

# 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 fault along Grand Hogback monocline (Class B) No. 2292

Last Review Date: 1998-03-04

### Compiled in cooperation with the Colorado Geological Survey

*citation for this record:* Widmann, B.L., compiler, 1998, Fault number 2292, unnamed fault along Grand Hogback monocline, 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 03:02 PM.

<b>Synopsis</b>	This fault is roughly perpendicular to the Grand Hogback monocline southwest of Glenwood Springs. Murray (1969 #2727) suggested that faults in this area are related to the "unfolding" of the monocline as salt migrates or dissolves from beneath the monocline. In as much as the faulting may be aseismic (salt related), we consider this to be Class B structures. Late Pleistocene-Holocene alluvium and colluvium is offset by this fault (Kirkham and others, 1995 #2708).
<b>Name</b>	This is a northeast-trending fault that is at the bend in the Grand

<b>comments</b>	<p>Hogback monocline, southwest of Glenwood Springs and west of the Roaring Fork River. Although faults in this area were previously recognized (e.g., Murray, 1969 #2727; Tweto and others, 1978 #2770; Kirkham and Rogers, 1981 #792), Kirkham and others (1995 #2708) were the first to map this particular fault and to suggest that it cuts Quaternary deposits.</p> <p><b>Fault ID:</b> Fault 61 in Kirkham and Rogers (1981 #792) and fault number Q42 of Widman and others (1998 #3441).</p>
<b>County(s) and State(s)</b>	GARFIELD COUNTY, COLORADO
<b>Physiographic province(s)</b>	SOUTHERN ROCKY MOUNTAINS
<b>Reliability of location</b>	<p>Good Compiled at 1:250,000 scale.</p> <p><i>Comments:</i> This fault was mapped at 1:24,000 scale by Kirkham and others (1995 #2708; 1996 #3465) and Carrol and others (1996 #2644). The fault traces used herein are from Kirkham and others (1995 #2708; 1996 #3465) and Carrol and others (1996 #2644), recompiled at 1:250,000 scale.</p>
<b>Geologic setting</b>	<p>This is a high-angle, down to the northwest normal fault. It is roughly perpendicular to the Grand Hogback monocline. The fault appears to be associated with a number of Neogene bedding-plane faults that cut Miocene basalt (Kirkham and others, 1995 #2708; 1996 #3465, Carroll and others, 1996 #2644), but this is the only fault with evidence of Quaternary movement (Kirkham and others, 1995 #2708). Murray (1969 #2727) suggested that faults in this area are related to the "unfolding" of the monocline as salt migrates or dissolves from beneath the monocline.</p>
<b>Length (km)</b>	2 km.
<b>Average strike</b>	N63°E
<b>Sense of movement</b>	<p>Normal</p> <p><i>Comments:</i> Faults in this area were considered to be normal (Kirkham and others, 1995 #2708).</p>
<b>Dip Direction</b>	NW

<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	Miocene basalt and overlying (younger) gravel deposits are tilted to the east on west-dipping bedding-plane faults.
<b>Age of faulted surficial deposits</b>	Miocene basalt and late Pleistocene to Holocene alluvium and colluvium are offset by this fault (Kirkham and others, 1995 #2708).
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	late Quaternary (<130 ka)  <i>Comments:</i> Kirkham and others (1995 #2708) mapped offset of late Pleistocene to Holocene age deposits. Without better age constraints for these deposits, the most recent paleoevent is herein considered to have occurred during the late Quaternary.
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	Less than 0.2 mm/yr  <i>Comments:</i> Widmann and others (1998 #3441) placed this fault within the <0.2 mm/yr slip-rate category.
<b>Date and Compiler(s)</b>	1998 Beth L. Widmann, Colorado Geological Survey
<b>References</b>	#2644 Carroll, C.J., Kirkham, R.M., and Stelling, P.L., 1996, Geologic map of the Center Mountain quadrangle, Garfield County, Colorado: Colorado Geological Survey Open-File Report 96-2.  #792 Kirkham, R.M., and Rogers, W.P., 1981, Earthquake potential in Colorado: Colorado Geological Survey Bulletin 43, 171 p., 3 pls.  #2708 Kirkham, R.M., Streufert, R.K., and Cappa, J.A., 1995, Geologic map of the Glenwood Springs quadrangle, Garfield County, Colorado: Colorado Geological Survey Open-File Report 95-3.  #3465 Kirkham, R.M., Streufert, R.K., Hemborg, T.H., and Stelling, P.L., 1996, Geologic map of the Cattle Creek

quadrangle, Garfield County, Colorado: Colorado Geological Survey Open-File Report 96-1.

#2727 Murray, F.N., 1969, Flexural slip as indicated by faulted lava flows along the Grand Hogback monocline, Colorado: Journal of Geology, v. 77, no. 3, p. 333-339.

#2770 Tweto, O., Moench, R.H., and Reed, J.C., 1978, Geologic map of the Leadville 1° x 2° quadrangle, northwestern Colorado: U.S. Geological Survey Miscellaneous Geologic Investigations I-999.

#3441 Widmann, B.L., Kirkham, R.M., and Rogers, W.P., 1998, Preliminary Quaternary fault and fold map and database of Colorado: Colorado Geological Survey Open-File Report 98-8, 331 p., 1 pl., scale 1:500,000.

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