

# 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](#).

## Gold King fault (Class A) No. 1691

Last Review Date: 1999-03-26

*citation for this record:* Sawyer, T.L., compiler, 1999, Fault number 1691, Gold King 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 02:26 PM.

### Synopsis

This short, continuous fault primarily coincides with a preexisting fault in Tertiary bedrock in Louderback Mountains from west of Crown Peak northward to northwest of Geiger Gap, near north end of range. This fault is suspected to have ruptured during the 1903(?) Wonder, Nevada, earthquake and much of fault clearly ruptured during the 1954 Dixie Valley-Fairview Peak earthquakes; hence, this is one of only a few examples of a fault that has ruptured more than once during the historical period on a worldwide basis. The 1903(?) surface ruptures were marked in 1911 by fissures 0.9 to 1.5 m wide, particularly in alluvium, and open to depths of 1.5 m. The 1954 ruptures are expressed as graben 1.2 m wide bounded by 0.3- to 0.6-m-high scarps that locally exhibited free faces and as gentle furrows. Reconnaissance and detailed photogeologic mapping of the fault and detailed studies of fault offsets are the sources of data. Trench investigations and detailed studies of scarp morphology have not been completed.

<p><b>Name comments</b></p>	<p>Refers to faults mapped by Schrader (1911, as cited by Slemmons, 1959 #157), Schrader (circa 1930, as cited by Slemmons, 1957 #154, p. 356), Slemmons (1957 #154, 1968, unpublished Reno 1? x 2? sheet; 1959 #155), Bell (1984 #105), Greene and others (1991 #3487), Caskey (1996 #2437), and Caskey and others (1996 #2439) within the Louderback Mountains from west of Crown Peak northward to northwest of Geiger Gap, near north end of range. Known as the Gold King fault (Bell, 1981 #2875; 1984 #105; Caskey and others, 1996 #2439); Schrader (1911, as cited by Slemmons, 1959 #157) named it "the 1903 Gold King fault" and "the 1954 Gold King fault" in reference to the Gold King group of mining claims (in Slemmons and others, 1959 #155, p 252, footnote 4) and reasonably in reference to the 1903 Wonder, Nevada, and 1954 Dixie Valley-Fairview Peak, Nevada, earthquakes. The south section inferred by Slemmons (1957 #154) continuing south to near north end of Chalk Mountain, is not included as part of this fault.</p>
<p><b>County(s) and State(s)</b></p>	<p>CHURCHILL COUNTY, NEVADA</p>
<p><b>Physiographic province(s)</b></p>	<p>BASIN AND RANGE</p>
<p><b>Reliability of location</b></p>	<p>Good Compiled at 1:100,000 scale.</p> <p><i>Comments:</i> Fault locations are predominantly based on 1:48,000-scale map of Caskey (1996 #2437) (reproduced in Caskey and others, 1996 #2439). Mapping based on detailed photogeologic analysis of 1:10,000- to 1:12,000-scale vertical, low-sun-angle aerial photography, transferred by inspection to 1:24,000-scale mylar orthophotos and directly to 1:24,000-scale topographic maps, that were then reduced to 1:48,000-scale; mapping also based on detailed field mapping and numerous measurements of fault offsets along the fault. Selected fault traces are based on 1:250,000-scale map of Slemmons and others (1959 #155).</p>
<p><b>Geologic setting</b></p>	<p>This short continuous fault primarily coincides with a preexisting fault in Tertiary bedrock in Louderback Mountains from west of Crown Peak northward to northwest of Geiger Gap, near north end of range. This fault is suspected to have ruptured during the 1903(?) Wonder, Nevada, earthquake and much of fault clearly ruptured during the 1954 Fairview Peak-Dixie Valley</p>

	<p>earthquakes. The 1954 rupture pattern suggests that this fault is related to the West Gate fault [1692], Dixie Valley fault [1687], and Fairview fault [1690] (Caskey, 1996 #2437).</p>
<b>Length (km)</b>	9 km.
<b>Average strike</b>	N12°E
<b>Sense of movement</b>	<p>Right lateral</p> <p><i>Comments:</i> Caskey (1996 #2437) and Caskey and others, (1996 #2439) report numerous measurements of offsets associated with the 1954 Fairview Peak earthquake. From these measurements they determined that right-lateral motion with a normal component predominated and along two sections of the fault the normal component reverses, suggesting primarily strike-slip motion. Lateral offset could not be confidently identified along northern two faults. Slemmons (1957 #154) generally reported normal displacement with little or no lateral movement related to the 1954 earthquake.</p>
<b>Dip</b>	<p>60°NW; 60°W</p> <p><i>Comments:</i> Slemmons and others (1959 #155) reported a 60°NW-dipping fault apparently near Camelback Peak on bedrock. Caskey (1996 #2437) and Caskey and others (1996 #2439) infer an approximately 60°W-dipping fault southwest of Driscoll Peak based on the relation of 1954-fault trace to topography.</p>
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	<p>Bell (1981 #2875), Caskey (1996 #2437) and Caskey and others (1996 #2439) reported that most faults are spectacularly well-defined as west-facing scarps averaging 0.5 to 2.0 km in length on piedmont-slope deposits, that were produced or locally enhanced during the 1954 Fairview Peak earthquake (Ms 7.2). The 1954 ruptures extend the entire length of the fault and in many places produced a distinct left-stepping echelon pattern; westernmost faults from south end of zone to near north end did not rupture in 1954. The 1954 scarps and other geomorphic features exhibit predominantly right-lateral offset with a normal component that, along two fault reaches, reverses along strike, suggests dominantly lateral slip in 1954. In addition, faults are expressed as abrupt contacts between bedrock and piedmont-slope deposits,</p>

	right-laterally offset channels and ridge lines, minor graben, and compound paleoscarps (Bell, 1981 #2875; Caskey, 1996 #2437; Caskey and others, 1996 #2439), and asymmetric scarps indicating right-lateral offset in 1954 (Caskey, 1996 #2437, fig. 8).
<b>Age of faulted surficial deposits</b>	Quaternary. Bell (1984 #105) and Greene and others (1991 #3487) mapped faults that displace undifferentiated Quaternary piedmont-slope deposits.
<b>Historic earthquake</b>	Wonder earthquake 1903 Fairview Peak earthquake 1954 Dixie Valley earthquake 1954
<b>Most recent prehistoric deformation</b>	undifferentiated Quaternary (<1.6 Ma)  <i>Comments:</i> Although timing of most recent paleoevent is not well constrained, a Quaternary time is suggested based on the mapping of Bell (1984 #105) and Greene and others (1991 #3487).
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	Less than 0.2 mm/yr  <i>Comments:</i> Not studied in detail. A low slip rate is inferred from general knowledge of slip rates estimated for other faults in the region.
<b>Date and Compiler(s)</b>	1999 Thomas L. Sawyer, Piedmont Geosciences, Inc.
<b>References</b>	#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> .  #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.  #2437 Caskey, S.J., 1996, Surface faulting, static stress changes, and earthquake triggering during the 1954 Fairview Peak (M (sub s) = 7.2) and Dixie Valley (M (sub s) = 6.8) earthquakes, central Nevada: Reno, University of Nevada, Mackay School of Mines, unpublished Ph.D. dissertation, 144 p.

#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.

#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.

#154 Slemmons, D.B., 1957, Geological effects of the Dixie Valley-Fairview Peak, Nevada, earthquakes of December 16, 1954: Bulletin of the Seismological Society of America, v. 47, no. 4, p. 353-375.

#155 Slemmons, D.B., Steinbrugge, K.V., Tocher, D., Oakeshott, G.B., and Gianella, V.P., 1959, Wonder, Nevada, earthquake of 1903: Bulletin of the Seismological Society of America, v. 49, p. 251-265.

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