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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.

Corvallis fault zone (Class B) No. 869

Last Review Date: 2002-05-21

citation for this record: **Personius, S.F., compiler, 2002, Fault number 869, Corvallis 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 03:14 PM.**

Synopsis	The northeast-striking, shallowly northwest-dipping Corvallis fault zone forms th western margin of the southern Willamette Valley in the vicinity of Corvallis. The thrusts Eocene Siletz River Volcanics over siltstone and sandstone of the Eocene Formation The fault may have been reactivated as a steeply dipping left-lateral st slip fault. The fault trace is offset by two northwest-striking strike-slip faults that appear to be tear faults in the thrust sheet; however, these faults may extend eastv into the Willamette Valley and thus may not be not tear faults. No unequivocal evidence of Quaternary deformation has been described, so, herein the fault is classified as Class B until further studies are conducted.
Name comments	The Corvallis fault zone is named after the nearby City of Corvallis; the Corvallis zone was first mapped and named by Vokes and others (1954 #4078), and has bee subsequently mapped or described by Baldwin (1955 #4147), Lawrence and othe (1977 #4027), Bela (1979 #4051), Goldfinger (1991 #3952), Pezzopane (1993 #3 Geomatrix Consultants, Inc. (1995 #3593), and Yeats and others (1996 #4291).

	Fault ID: This fault zone is fault number 20 of Pezzopane (1993 #3544) and faul number 34 of Geomatrix Consultants, Inc. (1995 #3593).
County(s) and State(s)	BENTON COUNTY, OREGON
Physiographic province(s)	PACIFIC BORDER
Reliability of location	Good Compiled at 1:8,000 scale. *Comments:* Location of fault from ORActiveFaults (http://www.oregongeology.org/arcgis/rest/services/Public/ORActiveFaults/MapS downloaded 06/02/2016) attributed to 1:100,000-scale mapping of McClaughry a others (2010 #7784).
Geologic setting	The Corvallis fault zone forms the western margin of the southern Willamette Val the vicinity of Corvallis. This shallowly northwest-dipping fault thrusts Eocene S River Volcanics over siltstone and sandstone of the Eocene Tyee Formation (Voke others, 1954 #4078; Bela, 1979 #4051; Walker and Duncan, 1989 #3581; Goldfin 1991 #3952; Yeats and others, 1996 #4291). The fault trace is offset by two north striking strike-slip faults (Goldfinger, 1991 #3952; Yeats and others, 1996 #4291) appear to be tear faults in the thrust sheet; however, these faults may extend eastv into the Willamette Valley and thus may not be not tear faults (Goldfinger, 1991 #3952). The Corvallis fault zone may have been reactivated as a steeply dipping l lateral strike-slip fault (Goldfinger, 1991 #3952).
Length (km)	40 km.
Average strike	N3°E
Sense of movement	Thrust, Left lateral *Comments:* The Corvallis fault zone was previously mapped as a high-angle reve fault (Vokes and others, 1954 #4078; Bela, 1979 #4051), but recent gravity data indicate a shallow (10–15°) northwest dip (Yeats, 1990 #4018; Goldfinger, 1991 #3952; Yeats and others, 1996 #4291). The fault zone may have been reactivated steeply dipping left-lateral strike-slip fault (Goldfinger, 1991 #3952). The two northwest-striking possible tear faults have left- and right-lateral strike-slip displacements.
Dip Direction	NW *Comments:* The thrust dip estimate (10–15°) is based on gravity data (Yeats, 199(#4018; Goldfinger, 1991 #3952; Yeats and others, 1996 #4291); the 60–90° NW.

	interpreted for strike-slip motion from a fault exposure described by Goldfinger (#3952).
Paleoseismology studies	
Geomorphic expression	The Corvallis fault zone parallels the western margin of the Willamette Valley in vicinity of Corvallis; the valley margin in this location is marked by a gentle, emb 300-m-high escarpment in Eocene bedrock. Small (<1 m high), short scarps and lineations have been described along parts of the Corvallis fault zone and along th northwest-striking faults that offset the Corvallis fault trace, but the origin of thes features is equivocal (Goldfinger, 1991 #3952; Yeats and others, 1996 #4291).
Age of faulted surficial deposits	The Corvallis fault zone offsets Oligocene bedrock, but no unequivocal examples offset Quaternary deposits have been described (Yeats and others, 1996 #4291). E and Parsons (1968 #3989; 1969 #4003) describe evidence of uplift of their Irish E Member of the Willamette Formation, thought to be latest Pleistocene in age, but McDowell (1991 #4004) described nontectonic processes that were more likely responsible for the stratigraphic and geomorphic relations described by Balster an Parsons (1968 #3989; 1969 #4003). Goldfinger (1991 #3952) and Yeats and other (1996 #4291) describe stratigraphic relationships between the Willamette Format and underlying middle to late Pleistocene Rowland Formation as equivocal evide Quaternary offset across the Corvallis fault zone.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Pezzopane (1993 #3544) mapped this fault as Quaternary (<1.6 Ma), later compilations (Geomatrix Consultants Inc., 1995 #3593, Madin, 1996 #3575) inferred fault movement in the middle and late Quaternary (<780 ka). Given the l documented geomorphic expression in Quaternary deposits (Goldfinger, 1991 #3 herein the fault is classified as Class B until further studies are conducted.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Goldfinger (1991 #3952) and Yeats and others (1996 #4291) estimate 13 km of horizontal shortening in Eocene bedrock, but the lack of significant geomorphic expression along these faults suggest low rates of slip. Geomatrix Consultants, Inc. (1995 #3593) and Wong and others (1999 #4073; 2000 #5137) assigned slip rates of 0.005–0.05 mm/yr in their probabilistic seismic hazard anal

Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey
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