

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](#).

Eastern Prison Hill fault zone (Class A) No. 1639

Last Review Date: 2002-04-03

Compiled in cooperation with the Nevada Bureau of Mines and Geology

citation for this record: dePolo, C.M., compiler, 2002, Fault number 1639, Eastern Prison Hill fault zone, 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 02:35 PM.

Synopsis

The Eastern Prison Hill fault zone bounds the east side of Prison Hill and the eastern side of a small horst immediately north of Prison Hill, and extends as far as New Empire near Highway 50, a distance of about 9 km. The fault creates an abrupt range front with facets on the east side of Prison Hill with a short basal fault scarp, alluvial fault scarps in probable Sangamon-age alluvial fans, and the aligned, abrupt ends of Pleistocene alluvial deposits juxtaposing them against younger Holocene deposits. Fluvial modification of the fault scarp from the Carson River has occurred along the central part. The fault has normal, dip-slip

	displacement, and offsets probable Sangamon-age materials vertically at least 2.5 m as measured by scarp profiling. The fault has a Holocene, vertical offset that was measured to be at least 60 cm, and is expressed as a sharp scarp in grussy deposits.
Name comments	First called the Eastern Prison Hill fault zone by dePolo (1996 #5869).
County(s) and State(s)	CARSON CITY COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. <i>Comments:</i> Fault traces taken from Bell and Trexler (1979).
Geologic setting	
Length (km)	4 km.
Average strike	N32°W
Sense of movement	Normal <i>Comments:</i> Large-scale geomorphic expression and trench exposures of the fault indicate normal dip-slip movement.
Dip	55° to 60°E <i>Comments:</i> Dip measured in a consultant's trench across the fault.
Paleoseismology studies	
Geomorphic expression	The northernmost part of the fault is expressed as a subtle, alluvial fault scarp and vegetation lineaments. The north-central part appears to be an alluvial fault scarp that bounds the Carson River flood plain, and has been highly eroded by fluvial action. In the south-central part of the fault, at least four fault traces are distributed through some small hills and piedmonts about a kilometer wide; they form small, discontinuous alluvial scarps, the abrupt front of a hill, and a broad saddle between a small hill and Prison Hill. One compound scarp on probable Sangamon-age alluvium (soils include a prominent argillic horizon about 40 cm

	thick) offsets the ground surface 2.5 m vertically. A small, single-event scarp occurs along one of these fault traces in the NE 1/4 of section 22, T.15N., R.20E. The southern third of the Eastern Prison Hill fault bounds Prison Hill, and is evidenced by fault facets, and at least one short fault scarp on loose, grussy alluvium. Fluvial modification may have occurred locally along this part of the fault, which was originally mapped by McKinney (1976 #5871).
Age of faulted surficial deposits	The age of deposits is at least less than 130 ka and possibly Holocene.
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) <i>Comments:</i> On the basis of small, abrupt alluvial scarp in Holocene materials, and Holocene offsets observed in multiple consultants trenches.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> The vertical slip rate is low based on the vertical separation of 2.5 m of the alluvial surface approximately 74-130 ka. This may be a minimum because other, parallel traces may exist along the fault at this location.
Date and Compiler(s)	2002 Craig M. dePolo, Nevada Bureau of Mines and Geology
References	#5869 dePolo, C.M., 1996, Local Quaternary faults and associated potential earthquakes in the Reno-Carson City urban areas, Nevada: Technical report to U.S. Geological Survey, Reston, Virginia, under Contract 1434-95-G-2612, 50 p. #5871 McKinney, R.F., 1976, Environmental geology of southeast Carson City, Nevada: Reno, University of Nevada, unpublished M.S. thesis, 135 p.

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