

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 syncline northeast of Carbondale (Class B) No. 2333

Last Review Date: 1998-03-05

Compiled in cooperation with the Colorado Geological Survey

citation for this record: Widmann, B.L., compiler, 1998, Fault number 2333, unnamed syncline northeast of Carbondale, 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 03:00 PM.

Synopsis

This unnamed, east-west-trending synclinal sag lies within the Carbondale collapse center east of the Grand Hogback monocline. It is on the north side of the Roaring Fork River near the mouth of Crystal Spring Creek. The sag is interpreted to result from flowage and dissolution of evaporite from beneath the area. The sag has about 9 m of structural relief in late Pleistocene Pinedale (?) outwash deposits (Kirkham, 1997 #2705; Kirkham and Widmann, 1997 #2711). Undivided Pleistocene "older" alluvium and colluvium and Pleistocene colluvium and sheetwash also are deformed by this structure (Kirkham and Widmann, 1997 #2711).

	There have not been any detailed studies conducted on this structure. In as much as the faulting may be aseismic (salt related), we considered this to be Class B structure.
Name comments	Named unnamed synclinal fold northeast of Carbondale by Widmann and others (1998 #3441), herein shorted to "unnamed syncline northeast of Carbondale." This unnamed structure is an east-west-trending synclinal sag north of Colorado Highway 82 and northeast of Carbondale at the mouth of Crystal Spring Creek. The sag lies within the Carbondale collapse center and is related to flowage and dissolution of evaporite from beneath the area (Kirkham and others, 1997 #2710). Fault ID: Fold # Qf4 of Widmann and others (1998 #3441).
County(s) and State(s)	GARFIELD COUNTY, COLORADO
Physiographic province(s)	SOUTHERN ROCKY MOUNTAINS
Reliability of location	Good Compiled at 1:250,000 scale. <i>Comments:</i> This synclinal sag was mapped at a scale of 1:24,000 by Kirkham and Widmann (1997 #2711).
Geologic setting	This unnamed, east-west-trending synclinal sag lies within the Carbondale collapse center, which is reported to have experienced significant Neogene collapse due to flowage and dissolution of evaporite deposits from beneath the area (Kirkham and others, 1997 #2710; Kirkham and Widmann, 1997 #2711). The area is underlain by at least 900 m of evaporite deposits (Mallory, 1966 #2720).
Length (km)	1 km.
Average strike	N°86W
Sense of movement	Syncline <i>Comments:</i> Syncline trends east-west; limbs dip to the south and north.
Dip Direction	N; S

Paleoseismology studies	
Geomorphic expression	This feature is a synclinal sag developed in Pinedale (?) outwash deposits and other Pleistocene deposits; a topographic depression about 9 m deep is present on the terrace along the sag (Kirkham and Widmann, 1997 #2711).
Age of faulted surficial deposits	The older of two late Pleistocene, Pinedale (?) outwash terraces and undivided Pleistocene "older" alluvium and colluvium and Pleistocene colluvium and sheetwash are deformed by this synclinal sag (Kirkham and Widmann, 1997 #2711).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) <i>Comments:</i> Deformation of late Pleistocene Pinedale (?) outwash terrace, Pleistocene alluvium and colluvium, and Pleistocene colluvium and sheetwash suggests late Quaternary, perhaps even post-glacial or Holocene movement on this synclinal sag (Kirkham and Widmann, 1997 #2711).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> Widmann and others (1998 #3441) placed this anticline within the <0.2 mm/yr uplift-rate category.
Date and Compiler(s)	1998 Beth L. Widmann, Colorado Geological Survey
References	#2705 Kirkham, B., 1997, Late Tertiary and Quaternary collapse related to dissolution and flowage of Pennsylvanian evaporitic rocks in the Glenwood Springs area, Colorado, <i>in</i> McCalpin, J.P., ed., Active geologic environment of central Colorado, Aspen-Glenwood Springs-Silt, Colorado: Friends of the Pleistocene, Rocky Mountain Cell, September 12-14, 1997, Field guidebook. #2711 Kirkham, R.M., and Widmann, B.L., 1997, Geologic map of the Carbondale quadrangle, Garfield County, Colorado: Colorado Geological Survey Open-File Report 97-3. #2720 Mallory, W.W., 1966, Cattle Creek anticline, a salt diapir

near Glenwood Springs, Colorado: U.S. Geological Survey
Professional Paper 550-B, 12-15 p.

#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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