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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.

Savage Lake fault (Class A) No. 703

Last Review Date: 1996-03-04

Compiled in cooperation with the Montana Bureau of Mines and Geology

citation for this record: **Haller, K.M., compiler, 1996, Fault number 703, Savage Lake 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 02:02 PM.**

Synopsis	Virtually nothing is known about the Quaternary history of this fault. It is not known if scarps on alluvium are present. Its history of Quaternary displacement is inferred from equivocal relations.
Name comments	Source of name is probably Gibson (1948 #1030), who showed the fault joining the Bull Lake fault [702] east of Bull Lake and extending along the edge of Lake Creek valley northward almost to the Kootenai River. Fault, as shown here, extends from about 1 km south of Kootenai River southward to join with the Bull Lake fault [702] 1 km south of Crowell Creek. **Fault ID:** Refers to middle part of fault number 125 of Witkind (1975 #317).

County(s) and State(s)	LINCOLN COUNTY, MONTANA
Physiographic province(s)	NORTHERN ROCKY MOUNTAINS
Reliability of location	Poor Compiled at 1:250,000 scale. *Comments:* Based on poorly located and mostly inferred fault shown on 1:125,000-scale geologic map of Gibson (1948 #1030). Northern extension of fault as shown by Johns (1970 #896) is not included because of its generally poor surface expression. Savage Lake fault is not shown in more recent compilation of 1? x 2? Kalispell sheet by Harrison and others (1983 #1032).
Geologic setting	High-angle, down-to-west, normal fault bounding the northern part of Lake Creek valley. Witkind (1975 #317) considered this fault, the basin-bounding part of the Bull Lake fault [702], and O'Brien Creek fault [704] to be a single feature, but this interpretation is not supported by recent work. Thus, we depict the faults as originally mapped. Estimates of total throw are not known
Length (km)	18 km.
Average strike	N10°E
Sense of movement	Normal *Comments:* (Witkind, 1975 #317)
Dip	90° *Comments:* Fault was reported to be vertical east of Savage Lake (Gibson, 1948 #1030).
Paleoseismology studies	
Geomorphic expression	Range front is characterized by aligned faceted spurs. Scarps on alluvium are not known.
Age of faulted surficial	Unknown, but fault is generally buried by Quaternary alluvium. Location of fault is shown at or near the bedrock-alluvium contact

deposits	(Johns, 1970 #896).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* J.T. Pardee (Gibson, 1948 #1030) inferred Holocene movement on the fault based on the interpretation that Kootenai Falls is a knickpoint resulting from the most recent movement. Since the knickpoint has migrated a short distance from the inferred location of the fault and bedrock along this reach of the river is not particularly resistant; the implication is that movement on the fault is geologically young. Additionally, recent movement is inferred from the spatial relations between topographic depressions and swamps and the inferred location of the fault (Gibson, 1948 #1030). Pardee (1950 #46) believed that the range-front morphology indicated that most of the faulting is Pleistocene in age. We use a conservative estimate for the timing of the most recent movement here.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Inferred low slip rate based on absence of data that indicate late Quaternary slip.
Date and Compiler(s)	1996 Kathleen M. Haller, U.S. Geological Survey
References	#1030 Gibson, R., 1948, Geology and ore deposits of the Libby quadrangle, Montana: U.S. Geological Survey Bulletin 956, 131 p., 2 pls. #1032 Harrison, J.E., Cressman, E.R., and Whipple, J.W., 1983, Preliminary geologic and structure maps of part of the Kalispell 1° x 2° quadrangle, Montana: U.S. Geological Survey Open-File Report 83-502, 6 p. pamphlet, 2 sheets, scale 1:250,000. #896 Johns, W.M., 1970, Geology and mineral deposits of Lincoln and Flathead Counties, Montana: Montana Bureau of Mines and Geology Bulletin 79, 182 p., 3 pls., scale approx. 1:125,000.

	#46 Pardee, J.T., 1950, Late Cenozoic block faulting in western Montana: Geological Society of America Bulletin, v. 61, p. 359-406. #317 Witkind, I.J., 1975, Preliminary map showing known and suspected active faults in western Montana: U.S. Geological Survey Open-File Report 75-285, 36 p. pamphlet, 1 sheet, scale 1:500,000.