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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.

Mayfield fault zone (Class A) No. 6

Last Review Date: 1995-10-01

Compiled in cooperation with the California Geological Survey

citation for this record: **Bryant, W.A., compiler, 1995, Fault number 6, Mayfield 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 02:20 PM.**

Synopsis	This fault is poorly understood and no detailed studies have been completed at the time of this compilation. Principal sources of data are the unpublished reconnaissance studies of Woodward-Clyde Consultants (1987 #5105), unpublished Fault Evaluation Report of Wills (1990 #5107), and an informal report by Sawyer and Page (1995 #5106) for the 1995 Friends of the Pleistocene trip.
Name comments	Fault zone originally mapped by Gay and Aune (1958 #4890). Informally named the Pittville North fault by Woodward-Clyde Consultants (1987 #5105). However, Wills (1990 #5107), following the advice of J. Donnelly-Nolan (personnel commun.

	cited in Wills, 1990 #5107), informally named the fault zone the Mayfield fault to avoid the incorrect implication that fault zone connects with the Pittville South fault. Thus, we use the name Mayfield fault in this compilation. **Fault ID:** Refers to number 24 (Mayfield fault) of Jennings (1994 #2878) and NE02 of Working Group on Northern California Earthquake Potential (1996 #1216).
County(s) and State(s)	SISKIYOU COUNTY, CALIFORNIA
Physiographic province(s)	CASCADE-SIERRA MOUNTAINS
Reliability of location	Good Compiled at 1:62,500 scale. *Comments:* Fault location based on digital revisions to Jennings (1994 #2878) based on original mapping by Champion and others (unpublished mapping cited in Wills, 1990 #5107) at 1:48,000 scale, and Wills (1990 #5107) at 1:62,500 scale.
Geologic setting	High-angle, down-to-west, normal fault that locally bounds the western side of the northern Indian Spring Mountains.
Length (km)	32 km.
Average strike	N15°W
Sense of movement	Normal
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	The Mayfield fault is characterized by fresh scarps on Holocene basalt as much as 10 m high, side-hill troughs, closed depressions and vertically offset drainages (Wills, 1990 #5107; Sawyer and Page, 1995 #5106).
Age of faulted surficial deposits	The Giant Crater flow (10,600 14C yr BP, Donnelly-Nolan and others, 1989 #5104) is offset along a 16-km-long section of the fault (Wills, 1991 #475).
Historic	

earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* The most recent paleoevent postdates deposition of the 10,600-year-old Giant Crater flow (Wills, 1990 #5107).
Recurrence interval	*Comments:* Assuming 2-m slip events, the presence of fault scarps as much as 10 m high on the Giant Crater flow (10,600 14C yr BP) suggest a recurrence interval of a few thousand years.
Slip-rate category	Between 1.0 and 5.0 mm/yr *Comments:* Wills (1990 #5107) estimated a Holocene slip rate of 1 mm/yr based on 10 m offset of the 10,600-year-old Giant Crater flow (Donnelly-Nolan and others, 1989 #5104).
Date and Compiler(s)	1995 William A. Bryant, California Geological Survey
References	#5104 Donnelly-Nolan, J.M., Champion, D.E., Miller, C.D., and Trimble, D.A., 1989, Implications of post-11,000-year volcanism at Medicine Lake Volcano, northern California Cascade Range, *in* Muffler, L.J.P., Weaver, C.S., and Blackwell, D.D., eds., Proceedings of workshop XLIV—Geological, geophysical, and tectonic setting of the Cascade Range: U.S. Geological Survey Open-File Report 89-178, p. 556-580. #4890 Gay, T.E., and Aune, Q.A., 1958, Alturas Sheet: California Division of Mines and Geology Geologic Atlas of California, GAM001, scale 1:250,000. #2878 Jennings, C.W., 1994, Fault activity map of California and adjacent areas, with locations of recent volcanic eruptions: California Division of Mines and Geology Geologic Data Map 6, 92 p., 2 pls., scale 1:750,000. #4860 Petersen, M.D., Bryant, W.A., Cramer, C.H., Cao, T., Reichle, M.S., Frankel, A.D., Lienkaemper, J.J., McCrory, P.A., and Schwartz, D.P., 1996, Probabilistic seismic hazard assessment for the State of California: California Department of Conservation, Division of Mines and Geology Open-File Report 96-08 (also U.S. Geological Open-File Report 96-706), 33 p.

	#5106 Sawyer, T., and Page, W.D., 1995, Field trip stops 1-3, 1-4, and 1-4A, *in* Page, W.D., ed., Quaternary Geology along the boundary between Modoc Plateau, southern Cascade Mountains, and northern Sierra Nevada: Friends of the Pleistocene, 1995 Pacific Cell, Field trip guidebook, p. 4-11. #5107 Wills, C.J., 1990, Hat Creek, McArthur and related faults, Shasta, Lassen, Modoc and Siskiyou Counties, California: California Division of Mines and Geology Fault Evaluation Report FER-209, 14 p. #475 Wills, C.J., 1991, Active faults north of Lassen Volcanic National Park, northern California: California Geology, v. 44, p. 51-58. #5105 Woodward-Clyde Consultants, 1987, Pit 1 Forebay Dam (97-110)—Evaluation of seismic geology, seismicity, and earthquake ground motion: Technical report to Pacific Gas and Electric Company, p. 2-7-2-10. #1216 Working Group on Northern California Earthquake Potential (WGNCEP), 1996, Database of potential sources for earthquakes larger than magnitude 6 in northern California: U.S. Geological Survey Open-File Report 96-705, 40 p.