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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.

Southwest Newberry fault zone (Class A) No. 837

Last Review Date: 2002-12-06

citation for this record: **Personius, S.F., compiler, 2002, Fault number 837, Southwest Newberry 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 03:15 PM.**

Synopsis	This northeast-trending fault zone is a group of relatively short, mostly normal fa that form small escarpments and fault scarps on Plio-Pleistocene volcanic rocks a late Quaternary sediments on the southwest flank of Newberry Volcano. Holocen and Pleistocene cinder cones and fissure vent deposits associated with Newberry Volcano are aligned parallel to the trends of these faults. Most of these faults are mapped as having middle and late Quaternary displacement but two faults on the northern margin of the zone appear to have undergone late Quaternary displacem
Name comments	This fault zone was named by Pezzopane (1993 #3544) and Geomatrix Consultar Inc. (1995 #3593) for a group of northeast-trending faults that lie southwest of Newberry Volcano. MacLeod and Sherrod (1992 #3566) included some of these f in their Walker Rim fault zone. **Fault ID:** This group of structures consists of fault number 27 of Pezzopane (199

	#3544) and fault number 49 of Geomatrix Consultants, Inc. (1995 #3593).
County(s) and State(s)	KLAMATH COUNTY, OREGON LAKE COUNTY, OREGON
Physiographic province(s)	COLUMBIA PLATEAU
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location of fault from ORActiveFaults (http://www.oregongeology.org/arcgis/rest/services/Public/ORActiveFaults/MapS downloaded 06/02/2016) attributed to 1:250,000-scale mapping of MacLeod and Sherrod (1992 #3566), and 1:24,000-scale and 1:62,500-scale mapping of MacLe and others (1995 #3557).
Geologic setting	This northeast-trending fault zone is a group of relatively short, mostly normal fa that offset Plio-Pleistocene volcanic rocks and late Quaternary sediments southwe Newberry volcano in central Oregon (Hampton, 1964 #3790; Walker and others, #3564; Walker and MacLeod, 1991 #3646; MacLeod and Sherrod, 1992 #3566; Pezzopane, 1993 #3544; MacLeod and others, 1995 #3557).
Length (km)	36 km.
Average strike	N41°E
Sense of movement	Normal *Comments:* These faults are mapped as normal or high-angle faults by Walker and others (1967 #3564), Walker and MacLeod (1991 #3646), MacLeod and Sherrod #3566), and Pezzopane (1993 #3544).
Dip Direction	NW; SE *Comments:* No detailed dip data are available, but Geomatrix Consultants, Inc. (1 #3593) used an estimated dip of 70° in their analysis of earthquake hazards assoc with faults in the Southwest Newberry fault zone.
Paleoseismology studies	
Geomorphic expression	Individual faults in the Southeast Newberry fault zone form small escarpments ar fault scarps on Pliocene through Holocene (?) volcanic rocks (Hampton, 1964 #3 Pezzopane, 1993 #3544; Geomatrix Consultants Inc., 1995 #3593). Holocene (?) Pleistocene cinder cones and fissure vent deposits associated with Newberry Volc

	are aligned parallel to the trends of these faults (MacLeod and Sherrod, 1988 #37 Weldon and others (2002 #5648) map lineaments across Quaternary deposits base interpretation of 1:100,000-scale DEMs of the area.
Age of faulted surficial deposits	Fault scarps are formed on Holocene (?), middle to late Pleistocene, and Pliocene volcanic rocks on the southwest flank of Newberry Volcano (Hampton, 1964 #37 Walker and others, 1967 #3564; Walker and MacLeod, 1991 #3646; MacLeod an Sherrod, 1992 #3566; Pezzopane, 1993 #3544; MacLeod and others, 1995 #3557
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Most faults in this zone cut poorly dated middle to late Pleistocene volcanic rocks (MacLeod and Sherrod, 1992 #3566; MacLeod and others, 1995 #3557). Pezzopane (1993 #3544) and subsequent compilations (Geomatrix Consu Inc., 1995 #3593; Madin and Mabey, 1996 #3575; Weldon and others, 2002 #564 infer middle and late (<700–780 ka) Quaternary displacement on most faults in th zone. Two faults on the northern margin of the zone appear to have undergone lat Quaternary displacement (Weldon and others, 2002 #5648).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed slip data are available, but Geomatrix Consultants, Inc. (#3593) used estimated slip rates of 0.01–0.1 mm/yr in their analysis of earthquak hazards associated with the Southwest Newberry fault zone.
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey
References	#3593 Geomatrix Consultants, Inc., 1995, Seismic design mapping, State of Oreg Technical report to Oregon Department of Transportation, Salem, Oregon, under Contract 11688, January 1995, unpaginated, 5 pls., scale 1:1,250,000. #3790 Hampton, E.R., 1964, Geologic factors that control the occurrence and availability of ground water in the Fork Rock Basin Lake County, Oregon: U.S. Geological Survey Professional Paper 383-B, 29 p., 2 pls., scale 1:62,500. #3770 MacLeod, N.S., and Sherrod, D.R., 1988, Geologic evidence for a magma chamber beneath Newberry Volcano, Oregon: Journal of Geophysical Research, v no. B9, p. 10,067-10,079.

	#3566 MacLeod, N.S., and Sherrod, D.R., 1992, Reconnaissance geologic map o west half of the Crescent 1° by 2° quadrangle, central Oregon: U.S. Geological S Miscellaneous Investigations Map I-2215, 1 sheet, scale 1:250,000. #3557 MacLeod, N.S., Sherrod, D.R., Chitwood, L.A., and Jensen, R.A., 1995, Geologic map of Newberry Volcano, Deschutes, Klamath, and Lake Counties, Or U.S. Geological Survey Miscellaneous Investigations Map I-2455, 2 sheets, scale 1:24,000 and 1:62,500. #3575 Madin, I.P., and Mabey, M.A., 1996, Earthquake hazard maps for Oregon: of Oregon, Department of Geology and Mineral Industries Geological Map Serie GMS-100, 1 sheet. #3544 Pezzopane, S.K., 1993, Active faults and earthquake ground motions in Or Eugene, Oregon, University of Oregon, unpublished Ph.D. dissertation, 208 p. #3646 Walker, G.W., and MacLeod, N.S., 1991, Geologic map of Oregon: U.S. Geological Survey, Special Geologic Map, 2 sheets, scale 1:500,000. #3564 Walker, G.W., Peterson, N.V., and Greene, R.C., 1967, Reconnaissance ge map of the east half of the Crescent quadrangle Lake, Deschutes, and Crook Cou Oregon: U.S. Geological Survey Miscellaneous Geologic Investigations I-493, 1 scale 1:250,000. #5648 Weldon, R.J., Fletcher, D.K., Weldon, E.M., Scharer, K.M., and McCrory, 2002, An update of Quaternary faults of central and eastern Oregon: U.S. Geolog Survey Open-File Report 02-301 (CD-ROM), 26 sheets, scale 1:100,000.