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Quaternary Fault and Fold Database of the United States

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Northern Huntington Valley fault zone (Class A) No. 1714

Last Review Date: 2000-06-28

citation for this record: **Rowley, P.C., and Anderson, R.E., compilers, 2000, Fault number 1714, Northern Huntington Valley 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 02:26 PM.**

Synopsis	This fault zone is comprised of a 37-km-long series of aligned, north-northeast-striking, piedmont scarps. The down-to-the-west normal fault may be considered as the southern extension, into Huntington Valley, of the range-front fault on the western side of the Ruby Mountains. Quaternary sediment is offset as much as 11 m, the scarps are discontinuous and have well-rounded crests and are eroded and highly dissected by transverse streams that flow away from the scarp. Scarp-profile data and an inferred age of offset sediment both suggest that the latest faulting was most likely in late Pleistocene time (<130 ka).
Name comments	Named by Barnhard (1985 #428) for a series of north-northeast-striking aligned and parallel scarps that total about 16 km in length on the piedmont slopes of the eastern part of northern

	Huntington Valley. Included herein are sparse, scattered lineaments and faults mapped by Dohrenwend and others (1991 #286) to the north of the main zone. Addition of these features more than doubles the length of the zone from that shown by Barnhard (1985 #428). As such, the zone extends from Rattlesnake Creek southward as widely separated discontinuous traces at and near the range front; south of Toyn Creek, the zone extends into the basin beneath eastern Huntington Valley as far south as Homestead Spring. Along with fault zones to the north that define the western margin of the Ruby Mountains [1573], the Northern Huntington Valley fault zone may be considered to be within the Ruby Mountains fault system of dePolo (1998 #2845). **Fault ID:** Referred to as fault EK5D (Ruby Mountains fault system) by dePolo (1998 #2845).
County(s) and State(s)	ELKO COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location of the southern part of the fault from Barnhard (1985 #428) who compiled traces at 1:250,000 scale from field mapping on aerial photos at scale of approximately 1:60,000. Northern part from Dohrenwend and others (1991 #286) who compiled at 1:250,000 scale from analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to the scale of the photographs.
Geologic setting	As mapped by Barnhard (1985 #428) and Dohrenwend and others (1991 #286), the southern part of the fault zone is comprised of piedmont faults in eastern Huntington Valley whereas the northern part approaches the base of the Ruby Mountains where it may, in part, be a range-front fault. Most faults in the zone are down-to-the-west, so the zone appears to be the southern extension of the range-front fault that defines the Ruby Mountains [1573] into the basin beneath Huntington Valley. The zone is parallel to this part of the western front of the Ruby Mountains. dePolo (1998 #2845) provided a general description of the Ruby Mountains fault system.

Length (km)	38 km.
Average strike	N21°E
Sense of movement	Normal
Dip Direction	W *Comments:* Cross section G-G' of Sharp (1939 #2864) shows the main fault plane as a high-angle normal fault that dips west.
Paleoseismology studies	
Geomorphic expression	Quaternary sediment is offset as much as 10.8 m, and the "scarps are discontinuous and have well-rounded crests" (Barnhard, 1985 #428). Barnhard (1985 #428) also noted that the scarps are "eroded and highly dissected by transverse streams that flow away from the scarp." No evidence was found of inflections in the scarps that might suggest recurrent (or younger) movement (Barnhard, 1985 #428). Dohrenwend and others (1991 #286) classified the fault zone as having both block-bounding faults separating bedrock from Quaternary sediment and as faults displacing Quaternary sediment and/or surfaces.
Age of faulted surficial deposits	Quaternary basin-fill sediments are downfaulted to the west along the length of the fault zone, but sediments in streams that transverse the scarps are not offset (Barnhard, 1985 #428). Dohrenwend and others (1991 #286) considered the faulted sediments to be as young as late Pleistocene.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Scarp profile data suggest that the latest faulting "happened much earlier than formation of the Lake Bonneville shoreline scarp," most likely in late Pleistocene time (Barnhard, 1985 #428). Dohrenwend and others (1991 #286) agreed with this time designation.
Recurrence interval	
Slip-rate	Less than 0.2 mm/yr

category	*Comments:* dePolo (1998 #2845) considered the Northern Huntington Valley fault zone [1714] to be part of the Ruby Mountains fault system. dePolo (1998 #2845) calculated a preferred vertical slip rate of 0.28 mm/yr for his Ruby Mountains fault system, which includes this fault, on the basis of surface offset across a moraine crest at Seitz Canyon that is considered to of late Pleistocene age by Willoughby (1998 #2658). The single site is along the central of his five faults making up that fault system (EK5C) and where the trace marks a major range front. The Northern Huntington Valley fault zone is roughly equivalent to dePolo's fault EK5D and is mostly a piedmont fault lacking range-front definition. Based on the reconnaissance photogeologic investigation of Dohrenwend and others (1991 #286), the three southern faults of dePolo's system have contrasting late Quaternary displacement histories. Because of potential lateral differences in fault histories, the contrast in general geomorphic expression, and the fact that the Ruby Mountains fault system as defined by dePolo (1998 #2845) consists of five separate discontinuous and echelon faults, the 0.28 mm/yr slip rate is assumed to not apply to the Northern Huntington Valley fault zone as compiled herein. In contrast, the late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) suggest the slip rate during this period is of a lesser magnitude. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	2000 Peter C. Rowley, U.S. Geological Survey, Retired R. Ernest Anderson, U.S. Geological Survey, Emeritus
References	#428 Barnhard, T.P., 1985, Map of fault scarps formed in unconsolidated sediments, Elko 1° x 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1791, 1 sheet, scale 1:250,000. #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. #286 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Elko 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey

	Miscellaneous Field Studies Map MF-2179, 1 sheet, scale 1:250,000. #2864 Sharp, R.P., 1939, Basin and Range structure of the Ruby-East Humboldt Range, northeastern Nevada: Geological Society of America Bulletin, v. 50, p. 881-920. #2658 Willoughby, C.H., 1998, Character, timing and rate late Quaternary normal faulting on the northwestern side of the Ruby Mountains/East Humboldt Range, northeastern Nevada: Reno, University of Nevada, unpublished M.S. thesis, 52 p.