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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.

Western Tecoma Valley fault (Class A) No. 1592

Last Review Date: 1998-10-01

citation for this record: **Oswald, J.A., and Sawyer, T.L., compilers, 1998, Fault number 1592, Western Tecoma Valley 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 02:36 PM.**

Synopsis	This zone of subparallel, down-to-the-east normal faults includes a continuous zone of piedmont faults in western Tecoma Valley, a discontinuous range-front fault along the east side of the Murdock Mountain range, and two short fault on the bolson of Tecoma Valley. The fault is expressed as scarps or lineaments on early to late Quaternary alluvium and as faults that juxtapose Quaternary alluvium against bedrock. Reconnaissance photogeologic mapping of fault related features is the source of data. Trench investigations and studies of scarp morphology have not been conducted along the fault.
Name comments	Refers to faults mapped by Slemmons (1964, unpublished Wells 1? X 2? sheet) and Dohrenwend and others (1991 #290) and named the Western Tacoma (sic) Valley fault of dePolo (1998 #2845). Fault bounds west side of southern Tecoma Valley and east flank of Murdock Mountain.

	Fault ID: Refers to fault number WE16 of dePolo (1998 #2845).
County(s) and State(s)	ELKO COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location based on 1:250,000-scale geologic map of Coats (1987 #2861); and 1:250,000-scale maps of Slemmons (1964, unpublished Wells 1? X 2? sheet) and Dohrenwend and others (1991 #290). Mapping by Dohrenwend and others (1991 #290) based on photogeologic analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to scale of the photographs. The Quaternary fault map of Slemmons (1964, unpublished Wells 1? X 2? sheet) is from analysis of 1:60,000-scale AMS photography transferred to mylar overlay on a 1:250,000-scale topographic map using proportional dividers.
Geologic setting	This zone of subparallel, down-to-the-east normal faults includes a continuous zone of piedmont faults in western Tecoma Valley, a discontinuous range-front fault along the east side of the Murdock Mountain range, and two short faults on the bolson of Tecoma Valley (Dohrenwend and others, 1991 #290).
Length (km)	31 km.
Average strike	N11°E
Sense of movement	Normal *Comments:* (Dohrenwend and others, 1991 #290)
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	The piedmont faults in western Tecoma Valley are expressed as a continuous zone of scarps and lineaments on Pleistocene alluvium. The range-front fault extends from Hoppie Canyon north to Gamble Canyon along the east side of the Murdock

	Mountain range and juxtaposes Quaternary alluvium against bedrock (Dohrenwend and others, 1991 #290). The zone has two short fault on the bolson of Tecoma Valley, one near Montello and the other southeast of Gamble Spring (Slemmons, 1964, unpublished Wells 1? X 2? sheet; Coats, 1987 #2861).
Age of faulted surficial deposits	Late Pleistocene; early to late Pleistocene. The southern part of the range-front fault displaces alluvium interpreted from photogeologic mapping to be early to late Pleistocene and late Pleistocene in age, and the northern part displaces alluvium interpreted to be Quaternary in age (Dohrenwend and others, 1991 #290). The piedmont fault displaces alluvium interpreted from photogeologic mapping as early to late Pleistocene, and late Pleistocene in age (Dohrenwend and others, 1991 #290). Slemmons (1964, unpublished Wells 1? X 2? sheet) reported that one of these faults near Montello cut latest Quaternary bolson-floor deposits.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Although timing of the most recent event is not well constrained, Dohrenwend and others (1991 #290; 1996 #2846) suggested a late Quaternary time based on reconnaissance photogeologic studies. However, one short fault near Montello was considered by Slemmons (1964, unpublished Wells 1? X 2? sheet) to cut latest Quaternary bolson-floor deposits. The assigned age category is based on the sole published source.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.001 mm/yr for the fault based on the absence of scarps on alluvium and the absence of basal facets. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) support a low slip rate. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and	1998

Compiler(s)	John A. Oswald, Piedmont Geosciences, Inc. Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#2861 Coats, R.R., 1987, Geology of Elko County, Nevada: Nevada Bureau of Mines and Geology Bulletin 101, 112 p., scale 1:250,000. #2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p. #290 Dohrenwend, J.C., McKittrick, M.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Wells 1° by 2° quadrangle, Nevada, Utah, and Idaho: U.S. Geological Survey Miscellaneous Field Studies Map MF-2184, 1 sheet, scale 1:250,000. #2846 Dohrenwend, J.C., Schell, B.A., Menges, C.M., Moring, B.C., and McKittrick, M.A., 1996, Reconnaissance photogeologic map of young (Quaternary and late Tertiary) faults in Nevada, *in* Singer, D.A., ed., Analysis of Nevada's metal-bearing mineral resources: Nevada Bureau of Mines and Geology Open-File Report 96-2, 1 pl., scale 1:1,000,000.

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