

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](#).

Faults east of Summer Lake (Class A) No. 832

Last Review Date: 2002-12-06

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Synopsis	These northwest-trending normal faults form a complex of escarpments along the eastern margin of the Chewaucan-Summer Lake basin or graben. Some of the most prominent faults along Coglan Buttes and Diablo Rim form escarpments up to 40 high on Pliocene and Miocene volcanic rocks. No fault scarps on Quaternary deposits have been described along these faults.
Name comments	This group of faults is located east of the Chewaucan-Summer Lake basin or graben. Parts of these faults were originally mapped by Donath (1962 #3771), Walker (1962 #3565), Walker and others (1967 #3564), and Walker and MacLeod (1991 #3646). Some of these faults, the Diablo Mountain and Sand Canyon faults, were named by Doi (1962 #3771). These faults are included in but are not described in Pezzopane (1962 #3544) and subsequent compilations (Geomatrix Consultants Inc., 1995 #3593; N and Mabey, 1996 #3575; Weldon and others, 2002 #5648).
County(s) and State(s)	LAKE COUNTY, OREGON

Physiographic province(s)	BASIN AND RANGE COLUMBIA PLATEAU
Reliability of location	Good Compiled at 1:100,000 scale. <i>Comments:</i> Location of fault from ORActiveFaults (http://www.oregongeology.org/arcgis/rest/services/Public/ORActiveFaults/MapServer downloaded 06/02/2016) attributed to Walker and others (1967 #3564), and 1:48,000 scale mapping of Diggles and others (1990 #3589). The two southernmost faults are from Weldon and others (2002 #5648).
Geologic setting	These northwest-trending normal faults form a complex of escarpments on Pliocene and Miocene volcanic rocks along the eastern margin of the Chewaucan-Summer basin or graben, in the Basin and Range of south central Oregon (Donath, 1962 #3771; Walker, 1963 #3565; Walker and others, 1967 #3564; Diggles and others, 1990 #3589; Walker and MacLeod, 1991 #3646).
Length (km)	62 km.
Average strike	N16°W
Sense of movement	Normal <i>Comments:</i> These faults are mapped as normal or high-angle faults by Donath (1962 #3771), Walker (1963 #3565), Walker and others (1967 #3564), Diggles and others (1990 #3589), Walker and MacLeod (1991 #3646), and Pezzopane (1993 #3544).
Dip Direction	W; E
Paleoseismology studies	
Geomorphic expression	These northwest-trending normal faults form a complex of northeast and southwest facing escarpments on Pliocene and Miocene volcanic rocks (Donath, 1962 #3771; Walker, 1963 #3565; Walker and others, 1967 #3564; Walker and MacLeod, 1991 #3646); escarpments are as much as 400 m high on the more prominent faults along Coglan Buttes and Diablo Rim. No fault scarps on Quaternary deposits have been described along these faults, but Weldon and others (2002 #5648) observed linear features across Quaternary deposits on 1:100,000-scale DEMs of the area.
Age of faulted surficial deposits	These northwest-trending normal faults form a complex of escarpments on Pliocene and Miocene bedrock, but no fault scarps on Quaternary deposits have been described along their traces.
Historic	

earthquake	
Most recent prehistoric deformation	<p>middle and late Quaternary (<750 ka)</p> <p><i>Comments:</i> Pezzopane (1993 #3544) and subsequent compilations (Geomatrix Consultants Inc., 1995 #3593; Madin and Mabey, 1996 #3575; Weldon and others, 2002 #5648) infer Quaternary (<1.6–1.8 Ma) or middle or late Quaternary (<700-ka) displacement on these faults; Madin and others (1996 #3479) map the southernmost fault in this zone as age uncertain.</p>
Recurrence interval	
Slip-rate category	<p>Less than 0.2 mm/yr</p> <p><i>Comments:</i> No published slip data are available for the unnamed faults east of Su Lake. The largest of these faults are marked by 400-m-high escarpments on Plioc and Miocene volcanic rocks; such slip data suggest low rates of long-term slip.</p>
Date and Compiler(s)	<p>2002</p> <p>Stephen F. Personius, U.S. Geological Survey</p>
References	<p>#3589 Diggles, M.F., Conrad, J.E., and Soreghan, G.A., 1990, Geologic map of the Diablo Mountain Wilderness Study Area, Lake County, Oregon: U.S. Geological Survey Miscellaneous Field Studies Map MF-2121, 1 sheet, scale 1:48,000.</p> <p>#3771 Donath, F.A., 1962, Analysis of Basin-Range structure, south-central Oregon: Geological Society of America Bulletin, v. 73, p. 1-16.</p> <p>#3593 Geomatrix Consultants, Inc., 1995, Seismic design mapping, State of Oregon: Technical report to Oregon Department of Transportation, Salem, Oregon, under Contract 11688, January 1995, unpaginated, 5 pls., scale 1:1,250,000.</p> <p>#3575 Madin, I.P., and Mabey, M.A., 1996, Earthquake hazard maps for Oregon: State of Oregon, Department of Geology and Mineral Industries Geological Map Series GMS-100, 1 sheet.</p> <p>#3479 Madin, I.P., Ferns, M.F., Langridge, R., Jellinek, A.M., and Priebe, K., 1995, Final report to Bonneville Power Administration U.S. Department of Energy Portland General Electric Company—Geothermal resources of southeast Oregon: State of Oregon, Department of Geology and Mineral Industries Open-File Report OFR-04, 41 p., 6 pls.</p> <p>#3544 Pezzopane, S.K., 1993, Active faults and earthquake ground motions in Oregon: Eugene, Oregon, University of Oregon, unpublished Ph.D. dissertation, 208 p.</p>

#3565 Walker, G.W., 1963, Reconnaissance geologic map of the eastern half of the Klamath Falls (AMS) quadrangle, Lake and Klamath Counties, Oregon: U.S. Geological Survey Mineral Investigations Field Studies Map MF-260, 1 sheet, scale 1:250,000.

#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 geologic map of the east half of the Crescent quadrangle Lake, Deschutes, and Crook Counties, Oregon: U.S. Geological Survey Miscellaneous Geologic Investigations I-493, 1 sheet, 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. Geological Survey Open-File Report 02-301 (CD-ROM), 26 sheets, scale 1:100,000.

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