

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 faults west of Caballo Reservoir (Class A) No. 2105

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Compiled in cooperation with the New Mexico Bureau of Geology & Mineral Resources

citation for this record: Jochems, A.P., and Machette, M.N., compilers, 2016, Fault number 2105, unnamed faults west of Caballo Reservoir, 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 02:21 PM.

Synopsis	These faults form scarps similar to those of the Cuchillo Negro fault zone [2104] and Palomas Creek fault zone [2103], both of which are directly to the north. No detailed work has been done on their timing, but they are probably coeval with other middle Pleistocene intrabasin faults in the Palomas and southern Engle Basins, west of the Rio Grande.
Name comments	Machette (1987 #960) mapped these unnamed faults and considered them as a probable extension of the Palomas Creek fault zone [2103]. The faults extend across the Cuchillo surface

	<p>from Palomas Creek on the north to Percha Creek on the south.</p> <p>Fault ID: Associated with fault 4 (but unlabeled as such) on fig. 1 in Machette (1987 #960).</p>
County(s) and State(s)	SIERRA COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	<p>Good Compiled at 1:24,000 scale.</p> <p><i>Comments:</i> The location of the fault is mapped at 1:24,000 scale using 1:24,000-scale maps of Jochems and Koning (2015 #7348), Koning and others (2015 #7359), and unpublished mapping by Jochems and Koning. Previously compiled from unpublished 1:24,000-scale mapping used to compile fig. 1 in Machette (1987 #960). Some of the faults are also shown on the northern margin of Seager and others' (1982 #626) 1:125,000-scale map and in a generalized manner on the 1:100,000-scale map of Harrison (1993 #1226).</p>
Geologic setting	<p>These unnamed faults forms small scarps across the Cuchillo surface. They lie close to but slightly east of the Palomas Creek fault zone [2103], and may represent its southward continuation. They are intrabasin faults of the Palomas Basin and, because most of the faults have down-to-the-west movement, they generally oppose the regional eastward gradient of the Cuchillo surface.</p>
Length (km)	18 km.
Average strike	N9°W
Sense of movement	Normal
Dip Direction	W; E
Paleoseismology studies	
Geomorphic expression	<p>These faults form small, mainly discontinuous east-facing scarps on the Cuchillo surface and shorter scarps having both east- and west-facing aspect. The most continuous of these faults extends southward across Seco and Las Animas Creeks in the eastern parts of the Saladone Tank and Skute Stone Arroyo 7.5-minute</p>

	<p>quadrangles. No data on scarp morphology has been collected from these faults, although on aerial photographs they appear much like those of the intrabasin Cuchillo Negro fault zone [2104].</p>
Age of faulted surficial deposits	<p>These faults cut the Palomas gravel (upper part of the Palomas Formation), which forms the constructional Cuchillo surface. This surface was considered to be middle Pleistocene (400–500 ka) by Lozinsky (1986 #1073) and Machette (1987 #960), but more recent studies by Mack and others (1993 #1020) suggests that this surface may be as old as 700–900 ka, thereby providing an older maximum limit on the deformation. Detailed mapping of Quaternary deposits in drainages on the Cuchillo surface have demonstrated that the faults do not deform Holocene (<12.4 ka) deposits (Jochems and Koning, 2015 #7357).</p>
Historic earthquake	
Most recent prehistoric deformation	<p>middle and late Quaternary (<750 ka)</p> <p><i>Comments:</i> Timing inferred from similarity with scarps of the Palomas Creek fault zone [2103], which Machette (1987 #960) suggested is of late middle Pleistocene age (130–250 ka) based on their subdued morphology.</p>
Recurrence interval	
Slip-rate category	<p>Less than 0.2 mm/yr</p> <p><i>Comments:</i> Low slip-rate category assigned based on small scarps (<5–10 m high) on a surface that stabilized 700–900 ka (Mack and others, 1993 #1020).</p>
Date and Compiler(s)	<p>2016</p> <p>Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources</p> <p>Michael N. Machette, U.S. Geological Survey, Retired</p>
References	<p>#1226 Harrison, R.W., Lozinsky, R.P., Eggleston, T.L., and McIntosh, W.C., 1993, Geologic map of the Truth or Consequences 30 x 60-minute quadrangle (1:100,000 scale): New Mexico Bureau of Mines and Mineral Resources Open-File Report 390, 19 p. pamphlet, 1 sheet, scale 1:100,000.</p>

#7348 Jochems, A.P., and Koning, D.J., 2015, Geologic map of the Williamsburg 7.5-minute quadrangle, Sierra County, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Geologic Map 250, scale 1:24,000.

#7357 Jochems, A.P., and Koning, D.J., 2015, Holocene stratigraphy and a preliminary geomorphic history for the Palomas Basin, south-central New Mexico: New Mexico Geology, v. 37, p. 77–88.

#7359 Koning, D.J., Jochems, A.P., and Cikoski, C.T., 2015, Geologic map of the Skute Stone Arroyo 7.5-minute quadrangle, Sierra County, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Geologic Map 252, scale 1:24,000.

#1073 Lozinsky, R.R., 1986, Geology and late Cenozoic history of the Elephant Butte area, Sierra County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Circular 187, 40 p., 2 pls.

#960 Machette, M.N., 1987, Preliminary assessment of Quaternary faulting near Truth or Consequences, New Mexico: U.S. Geological Survey Open-File Report 87-652, 40 p.

#1020 Mack, G.H., Salyards, S.L., and James, W.C., 1993, Magnetostratigraphy of the Plio-Pleistocene Camp Rice and Palomas formations in the Rio Grande rift of southern New Mexico: American Journal of Science, v. 293, p. 49–77.

#626 Seager, W.R., Clemons, R.E., Hawley, J.W., and Kelley, R.E., 1982, Geology of northwest part of Las Cruces 1° x 2° sheet, New Mexico: New Mexico Bureau of Mines and Mineral Resources Geologic Map 53, 3 sheets, scale 1:125,000.

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