

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](#).

Gallatin Range fault (Class A) No. 692

Last Review Date: 1994-03-14

Compiled in cooperation with the Montana Bureau of Mines and Geology

citation for this record: Haller, K.M., compiler, 1994, Fault number 692, Gallatin Range 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	Little is known about the Quaternary history of this fault. Nowhere is the fault known to coincide with scarps on alluvium, but scarps would be difficult to identify because much of the Gallatin range front is heavily forested. Inferred Quaternary activity is based on the preservation of a precipitous, linear, range front.
Name comments	Source of the name is unknown. Fault extends from Gallatin River east-northeastward to near Bear Creek. Shown as Gallatin fault by Stickney and Bartholomew (written commun. 1992 #556). Fault ID: Refers to number 92 (Gallatin range-front fault) of

	Johns and others (1982 #259) and Gallatin fault of Stickney and Bartholomew (written commun. 1992 #556).
County(s) and State(s)	GALLATIN COUNTY, MONTANA
Physiographic province(s)	NORTHERN ROCKY MOUNTAINS
Reliability of location	Poor Compiled at 1:250,000 scale. <i>Comments:</i> Location is based solely on topography.
Geologic setting	High-angle, down-to-the-northwest, normal fault bounding the northwestern side of the Gallatin Range. Fault may be associated with a subparallel, antithetic fault 4 km north of main fault that defines a deep, narrow graben (Davis and others, 1965 #263; Brodowy and others, 1991 #257). There may have been as much as 500 m of uplift since Miocene time (Johns and others, 1982 #259).
Length (km)	26 km.
Average strike	N63°E
Sense of movement	Normal <i>Comments:</i> (Johns and others, 1982 #259)
Dip Direction	NW
Paleoseismology studies	
Geomorphic expression	No scarps on alluvium are known (M.J. Bartholomew, written commun. 1997); fault is inferred from steep gravity gradient (Davis and others, 1965 #263; Bonini and others, 1972 #265), precipitous range front, and aligned faceted spurs (Lageson, oral commun. 1992).
Age of faulted surficial deposits	
Historic earthquake	

Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> Timing of last movement is from Johns and others (1982 #259) and Stickney and Bartholomew (written commun. 1992 #556). The morphologic characteristics of the range front indicate recurrent activity, but the timing of the last faulting event is highly speculative.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> Inferred low slip rate based on the absence of data that indicate late Quaternary slip.
Date and Compiler(s)	1994 Kathleen M. Haller, U.S. Geological Survey
References	<p>#265 Bonini, W.E., Kelley, W.N., Jr., and Hughes, D.W., 1972, Gravity studies of the Crazy Mountains and the west flank of the Beartooth Mountains, Montana, <i>in</i> Lynn, J., Balster, C., and Warne, J., eds., Crazy Mountains Basin: Montana Geological Society, 21st Annual Geological Conference, September 22-24, 1972, Guidebook, p. 119-127.</p> <p>#257 Brodowy, J.M., Lageson, D.R., Ryan, C., and Snyder, B., 1991, Structure and neotectonics of the eastern Three Forks Basin, northern Intermountain seismic belt, southwest Montana: Geological Society of America Abstracts with Programs, v. 23, no. 5, p. A233-A234.</p> <p>#263 Davis, W.E., Kinoshita, W.T., and Robinson, G.D., 1965, Bouguer gravity, aeromagnetic, and generalized geologic map of the eastern part of the Three Forks Basin, Broadwater, Madison, and Gallatin Counties, Montana: U.S. Geological Survey Geophysical Investigations Map GP-498, 5 p. pamphlet, 2 pls., scale 1:62,500.</p> <p>#259 Johns, W.M., Straw, W.T., Bergantino, R.N., Dresser, H.W., Hendrix, T.E., McClernan, H.G., Palmquist, J.C., and Schmidt, C.J., 1982, Neotectonic features of southern Montana east of 112°30' west longitude: Montana Bureau of Mines and Geology Open-File Report 91, 79 p., 2 sheets.</p>

#556 Stickney, M.C., and Bartholomew, M.J., 1992 written commun., Preliminary map of late Quaternary faults in western Montana (digital data): Montana Bureau of Mines and Geology (digital version of MBMG Open-File Report 186), 1 pl., scale 1:500,000.

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