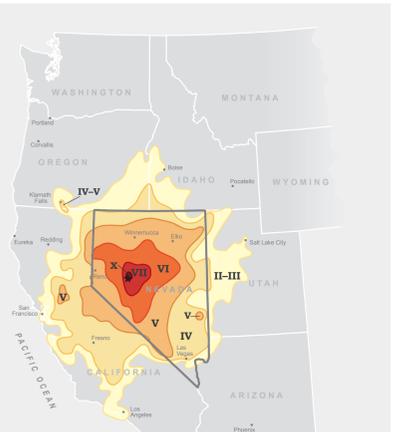


# Damaging Earthquakes in Nevada

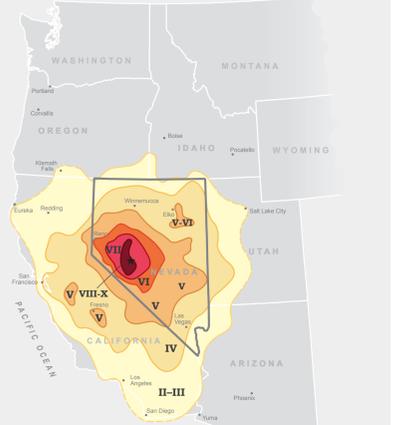
## 1840s to 2008

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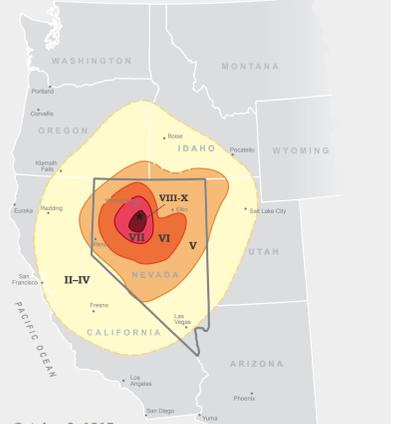
The damaging earthquakes briefly described on this map occurred during the period from the mid-1800s to 2008. They are the largest historical examples, but do not include all significant and damaging earthquake events in the state. These events and their descriptions remind us that Nevada is earthquake country and that earthquakes will produce strong shaking within our communities in the future. A wise course of action for Nevadans is to heed the lessons of past events, know how to react to an earthquake, and actively prepare for earthquakes. Many ideas to stay safe and protect your property from earthquakes can be found in *Living with Earthquakes in Nevada* on the web at [www.nbmg.unr.edu](http://www.nbmg.unr.edu) (NBMG Special Publication 27).



December 16, 1954  
Fairview Peak-Dixie Valley Earthquakes  
M 7.1 and M 6.9

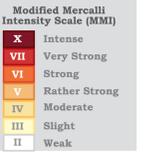


December 21, 1932  
Cedar Mountain Earthquake  
M 7.1



October 3, 1915  
Pleasant Valley Earthquake  
M 7.3

### Historical Earthquake Intensity



Maps modified from Stover and Coffman (1993)

### Mid-1800s North-Central Nevada Earthquakes

Native Americans reported to early settlers in the Nevada area in Virginia City that earthquakes, including a large one, occurred for four or five years in the 1840s, just before the area was settled (Folgate, 1987). In one case, a Paiute recounted that when he was a boy, older folks talked about an autumn earthquake where the shaking was strong, there was failure of the banks of streams, and the first rain stillwater station flowed backwards for a while (GHDN 12/30/1869). There is another recounting of a major earthquake in western Nevada in the Daily Review (Reno) on October 17, 1855 that mentions a landslide that likely came down off Slide Mountain in Washoe Valley. These accounts have been interpreted as evidence of a major earthquake that occurred in the Pyramid Lake area in 1852. Although there is not enough information to assess a magnitude, accounts indicate these earthquakes were likely major events with magnitudes >6.0.

### 1860, March 15 Western Nevada Earthquake M 6.5

At about 10:45 a.m. PST (Pacific Standard Time) on March 15, 1860 an earthquake strongly shook western Nevada and northeastern California. The event was severe in Carson City. Goods were shaken from shelves, there was a rattle of people eating buildings, and general panic ensued for a few minutes (SU 3/16/1860). People also vacated buildings in Sacramento, California, where buildings were strongly shaken, bells were rung, and gas fixtures swung back and forth (SU 3/16/1860). Few other details are known about this earthquake. A second large earthquake in the Pyramid Lake area (TE 3/31/1860 and 6/6/1868) indicating that the earthquake may have originated in that region. A comparison of the shaking intensity in California from the 1860 earthquake with other historical events of known magnitude has yielded an estimated magnitude of 6.5 for this event (Topozada and others, 2000).

### 1869, December 26 & 27 Virginia Range Earthquake M 6.4 and M 6.2

Two major earthquakes occurred about eight hours apart on December 26th and 27th, 1869 that caused considerable damage in Virginia City, Steamboat Springs, and Washoe Valley. Carson City. Goods were shaken from shelves, there was a rattle of people eating buildings, and general panic ensued for a few minutes (SU 3/16/1860). People also vacated buildings in Sacramento, California, where buildings were strongly shaken, bells were rung, and gas fixtures swung back and forth (SU 3/16/1860). Few other details are known about this earthquake. A second large earthquake in the Pyramid Lake area (TE 3/31/1860 and 6/6/1868) indicating that the earthquake may have originated in that region. A comparison of the shaking intensity in California from the 1860 earthquake with other historical events of known magnitude has yielded an estimated magnitude of 6.5 for this event (Topozada and others, 2000).

### 1887, June 3 Carson Valley Earthquake M 6.5

This was a severe, magnitude 6.5 earthquake that damaged Carson City and Genoa, and was strongly felt in the Sierra Nevada foothills and Sacramento Valley (Topozada and others, 2000). The earthquake struck around 2:40 a.m. PST on a Friday morning and was reported to have lasted only 30 to 60 seconds (CDI 6/17/1887). The earthquake, which was preceded by a heavy rumbling sound, reportedly threw people to the ground in Carson City and caused general hysteria in Carson City, Genoa, and Virginia City, where people vacated the premises wearing only their sleeping garments (NT 6/3/1887). In Carson City, all stone and brick buildings showed the effects of the earthquake (VEG 6/3/1887). Many severe cracks, centimeters in width, were formed in brick walls (dePolo and others, 2003). The walls of the State Capitol were cracked, and plaster in nearly all rooms, particularly the Supreme Court room, the Senate Chamber, and the Governor's office was cracked and shaken down (CDI 6/4/1887; NT 6/3/1887; VEG 6/3/1887). There was widespread structural damage including broken glassware and crockery in Genoa, nearly all the chimneys in town were cracked, some buildings walls were shifted off their foundations, and several brick walls were cracked (NT 6/4/1887; VEG 6/3/1887; NT 6/6/1887). In the town of Genoa, on the east shore of Lake Tahoe, plaster was cracked, windows were cracked, and dishes were broken (GWC 6/10/1887). Liquefaction occurred in Carson Valley near Cadebaugh's Bridge, where fissures issued water and dirt for some time (CDI 6/4/1887; NT 6/4/1887).

### 1914, February 18 and April 24 Reno and Earthquakes M 6.0 and M 6.4

A pair of earthquakes strongly shook Reno in 1914 and caused light damage to the city. The first earthquake was about magnitude 6.0 and occurred on February 18th at 10:17 a.m. PST. Shaking in Reno, Sparks, and Virginia City was so strong that people thought the streets facing buildings were going to collapse (dePolo and Gards, 2000). The earthquake lasted for about 10 seconds and broke windows, cracked walls, and sent some parts of a brick fire wall crashing to the ground in Reno (RE 2/18/1914). The shaking cracked plaster and tossed contents of boxes in the apartment area for hours before the main event (Raybroke, 1915). A second, larger earthquake struck Reno on April 24th at 12:34 a.m. PST. This earthquake was stronger than the February event in nearly every aspect, and again people ran out of buildings in Reno. People were awakened from their sleep as they were at the Sacramento Valley in California from the shaking. In Reno, bricks fell from buildings, plaster was cracked, windows were cracked, and dishes were broken (REG 4/24/1914). Four chimneys were damaged up on University Hill (REG 4/24/1914). In Virginia City, people who were awake dashed to the streets, as pictures were jarred from walls and dishes fell from shelves (ITE 4/24/1914).

### 1915, October 2 Pleasant Valley Earthquake M 6.1 and M 7.3

The 1915 Pleasant Valley earthquake had the largest magnitude (M 7.3; dePolo, 2011 unpublished research), the largest vertical surface offset (5.8 m; 19.1 ft; Jones, 1915; Wallace, 1984), and one of the longest surface ruptures (~40 km; ~25 mi; Wallace, 1984) to occur in Nevada's history. The earthquake occurred at 10:53 p.m. PST on Saturday, October 2, and was preceded by a forebush at 3:45 p.m., that was strong enough to felt in Reno, an even stronger forebush (UNRS, catalog mag 6.1) at 5:45 p.m., and nearly incessant, continuous low motion and intermittent shuddering in the apartment area for hours before the main event (Raybroke, 1915). A man who also experienced the 1905 San Francisco earthquake, felt the 1915 earthquake was stronger than that in San Francisco. Raybroke (1915) described it as "the most serious and violent that a human being could experience and live through." The earthquake was felt from Washington to Mexico and from the Pacific Coast to Colorado (Wallace, 1984). People were alarmed and ran out of buildings in Winnemucca, Battle Mountain, Elko, Fallon, Eureka, Reno, Sparks, and Virginia City, and Saturday night dances all across northern Nevada were abruptly interrupted (Folgate, 1987). The Pleasant Valley earthquake damaged and partially collapsed adobe and brick walls of ranch buildings in Pleasant and Green Valleys (SU 10/15/15). It damaged several buildings in Winnemucca, where about half of the brick chimneys in town were either thrown to the ground or broken enough to require repair (Folgate, 1987). Plaster was broken and fell in buildings at Battle Mountain, Fallon, and at a ranch east of Austin (Folgate, 1987).

### 1948, December 29 Verdi Earthquake M 6.0

The Verdi earthquake was preceded by several distinctly felt forebushes over about 36 hours (dePolo and others, 2008; dePolo, 2011a). Immediate forebush activity was pronounced enough that the Reno Fire Chief put the entire department on alert and a full-scale search for the main event (REG 12/29/48). The main event, a magnitude 6.0 earthquake, occurred at 4:53 a.m. PST on a Wednesday morning, December 29th (Simmons and others, 1965). The earthquake caused considerable damage in the community of Verdi, just west of Reno, where a general store's brick wall fell, chimneys fell or were twisted, a brick parapet toppled, plaster walls and windows were cracked and broken, building foundation damage occurred to several homes, hot water heaters and mail stoves were wrenched out of place, and there was extensive nonstructural damage (REG 12/29/48). All buildings in town had some damage (REG 12/29/48). In Reno, several chimneys fell or were broken and heated, concrete and plaster were cracked, and contents were thrown from shelves (Murphy and Cloud, 1956).