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Quaternary Fault and Fold Database of the United States

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Sage Valley fault zone (Class A) No. 1629

Last Review Date: 1999-03-09

citation for this record: **Adams, K., and Sawyer, T.L., compilers, 1999, Fault number 1629, Sage Valley 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 02:29 PM.**

Synopsis	This predominately northeast-striking distributed zone is comprised of frontal faults on the northwest flank of the Trinity Range and piedmont and intrabasin faults in the central part of Sage Valley and Seven Trough Range. The range-front faults juxtapose Quaternary and Quaternary-Tertiary alluvium against bedrock and are expressed as minor topographic escarpments and west-facing scarps on Pleistocene alluvium. Intrabasin faults are expressed as distributed southeast- and northwest-facing scarps on Pleistocene and possibly Holocene alluvium. 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 range-front faults from a point about 5 km northwest of Trinity Peak extending northeast to west of Poker Brown Spring in the range and piedmont and intrabasin faults extending from

	near Toll Rock Canyon northeast into the central part of Sage Valley east of Seven Trough Mountain in the Seven Trough Range. dePolo (1998 #2845) referred these faults as the Sage Valley fault swarm; the Sage Valley fault zone is used herein. **Fault ID:** Refers to fault LL19 of dePolo (1998 #2845)
County(s) and State(s)	PERSHING 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 1:250,000-scale map of Dohrenwend and others (1991 #285), which was produced by 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. Additional fault locations are from 1:250,000-scale photogeologic map of Slemmons (1974, unpublished Lovelock 1? X 2? sheet). Fault locations were checked against 1:250,000-scale map of Johnson (1977 #2569).
Geologic setting	This predominately northeast-striking distributed zone is comprised of discontinuous, west-dipping frontal faults on the northwest flank of the Trinity Range and piedmont and intrabasin faults in the central to eastern part of the Sage Valley and Seven Trough Range (Dohrenwend and others, 1991 #285).
Length (km)	29 km.
Average strike	N32°E
Sense of movement	Normal *Comments:* Inferred from topography and as shown by Dohrenwend and others (1991 #285).
Dip Direction	NW; SE
Paleoseismology studies	
Geomorphic	Range-front faults are expressed as minor topographic bedrock

expression	escarpments and west-facing scarps on Pleistocene alluvium. Intrabasin faults are expressed as distributed southeast- and northwest-facing scarps on alluvium (Johnson, 1977 #2569; Dohrenwend and others, 1991 #285). dePolo (1998 #2845) indicates that there are scarps on alluvium but no basal fault facets.
Age of faulted surficial deposits	Dohrenwend and others(1991 #285) reported faulted alluvium ranging in age from possibly Holocene (unit Q3) to late Pleistocene (Q2). Johnson (1977 #2569) mapped Quaternary-Tertiary alluvium in areas where Dohrenwend and others (1991 #285) and Slemmons (1974, unpublished Lovelock 1? X 2? sheet) mapped young faults.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Although timing of most recent event is not well constrained, a late Quaternary time is suggested based on reconnaissance photogeologic mapping of Slemmons (1974, unpublished Lovelock 1? X 2? sheet) and Dohrenwend and others (1991 #285). However, the mapping of Dohrenwend and others (1991 #285) suggests a possible Holocene time for the most recent event at the northern end of the Sage Valley fault zone.
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 0.01 mm/yr for the fault based on the presence of scarps on alluvium and the or 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 Compiler(s)	1999 Kenneth Adams, Piedmont Geosciences, Inc. Thomas L. Sawyer, Piedmont Geosciences, Inc.

References	#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. #285 Dohrenwend, J.C., McKittrick, M.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Lovelock 1° by 2° quadrangle, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2178, 1 sheet, scale 1:250,000. #2569 Johnson, M.G., 1977, Geology and mineral deposits of Pershing County, Nevada: Nevada Bureau of Mines and Geology Bulletin 89, 115 p., scale 1:250,000.