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Quaternary Fault and Fold Database of the United States

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Warner Valley faults, East Warner Valley section (Class A) No. 827a

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Synopsis	**General:** These north-trending normal faults form a large, complex graben syste confines Warner Valley, Coleman Valley, and the northeast part of Long Valley in Basin and Range province of southern Oregon and northern Nevada. The area is underlain by Pliocene and Miocene volcanic and volcaniclastic sedimentary rock fault scarps on Quaternary deposits have been described along the range boundin faults, but several lineaments appear to control the locations of young playas, and stream courses, and interrupt latest Pleistocene pluvial shorelines on the floor of Warner Valley, thus suggesting Quaternary movement. Broad deformation of late Pleistocene pluvial shorelines has also been documented throughout Warner Valle Faults juxtapose Quaternary alluvium or landslide deposits against Miocene to Pliocene volcanic rocks along the eastern and western margins of Coleman Valley **Sections:** This fault has 3 sections. The earthquake source zones delineated by

	Geomatrix Consultants, Inc. (1995 #3593), the West Warner Valley, the East War Valley north, and the East Warner Valley south faults, are retained herein as separ sections, the West Warner Valley, East Warner Valley, and Coleman Valley sectio respectively. The Coleman Valley section extends south into the northeast part of Valley in northern Nevada.
Name comments	**General:** These faults are named after Warner Valley, a large graben system in th Basin and Range Province of southern Oregon and northern Nevada; they were mapped by Walker and Repenning (1965 #3559), Bonham (1969 #2999), Walker MacLeod (1991 #3646), and Dohrenwend and Moring (1991 #281). Pezzopane (#3544) and Pezzopane and Weldon (1993 #149) included these faults in their Wa Valley Graben faults or Warner Valley fault zone. Geomatrix Consultants, Inc. (19 #3593) informally named individual faults the West Warner Valley, the East Warn Valley north, and the East Warner Valley south faults; dePolo (1998 #2845) inclu the western margin fault in Coleman Valley in Nevada in his Coleman Valley fau zone V1. In northern Nevada, the southern extension of these faults is informally known as the Northeast Long Valley fault (V3 of dePolo, 1998 #2845). Herein w retain the fault groupings of Geomatrix Consultants, Inc. (1995 #3593) as the informally named West Warner Valley, East Warner Valley, and Coleman Valley sections, respectively. **Section:** This section is the East Warner Valley north fault of Geomatrix Consulta Inc. (1995 #3593). **Fault ID:** This section is part of fault number 46 of Pezzopane (1993 #3544), and number 61c of Geomatrix Consultants, Inc. (1995 #3593).
County(s) and State(s)	LAKE COUNTY, OREGON HARNEY COUNTY, OREGON
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location of fault from ORActiveFaults (http://www.oregongeology.org/arcgis/rest/services/Public/ORActiveFaults/MapS downloaded 06/02/2016) from 1:100,000-scale mapping of Weldon and others (2 #5648), based on 1:250,000-scale mapping of Walker and Repenning (1965 #355 and 1:500,000-scale mapping of Pezzopane (1993 #3544).
Geologic setting	These north-trending normal faults form a large, complex graben system that con the Warner Valley, Coleman Valley, and the northeast part of Long Valley in the E and Range province of southern Oregon and northern Nevada. The area is underla Pliocene and Miocene volcanic and volcaniclastic sedimentary rocks (Walker and

	Repenning, 1965 #3559; Bonham, 1969 #2999; Walker and MacLeod, 1991 #364
Length (km)	This section is 86 km of a total fault length of 133 km.
Average strike	N9°E (for section) versus N9°E (for whole fault)
Sense of movement	Normal, Right lateral *Comments:* These faults are mapped as normal or high-angle faults by Walker an Repenning (1965 #3559), Walker and MacLeod (1991 #3646), and Pezzopane (19 #3544). Focal mechanism studies of the 1986 Adel earthquake swarm (Schaff, 19 #3505; Patton, 1985 #3515) may suggest a small component of right-oblique mot on faults in this section (Pezzopane and Weldon, 1993 #149; Pezzopane, 1993 #3
Dip Direction	W; E *Comments:* No structural data on the dip of these faults have been published, but Geomatrix Consultants, Inc. (1995 #3593) used an estimated dip of 70° in their modeling of earthquake potential on faults in the Warner Valley.
Paleoseismology studies	
Geomorphic expression	Faults in the East Warner Valley section are marked by prominent escarpments in Pliocene and Miocene volcanic rocks (Walker and Repenning, 1965 #3559; Walk MacLeod, 1991 #3646) from the north end of Warner Valley south to Greaser Ca Most of this section is comprised of down-to-the-west faults that form Orejana Ri Poker Jim Ridge, the west flank of Hart Mountain, and an unnamed rim east of G Reservoir; the down-to-the-east fault that bounds the east flank of Hart Mountain also included in this section. No young fault scarps have been recognized along th range bounding faults, but tilted late Pleistocene pluvial shorelines are evidence c vertical deformation in the basin (Weide, 1974 #3503; Craven, 1988 #3519; Crav 1991 #3951; Weldon and others, 1992 #3540; Pezzopane and Weldon, 1993 #149 Pezzopane, 1993 #3544). Pezzopane (1993 #3544) and Pezzopane and Weldon (1 #149) used airphoto analysis to identify lineament that appear to control the locat of young playas and stream courses or interrupt pluvial shorelines on the floor of Warner Valley north of Stone Corral Lake and northeast of Greaser Reservoir. We and others (2002 #5648) describe lineaments across Quaternary deposits on 1:10(scale DEMs of some of the fault traces.
Age of faulted surficial deposits	No fault scarps have been recognized on Quaternary deposits along the range bou faults of this section, but Pezzopane (1993 #3544) and Pezzopane and Weldon (19 #149) used airphoto analysis to identify lineaments presumably on Holocene or la Pleistocene deposits that appear to control the locations of young playas and strea courses or interrupt pluvial shorelines on the floor of Warner Valley north of Ston

	Corral Lake and east of Greaser Reservoir. Weide (1974 #3503) and Craven (198 #3519; 1991 #3951) documented broad deformation of late Pleistocene pluvial shorelines throughout Warner Valley.
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Age-category assignment is based on airphoto analysis by Pezzopane (1993 #3544) and Pezzopane and Weldon (1993 #149) that suggests playa deposi faulted and Weide (1974 #3503) and Craven (1988 #3519; 1991 #3951) who documented broad deformation of late Pleistocene pluvial shorelines throughout Warner Valley. In contrast, Pezzopane (1993 #3544) and subsequent compilations (Geomatrix Consultants Inc., 1995 #3593; Madin and Mabey, 1996 #3575; Weldo others, 2002 #5648) infer Quaternary (<1.6–1.8 Ma) or middle or late Quaternary (<700–780 ka) displacement along most fault strands in this section.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Long-term slip rates of 0.08–0.2 mm/yr based on offset of Miocene bedrock were estimated by Pezzopane (pers. commun., 1994, in Geomatrix Consultants Inc., 1995 #3593) along this section. Geomatrix Consultants, Inc. (19 #3593) used estimated slip rates of 0.01–0.2 mm/yr in their analysis of earthquak hazards associated with faults in the East Warner Valley section.
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey Thomas L. Sawyer, Piedmont Geosciences, Inc. Kathleen M. Haller, U.S. Geological Survey
References	#2999 Bonham, H.F., 1969, Geology and mineral deposits of Washoe and Storey Counties, Nevada: Nevada Bureau of Mines and Geology Bulletin 70, 140 p., 1 p scale 1:250,000. #3519 Craven, G.F., 1988, Tectonic deformation of late Pleistocene shorelines in Warner Valley, Lake County, Oregon: Geological Society of America Abstracts w Programs, v. 20, no. 3, p. 152. #3951 Craven, G.F., 1991, The tectonic development and late Quaternary deform of Warner Valley south of Hart Mountain, Oregon: Arcata, California, Humboldt University, unpublished M.S. thesis, 94 p., 10 pls. #2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rat

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#5648 Weldon, R.J., Fletcher, D.K., Weldon, E.M., Scharer, K.M., and McCrory, 2002, An update of Quaternary faults of central and eastern Oregon: U.S. Geolog Survey Open-File Report 02-301 (CD-ROM), 26 sheets, scale 1:100,000.

	#3540 Weldon, R.J., II, Pezzopane, S.K., Stimac, J.P., and McDowell, P.F., 1992, Guidebook to active faulting in south-central Oregon, *in* Geological Society of America, Cordilleran Meeting Fieldtrip #5, May 8-10, 1992, Guidebook.