

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](#).

Alligator Ridge fault (Class A) No. 1281

Last Review Date: 2000-12-01

citation for this record: Redsteer, M.H., compiler, 2000, Fault number 1281, Alligator Ridge 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 02:16 PM.

Synopsis	The Alligator Ridge fault extends from Mooney Basin Well 14 km southward, along the western margin of the Alligator Ridge. It consists of a series of lineaments and scarps with down-to-the-west-displacement of bedrock against Quaternary sediment. Reconnaissance photogeologic mapping and limited analysis of scarp morphology are the sources of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	Refers to the Alligator Ridge fault of Schell, and includes fault-related escarpments mapped by Dohrenwend and others (1991 #2480). Fault ID: Refers to fault 70 of Schell (1981 #2843).
County(s) and	WHITE DINE COUNTY NEVADA

State(s)	WHITE PINE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	<p>Good Compiled at 1:100,000 scale.</p> <p><i>Comments:</i> Location based on 1:250,000-scale map of Dohrenwend and others (1992 #2480). Mapping based on photogeologic analysis of 1:24,000-scale color aerial photography supplemented with 1:60,000-scale black-and-white aerial photography, transferred to 1:62,500-scale topographic maps and photographically reduced and transferred to 1:250,000-scale topographic maps, and subsequent mapping by photogeologic 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.</p>
Geologic setting	<p>The Alligator Ridge fault, located at the margin of a prominent ridge, has offset bedrock against younger sediment accumulated in the long, narrow graben of Mooney Basin. Folded and deformed Paleozoic bedrock from Middle Devonian to Pennsylvanian age capped by Eocene to Oligocene volcanic rocks (as old as 43 Ma) are exposed on Alligator Ridge by uplift along the Alligator Ridge fault (Hose and Blake, 1976 #4341; Pancoast, 1986 #4345).</p>
Length (km)	14 km.
Average strike	N6°E
Sense of movement	Normal
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	<p>The fault is marked by an abrupt change in relief that coincides with the prominent, linear series of cliffs on the western margin of Alligator Ridge, and eastern margin of the Mooney Basin. Dohrenwend and others (1991 #2480) mapped these faults as prominent topographic escarpments that juxtapose bedrock and Quaternary deposits.</p>

Age of faulted surficial deposits	Quaternary and Tertiary (Schell, 1981 #2843; Dohrenwend and others, 1992 #2480).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> Although timing of most recent prehistorical event is not well constrained, geomorphic criteria by Schell (1981 #2843) suggests that most recent faulting is young. However, Dohrenwend and others (1992 #2480) considered the last fault movement to be of Quaternary age.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> 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)	2000 Margaret Hisa Redsteer, U.S. Geological Survey
References	#2480 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1992, Reconnaissance photogeologic map of young faults in the Ely 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2181, 1 sheet, scale 1:250,000. #4341 Hose, R.K., and Blake, M.C., Jr., 1976, Geology and mineral resources of White Pine County, Nevada: Nevada Bureau of Mines and Geology Bulletin 85, 105 p. #4345 Pancoast, L.E., 1986, Geology of the east flank of Alligator Ridge, White Pine County, Nevada: Moscow, University of Idaho, unpublished M.S. thesis, 162 p. #2843 Schell, B.A., 1981, Faults and lineaments in the MX Sitting Region, Nevada and Utah, Volume I: Technical report to U.S. Department of [Defense] the Air Force, Norton Air Force Base, California, under Contract FO4704-80-C-0006, November 6, 1981, 77 p.

#3056 Stewart, J.H., 1980, Geology of Nevada—A discussion to accompany the geologic map of Nevada: Nevada Bureau of Mines and Geology Special Publication 4, 136 p.

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