1981 #2875, p. 48-49).
<b>Dip Direction</b>	W; E
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	Intrabasin faults are expressed as subparallel to left-stepping scarps on post-pluvial Lake Lahontan (<13 ka) basin-fill deposits (Bell, 1984 #105; Caskey, 1999, written commun.; Slemmons, 1968, unpublished Reno 1? X 2? sheet, Greene and others, 1991 #3487). As much as 15 cm of 1954 vertical offset occurred along paleoscarps on a playa surface in western part of Fourmile Flat (Caskey, 1999, written commun.). In this same area, Tocher (1956 #307) reported 1954 "lurch features" that are no longer visible. Piedmont faults in Wymaha Valley have little or no surficial expression, but are exposed in several test pits as high-angle reverse faults that offset Lake Lahontan deposits (Bell, 1981 #2875).
<b>Age of faulted surficial deposits</b>	Holocene; latest Quaternary; late Quaternary; Quaternary. Latest Quaternary (i.e., post-pluvial Lake Lahontan; <13 ka) and Holocene basin-fill or piedmont-slope deposits are faulted along nearly entire fault zone (Slemmons, 1968, unpublished Reno 1? X 2? sheet; Bell, 1981 #2875; 1984 #105; Caskey, 1999, written commun.; Greene and others, 1991 #3487), except for two short fault in vicinity of Turupah Flat which are mapped as displacing undifferentiated Quaternary deposits (Bell, 1984 #105). Caskey (1999, written commun.) reported highly folded, locally overturned, faulted, and liquefied lacustrine deposits containing a tephra with a probably age of ~21.4 ka in Fourmile Flat.
<b>Historic earthquake</b>	Rainbow Mountain earthquake 1954
<b>Most recent prehistoric deformation</b>	latest Quaternary (<15 ka)  <i>Comments:</i> Although timing of most recent event is not well constrained, a latest Quaternary time (i.e., post-pluvial Lake Lahontan; <13 ka) is suggested based on mapping of Bell (1981 #2875; 1984 #105) and of Dohrenwend and others (1996 #2846).
<b>Recurrence interval</b>	

<b>Slip-rate category</b>	Less than 0.2 mm/yr  <i>Comments:</i> A low slip rate is inferred from general knowledge of slip rates estimated for other faults in the region and low height of topographic lineaments on Tertiary rocks.
<b>Date and Compiler(s)</b>	1999 Thomas L. Sawyer, Piedmont Geosciences, Inc.
<b>References</b>	<p>#2875 Bell, J.W., 1981, Quaternary fault map of the Reno 1° by 2° quadrangle, Nevada-California: U.S. Geological Survey Open-File Report 81-982, 62 p., <a href="http://pubs.er.usgs.gov/publication/ofr81982">http://pubs.er.usgs.gov/publication/ofr81982</a>.</p> <p>#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.</p> <p>#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, <i>in</i> 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.</p> <p>#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.</p> <p>#307 Tocher, D., 1956, Movement on the Rainbow Mountain fault: Bulletin of the Seismological Society of America, v. 46, no. 1, p. 10-14.</p>

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