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Quaternary Fault and Fold Database of the United States

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Ravenswood fault zone (Class A) No. 1175

Last Review Date: 2000-08-25

citation for this record: **Lidke, D.J., compiler, 2000, Fault number 1175, Ravenswood 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 02:16 PM.**

Synopsis	This relatively continuous, northeast-striking, fault zone follows the eastern flank of the northern Shoshone Mountains where it is expressed by range-front faults that locally form scarps, and by scarps that are developed on Pleistocene piedmont-slope and piedmont deposits of the Reese River Valley. The scarps on Pleistocene deposits are most prominent in (and mostly confined to) the central part of the fault zone. There is evidence along this fault zone for at least one faulting event that is no older than late Pleistocene age (<130 ka), and this event or a younger one may be as young as Holocene in age. The fault zone has not been studied in detail. The principle sources of data consist of geologic mapping, reconnaissance photogeologic mapping, reconnaissance geomorphic studies of fault scarps, and morphologic scarp-dating studies.
Name	Refers to faults mapped by Stewart and McKee (1969 #4353;

comments	1977 #4351) and Dohrenwend and others (1992 #283) along the eastern flank of the northern part of the Shoshone Mountains and along the adjacent piedmont slope of the Reese River Valley. Pearthree (1990 #148) referred to this zone as the Vigus Butte fault zone. dePolo (1998 #2845) showed and referred to these structures as the Ravenswood fault zone. The Ravenswood fault zone extends southwest along the eastern flank of the Shoshone Mountains and along the western side of the Reese River Valley from the Shoshone Mountains and Carico Lake Valley at State Route 305 to about 5 km west of Vigus Butte. **Fault ID:** Refers to faults dePolo (1998 #2845) portrayed and labeled MI8.
County(s) and State(s)	LANDER COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Location is from 1:250,000-scale map of Dohrenwend and others (1992 #283), which shows mapping based on photogeologic analysis of 1:58,000-nominal-scale, color-infrared photography transferred directly to 1:100,000-scale topographic maps enlarged to the scale of the photographs; these maps were then reduced and compiled at 1:250,000-scale.
Geologic setting	This zone of northeast-striking faults consists mainly of frontal faults controlling the position of the Shoshone Range and adjacent Reese River Valley (Stewart and McKee, 1969 #4353; 1977 #4351; Dohrenwend and others, 1992 #283). Down-to-the-east, range-front faults and scarps that are mainly east-facing suggest mainly down-to-the-east fault offsets that probably reflect continued Quaternary uplift of the Shoshone Mountains relative to the adjacent Reese River Valley. Although there appears to be abundant evidence for late Quaternary movement along the fault zone (Pearthree, 1990 #148; Dohrenwend and others, 1992 #283), estimates of offsets along individual faults or along the entire zone, have not been reported.
Length (km)	39 km.
Average strike	N23°E

Sense of movement	Normal *Comments:* Not specifically reported; normal sense of slip is inferred from the presence of these faults within the Basin and Range Province that is primarily an extensional tectonic province characterized by normal faults.
Dip Direction	SE *Comments:* Not reported, but probably steep, based on dip measurements of other Quaternary faults in localities nearby and elsewhere in the Basin and Range Province.
Paleoseismology studies	
Geomorphic expression	Much of this fault zone is expressed by a relatively continuous range-front fault that follows the eastern flank of the northern part of the Shoshone Mountains; the central part of the fault zone, however, is also expressed by numerous scarps on piedmont and piedmont-slope deposits of the Reese River Valley (Stewart and McKee, 1969 #4353; 1977 #4351; Dohrenwend and others, 1992 #283). Most of the scarps are east-facing features, but some west-facing scarps are also present (Stewart and McKee, 1969 #4353; 1977 #4351; Dohrenwend and others, 1992 #283). These west-facing scarps may represent antithetic faults related to small grabens along the fault zone. dePolo (1998 #2845) reported that basal fault facets are absent along the range front adjacent to this fault zone, and he relates the absence of basal fault facets to relatively low rates of slip during the Quaternary. Pearthree (1990 #148) measured scarp profiles at eleven localities along the fault zone and he reported a final mean age of 12.64 ka (8.82-16.45 ka) for the scarps based on quantitative, morphologic scarp-dating techniques.
Age of faulted surficial deposits	Dohrenwend and others (1992 #283) assigned an early and middle, and (or) late Pleistocene age to some of the faulted surficial deposits, late Pleistocene age to others, and, with indicated uncertainty, a latest Pleistocene to Holocene age to faulted deposits at one locality.
Historic earthquake	
Most recent	late Quaternary (<130 ka)

prehistoric deformation	*Comments:* In general, age assignments by Dohrenwend and others (1992 #283) suggest late Pleistocene, but do not preclude a younger time for faulting. Pearthree (1990 #148) suggests a final mean age of 12.64 ka (8.82-16.45 ka) for the scarps based on quantitative, morphologic scarp-dating techniques. Age category assignment is due to the uncertainties involved in morphometric dating and the overlap of our upper boundary for the youngest age category.
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) assigned a reconnaissance vertical slip rate of 0.038 mm/yr for the fault based on the presence or absence of scarps on alluvium and basal facets. 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)	2000 David J. Lidke, U.S. Geological Survey
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. #283 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1992, Reconnaissance photogeologic map of young faults in the Millett 1° by 2° quadrangle, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2176, 1 sheet, scale 1:250,000. #148 Pearthree, P.A., 1990, Geomorphic analysis of young faulting and fault behavior in central Nevada: Tucson, University of Arizona, unpublished Ph.D. dissertation, 212 p. #4353 Stewart, J.H., and McKee, E.H., 1969, Geologic map of the west-central part of Lander County, Nevada: U.S. Geological Survey Open-File Report 69-270, 2 sheets, scale 1:62,500.

	#4351 Stewart, J.H., and McKee, E.H., 1977, Geology and mineral deposits of Lander County, Nevada: Nevada Bureau of Mines and Geology Bulletin 88, 106 p., 3 pls.