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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.

West Eagle Mountains-Red Hills fault (Class A) No. 913

Last Review Date: 1993-11-30

Compiled in cooperation with the Texas Bureau of Economic Geology

citation for this record: **Collins, E., compiler, 1993, Fault number 913, West Eagle Mountains-Red Hills 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 03:14 PM.**

Synopsis	Fault is characterized by three scarps although most of its trace is covered. Reconnaissance studies of scarp morphology and mapping of faulted Quaternary deposits are the sources of data. One trench about 3.7 m deep has been excavated across the northern part of the fault.
Name comments	Named by Collins and Raney (1993 #852) for geographic features along the fault. Fault extends from about 20 km southeast of Sierra Blanca, southeastward to about 7 km due south of Eagle Peak.

County(s) and State(s)	HUDSPETH COUNTY, TEXAS
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Location based on 1:250,000-scale map compiled from aerial photographs and 1:24,000-scale maps of Collins and Raney (1993 #852). Some fault strands were mapped by Underwood (1963 #862).
Geologic setting	Down-to-southwest fault that bounds the west side of the Red Hills and Eagle Mountains (Collins and Raney, 1993 #852; 1994 #853).
Length (km)	24 km.
Average strike	N44°W
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement inferred from topography and offset of deposits in trench. However, trench did not expose any indicators of slip direction along fault planes.
Dip	85–88° SW. *Comments:* Dips based on trench exposure of Pliocene-Pleistocene sediment.
Paleoseismology studies	Site 913-1. One approximately 3.7-m-deep trench was excavated across the northern part of the fault as described by Collins and Raney (1993 #852). In the trench, the fault is expressed as a zone of disrupted sand- and gravel-sized sediment having vertically rotated pebbles and cobbles. On the upthrown fault block, poorly sorted cobble-, pebble-, and boulder-sized clasts of limestone and sandstone are capped by a 1- to 1.2-m-thick K horizon characterized by stage IV+ morphology. As much as 15 cm of pebbly sand and silt overlies the calcrete. On the downthrown fault block, there are three faulted calcic soil horizons formed in material that has a distinct grain-size contrast with the upthrown fault block.

Geomorphic expression	Most of the fault''s surface trace has been eroded or is covered. However, there are three dissected scarps (1, 1.5, and 7 km long) along the fault. These scarps are between 1.4 and 4 m high and have maximum scarp-slope angles of as much as 4° (Collins and Raney, 1993 #852).
Age of faulted surficial deposits	Quaternary and late Tertiary. Youngest faulted deposits are middle-upper Pleistocene (Collins and Raney, 1993 #852).
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* The approximate age of the youngest faulted deposits was estimated from calcic soil development (Collins and Raney, 1993 #852). Middle to upper Pleistocene deposits are displaced vertically about 0.5 m, but the throw on middle Pleistocene deposits is locally as much as 2.7 m.
Recurrence interval	80–160 k.y. (<500 ka) *Comments:* Collins and Raney (1993 #852) estimated that the average recurrence interval for large surface ruptures since middle Pleistocene may be as long as 80–160 k.y. These values are based on (a) their estimate of the number of large-displacement (1- to 2-m) surface ruptures since middle Pleistocene time, (b) the assumption that faulted middle Pleistocene deposits are approximately 250–500 ka, and (c) 2.7 m of measured throw on middle Pleistocene deposits.
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip-rate category assigned based on 2.7 m of vertical displacement of middle Pleistocene (130-500 ka) deposits (Collins and Raney, 1993 #852).
Date and Compiler(s)	1993 E.W. Collins, Bureau of Economic Geology, The University of Texas at Austin
References	#852 Collins, E.W., and Raney, J.A., 1993, Late Cenozoic faults of the region surrounding the Eagle Flat study area, northwestern trans-Pecos Texas: Technical report to Texas Low-Level Radioactive Waste Disposal Authority, under Contract IAC(92-

	93)-0910, 74 p. #853 Collins, E.W., and Raney, J.A., 1994, Impact of late Cenozoic extension on Laramide overthrust belt and Diablo Platform margins, northwestern trans-Pecos Texas, *in* Ahlen, J., Peterson, J., and Bowsher, A.L., eds., Geologic activities in the 90s: New Mexico Bureau of Mines and Mineral Resources Bulletin 150, p. 71-81. #862 Underwood, J.R., Jr., 1963, Geology of Eagle Mountains and vicinity, Hudspeth County, Texas: The University of Texas at Austin, [Texas] Bureau of Economic Geology Geologic quadrangle Map 26, 32 p. pamphlet, 1 sheet, scale 1:48,000.