

# 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](#).

## Phillips Valley fault, central section (Class A) No. 771b

Last Review Date: 1997-07-28

*citation for this record:* Pierce, K.L., compiler, 1997, Fault number 771b, Phillips Valley fault, central section, 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.

<b>Synopsis</b>	<p><b>General:</b> The Phillips Valley fault starts where the south end of the southern section of the Teton fault [768d] appears to stop, and as such it may be a splay of the Teton fault [768]. Only the 1.5-km-long middle section of the Phillips Valley fault has been observed to offset late Quaternary deposits (Pinedale glacial moraines). Late Quaternary offset may extend to the northern and southern sections, given that sizeable offsets were measured at both ends of the middle section.</p> <p><b>Sections:</b> This fault has 3 sections. Informally named sections are based on apparent recency of fault movement. The middle section has recognized post-glacial (&lt;15 ka) offset, whereas the north and south sections have not been well examined for young offset.</p>
<b>Name</b>	<p><b>General:</b> Referred to as the Phillips Valley fault by Oriel and</p>

<b>comments</b>	<p>others (1985 #2298).</p> <p><b>Section:</b> On this informally named section faulting is well defined by scarps from a point east of Ski Lake for about 1.5 km to the south (Love and others, 1992 #2289; compilation of Bradley Meyers, USGS, dated 6/87; and unpublished field mapping by Ken Pierce, USGS, in 1988).</p>
<b>County(s) and State(s)</b>	TETON COUNTY, WYOMING
<b>Physiographic province(s)</b>	MIDDLE ROCKY MOUNTAINS
<b>Reliability of location</b>	<p>Good Compiled at 1:62,500 scale.</p> <p><i>Comments:</i> Trace mapped by Love and others (1992 #2289) on Grand Teton National Park sheet at 1:62,500 scale, supplemented by unpublished mapping by K.L. Pierce at 1:24,00 scale. Fault traces recompiled at 1:62,500-scale on map with topographic base.</p>
<b>Geologic setting</b>	This fault starts where the south end of the southern section of the Teton fault [768d] appears to stop, and as such it may be a splay of the Teton fault [768] that extends behind the Phillips Ridge block.
<b>Length (km)</b>	This section is 1 km of a total fault length of 8 km.
<b>Average strike</b>	N24°E (for section) versus N44°E (for whole fault)
<b>Sense of movement</b>	<p>Normal</p> <p><i>Comments:</i> Has typical geomorphic expression of a normal fault, but two moraine crests show apparent right lateral offset (K.L. Pierce, field notes, Aug. 4, 1988).</p>
<b>Dip</b>	<p>60°</p> <p><i>Comments:</i> Dip is suspected to be about 60°, but may flatten towards Phillips Ridge and join buried section of Teton fault [768] beneath Phillips Ridge.</p>
<b>Paleoseismology</b>	

<b>studies</b>	
<b>Geomorphic expression</b>	Offsets moraines and other deposits of last glaciation; has well expressed, fresh scarps. Only the central section is well located by scarps. This fault may be the surface expression of the Teton fault [768], and Phillips Ridge to the east may represent a large slide block that crosses (lies on) the projected trace of the Teton fault, as briefly discussed in Pierce and Good (1992 #2291). Field notes of Ken Pierce (Aug. 4, 1988) record a traverse along the fault scarp and includes several profiles across the scarp.
<b>Age of faulted surficial deposits</b>	Glacial moraines and other deposits of last glaciation (Pinedale)
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	latest Quaternary (<15 ka)  <i>Comments:</i> Pinedale glacial moraines are offset about 4 m, which suggests more than one event in post-glacial time (past 15,000 years).
<b>Recurrence interval</b>	  <i>Comments:</i> May be 5-10 k.y. based on possible multiple movements in the past 15 k.y.
<b>Slip-rate category</b>	Between 0.2 and 1.0 mm/yr  <i>Comments:</i> Surface offset near north end of scarp is about 4 m (88P61 notes surface offsets of 3.2 and 4.5 m) and near the south end of scarp is about 5 m (88P63 notes surface offsets of 4.5 and 5.8 m). These 3-6 m offsets of Pinedale (15 ka) deposits suggest that the fault is moving rather slowly, probably within the 0.2-1 mm/yr slip-rate category.
<b>Date and Compiler(s)</b>	1997 Kenneth L. Pierce, U.S. Geological Survey, Emeritus
<b>References</b>	#2289 Love, J.D., Reed, J.C., Jr., and Christiansen, A.C., 1992, Geologic map of Grand Teton National Park: U.S. Geological Survey Miscellaneous Investigations Map I-2031, scale 1:62,500.  #2298 Oriel, S.S., Antweiler, J.C., Moore, D.W., and Benham, J.R., 1985, Mineral resource potential map of the west and east

Palisades roadless areas, Idaho and Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1619-A, 1 p. pamphlet, scale 1:50,000.

#2291 Pierce, K.L., and Good, J.D., 1992, Field guide to the Quaternary geology of Jackson Hole, Wyoming: U.S. Geological Survey Open-File Report 92-504, 54 p.

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