Jump to Navigation

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 in Lemmon Valley (Class A) No. 1642

Last Review Date: 1999-03-29

citation for this record: **Sawyer, J.E., and Sawyer, T.L., compilers, 1999, Fault number 1642, unnamed fault in Lemmon Valley, 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 short distributed zone has range-front faults bounding the east front of Granite Hills and west front of Freds Mountain, and piedmont and intra basin faults in western and northern Lemmon Valley. Range-front faults on east side of the Granite Hills are expressed as scarps on Quaternary piedmont-slope deposits, aligned springs, uplifted alluvial fans, and by juxtaposition of Tertiary sediments and Quaternary deposits against Mesozoic bedrock, although this contact is often concealed. Range-front faults also are expressed by abrupt west front of Freds Mountain, which discontinuously exhibits scarps on Tertiary bedrock. Piedmont and intra basin faults are marked by scarps on Tertiary basin-fill sediment and apparently juxtapose these deposits and Quaternary alluvium. Near Silver Lake these faults are expressed as oversteepened bedrock slopes and distinct scarps on Quaternary deposits, that coincide with springs, vegetation

	lineaments, and locally marked contrast in density of surface boulders; apparently reflecting boulder lag on eroded upper-original surface. Reconnaissance photogeologic mapping of the fault and detailed surficial geologic mapping in the region are the sources of data. Trench investigations and detailed studies of scarp morphology have not been conducted.
Name comments	Refers to faults mapped by Slemmons (1968, unpublished Reno 1? X 2? sheet), Szecsody (1983 #2625), Bell (1984 #105), Nitchman and Ramelli (1991 #2551), and Garside (1993 #3600) east of Granite Hills, in Lemmon Valley and west of Freds Mountain.
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 based on 1:24,000-scale map of Szecody (1983 #2625), Nitchman and Ramelli (1991 #2551), and Garside (1993 #3600).
Geologic setting	This short distributed zone consists of the range-front faults bounding east front of Granite Hills and west front of Freds Mountain, and piedmont and intra basin faults in western and northern Lemmon Valley (Slemmons, 1968, unpublished Reno map; Szecsody, 1983 #2625; Bell, 1984 #105; Nitchman, 1991 #2551; Garside, 1993 #3600).
Length (km)	18 km.
Average strike	N10°E
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement from Szecsody (1983 #2625), Nitchman and Ramelli (1991 #2551), and Greene and others, (1991 #3487) and is inferred from topography.
Dip Direction	W; E

Paleoseismology studies	
Geomorphic expression	Range-front faults on east side of the Granite Hills are expressed as scarps on Quaternary piedmont-slope deposits, aligned springs, uplifted alluvial fans, and by juxtaposition of Tertiary sediments and Quaternary deposits against Mesozoic bedrock, although this contact is often concealed. Range-front faults are also expressed by the abrupt west front of Freds Mountain, which discontinuously exhibits scarps on Tertiary bedrock. Piedmont and intra basin faults are marked by scarps on Tertiary basin-fill sediment and contacts between these deposits and Quaternary alluvium (Slemmons, 1968, unpublished Reno 1? x 2? sheet; Szecsody, 1983 #2625; Bell, 1984 #105; Nitchman, 1991 #2551; Garside, 1993 #3600). Near Silver Lake these faults are expressed as oversteepened bedrock slopes and distinct scarps on Quaternary deposits, that coincide with springs, vegetation lineaments, and locally marked contrast in density of surface boulders (Nitchman and Ramelli, 1991 #2551).
Age of faulted surficial deposits	late Quaternary; Quaternary; Tertiary. Szecsody (1983 #2625), Nitchman and Ramelli (1991 #2551), Garside (1993 #3600), and Bell (1984 #105) mapped faults that displace and (or) juxtapose Quaternary deposits; Szecsody (1983 #2625)juxtaposed alluvium is as young as late Quaternary.
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 suggested based on mapping by Bell (1984 #105), Nitchman and Ramelli (1991 #2551), and Garside (1993 #3600), which is consistent with Dohrenwend and others (1996 #2846). Mapping by Szecsody (1983 #2625) may suggest younger faulting.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Not studied in detail. A low slip rate is inferred from general knowledge of slip rates estimated for other faults in the region.

Date and Compiler(s)	1999 Janet E. Sawyer, 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. #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. #3600 Garside, L.J., 1993, Geologic map of the Bedell Flat quadrangle, Nevada: Nevada Bureau of Mines and Geology, Field Studies Map 3, 1 sheet, scale 1:250,000. #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. #2551 Nitchman, S.P., and Ramelli, A.R., 1991, Freds Mountain fault: Nevada Bureau of Mines and Geology Evaluation Report, 7 p., 2 scarp profiles, scale 1:62,500. #2625 Szecsody, G.C., 1983, Earthquake hazards map, Reno NW quadrangle: Nevada Bureau of Mines and Geology Earthquake Hazards Map 4Di, scale 1:24,000.