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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.

Ellison Gulch scarp (Class B) No. 2304

Last Review Date: 1997-11-17

Compiled in cooperation with the Colorado Geological Survey

citation for this record: **Widmann, B.L., compiler, 1997, Fault number 2304, Ellison Gulch scarp, 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	The Ellison Gulch scarp, which is subparallel to and about 2 to 3 km south of the Cimarron fault [2290], was discovered by Lettis and others (1996 #4453) during a paleoseismic investigation of the Cimarron fault. The scarp is 1- to 2-m-high on a late Pleistocene or Holocene fan that overlies a middle to late Pleistocene fan deposit in southern Bostwick Park. Lettis and others (1996 #4453) interpreted the scarp as either secondary deformation associated with the Bostwick Park [2304a] or Poverty Mesa [2304b] sections of the Cimarron fault or an incipient slope failure. Herein, the Ellison Gulch scarp is considered a suspected Quaternary fault.

Name comments	Ellison Gulch scarp was discovered and named by Lettis and others (1996 #4453). It was described as the Ellison Gulch scarp section of the Cimarron fault (Q40b) by Widman and others (1998 #3441). **Fault ID:** Fault number Q40b of Widman and others (1998 #3441).
County(s) and State(s)	MONTROSE COUNTY, COLORADO
Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* The Ellison Gulch scarp was mapped at 1:250,000 scale by Lettis and others (1996 #4453) and 1:250,000 and 1:500,000 scales by Widmann and others (1998 #3441). The trace used herein is from Lettis and others (1996 #4453).
Geologic setting	The Ellison Gulch scarp is in the southern part of Bostwick Park. It is 2 to 3 km south of the Cimarron fault [2290], a high-angle reverse fault with late Tertiary to possibly Holocene normal movement (Lettis and others, 1996 #4453). The fault may reflect secondary deformation related to the Bostwick Park [2290a] or Poverty Mesa [2290b] sections of the Cimarron fault or may be associated with slope failure at the south end of Bostwick Park (Lettis and others, 1996 #4453).
Length (km)	1 km.
Average strike	N31°W
Sense of movement	Normal *Comments:* Widmann and others (1998 #3441) considered the most recently movement to have been in a normal sense.
Dip Direction	SW; NE
Paleoseismology studies	
Geomorphic expression	The Ellison Gulch scarp is marked by a 1- to 2-m-high scarp on middle Pleistocene to Holocene fan deposits near Ellison Gulch.

	The scarp is subtle where modified by agricultural activities on the Holocene fan surface. A possible spring-fed pond is at the base of the scarp (Lettis and others, 1996 #3441).
Age of faulted surficial deposits	Late Pleistocene to Holocene fan deposits are offset by the fault (Lettis and others, 1996 #3441).
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Lettis and others (1996 #3441) indicated late Pleistocene to Holocene fan deposits are offset by the Ellison Gulch scarp (fault). They tentatively concluded that the scarp was related to slope failure, but also stated it could reflect secondary deformation along the Cimarron fault [2290]. Herein the structure is considered to be Quaternary, but of suspect origin (Class B structure).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Widmann and others (1998 #3441) placed this former section of the Cimarron fault [2290] within the <0.2 mm/yr slip-rate category. Lettis and others (1996#4453) reported a 1- to 2-m-high scarpon late Pleistocene to Holocene deposits.
Date and Compiler(s)	1997 Beth L. Widmann, Colorado Geological Survey
References	#4453 Lettis, W., Noller, J., Wong, I., Ake, J., Vetter, U., and LaForge, R., 1996, Draft report, Seismotectonic evaluation of Colorado River storage project-Crystal, Morrow Point, Blue Mesa dams, Smith Fork project-Crawford dam, west-central Colorado: Technical report to U.S. Bureau of Reclamation, Denver, Colorado, 177 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.