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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.

Wahmonie fault (Class A) No. 1068

Last Review Date: 1998-04-10

citation for this record: **Anderson, R.E., compiler, 1998, Fault number 1068, Wahmonie fault, 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 02:18 PM.**

Synopsis	The Wahmonie fault is a northeast-striking structure possibly as much as 15 km long comprised of a series of low northwest-facing scarps on Pleistocene and older deposits on the northwest flank of Skull Mountain. The scarps form a broad zone (about 4 km wide) with individual scarps ranging from less than 1 m to 3 m in height and to greater than 2 km in length. The youngest displacement is probably Pleistocene.
Name comments	Name used by Carr (1984 #1472) for a northeast-striking zone of faults that extend from the southwestern end of Skull Mountain, northeast across Wahmonie Flat to the Lookout Peak area. **Fault ID:** Referred to as fault DV5 of dePolo (1998 #2845).
County(s) and State(s)	NYE COUNTY, NEVADA
Physiographic	

Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* The Quaternary trace of the Cane Spring fault was compiled from 1:250,000-scale mapping of Piety (1995 #915) who compiled it from 1:24,000-scale geologic maps (Ekren and Sargent, 1965 #1509; Swadley and Huckins, 1990 #1666) and from a tectonic map compiled from those same maps (Carr, 1984 #1472).
Geologic setting	The Wahmonie fault is one of four main faults that have been grouped into the 30-to-60-km-wide Spotted Range-Mine Mountain structural zone (SRMM), which is characterized by northeast-striking, faults that have experienced relatively small amounts of displacement (p. 9 in Carr, 1974 #1470; p. 56 in Carr, 1984 #1472). The Wahmonie may be the only one of the three that is mainly dip slip, although the long-term displacement on the Cane Spring fault [1067] may be dip slip. The other three faults in the SRMM are the Mine Mountain fault [1066], the Rock Valley fault [1065], and the Cane Spring fault [1067] all of which are known or inferred to be mainly sinistral. These faults have been interpreted to be "first-order structures that form a conjugate system with the northwest-striking, right-lateral faults of the Las Vegas Valley shear zone" (Barnes and others, 1982 #1441).
Length (km)	15 km.
Average strike	N29°E
Sense of movement	Normal *Comments:* Displacement on the Wahmonie fault is shown as down to the northwest along Skull Mountain and along the northwestern side of the unnamed ridge south of Lookout Peak, and as down to the southeast along the southeastern side of the unnamed ridge (Ekren and Sargent, 1965 #1509; Reheis and Noller, 1991 #1195). To the southwest, the fault projects toward the gap between Skull Mountain and Little Skull Mountain and from there toward the Striped Hills. In both areas there are subparallel faults with apparent sinistral displacement suggesting that the Wahmonie fault is part of the sinistral-slip SRMM.

Dip Direction	NW; SE
Paleoseismology studies	
Geomorphic expression	The Wahmonie fault is comprised of a broad (about 4 km wide) zone of northwest-facing scarps ranging in height from less than 1 m to 3 m and to greater than 2 km in length on the northwestern flank of Skull Mountain (Swadley and Huckins, 1990 #1666).
Age of faulted surficial deposits	The youngest scarps are on surfaces of late and middle Pleistocene deposits (Q2c/QTa deposits with an estimated age between 270 ka and 740 ka; Swadley and Huckins, 1990 #1666). Scarps and lineaments are also shown on surfaces of early Pleistocene and Pliocene? deposits and on surfaces of Tertiary rocks or deposits (Swadley and Huckins, 1990 #1666). Fault traces are concealed by both Holocene alluvium (Q1c and Q1ab deposits; <10 ka) and late and middle Pleistocene alluvium (Q2bc and Q2c deposits with estimated ages between 160 ka and 740 ka; Swadley and Huckins, 1990 #1666). The fault traces along the unnamed ridge south of Lookout Peak at the northeastern end of the Wahmonie fault are shown as in Tertiary deposits identified from previous mapping (Reheis and Noller, 1991 #1195).
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Although the time of the most recent event is not well constrained, Quaternary movement is suspected based on reconnaissance photogeologic mapping by Reheis and Noller (1991 #1195). The youngest displacement along the Wahmonie fault is probably post early Pleistocene (<750 ka) as indicated by mapping of Swadley and Huckins (1990 #1666) which shows the youngest scarps are on surfaces of late and middle Pleistocene deposits (Q2c/QTa deposits with an estimated age between 270 ka and 740 ka).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip-rate category is assigned on the basis of poor geomorphic preservation, lack of mapped fault scarps, and

	relative inactivity of similar distributed faults in the Basin and Range province.
Date and Compiler(s)	1998 R. Ernest Anderson, U.S. Geological Survey, Emeritus
References	#1441 Barnes, H., Ekren, E.B., Rodgers, C.L., and Hedlund, D.C., 1982, Geologic and tectonic maps of the Mercury quadrangle, Nye and Clark Counties, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I-1197, 1 sheet, scale 1:24,000. #1470 Carr, W.J., 1974, Summary of tectonic and structural evidence for stress orientation at the Nevada Test Site: U.S. Geological Survey Open-File Report 74-176, 53 p. #1472 Carr, W.J., 1984, Regional structural setting of Yucca Mountain, southwestern Nevada, and late Cenozoic rates of tectonic activity in parts of the southwestern Great Basin, Nevada and California: U.S. Geological Survey Open-File Report 84-854, 114 p. #1509 Ekren, E.B., and Sargent, K.A., 1965, Geologic map of the Skull Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic quadrangle Map GQ-387, 1 sheet, scale 1:24,000. #915 Piety, L.A., 1995, Compilation of known and suspected Quaternary faults within 100 km of Yucca Mountain, Nevada and California: U.S. Geological Survey Open-File Report 94-112, 404 p., 2 pls., scale 1:250,000. #1195 Reheis, M.C., and Noller, J.S., 1991, Aerial photographic interpretation of lineaments and faults in late Cenozoic deposits in the eastern part of the Benton Range 1:100,000 quadrangle and the Goldfield, Last Chance Range, Beatty, and Death Valley Junction 1:100,000 quadrangles, Nevada and California: U.S. Geological Survey Open-File Report 90-41, 9 p., 4 sheets, scale 1:100,000. #1666 Swadley, W., and Huckins, H.E., 1990, Geologic map of the surficial deposits of the Skull Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I-1972, 1 sheet, scale 1:24,000.

Questions or comments?