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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.

unnamed fault zone east of Reno (Class A) No. 1655

Last Review Date: 1999-03-25

citation for this record: **Adams, K., and Sawyer, T.L., compilers, 1999, Fault number 1655, unnamed fault zone east of Reno, 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	This long north-striking fault zone consists of: (1) predominately range-front normal faults bounding the west side of the Pah Rah and Virginia Ranges from northeastern Truckee Meadows, about 5 km north of Vista, south to State Highway 341; (2) range-front faults bounding both the east and west sides of a small spur of the Pah Rah Range located on the southeast side of Spanish Springs Valley; (3) a short north-striking range-front fault on the west side of the Virginia Range east of Washoe Lake; (4) north to northwest-striking intra basin faults in Spanish Springs Valley, the Truckee Meadows adjacent to the Reno Tahoe International Airport, and the southern Truckee Meadows adjacent to Steamboat Creek; (5) small groups or zones of piedmont faults on the east sides of Spanish Springs Valley and the Truckee Meadows; and (6) north to northwest-striking intermontane faults at the north end of the zone at Sugarloaf Peak, northeast-striking

	intermontane faults in the Huffaker Hills, north-northwest-striking intermontane faults just east of the range-front faults adjacent to southern Truckee Meadows, and north-striking intermontane faults east of Little Washoe Lake. Detailed surficial and bedrock geologic mapping, reconnaissance photogeologic mapping, and regional geologic mapping are the sources of data. Trench investigations and detailed studies of scarp morphology have not been conducted.
Name comments	Refers to faults mapped by Bonham (1969 #2999), Slemmons (1968, unpublished Reno 1? X 2? sheet), Tabor and others (1978 #2626), Bonham and Rogers (1983 #2428), Bell (1984 #105), Bell and Bonham (1987 #3643), Greene and others (1991 #3487), and Bonham and Bell (1993 #2427) located on the west sides of the Pah Rah and Virginia Ranges extending from Spanish Springs Valley south to Washoe Valley. dePolo (1998 #2845) referred to the central part of this zone as the Eastern Reno Basin fault zone. **Fault ID:** Refers in part to fault R12 (Eastern Reno Basin fault zone) of dePolo (1998 #2845).
County(s) and State(s)	STOREY COUNTY, NEVADA WASHOE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE CASCADE-SIERRA MOUNTAINS
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault locations are primarily based on 1:24,000-scale maps of Tabor and others (1978 #2626), Bonham and Rogers (1983 #2428), Bell and Bonham (1987 #3643), and Bonham and Bell (1993 #2427). Additional fault traces are from 1:250,000-scale maps of Bell (1984 #105) and Slemmons (1968, unpublished Reno 1? X 2? sheet); mapping by Bell (1984 #105) is from photogeologic analysis of 1:40,000-scale low sun-angle aerial photography, supplemented with 1:12,000-scale aerial photography of selected areas, several low-altitude aerial reconnaissance flights, and field reconnaissance of major structural and stratigraphic relationships. Mapping by Slemmons (1968, unpublished Reno 1? X 2? sheet) is from analysis of 1:60,000-scale AMS photography transferred to mylar overlaid onto a 1:250,000-scale topographic map using proportional dividers.

Geologic setting	This long north-striking fault zone consists of: (1) predominately north-striking range-front normal faults bounding the west sides of the Pah Rah and Virginia ranges from northeastern Truckee Meadows, about 5 km north of Vista, south to State Highway 341 (Bell and Bonham, 1987 #3643; Bonham and Bell, 1993 #2427); (2) range-fronts bounding both the east and west sides of a small spur of the Pah Rah Range on the southeast side of Spanish Springs Valley (Bell and Bonham, 1987 #3643); (3) a short north-striking range-front fault on the west side of the Virginia Range east of Washoe Lake (Tabor and others, 1978 #2626); (4) north to northwest-striking intra basin faults in Spanish Springs Valley (Bell, 1984 #105), the Truckee Meadows adjacent to the Reno Tahoe International Airport, and the southern Truckee Meadows adjacent to Steamboat Creek (Slemmons, 1968, unpublished Reno 1? X 2? sheet); (5) small groups or zones of piedmont faults on the east sides of Spanish Springs Valley and the Truckee Meadows (Bell, 1984 #105; Bonham and Bell, 1993 #2427); and (6) north to northwest-striking intermontane faults at the north end of the zone at Sugarloaf Peak (Bell, 1984 #105), northeast-striking intermontane faults in the Huffaker Hills (Bonham and Rogers, 1983 #2428; Bonham and Bell, 1993 #2427), north-northwest-striking intermontane faults just east of the range front system adjacent to the southern Truckee Meadows (Bonham and Bell, 1993 #2427), and north-striking intermontane faults east of Little Washoe Lake (Tabor and others, 1978 #2626; Bell, 1984 #105).
Length (km)	51 km.
Average strike	N1°E
Sense of movement	Normal *Comments:* (Tabor and others, 1978 #2626; Bonham and others, 1983 #2428; Bell and Bonham, 1987 #3643; Bonham and Bell, 1993 #2427).
Dip Direction	W; NW; SW
Paleoseismology studies	
Geomorphic expression	The range-front faults are expressed by abrupt range-front escarpments and juxtapose Quaternary alluvium against bedrock (Bell and Bonham, 1987 #3643; Bonham and Bell, 1993 #2427).

	Intrabasin faults are expressed as southwest-facing scarps on Quaternary alluvium (Slemmons, 1968, unpublished Reno 1? X 2? sheet) and piedmont faults are generally expressed as west-facing scarps and lineaments on Quaternary alluvium (Bell, 1984 #105; Bell and Bonham, 1987 #3643; Bonham and Bell, 1993 #2427). The intermontane faults are expressed as prominent topographic lineaments consisting of minor escarpments, aligned saddles, and aligned stream reaches (Bell, 1984 #105; Bonham and Bell, 1993 #2427). dePolo (1998 #2845) reports a maximum preferred basal fault facet height of 98 m (85-110 m).
Age of faulted surficial deposits	Holocene; Pleistocene; Tertiary. Bell and Bonham (1987 #3643) and Bonham and Bell (1993 #2427) mapped faulted Holocene and Pleistocene deposits and Tertiary bedrock in this zone. Bonham and Rogers (1983 #2428) also mapped displaced Tertiary bedrock.
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Although timing of most recent event is not well constrained, a latest Quaternary time is reported by Slemmons (1968, unpublished Reno 1? X 2? sheet) for one of the intra basin faults in the southern Truckee Meadows and is indicated for some of the piedmont faults on the east side of that valley (Bonham and Bell, 1993 #2427). Range-front faults bounding the Virginia Range adjacent to the southern Truckee Meadows are reported to reflect a late Quaternary time (Slemmons, 1968, unpublished Reno 1? X 2? sheet).
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 0.199 mm/yr based on an empirical relationship between his preferred maximum basal facet height and vertical slip rate. The size of the facets (tens to hundreds of meters, as measured from topographic maps) indicates they are the result of many seismic cycles, and thus the derived slip rate reflects a long-term average. The late Quaternary characteristics of this fault (overall

	geomorphic expression, continuity of scarps, age of faulted deposits, etc.) suggest the slip rate during this period is low. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	1999 Kenneth Adams, Piedmont Geosciences, Inc. Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#105 Bell, J.W., 1984, Quaternary fault map of Nevada—Reno sheet: Nevada Bureau of Mines and Geology Map 79, 1 sheet, scale 1:250,000. #3643 Bell, J.W., and Bonham, H.F., 1987, Geologic map of the Vista quadrangle: Nevada Bureau of Mines and Geology Map 4Hg, scale 1:24,000. #2999 Bonham, H.F., 1969, Geology and mineral deposits of Washoe and Storey Counties, Nevada: Nevada Bureau of Mines and Geology Bulletin 70, 140 p., 1 pl., scale 1:250,000. #2427 Bonham, H.F., Jr., and Bell, J.W., 1993, Geologic map, Steamboat quadrangle: Nevada Bureau of Mines and Geology Map 4Fg, scale 1:24,000. #2428 Bonham, H.F., Jr., and Rogers, D.K., 1983, Geology map, Mt. Rose NE quadrangle: Nevada Bureau of Mines and Geology Map 4Bg, scale 1:24,000. #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. #3487 Greene, R.C., Stewart, J.H., John, D.A., Hardyman, R.F., Silberling, N.J., and Sorensen, M.L., 1991, Geologic map of the Reno 1° by 2° quadrangle, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2154-A, scale 1:250,000. #2626 Tabor, R.W., Ellen, S., and Clark, M.M., 1978, Geologic hazards map, Washoe City quadrangle: Nevada Bureau of Mines and Geology Map 5An, scale 1:24,000.

Questions or comments?