

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](#).

Black Hill fault (Class A) No. 2130

Last Review Date: 2016-02-12

Compiled in cooperation with the New Mexico Bureau of Geology & Mineral Resources

citation for this record: Machette, M.N., and Jochems, A.P., compilers, 2016, Fault number 2130, Black Hill 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 02:21 PM.

Synopsis	The Black Hill fault forms fairly continuous but isolated fault scarps that trend south and southeast in the southern part of the San Marcial Basin, south of the Milligan Gulch fault zone [2107]. The fault forms a southward, left-stepping pattern of singular scarps preserved on high-level surfaces related to filling of the San Marcial Basin. The most recent movement on the faults in the zone is considered to be of early late Pleistocene age (<130 ka) based on studies of fault scarp morphology. However, there have been no studies of the age of Quaternary deposits within and adjacent to the fault.
Name	Mapped and named by Machette (1987 #960), but previously

comments	<p>included with the Milligan Gulch fault zone [2107]. The fault is named for Black Hill, a small bedrock hill just west of Interstate 25, about 4 km north of Nogal Canyon, which trends east from the southern San Mateo Mountains. The fault extends from Bottle Hill on the north to about 1 km south of Nogal Canyon on the south (Black Hill 7.5-minute quadrangle).</p> <p>Fault ID: Included with fault zone 3 in Machette (1987 #960).</p>
County(s) and State(s)	SOCORRO COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	<p>Good Compiled at 1:24,000 and 1:100,000 scale.</p> <p><i>Comments:</i> Trace mostly from unpublished 1:24,000-scale mapping by Machette (1987 #960) combined with accurate placement using photogrammetric methods. Northern part of fault from original trace compiled on a 1:100,000 scale topographic base.</p>
Geologic setting	The Black Hill fault forms intrabasin scarps that are east of the southern San Mateo Mountains. However, at Black Hill the fault probably is only several hundred meters away from bedrock, and as such may represent an ancient basin-margin fault; the margin is now greatly dissected and has retreated to the west.
Length (km)	14 km.
Average strike	N°2E
Sense of movement	Normal
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	The Black Hill fault has fresher-appearing scarps than those of the Milligan Gulch fault zone [2107]. The Black Hill scarps are east facing and have a maximum scarp-slope angle of 6° on a piedmont slope of 1–2° toward the east. The single profile measured by Machette (1987 #960) suggested that the fault scarp is late Quaternary.

Age of faulted surficial deposits	Machette (1987 #960) indicated that the 4.3-m-high scarp that was profiled is on a middle Pleistocene surface, although no indication of the criteria for estimating the age of the faulted deposits is given. This age was estimated on the basis of the degree of dissection and surface morphology of the piedmont-slope deposits, and from glimpses of the soils preserved along the margins of the dissected surfaces.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) <i>Comments:</i> The Black Hill fault probably formed the observed 4.3-m-high scarp in early late Pleistocene time (about 100 ka), rather than more recently (Machette, 1987 #960).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> These fault scarps are less than 5 m high and are formed on a surface that is probably more than 130 ka. This old datum and small amount of maximum offset indicated low long-term slip rate.
Date and Compiler(s)	2016 Michael N. Machette, U.S. Geological Survey, Retired Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources
References	#960 Machette, M.N., 1987, Preliminary assessment of Quaternary faulting near Truth or Consequences, New Mexico: U.S. Geological Survey Open-File Report 87-652, 40 p.

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