

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 faults north of Diamond Lake (Class A) No. 854

Last Review Date: 2002-12-09

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Synopsis	These north-striking faults are located in the central Oregon Cascades, in an area underlain by lower to upper Pleistocene volcanic rocks, glacial deposits, and pumice-fall deposits from the climactic eruption of Mount Mazama. Only two of these faults are shown on published geologic maps of the region. The faults are short, parallel the trend of nearby eruptive centers, and are located in a region of lower to middle Quaternary volcanic rocks. The association with Quaternary volcanic rocks suggests that these features may be related to volcanism, rather than to tectonic processes, but the faults are included herein until additional studies are conducted.
Name comments	These unnamed normal faults are located north of Diamond Lake in central Oregon (Pezzopane, 1993 #3544; Geomatrix

	Consultants Inc., 1995 #3593).
County(s) and State(s)	DOUGLAS COUNTY, OREGON KLAMATH COUNTY, OREGON
Physiographic province(s)	CASCADE-SIERRA MOUNTAINS
Reliability of location	Good Compiled at 1:100,000 scale. <i>Comments:</i> Fault traces are from 1:100,000-scale mapping of Weldon and others (2002 #5648), based on 1:500,000-scale mapping of Pezzopane (1993 #3544) supplemented by 1:125,000-scale mapping of Sherrod (1991 #3568).
Geologic setting	These northeast-and northwest-trending faults are located in the central Oregon Cascades. The area is underlain by lower to upper Pleistocene volcanic rocks, glacial deposits, and pumice-fall deposits from the climactic eruption of Mount Mazama (Sherrod, 1991 #3568; Sherrod and Smith, 2000 #5165). Only two of these faults are shown on published geologic maps of the region (Sherrod, 1991 #3568; Walker and MacLeod, 1991 #3646; Bacon and others, 1997 #3516; Sherrod and Smith, 2000 #5165) or included in older earthquake hazards studies (U.S. Army Corps of Engineers, 1983 #3484; Hawkins and others, 1989 #2947).
Length (km)	45 km.
Average strike	N0°E
Sense of movement	Normal <i>Comments:</i> Some of these faults are mapped as normal or high-angle faults by Pezzopane (1993 #3544), Sherrod (1991 #3568), and Sherrod and Smith (2000 #5165).
Dip Direction	W; E
Paleoseismology studies	
Geomorphic expression	No information on geomorphic expression is available. However, the faults are short, parallel the trend of nearby eruptive centers, and are located in a region of lower to middle Quaternary volcanic rocks. The association with Quaternary volcanic rocks suggests that these features may be related to volcanism, rather

	than to tectonic processes. Weldon and others (2002 #5648) observed lineaments across Quaternary deposits on 1:100,000-scale DEMs of the area.
Age of faulted surficial deposits	These faults are located in the central Oregon Cascades, in an area underlain by lower to upper Pleistocene volcanic rocks, glacial deposits, and pumice-fall deposits from the climactic eruption of Mount Mazama (Sherrod, 1991 #3568; Sherrod and Smith, 2000 #5165). The only two faults shown on a geologic map are restricted to middle Pleistocene basalt flows (Sherrod, 1991 #3568; Sherrod and Smith, 2000 #5165).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) <i>Comments:</i> Existing geologic maps do not show most of these faults, but Pezzopane (1993 #3544) and subsequent compilations (Geomatrix Consultants Inc., 1995 #3593; Madin and Mabey, 1996 #3575; Weldon and others, 2002 #5648) infer middle or late Quaternary (<700-780 ka) displacement. Weldon and others (2002 #5648) inferred late Quaternary (<120 ka) displacement on one fault located near Miller Lake.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> No published slip data are available for the unnamed faults north of Diamond Lake. Their apparent lack of significant geomorphic expression implies low rates of slip.
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey
References	#3516 Bacon, C.R., Mastin, L.G., Scott, K.M., and Nathenson, M., 1997, Volcano and earthquake hazards in the Crater Lake region, Oregon: U.S. Geological Survey Open-File Report 97-487, 30 p., 1 pl., scale 1:100,000. #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.

#2947 Hawkins, F.F., LaForge, R.C., and Gilbert, J.D., 1989, Seismotectonic study for Wickiup and Crane Prairie Dams, Deschutes Project, Oregon: U.S. Bureau of Reclamation Seismotectonic Report 89-2, 38 p., 1 pl.

#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.

#3544 Pezzopane, S.K., 1993, Active faults and earthquake ground motions in Oregon: Eugene, Oregon, University of Oregon, unpublished Ph.D. dissertation, 208 p.

#3568 Sherrod, D.R., 1991, Geologic map of a part of the Cascade Range between latitudes 43°-44°, central Oregon: U.S. Geological Survey Miscellaneous Investigations Map I-1891, 2 sheets, scale 1:125,000.

#5165 Sherrod, D.R., and Smith, J.G., 2000, Geologic map of upper Eocene to Holocene volcanic and related rocks of the Cascade Range, Oregon: U.S. Geological Survey Geologic Investigations Map I-2569, 2 sheets, scale 1:500,000.

#3484 U.S. Army Corps of Engineers, 1983, Cougar and Blue River Lakes earthquake and fault study—Design memorandum 19: U.S. Army Corps of Engineers, Portland District, v. 19, 90 p., 11 pls.

#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.

#5648 Weldon, R.J., Fletcher, D.K., Weldon, E.M., Scharer, K.M., and McCrory, P.A., 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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