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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.

Sublette Flat fault (Class A) No. 733

Last Review Date: 1994-06-03

citation for this record: **McCalpin, J.P., compiler, 1994, Fault number 733, Sublette Flat 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 02:01 PM.**

Synopsis	Little is known about this poorly expressed, west-dipping normal fault at the eastern margin of Sublette Flat, the narrow valley west of the north end of the fault.
Name comments	The informal name Sublette Flat fault has been applied by J.P. McCalpin to the fault along Sublette Flat, the narrow valley west of the north end of the fault. The fault, as shown here, extends from Grade Creek south to 1 km north of U.S. Highway 30N. The northern 6 km of the fault (between Grade Creek and Pine Creek) was not shown on the map of Rubey and others (1980 #814), but Rubey and others (1975 #816) showed a fault with similar strike extending south of U.S. Highway 30N for more than 30 km along the western flank of Sillem Ridge. Witkind (1975 #819) also shows the fault south of the highway, but only for about 10 km. **Fault ID:** Refers to number 17 (en echelon series of faults) in

	Witkind (1975 #819).
County(s) and State(s)	LINCOLN COUNTY, WYOMING
Physiographic province(s)	MIDDLE ROCKY MOUNTAINS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Mapped at 1:62,500 scale by Rubey and others (1975 #816; 1980 #814). Location (dotted) of northern 6 km of fault is inferred from topography by compiler, although it was not shown by Rubey (1980 #814). All fault traces recompiled at 1:250,000-scale on map with topographic base.
Geologic setting	This is one of many west-dipping normal faults that parallel east-directed thrust faults in Mesozoic sedimentary rocks in this part of the Overthrust Belt. The Sublette Flat fault bounds the western side of Rock Creek Ridge and southern part of the Tunp Range. Total stratigraphic offset is unknown, but cross sections by Rubey and others (1975 #816; 1980 #814) suggest less than 600 m of post-Mesozoic offset.
Length (km)	36 km.
Average strike	N10°E
Sense of movement	Normal *Comments:* Shown as normal by Rubey and others (1975 #816; 1980 #814).
Dip	60°-80° W *Comments:* Shown in cross sections by Rubey and others (1975 #816) as dipping 60?-80? W; however, they indicate that data are insufficient to determine the dip of this fault. To the north, the fault is shown to dip 60? W (Rubey and others, 1980 #814).
Paleoseismology studies	
Geomorphic expression	No scarps are preserved at the alluvium-bedrock contact along the southern part of the fault, except for a locality 1.6 km (1 mile)

	south of latitude 42? N (Rubey and others, 1975 #816). However, south of 42? N (in the Cokeville 1:100,000-scale quadrangle), Rubey and others (1980 #814) showed poorly located fault scarps on Quaternary-Tertiary alluvium.
Age of faulted surficial deposits	Quaternary-Tertiary gravel (Rubey and others, 1975 #816; 1980 #814); Tertiary, Cretaceous, and Jurassic bedrock (Rubey and others, 1975 #816).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Timing of most recent event is poorly constrained and based on the presence of scarps on Quaternary-Tertiary gravel (Rubey and others, 1975 #816; 1980 #814). Witkind (1975 #819) indicated the fault is late Cenozoic (on the basis of only Miocene-Pliocene units being faulted), but showed it as late Quaternary on his map. Because there are scarps (albeit poorly expressed) and surficial geologic units of possible Quaternary age are faulted, we show the fault has having Quaternary movement.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip-rate category inferred by compiler based on general absence of data to suggest otherwise.
Date and Compiler(s)	1994 James P. McCalpin, GEO-HAZ Consulting, Inc.
References	#816 Rubey, W.W., Oriel, S.S., and Tracey, J.I., Jr., 1975, Geology of the Sage and Kemmerer 15-minute quadrangles, Lincoln County, Wyoming: U.S. Geological Survey Professional Paper 855, 18 p., 2 pls. #814 Rubey, W.W., Oriel, S.S., and Tracey, J.I., Jr., 1980, Geologic map and structure sections of the Cokeville 30-minute quadrangle, Lincoln and Sublette Counties, Wyoming: U.S. Geological Survey Miscellaneous Investigations Map I-1129, 2 sheets, scale 1:62,500. #819 Witkind, I.J., 1975, Preliminary map showing known and

	suspected active faults in Wyoming: U.S. Geological Survey Open-File Report 75-279, 35 p. pamphlet, 1 sheet, scale 1:500,000.