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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.

Carson lineament (Class A) No. 1663

Last Review Date: 1999-03-31

citation for this record: **Adams, K., and Sawyer, T.L., compilers, 1999, Fault number 1663, Carson lineament, 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 discontinuous but very long zone of sinistral and normal intrabasin and intermontane faults and lineaments that extend along a prominent northeast-trending structural valley from about 8 km northeast of Carson City northeast to the southwest Carson Sink near the Lahontan Reservoir. This fault zone may be related to the east Carson Valley fault zone [1286], Carson City fault [1653], and Kings Canyon fault [1654], but is described separately because of apparent differences in the timing of the most recent event and lack of continuity. Detailed and regional geologic mapping and reconnaissance photogeologic 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Name comments	Refers to faults mapped by Morrison (1964 #3486), Shawe (1965 #1640), Slemmons (1968, unpublished Reno 1? X 2? sheet), Rogers (1975 #3644), Bingler (1977 #3639), Bell and Trexler

	(1979 #2420), Bell (1981 #2875; 1984 #105; 1984 #107), and Greene and others (1991 #3487) that extend from about 8 km northeast of Carson City northeast to near the junction of U.S. Highway 50 and U.S. Highway Alternate 50 in the southwest Carson Sink. This zone was first recognized by Shawe (1965 #1640) but was apparently named the Carson lineament by Rogers (1975 #3644). **Fault ID:** Refers to fault R19 (Carson lineament) of dePolo (1998 #2845).
County(s) and State(s)	CARSON CITY COUNTY, NEVADA STOREY COUNTY, NEVADA CHURCHILL COUNTY, NEVADA LYON COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Faults primarily located from 1:250,000-scale map of Bell (1984 #105). Mapping is based on 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. Additional faults located from 1:250,000-scale map of Slemmons (1968, unpublished Reno 1? X 2? sheet).
Geologic setting	This discontinuous but long zone of sinistral and normal intrabasin and intermontane faults and lineaments extends along a prominent northeast-trending structural valley from about 8 km northeast of Carson City northeast to the southwest Carson Sink near the Lahontan Reservoir. This fault zone may be related to the east Carson Valley fault zone [1286], Carson City fault [1653], and Kings Canyon fault [1654], but is described separately because of apparent differences in the timing of the most recent event and lack of continuity. Previously mapped lineaments and queried fault traces east of Lahontan Dam are not included in this compilation based on trenching studies by Anderson and others (1984 #418) and personnel communication with J. Bell (3/26/99).
Length (km)	72 km.

Average strike	N41°E
Sense of movement	Left lateral *Comments:* (Shawe, 1965 #1640; Rogers, 1975 #3644; Bell, 1984 #107)
Dip Direction	SE; NW
Paleoseismology studies	
Geomorphic expression	Piedmont and intra basin faults are expressed as discontinuous southeast- and northwest-facing scarps on Quaternary alluvium extending from Carson Plains northeast to near Silver Springs (Slemmons, 1968, unpublished Reno 1? X 2? sheet, Bell, 1984 #105). Intermontane faults in eastern part of the fault zone are expressed as prominent northeast-trending topographic lineaments defined in places by aligned saddles (Slemmons, 1968, unpublished Reno 1? X 2? sheet, Bell, 1984 #105). To the west, faults are expressed as short northeast-facing scarps on Quaternary-Tertiary and Quaternary alluvium west of Dayton (Bingler, 1977 #3639; Bell and Trexler, 1979 #2420), short north-trending scarps on northern piedmont slope of Pine Nut Mountains southeast of Dayton (Bell, 1984 #105), and southeast facing scarps and lineaments that bound southeast side of Flowery Range northeast of Dayton (Slemmons, 1968, unpublished Reno 1? X 2? sheet, Bell, 1984 #105).
Age of faulted surficial deposits	Holocene; Pleistocene; Tertiary. Bingler (1977 #3639) mapped faults displacing Holocene and Pleistocene alluvium, as well as Tertiary bedrock. Morrison (1964 #3486) mapped late Pleistocene faulted lacustrine sediments at east end of the fault and Greene and others (1991 #3487) mapped faulted Quaternary sediments and Tertiary bedrock.
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Although timing of most recent event is not well constrained, Slemmons (1968, unpublished Reno 1? x 2? sheet) reported a latest Quaternary time for the most recent event, which is consistent with Holocene time suggested by mapping of Bell (1984 #105) and reconnaissance photogeologic mapping of

	Dohrenwend and others (1996 #2846).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate is inferred from a general knowledge of other slip rates in the region.
Date and Compiler(s)	1999 Kenneth Adams, Piedmont Geosciences, Inc. Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#418 Anderson, L.W., LaForge, R., and Hawkins, F.F., 1984, Seismotectonic study for Lahontan Dam and vicinity Newlands Project, Nevada: U.S. Bureau of Reclamation Seismotectonic Report 84-1, 54 p., 7 pls. #2875 Bell, J.W., 1981, Quaternary fault map of the Reno 1° by 2° quadrangle, Nevada-California: U.S. Geological Survey Open-File Report 81-982, 62 p., http://pubs.er.usgs.gov/publication/ofr81982. #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. #107 Bell, J.W., 1984, Guidebook for selected Nevada earthquake areas (field trip 18), *in* Lintz, J., Jr., ed., Western geological excursions: Reno, Nevada, University of Nevada, Mackay School of Mines, 1984 Annual Meetings of the Geological Society of America, Guidebook, v. 4, p. 387-472. #2420 Bell, J.W., and Trexler, D.T., 1979, Earthquake hazards map, New Empire quadrangle: Nevada Bureau of Mines and Geology Map 1Bi, scale 1:24,000. #3639 Bingler, E.C., 1977, New Empire geologic map: Nevada Bureau of Mines and Geology Map 59, 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.

	#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. #3486 Morrison, R.B., 1964, Lake Lahontan—Geology of the southern Carson Desert, Nevada: U.S. Geological Survey Professional Paper 401, 156 p. #3644 Rogers, D.K., 1975, The Carson Lineament, its influence on recent left-lateral faulting near Carson City, Nevada: Geological Society of America Abstracts with Programs, v. 7, no. 7, p. 1250. #1640 Shawe, D.R., 1965, Strike-slip control of Basin-Range structure indicated by historical faults in western Nevada: Geological Society of America Bulletin, v. 76, p. 1361-1378.