

# 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](#).

## Cedar Creek fault (Class A) No. 637

Last Review Date: 2003-06-01

### Compiled in cooperation with the Idaho Geological Survey

*citation for this record:* Lidke, D.J., and Lewis, R.S., compilers, 2003, Fault number 637, Cedar Creek 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 03:03 PM.

#### Synopsis

The Cedar Creek fault is a north-striking, down-to-the-east, high-angle fault that offsets Middle Proterozoic and Late Cretaceous rocks and appears to be covered by late Pleistocene to Holocene deposits. Much of the information concerning this fault is from a 1:100,000-scale geologic map and little has been reported on the character of this fault. No detailed studies have been conducted and recurrence or slip rate estimates have not been reported for this fault. A recent 1:500,000-scale compilation of Miocene and younger faults in Idaho indicates that the Cedar Creek fault has been active in the Quaternary, but this compilation does not present supporting information for age assignments of the faults shown, nor is supporting information known to be presented

	elsewhere. Consequently, the Cedar Creek fault is included herein; however, definitive evidence of Quaternary movement is not documented in the literature.
<b>Name comments</b>	<p>This north-striking fault is mapped, briefly discussed, and labeled the Cedar Creek fault on a 1:100,000-scale geologic map by Lewis and others (1992 #5880). Some of this fault appears to be shown on the geologic map of Idaho (Bond, 1978 #5829). The Cedar Creek fault also is shown on a compilation of Miocene and younger faults in Idaho (Breckenridge and others, 2003 #5878). The Cedar Creek fault is not shown on the compilation of suspected active faults in Idaho by Witkind (1975 #320). The Cedar Creek fault extends south from north of Rocky Point along the east side of Grave Peak, and extends farther south along the canyons of Cedar, East Fork of Moose, and Monument Creeks to about 2 km southeast of Freeman Peak.</p> <p><b>Fault ID:</b> Not shown on previous regional compilations.</p>
<b>County(s) and State(s)</b>	IDAHO COUNTY, IDAHO
<b>Physiographic province(s)</b>	NORTHERN ROCKY MOUNTAINS
<b>Reliability of location</b>	<p>Good Compiled at 1:100,000 scale.</p> <p><i>Comments:</i> Most of the fault trace is from the 1:100,000-scale geologic map by Lewis and others (1992 #5880); the south end of the fault trace is from the 1:1,000,000-scale map of Miocene and younger faults by Breckenridge and others (2003 #5878). The traces on these maps were transferred by overlay and inspection to 1:100,000-scale topographic maps and digitized.</p>
<b>Geologic setting</b>	The Cedar Creek fault is one of several north-striking faults that have been mapped in this part of eastern Idaho that lies in the western part of the Northern Rocky Mountains physiographic province. Lewis and others (1992 #5880) show this fault cutting metamorphosed Middle Proterozoic sedimentary rocks of the Belt Supergroup and Cretaceous plutonic rocks of the Idaho batholith, and show the fault buried beneath late Pleistocene to Holocene glacial deposits. According to Lewis and others (1992 #5880), many of the north-striking faults in this region controlled the emplacement of Eocene dikes and dike swarms. This region of

	<p>Idaho records parts of a lengthy and complex geologic history of sedimentation, deformation, and plutonism that dates back to the Middle Proterozoic. The Cedar Creek fault and other northerly trending faults in this area are among the youngest structures in this region. Late Tertiary and early to middle Quaternary rocks and deposits, which might constrain the age of youngest movement along these faults, are sparse to absent in this region.</p>
<b>Length (km)</b>	55 km.
<b>Average strike</b>	N8°E
<b>Sense of movement</b>	<p>Normal</p> <p><i>Comments:</i> Not reported, however, the Cedar Creek fault and a fault labeled the "East Creek fault," appear to form a small graben on the geologic map of Lewis and others (1992 #5880); these map relations may indicate that these faults are normal faults.</p>
<b>Dip Direction</b>	<p>E</p> <p><i>Comments:</i> On the geologic map by Lewis and others (1992 #5880), the Cedar Creek fault has a relatively linear trace and is shown as a down-to-the-east fault that appears to form the western fault of a north-trending graben. Collectively these map relations may indicate that the Cedar Creek fault dips steeply to the east.</p>
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	<p>Geologic map relations, as shown on the geologic map by Lewis and others (1992 #5880), currently provide the only known published information concerning the geomorphic expression of the Cedar Creek fault. On the geologic map by Lewis and others (1992 #5880), the Cedar Creek fault has an approximately located fault trace where it cuts Middle Proterozoic and Late Cretaceous bedrock, and a concealed trace where it is shown covered by Holocene to late Pleistocene glacial deposits. The fault coincides with parts of a few relatively linear creek valleys but also crosses some ridges. Breckenridge and others (2003 #5878) indicate that this fault is associated with an escarpment that has a total relief of &lt;700 m. On the geologic map by Lewis and others (1992 #5880), the Cedar Creek fault is everywhere mapped as approximately located or inferred, which may indicate that meter-scale scarps are</p>

	poorly expressed to absent along the fault.
<b>Age of faulted surficial deposits</b>	Lewis and others (1992 #5880) show faulted Middle Proterozoic and Cretaceous rocks along the Cedar Creel fault but indicate that the fault is covered by Holocene to late Pleistocene glacial deposits. Lewis and others (1992 #5880) report that this fault and other northerly striking faults may have controlled emplacement of Eocene dikes and dike swarms. Rocks and deposits of late Tertiary to middle Pleistocene age are not present along the fault.
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	undifferentiated Quaternary (<1.6 Ma)  <i>Comments:</i> Map relations shown on the geologic map by Lewis and others (1992 #5880) do not tightly constrain the age of the most recent faulting event. These map relations imply that the youngest prehistoric faulting event is Late Cretaceous to Pleistocene in age, or perhaps Eocene to Pleistocene in age. The recent compilation of Miocene and younger faults in Idaho (Breckenridge and others, 2003 #5878) shows the Cedar Creek fault as a Quaternary (<1.6 Ma) fault, but does not present or cite supporting information for such an age assignment. The Cedar Creek fault is included herein as a Quaternary structure; however, no specific or definitive evidence of Quaternary activity along the fault has been reported.
<b>Recurrence interval</b>	<i>Comments:</i> Breckenridge and others (2003 #5878) show the Cedar Creek fault as a Quaternary fault on their compilation of Miocene and younger faults in Idaho, suggesting the recurrence interval may be <1.6 m.y. However, definitive evidence for Quaternary activity along the Cedar Creek fault has not been reported.
<b>Slip-rate category</b>	Less than 0.2 mm/yr  <i>Comments:</i> No definitive evidence for Quaternary activity along the Cedar Creek fault has been reported, and the apparent lack of known or mapped scarps in deposits estimated to be late Pleistocene to Holocene in age may indicate relatively low rates for possible Quaternary slip.
<b>Date and</b>	2003

<b>Compiler(s)</b>	David J. Lidke, U.S. Geological Survey Reed S. Lewis, Idaho Geological Survey
<b>References</b>	<p>#5829 Bond, J.G., 1978, Geologic map of Idaho: Idaho Bureau of Mines and Geology, 1 sheet, scale 1:500,000.</p> <p>#5878 Breckenridge, R.M., Lewis, R.S., Adema, G.W., and Weisz, D.W., 2003, Miocene and younger faults in Idaho: Idaho Geological Survey Map 8, 1 sheet, scale 1:1,000,000.</p> <p>#5880 Lewis, R.S., Burmester, R.F., Reynolds, R.W., Bennett, E.H., Meyer, P.E., and Reid, R.R., 1992, Geologic map of the Lochsa River area, northern Idaho: Idaho Geological Survey Geologic Map Series, scale 1:100,000.</p> <p>#320 Witkind, I.J., 1975, Preliminary map showing known and suspected active faults in Idaho: U.S. Geological Survey Open-File Report 75-278, 71 p. pamphlet, 1 sheet, scale 1:500,000.</p>

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