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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.

unnamed piedmont fault (Class A) No. 727

Last Review Date: 1994-03-21

citation for this record: **McCalpin, J.P., compiler, 1994, Fault number 727, unnamed piedmont 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 02:03 PM.**

Synopsis	Poorly studied east- and west-facing piedmont scarps at the north end of Star Valley west of the Grand Valley fault [726] and the front of the Salt River Range in Wyoming.
Name comments	Fault scarps were mapped and discussed as part of the Older Star Valley fault by Piety and others (1986 #55). They are located about 5 km east of Freedom, Idaho, at north end of the Star Valley between the North Branch of Cedar Creek and Prater Canyon. This places them on the piedmont about 3 km west of the Grand Valley fault [726] and the front of the Salt River Range in Wyoming. **Fault ID:** Not shown on any previous compilation.
County(s) and State(s)	LINCOLN COUNTY, WYOMING
Physiographic	

Physiographic province(s)	MIDDLE ROCKY MOUNTAINS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Scarps are mapped at 1:28,000 scale on fig. 3-17 of Piety and others (1986 #55) without topographic base. They were transferred to a 1:250,000-scale topographic base map for compilation. Piety and others (1986 #55) discussion suggests the scarps are longer (2.0-2.5 km) than shown on their figure and in this compilation.
Geologic setting	The piedmont scarps define a 2-km-wide graben that is 3 km west of the Salt River Range front. They probably are the surficial expression of a more extensive intrabasin fault not recognized on seismic-reflection profiles (Piety and others, 1986 #55).
Length (km)	2 km.
Average strike	N9°W
Sense of movement	Normal *Comments:* (Piety and others, 1986 #55)
Dip Direction	W; E
Paleoseismology studies	
Geomorphic expression	Subdued north-trending fault scarps on older remnant of alluvial fan. Piety and others (1986 #55) measured profiles across these scarps; the larger west-facing scarps are 5.3- to 6.3-m-high and have maximum scarp-slope angles of 14?-15?. The east-facing antithetic scarps are smaller and less steep.
Age of faulted surficial deposits	The fault offsets early upper Pleistocene (Bull Lake?, ca. 130 ka) alluvial-fan deposits and undifferentiated late Quaternary alluvium and colluvium (Piety and others, 1992 #538).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Timing inferred on basis of subdued scarp

	morphology compared to nearby Holocene-age scarps on the Star Valley section of Grand Valley fault [726d] and regional geologic relations (Piety and others, 1986 #55).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Inferred to be low based on maximum scarp heights of about 6 m on early late Pleistocene (ca. 130 ka) deposits. If the scarp height approximates surface offset (i.e., 5-6 m), the late Quaternary slip rate might be as low as 0.04-0.05 mm/yr (5-6 m in <130 k.y.). Piety and others (1986 #55) commented that the slip rate of the Older Star Valley fault (which includes this fault section) is probably lower than that for the Star Valley section [726d] of Grand Valley fault, which shows Holocene movement.
Date and Compiler(s)	1994 James P. McCalpin, GEO-HAZ Consulting, Inc.
References	#538 Piety, L.A., Sullivan, J.T., and Anders, M.H., 1992, Segmentation and paleoseismicity of the Grand Valley fault, southeastern Idaho and western Wyoming, *in* Link, P.K., Kuntz, M.A., and Platt, L.B., eds., Regional geology of eastern Idaho and western Wyoming: Geological Society of America Memoir 179, p. 155-182. #55 Piety, L.A., Wood, C.K., Gilbert, J.D., Sullivan, J.T., and Anders, M.H., 1986, Seismotectonic study for Palisades Dam and Reservoir, Palisades Project: Bureau of Reclamation Seismotectonic Report 86-3, 198 p., 2 pls.

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