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Quaternary Fault and Fold Database of the United States

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Eastern Jackson Mountains fault zone (Class A) No. 1498

Last Review Date: 1998-07-19

citation for this record: **Sawyer, T.L., compiler, 1998, Fault number 1498, Eastern Jackson Mountains 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 02:36 PM.**

Synopsis	This nearly continuous zone is comprised of a range-bounding normal fault along the eastern front of the Trout Creek spur of the Jackson Mountains and a series of subparallel piedmont faults that extend from Buckbrush Spring south to east of Burro Bills Spring. The range-bounding fault extends from Willow Creek north to Niebuhr Mine, where it continues as an intermontane fault to north of Bluff Peak. The Jackson Mountains are an eastward-tilted fault block. Reconnaissance photogeologic and bedrock mapping of the fault are the sources of data. Trench investigations and detailed studies of scarp morphology have not been conducted.
Name comments	Refers to faults mapped by Dohrenwend and Moring (1991 #281) and Willden (1964 #3002) along and near the east front of the

	Trout Creek Spur of the Jackson Mountains from north of Bluff Peak south to Willow Creek. Referred to as the Eastern Jackson Mountains fault zone by dePolo (1998 #2845). **Fault ID:** Refers to fault V16 of dePolo (1998 #2845).
County(s) and State(s)	HUMBOLDT COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault locations based on 1:250,000-scale map of Dohrenwend and Moring (1991 #281); mapping is from analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to scale of the photographs. The intermontane fault near Bluff Peak is based on 1:250,000-scale bedrock map of Willden (1964 #3002).
Geologic setting	This nearly continuous zone has a range-bounding normal fault along east front of Jackson Mountains that extends from Willow Creek north to Niebuhr Mine where it continues as an intermontane fault to north of Bluff Peak (Dohrenwend and Moring, 1991 #281). The Jackson Mountains are an eastward-tilted and uplifted fault block (Stewart, 1978 #2866). Tertiary rhyolite has been offset 300 m along the intermontane fault (Willden, 1964 #3002). The fault zone also includes a series of subparallel piedmont faults that extend from Buckbrush Spring south to east of Burro Bills Spring (Dohrenwend and Moring, 1991 #281).
Length (km)	19 km.
Average strike	N4°E
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement is inferred from topography and from one location as indicated by Dohrenwend and Moring (1991 #281).
Dip Direction	E

Paleoseismology studies	
Geomorphic expression	The range-bounding fault is expressed as an abrupt front along which upper piedmont-slope deposits (Quaternary) are juxtaposed against bedrock (Dohrenwend and Moring, 1991 #281). This fault extends northward into the northeastern Jackson Mountains where it is expressed by a less prominent topographic escarpment and ridge-crest saddles; its continuity with the range-bounding fault suggests young movement on the intermontane fault. The piedmont faults appear to cut Tertiary rhyolite and to juxtapose this rock against older piedmont slope deposits (Willden, 1964 #3002; Dohrenwend and Moring, 1991 #281). dePolo (1998 #2845) reports a maximum preferred basal fault facet height of 73 m (61-98 m).
Age of faulted surficial deposits	Late Pleistocene and (or) Holocene, Quaternary. The piedmont faults may offset late Pleistocene and (or) Holocene and older Quaternary piedmont-slope deposits. The range-front offsets upper piedmont slope deposits and this fault and the intermontane faults cut Tertiary rhyolite (Willden, 1964 #3002; Dohrenwend and Moring, 1991 #281).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* The timing of most recent event is not well constrained. Dohrenwend and Moring (1991 #281) suggest that the youngest faulted deposits may be Holocene or late Pleistocene (<30 ka) indicating that faulting may be older than our youngest age category, thus the next older category has been selected.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) estimated a reconnaissance vertical slip rate of 0.171 mm/yr for the fault based on an empirical relationship between his preferred maximum basal facet height and vertical slip rate. The size of the facets (tens to hundreds of meters, as measured from topographic maps) indicates they are the result of many seismic cycles, and thus the derived slip rate

	reflects a long-term average. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) support a low slip rate. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	1998 Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p. #281 Dohrenwend, J.C., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Vya 1° by 2° quadrangle, Nevada, Oregon, and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2174, 1 sheet, scale 1:250,000. #2866 Stewart, J.H., 1978, Basin-range structure in western North America—A review, *in* Smith, R.B., and Eaton, G.P., eds., Cenozoic tectonics and regional geophysics of the western cordillera: Geological Society of America Memoir 152, p. 1-31, scale 1:2,500,000. #3002 Willden, R., 1964, Geology and mineral deposits of Humboldt County, Nevada: Nevada Bureau of Mines and Geology Bulletin 59, 154 p., scale 1:250,000.

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