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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.

unnamed faults near Sutherlin (Class B) No. 862

Last Review Date: 2002-05-20

citation for this record: **Personius, S.F., compiler, 2002, Fault number 862, unnamed faults near Sutherlin, 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 03:16 PM.**

Synopsis	These short northeast-striking features are located between Sutherlin and Yoncalla in the Oregon Coast Range. The area is underlain by gently folded, northeast-striking Eocene sedimentary rocks deposited in a fore-arc basin. Possible young scarps have been observed in fluvial terraces and lineaments on higher terraces along these features during airphoto reconnaissance, but these scarps may be the result of fluvial erosion rather than faulting, so we classify these features as Class B until further studies are conducted.
Name comments	The features near Sutherlin were mapped by Pezzopane (1993 #3544) and included in the compilation of Geomatrix Consultants, Inc. (1995 #3593). Most geologic maps in the area do not show these structures (Diller, 1898 #4075; Hoover, 1963

	#4069; Niem and Niem, 1990 #4163; Walker and MacLeod, 1991 #3646), although Niem and Niem (1990 #4163) map an unnamed northeast-striking normal fault near the location of the eastern fault mapped by Pezzopane (1993 #3544) near Sutherlin and Wells and others (2000 #5122) map an unnamed thrust fault near the southern end of the northern fault mapped by Pezzopane (1993 #3544). The features mapped by Pezzopane (1993 #3544) are included in the Drain-Sutherlin faults of Geomatrix Consultants, Inc. (1995 #3593). **Fault ID:** These faults are included in fault number 37 of Geomatrix Consultants, Inc. (1995 #3593).
County(s) and State(s)	DOUGLAS COUNTY, OREGON
Physiographic province(s)	PACIFIC BORDER
Reliability of location	Poor Compiled at 1:500,000 scale. *Comments:* Fault traces are from 1:500,000-scale mapping of Pezzopane (1993 #3544).
Geologic setting	These features are mapped by Pezzopane (1993 #3544) in fore-arc basin sedimentary rocks of the Eocene Roseburg and Umpqua Formations (Diller, 1898 #4075; Hoover, 1963 #4069; Niem and Niem, 1990 #4163; Walker and MacLeod, 1991 #3646). Most geologic maps in the area do not show these structures (Diller, 1898 #4075; Hoover, 1963 #4069; Niem and Niem, 1990 #4163; Walker and MacLeod, 1991 #3646), although a down-north, northeast-striking fault is mapped by Niem and Niem (1990 #4163) near the eastern of the two faults mapped by Pezzopane (1993 #3544) near Sutherlin, and Wells and others (2000 #5122) map an unnamed thrust fault near the southern end of the northern fault mapped by Pezzopane (1993 #3544). The features mapped by Pezzopane (1993 #3544) parallel the regional northeast strike of bedrock and fold trends in the area.
Length (km)	28 km.
Average strike	N49°E
Sense of movement	Normal, Thrust

	Comments: These features are mapped as normal or high-angle faults by Pezzopane (1993 #3544); a down-north normal fault is mapped by Niem and Niem (1990 #4163) near the eastern of the two faults mapped by Pezzopane (1993 #3544) near Sutherlin, and Wells and others (2000 #5122) map an unnamed thrust fault near the southern end of the northern fault mapped by Pezzopane (1993 #3544). Geomatrix Consultants, Inc. (1995 #3593) assumed a normal sense of slip in their modeling of the earthquake hazards associated with these features.
Dip Direction	Unknown
Paleoseismology studies	
Geomorphic expression	S.K. Pezzopane (pers. commun., 1993, in Geomatrix Consultants Inc., 1995 #3593) observed scarps and lineaments in fluvial terraces during airphoto reconnaissance, but these scarps may be the result of fluvial erosion rather than faulting. The features mapped by Pezzopane (1993 #3544) follow the northeast trends of stream valleys and linear ridges, which in turn are controlled by the northeast strikes of dipping and folded bedrock (Diller, 1898 #4075; Hoover, 1963 #4069; Niem and Niem, 1990 #4163; Walker and MacLeod, 1991 #3646; Wells and others, 2000 #5122).
Age of faulted surficial deposits	These features were mapped by Pezzopane (1993 #3544) from airphoto reconnaissance; the faults are mapped primarily in Eocene sedimentary rocks (Diller, 1898 #4075; Hoover, 1963 #4069; Niem and Niem, 1990 #4163; Walker and MacLeod, 1991 #3646; Wells and others, 2000 #5122). S.K. Pezzopane (pers. commun., 1993, in Geomatrix Consultants Inc., 1995 #3593) observed possible young (late Quaternary or Holocene) fault scarps in fluvial terraces and lineaments on higher terraces along these features during airphoto reconnaissance, although these scarps may be the result of fluvial erosion rather than faulting.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Pezzopane (1993 #3544) and subsequent compilations (Geomatrix Consultants Inc., 1995 #3593; Madin and Mabey, 1996 #3575) show these features as active in the middle and late Quaternary (<700-780 ka), but we classify these features as Class

	B because evidence of Quaternary deformation is equivocal.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed slip rate data have been published, but if these features are faults, then their short length and lack of significant geomorphic expression suggests low rates of slip.
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey
References	#4075 Diller, J.S., 1898, Description of the Roseburg quadrangle, Oregon: Geological Atlas Folio Report GF-0049, 1 pl., scale 1:125,000. #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. #4069 Hoover, L., 1963, Geology of the Anlauf and Drain quadrangles Douglas and Lane Counties, Oregon: U.S. Geological Survey Bulletin 1122-D, 59 p., 2 pls., scale 1:62,500. #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. #4163 Niem, A.R., and Niem, W.A., 1990, Geology and oil, gas, and coal resources, southern Tyee Basin, southern Coast Range, Oregon: State of Oregon, Department of Geology and Mineral Industries Open-File Report 0-89-3, 44 p., 3 pl. #3544 Pezzopane, S.K., 1993, Active faults and earthquake ground motions in Oregon: 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. #5122 Wells, R.E., Jayko, A.S., Niem, A.R., Black, G., Wiley, T.,

	Baldwin, E., Molenaar, K.M., Wheeler, K.L., DuRoss, C.B., and Givler, R.W., 2000, Geologic map and database of the Roseburg 30 x 60 quadrangle, Douglas and Coos Counties, Oregon: U.S. Geological Survey Open-File Report 00-0376, 69 p., 1 pl., scale 1;100,000.