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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.

Spanish Springs Peak fault zone (Class A) No. 1660

Last Review Date: 1999-03-26

citation for this record: **Adams, K., and Sawyer, T.L., compilers, 1999, Fault number 1660, Spanish Springs Peak 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 02:26 PM.**

Synopsis	This relatively small group of northeast- to north-striking intermontane faults in southern Pah Rah Range extends from east of Canoe Hill northward through Dry Lakes area and along west flank of Spanish Springs Peak; proximity and strike suggest that faults in northern part of zone may be related to the Southwestern Warm Springs Valley fault [1659]. 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), Bell (1984 #105), Bell and Bonham (1987 #3643), and Greene and others (1991 #3487) in the vicinity of Dry Lakes south of Spanish

	Springs Peak in the Pah Rah Range. dePolo (1998 #2845) referred to these faults as the Spanish Springs Peak fault zone. **Fault ID:** Refers in part to faults R9A and R9B (Spanish Springs Peak fault zone) of dePolo (1998 #2845).
County(s) and State(s)	WASHOE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault locations are primarily based on 1:24,000-scale surficial and bedrock geologic mapping of Bell and Bonham (1987 #3643). Additional faults in the group located from 1:250,000-scale map of Bell (1984 #105); mapping 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.
Geologic setting	This small group of northeast- to north-striking intermontane faults in southern Pah Rah Range extends from east of Canoe Hill northward through Dry Lakes area and along west flank of Spanish Springs Peak (Bell, 1984 #105; Bell and Bonham, 1987 #3643); proximity and strike suggest that faults in northern part of zone may be related to the Southwestern Warm Springs Valley fault [1659].
Length (km)	13 km.
Average strike	N35°E
Sense of movement	Left lateral *Comments:* (Bell and Bonham, 1987 #3643; dePolo, 1998 #2845)
Dip Direction	NW; SE; W
Paleoseismology studies	
Geomorphic	Longer faults are expressed as northwest- and southeast-facing

expression	scarps on Tertiary bedrock that bound closed basins and, in part, juxtapose Pleistocene alluvium against bedrock providing evidence of young movement; one of the closed depressions is more than about 30 m deep. Minor faults within and adjacent to Dry Lakes are expressed as short scarps on Pleistocene alluvium and Tertiary bedrock. Northward, faults are expressed by prominent topographic lineaments (*e.g.*, west flank of Spanish Springs Peak) delineated by minor topographic breaks, and aligned saddles and hillside benches (Bell, 1984 #105; Bell and Bonham, 1987 #3643).
Age of faulted surficial deposits	Pleistocene; Tertiary. Bell and Bonham (1987 #3643) mapped faults that displace Pleistocene alluvium and Tertiary volcanic rocks.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The timing of most recent event is not well constrained, a Quaternary time is indicated by the mapping of Bell and Bonham (1987 #3643) and Dohrenwend and others (1996 #2846).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate is inferred from general knowledge of slip rates estimated for other faults in the region and the low height of scarps on Tertiary rocks.
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. #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. #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. #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.