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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.

Faults near Garcia (Class A) No. 2323

Last Review Date: 1998-04-30

Compiled in cooperation with the Colorado Geological Survey

citation for this record: **Kirkham, R.M., compiler, 1998, Fault number 2323, Faults near Garcia, 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 faults near Garcia include three short, north-south-trending faults mapped by Thompson and Machette (1989 #1382) that offset late and middle Pleistocene alluvium near Costilla Creek. These faults are between the Mesita fault [2015] and the San Pedro Mesa section of the Southern Sangre de Cristo fault [2017a].
Name comments	This name was assigned by Widmann and others (1998 #3441) for this compilation. Two north- and northwest-trending faults south of Costilla Creek are downthrown to the west and merge about 2.8 km south of the Costilla Creek. A single, down-to-the-east, north-northeast-trending fault extends northward from near

	Costilla Creek. **Fault ID:** Fault number Q73 of Widman and others (1998 #3441).
County(s) and State(s)	COSTILLA COUNTY, COLORADO
Physiographic province(s)	SOUTHERN ROCKY MOUNTAINS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* The faults near Garcia were mapped by Thompson and Machette (1989 #1382) at a scale of 1:50,000. They were compiled on a 1:250,00- scale topographic base map.
Geologic setting	The faults near Garcia are in the San Luis basin part of the Rio Grande rift. They include three small displacement, short length faults that are between the Mesita fault [2015] and the San Pedro Mesa section [2017a] of the Sangre de Cristo fault.
Length (km)	4 km.
Average strike	N5°W
Sense of movement	Normal *Comments:* Sense of movement is inferred from Thompson and Machette (1989 #1382).
Dip Direction	W; E *Comments:* The two faults south of Costilla Creek probably dip west and the one north of the creek probably dips east, based on mapping by Thompson and Machette (1989 #1382).
Paleoseismology studies	
Geomorphic expression	Subtle scarps on and topographic lineaments in Quaternary deposits were seen on aerial photographs reviewed during compilation of this database. This was the same basis for the original identification of the scarps by Thompson and Machette (1989 #1382).

Age of faulted surficial deposits	Thompson and Machette (1989 #1382) showed two faults south of Costilla Creek that displace late middle Pleistocene alluvium (125 ka to 150 ka) and late Pleistocene alluvium (15 ka to 25 ka), and they ended the faults at the contact with early (?) Holocene floodplain alluvium. The fault north of Costilla Creek offsets late middle Pleistocene alluvium but is buried by upper Pleistocene alluvium (15 to 25 ka) and lower (?) Holocene flood-plain alluvium.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Thompson and Machette (1989 #1382) mapped the faults as having offset late middle and late Pleistocene deposits and as being covered by early (?) Holocene and late Pleistocene deposits.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Widmann and others (1998 #3441) placed this fault in the <0.2 mm/yr slip-rate category.
Date and Compiler(s)	1998 Robert M. Kirkham, Colorado Geological Survey
References	#1382 Thompson, R.A., and Machette, M.N., 1989, Geologic map of the San Luis Hills area, Conejos and Costilla Counties, Colorado: U.S. Geological Survey Miscellaneous Investigations Map I-1906, 1 sheet, scale 1:50,000. #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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