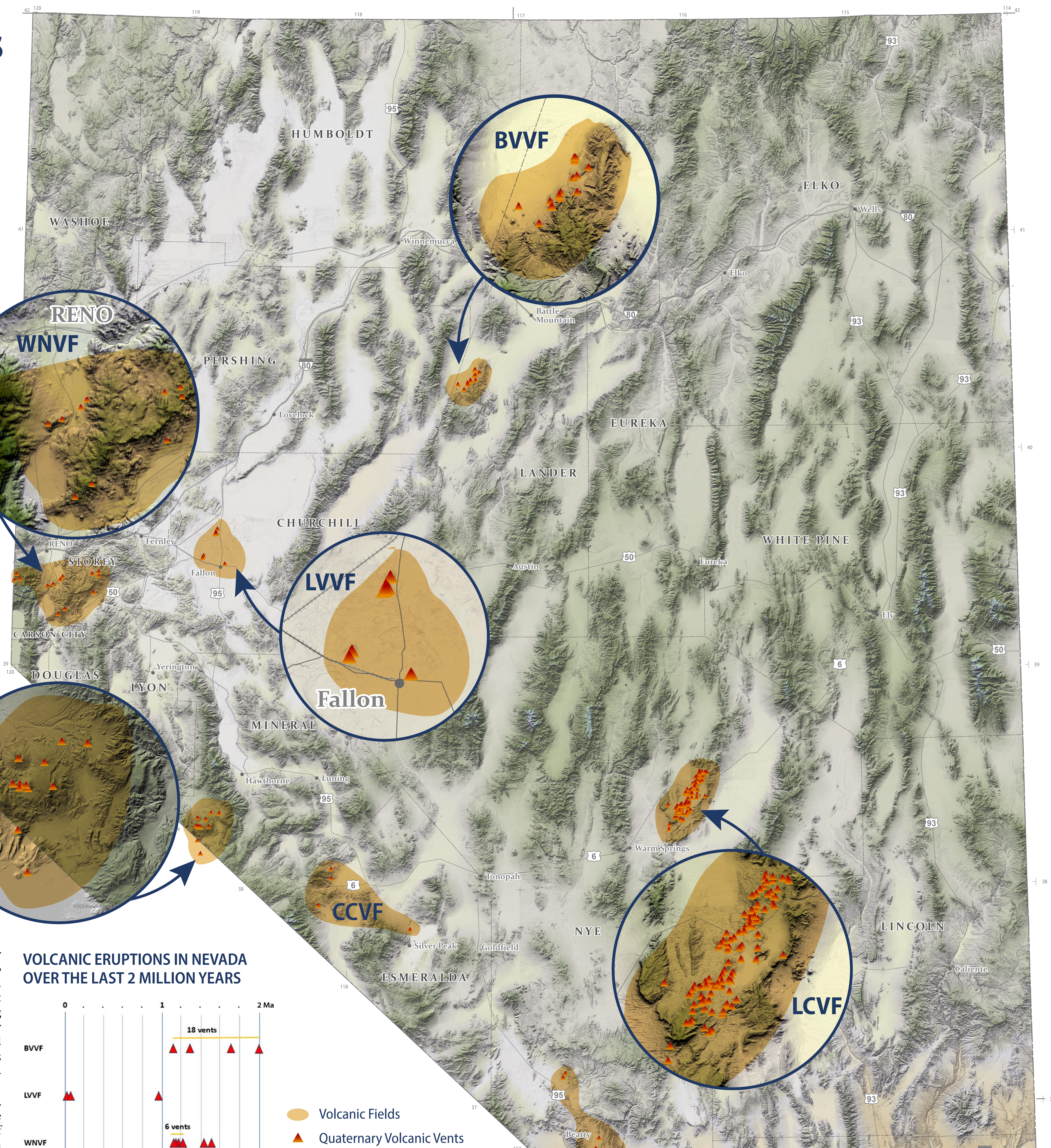
Quaternary Volcanoes in Nevada

Craig M. dePolo, Rachel Micander, and James E. Faulds

Nevada Bureau of Mines and Geology

2026



INTRODUCTION

Nevada is a tectonically active state, containing hundreds of thousands of historical earthquakes, hundreds of late Quaternary (the current and most recent geological period in the Cenozoic Era) faults, and over 165 Quaternary volcanoes. A volcano is a vent in the Earth's crust from which lava, tephra, blocks, and bombs erupt. Lava is the term used to describe molten rock when it erupts onto the surface of the Earth while magma is the term used to describe molten rock inside the Earth's crust. The term "volcano" also refers to landforms built up by erupting material. Nevada has a long and complex volcanic history, which—among other things—is associated with the mineralization found across the state today. In addition to the volcanoes in Nevada, hundreds of Quaternary volcanoes exist in adjacent states. Some of these neighboring volcanoes could seriously impact parts of Nevada should they erupt. This map presents a compilation of vent locations and evidence of Quaternary volcanoes in Nevada, as well as a discussion of volcanic characteristics and geographic areas.

Quaternary volcanoes in Nevada occur in groups, known as volcanic fields, of which seven have been identified to date. These are the Aurora (AVF), Buffalo Valley (BVVF), Clayton-Columbus (CCVF), Lahontan Valley (LVVF), Lunar Crater (LCVF), southwest Nevada (SWNVF), and western Nevada (WNVF) volcanic fields. In general, Quaternary volcanic activity in these fields is part of longer-term late Cenozoic volcanism in these areas (c.f., Valentine and Perry, 2006; John et al., 2015; Valentine et al., 2017; Cousens et al., 2019).

This map indicates the location of Quaternary volcanic vents or other associated features indicative of Quaternary volcanism that have been identified across Nevada. These eruptions range in age from the 2.6-million-year-old (Ma) trachybasalt of Cedar Hill in the Aurora volcanic field (John et al., 2015) to the most recent eruption in the state—which occurred at Soda Lake near Fallon—approximately 5,500 years ago (Rodrigues and Ruprecht, 2023). In some cases, a volcanic vent is related to a single eruptive episode, while in other areas, multiple vents were involved.

NEVADA'S QUATERNARY VOLCANOES

Nevada is home to over 165 Quaternary volcanoes, although the exact number remains uncertain. Some volcanoes may be buried by sediments or younger volcanic rocks, and smaller, older volcanoes may have been eroded beyond recognition. The presence of these Quaternary volcanoes, vents, and lava flows provides valuable insight into potential future volcanic activity in Nevada. This information enables scientists and emergency managers to assess and prepare for future volcanic hazards in the state.

Nevada's Quaternary volcanoes are monogenetic, meaning they have a single eruption episode, which can last from weeks to years. This is in contrast with many volcanoes in eastern California and the Cascade Range, which are polygenetic, have crustal magma chambers, and have multiple eruption episodes, which eventually build up large volcanoes (e.g., composite or stratovolcanoes). Monogenetic volcanism implies that the magma related to an eruption is derived from the mantle and propagates upwards, and with exception of possible minor pooling, migrates to the surface without forming any significant crustal magma chambers. Monogenetic volcanism is also consistent with the long periods of time between eruptions in Nevada's volcanic fields. There are a few volcanoes in Nevada that seem to have erupted twice, as exhibited by closely spaced vents. One example of such a volcano is McClellan Peak volcano near Carson City; however, these occurrences are uncommon and could simply represent a coincidence in vent locations.

During the late Quaternary, volcanic eruptions in Nevada included Hawaiian-, Strombolian-, violent Strombolian-, Surtseyan-, and phreatomagmatic-type eruptions. These are also the most likely eruption types to occur in the future, if volcanic activity resumes. Hawaiian eruptions are relatively mild, forming lava fountains, fissure eruptions, small cinder and spatter cone formation, effusing lava flows, and relatively small tephra plumes. These eruptions imply that the magma was relatively hot and fluid, containing low amounts of volatile gases. Strombolian eruptions are more explosive than Hawaiian eruptions and produce spatter and cinder cones composed of scoria and volcanic blocks and bombs. They may also form fissure eruptions and lava flows and develop small tephra (ash) plumes. In some cases, eruptions at a volcano may begin as a Hawaiian eruption and then change to a Strombolian eruption, where ejecta are composed of broken chunks of previously cooled lava. Violent Strombolian eruptions are just that, more violent and energetic than their regular counterparts: they produce lava, ash, blocks and bombs, and gases from a vent or crater with materials being blown several kilometers into the air.

Phreatic and phreatomagmatic eruptions involve the interaction of magma with groundwater or shallow bodies of water. These eruptions are highly explosive. During an eruption, magma comes in contact with groundwater, which rapidly flashes (boils) to steam. Overlying rock and sediments are included in the resulting explosions, which may produce shock waves that travel through the air. Phreatomagmatic eruptions form a crater (maar) and tuff ring—an embankment of debris that accumulates around the crater. Tuff rings can include lapilli, cinder, and volcanic blocks and bombs. Volcanic maars are depressions that form from phreatomagmatic eruptions—in some cases, maars may fill with water, making a small lake (Soda Lake and Little Soda Lake). When an eruption occurs under a shallow body of water, such as a pluvial lake (e.g., Pleistocene Lake Lahontan), the eruptions are called Surtseyan eruptions. Surtseyan eruptions are less violent than phreatic eruptions and allow for a tuff cone to build up around the vent. Tuff cones may also emerge above the surface of the water.

NEVADA'S VOLCANIC ACTIVITY

Although only about a third of the Quaternary eruptions in Nevada have been dated (~54 dates), there is enough information available to make a general timeline of eruptions and gain a sense of the overall volcanic activity across the state. Quaternary volcanic rocks have been dated using potassium–argon (K–Ar), argon–argon ($^{40}Ar/^{39}Ar$), optically stimulated luminescence, and beryllium-10 (^{10}B) dating techniques. The dates are used at face-value for simplicity, but it is important to recognize that there can be considerable epistemic (knowledge uncertainty) and aleatory (natural variability) uncertainty in an individual eruption age. Future dating and new dating techniques will improve eruption ages.

NEVADA'S VOLCANIC HAZARD

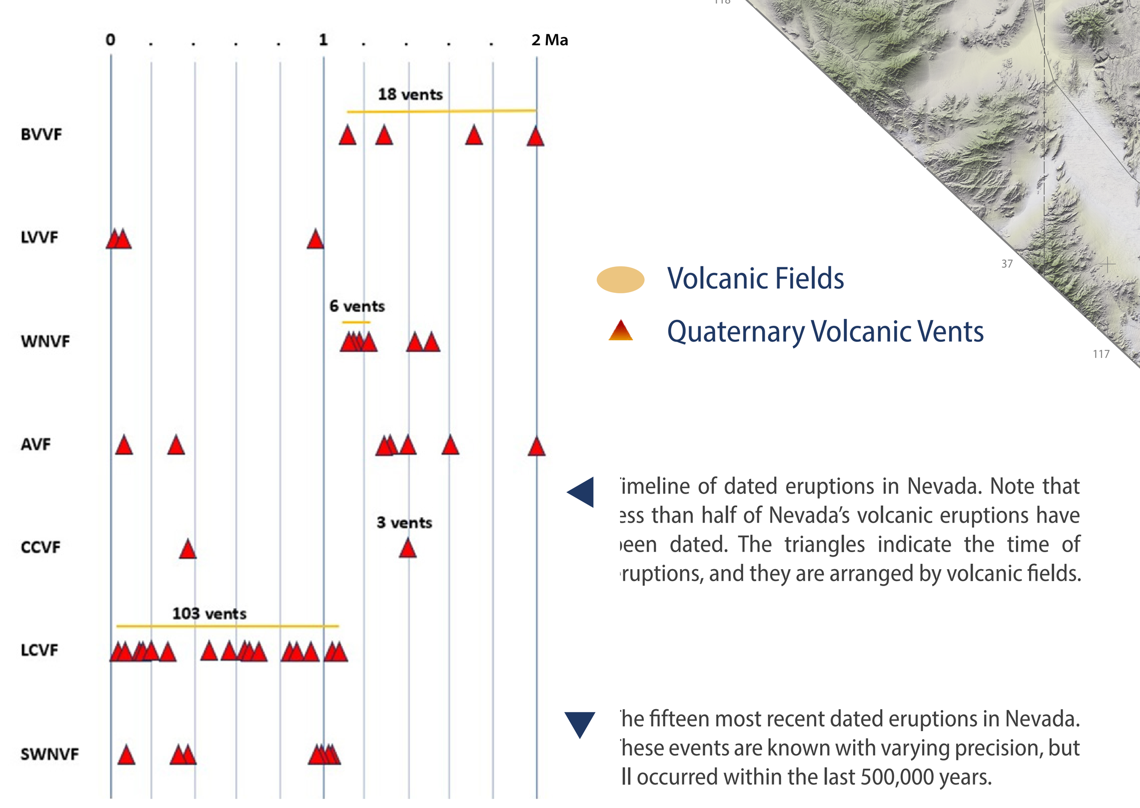
Several potential eruption scenarios are suggested by the Quaternary volcanoes and deposits found within the active volcanic fields in Nevada. These eruptions range from relatively benign lava fountains and effusing lava flows (Hawaiian eruptions), to repeated, violent phreatic explosions. Of the seven Quaternary volcanic fields in Nevada, four fields are considered active in this study (Lahontan Valley, Lunar Crater, southwest Nevada, and Aurora volcanic fields), one field is potentially active (Clayton-Columbus volcanic field), and two fields are considered inactive (Buffalo Valley and western Nevada volcanic fields).

Of the four active volcanic fields, one volcanic field—the Lahontan Valley volcanic field—is situated proximal to the town of Fallon. The southwest Nevada volcanic field is near the towns of Beatty and Amargosa Valley. With the exceptions of these two fields, direct societal exposure to a Nevada eruption is limited. An eruption near Fallon would impact the town, surrounding ranches and farms, major highways, two airports, and U.S. military facilities. An eruption in any of the active volcanic fields pose potential impacts to highways, airspace, and local ranches.

Future Nevada eruptions are anticipated to occur within the active volcanic fields; however, timing of such an event is unknown. Eruptions are expected to be preceded by earthquake swarms, some of which may display waveforms diagnostic of magma moving underground. Measurable ground uplift over upward propagating magma is common. Initial eruption type depends partly on how much groundwater is present at the eruption site; if there is enough water, the initial eruptions could be phreatic- or phreatomagmatic-type. After the water is driven off, or in instances where magma does not encounter groundwater, the eruptions will be magmatic and likely begin with fissure eruptions forming spatter ramparts and/or cinder and scoria cones. Further eruptive activity can be expected to produce lava flows. Volcanic episodes can last from several months to several years, with intermittent eruptions through the period that last hours to days or weeks. Volcanic and tectonic earthquakes may also accompany an eruption.

The volcanic hazard in Nevada is considered to be overall low. Calculated time between eruptions is lengthy, making a volcanic eruption a rare event in Nevada. An exception to this observation is the Lahontan Valley volcanic field, where a Holocene (the current geological epoch, beginning approximately 11,700 years ago) eruption and a potentially short interval between recent eruptions indicate a moderate hazard level.

VOLCANIC ERUPTIONS IN NEVADA OVER THE LAST 2 MILLION YEARS



◄ Timeline of dated eruptions in Nevada. Note that less than half of Nevada's volcanic eruptions have been dated. The triangles indicate the time of eruptions, and they are arranged by volcanic fields.

▼ The fifteen most recent dated eruptions in Nevada. These events are known with varying precision, but all occurred within the last 500,000 years.

THE FIFTEEN MOST-RECENT DATED ERUPTIONS IN NEVADA

Years B.P.[1]	Location/Volcano	Volcanic Field	Reference
5–6 kyr[2]	Soda Lake	Lahontan Valley volcanic field	Rodrigues and Ruprecht, 2023
11–18 kyr	Upsal Hogback	Lahontan Valley volcanic field	Anderson, 2014
35 kyr	Marcath	Lunar Crater volcanic field	Valentine et al., 2017
40–100 kyr	Mud Spring	Aurora volcanic field	John et al., 2015
72–80 kyr	Giggle Springs	Lunar Crater volcanic field	Valentine et al., 2017
77 kyr	Lathrop Wells	Southwest Nevada volcanic field	Valentine and Perry, 2006
130 kyr	Easy Chair	Lunar Crater volcanic field	Valentine et al., 2017
140 kyr	Lava near Lunar Crater	Lunar Crater volcanic field	Valentine et al., 2017
190 kyr	Lunar Crater	Lunar Crater volcanic field	Valentine et al., 2017
270 kyr	Lunar Lake lava	Lunar Crater volcanic field	Valentine et al., 2017
260–470 kyr	Aurora Crater	Aurora volcanic field	John et al., 2015
323 kyr	Little Black Cone	Southwest Nevada volcanic field	Valentine and Perry, 2006
373 kyr	Hidden Cone	Southwest Nevada volcanic field	Valentine and Perry, 2006
390 kyr	Clayton Valley	Clayton-Columbus volcanic field	Wood and Klienle, 1990
460 kyr	Lava west of Lunar Lake	Lunar Crater volcanic field	Valentine et al., 2017

[1] Years before present
[2] Thousands of years ago

QUATERNARY VOLCANIC FIELDS IN NEVADA

Buffalo Valley Volcanic Field (BVVF)

On the eastern side of Buffalo Valley, along the western flank of the Fish Creek Mountains, and at the westernmost part of Lander County, there are eight groups containing a total of at least 18 Quaternary volcanic vents that erupted between ~1.1 and 2 million years ago (Ma) (Cousens et al., 2013). These basaltic volcanoes consist of small, breached cinder and scoria cones, fissure ramparts, and short lava flows. Since the last eruption in this volcanic field occurred about 1.1 Ma, it is considered inactive.

Lahontan Valley Volcanic Field (LVVF)

The Lahontan Valley in Churchill County, which includes the city of Fallon, hosts three Quaternary volcanic centers: Rattlesnake Hill, Upsal Hogback, and Soda Lake. Basaltic trachyandesite eruptions at Rattlesnake Hill occurred between approximately 2.5 and 0.9 Ma, producing a cinder cone and associated lava flows that would have extended into present-day Fallon town limits (Cousens et al., 2014; dePolo et al., 2018). An extensive sequence of buried volcanic rocks surrounds and is related to the Rattlesnake Hill volcano (Glancy, 1986; Maurer and Welch, 2001). The Upsal Hogback volcano is a phreatomagmatic complex and exhibits multiple craters, tuff rings, and tuff cones. The latest Pleistocene eruption at Upsal Hogback likely began in the shallow water of ancient Lake Lahontan, producing a tuff ring. The eruption then shifted to form a tuff cone (Anderson, 2014). Tufa on the upper parts of the hogback indicates that the volcano was later submerged by ancient Lake Lahontan, confining the age of the eruption to 18,000 and 11,000 thousand years ago (kya) (Anderson, 2014). The youngest eruption in the Lahontan Valley volcanic field was at the Soda Lake volcano, which features two mid-Holocene phreatomagmatic maars and a tuff ring. A latest Pleistocene eruption also likely occurred before the mid-Holocene eruptions, as indicated by shorelines on a tuff ring, deposits in the crater walls mapped by Russell (1885), and logs from local water wells. This event has been dated at 12.6 ±1.0 kya (Dr. Rodrigues, DRI, 2025, pers. comm.). The most recent activity at Soda Lake, a basaltic phreatomagmatic eruption, occurred between 6,000 and 5,000 years before present (Cousens et al., 2012; Rodrigues and Ruprecht, 2023), making Soda Lake the youngest eruption in Nevada. As such, the Lahontan Valley volcanic field poses one of the highest volcanic risks across the state due to its recent activity, explosive potential, and proximity to Fallon.

Western Nevada Volcanic Field (WNVF)

The Reno-Carson City area (in Washoe, Carson City, and Storey counties) hosts 13 widely spaced volcanoes that erupted between 2.55 and 1.1 Ma (Cousens et al., 2011; Cousens et al., 2012). This volcanic activity formed domes with tuff rings, cinder cones, and lava flows. The resulting volcanic rocks include basalt, basaltic andesite, and rhyolite. The earliest eruptions, at 2.55 and 2.14 Ma, occurred in the Carson Range and Steamboat Hills (Cousens et al., 2012). After a hiatus of over 0.5 million years, activity resumed with the eruption of rhyolitic materials from an unnamed dome ~12.5 km northeast of Dayton. Rhyolitic materials at this dome were reported by Castor et al. (2013) to have formed at ~1.55 Ma. Nearby basalt flows in the Virginia Range have been dated at 1.44 Ma, including one that reached the Truckee River (Schwartz and Faulds, 2004). At 1.43 Ma, a volcano erupted a trachyandesite in the northern Carson Range (Cousens et al., 2012). Further activity occurred in the Steamboat Hills area, with three rhyolitic eruptions between 1.21 and 1.19 Ma. The McClellan Peak area also experienced three eruptions of basaltic andesite and basalt, from just before 1.36 to 1.17 Ma. The most recent eruption in the field occurred over 1.1 Ma, so it is inactive. A 2003–2004 dike intrusion in the lower crust indicates that deep magmatic activity continues (Smith et al., 2004).

Aurora Volcanic Field (AVF)

The Aurora volcanic field, located northeast of Mono Lake and west of the Bodie Hills in Mineral County, spans about 14 km east-to-west and 22 km north-to-south. This field has been active since 3.9 Ma with 10 to 15 eruptions occurring during the Quaternary period (John et al., 2015). The volcanic rocks in the field have a wide range of compositions—basaltic, andesitic, dacitic, and rhyolitic—and are typically high in potassium (John et al., 2015). The Quaternary volcanoes in the Aurora field are primarily monogenetic, consisting of cinder cones, lava flows, and domes. Notable examples of well-preserved late Pleistocene volcanoes include the Aurora Crater and Mud Springs volcanoes, which display distinct cone and lava flow morphology. The Quaternary period produced three main episodes of volcanic activity across the Aurora volcanic field: 2.0–2.9 Ma, 1.32–1.6 Ma, and the most recent from approximately 470,000 to 40,000 years ago (John et al., 2015). Since 1.6 Ma, six eruptions have been identified. This suggests that volcanic activity in the Aurora field has been intermittent and possibly decreasing over time, yet the presence of a late Pleistocene eruption indicates that the field should still be considered active.

Lunar Crater Volcanic Field (LCVF)

Located in northern Nye County, the Lunar Crater volcanic field is the most active late Quaternary field in Nevada. The Quaternary section of the volcanic field forms a north-northeast-trending zone about 35 km long and 3 to 7 km wide, containing at least 103 volcanic vents. In several cases, multiple volcanic vents were likely associated with a single eruptive episode. The field is made up of small and large cinder and scoria cones, commonly displaying breached sides, fissure vents and flanking spatter ramparts, lava flows, and a few maars with tuff rings (Valentine et al., 2017). The most recent eruption in the Lunar Crater volcanic field produced the basaltic Marcath volcano around 35,000 years ago. This eruption started as a fissure eruption but shortly thereafter concentrated to a narrow vent, building a 150-meter-high breached cinder/scoria cone and producing lava flows that extend up to 3.2 km in length (Valentine et al., 2017). A 7-km-long tephra field, with tephra as much as 2 m thick, was associated with this eruption and was mapped to the southeast of the volcano (Johnson et al., 2014). Estimates of the material erupted from the Marcath volcano indicate that approximately 65% formed lava flows, 26% built the cones and fissure ramparts, and 9% was ejected as tephra deposited beyond the volcano (Younger et al., 2019). This volcanic field is named after Lunar Crater, a volcanic maar that erupted between 190,000 and 72,000 years ago (Valentine et al., 2017). The Lunar Crater maar is 1,050 m wide and ~130 m deep (Wood and Kienle, 1990) and is designated as a National Natural Landmark. Another informative eruption that was studied in the Lunar Crater volcanic field is the Easy Chair Crater, which erupted approximately 140,000 years ago (Valentine et al., 2017). This eruption formed the longest fissure eruption mapped in the volcanic field, measuring approximately 2.5 km in length (Valentine et al., 2017). The sequence of volcanic events at Easy Chair Crater began with rampart-building fissure eruptions, followed by the formation of two localized vents that built scoria cones and erupted lava flows. This was followed by a series of phreatomagmatic explosions (Valentine and Cortez, 2013). The Lunar Crater volcanic field records a relatively high rate of volcanic activity during the late Pleistocene and is considered an active field. The remote location of the field limits potential consequences of an eruption; some ranches, roads, and highways could be locally impacted.

Clayton-Columbus Volcanic Field (CCVF)

The Clayton-Columbus volcanic field in Esmeralda County consists of four widely distributed but eroded basaltic cinder cones and lava flows. Two lava flows are over 4 km in length and have rather inverted topography resulting from erosion of softer underlying materials. Three of the volcanoes appear to be early Quaternary (ca. 1–2 Ma) based on morphological comparison with other dated volcanoes. The Clayton Valley volcano is dated at ~390,000 years before present (Wood and Kienle, 1990). This volcano has a relatively well-preserved, breached cinder cone and a 2-km-long lava flow that is partially buried by alluvium. Since the Clayton Valley volcano shows evidence of mid-Pleistocene activity, the southern part of the volcanic field can be considered potentially active. Possible impacts from an eruption in the southern end of this field include disruptions to the town of Silver Peak (~7 km to the south of the present cone), a major lithium operation near Silver Peak, and to local highways.

Southwest Nevada Volcanic Field (SWNVF)

Quaternary volcanic activity across the southwest Nevada volcanic field includes eight volcanoes located to the east and north of the town of Beatty in Nye County. The volcanoes in this field consist of basaltic cinder and scoria cones, accompanied by nearby lava flows. Five north-northeasterly aligned volcanic cones and flows were erupted at Crater Flat approximately 19 km southeast of Beatty. These volcanoes erupted between 1.076 and 0.977 Ma (Valentine et al., 2007; Valentine and Perry, 2006). Two basaltic volcanic cones, known as Hidden Cone and Little Black Peak, are located north of Beatty and erupted around 373,000 and 323,000 years ago, respectively (Valentine and Keating, 2007). Lathrop Wells Cone is the youngest volcano in the field and is located to the southeast of Crater Flat. This basaltic volcano erupted approximately 77,000 years ago and produced a scoria cone, lava flows, and an eruptive column that deposited volcanic ash up to 20 km away (Valentine et al., 2007), with some of this ash making its way into open earthquake fissures on nearby faults at Yucca Mountain (Ramelli et al., 2004). The southwest Nevada volcanic field exhibited volcanism during the latest Pleistocene and is considered an active volcanic field.

REFERENCES

Anderson, E., 2014, Physical volcanology and geochemistry of Upsal Hogback volcano, Fallon, Nevada, USA: Ottawa, Ontario, Carleton University, M.S. thesis, 254 p.
Castor, S.B., House, P.K., Hudson, D.M., and Henry, C.D., 2013, Geologic map of the Flowery Peak quadrangle, Storey and Lyon counties, Nevada: Nevada Bureau of Mines and Geology Map 180, 1:24,000 scale, 24 p.
Cousens, B., Henry, C.D., and Gupta, V., 2012, Distinct mantle sources for Pliocene-Quaternary volcanism beneath the modern Sierra Nevada and adjacent Great Basin, northern California and western Nevada, USA: Geosphere, v. 8, p. 562–580.
Cousens, B.L., Henry, C.D., Harvey, B.J., Brownrigg, T., Prytulak, J., and Allan, J.F., 2011, Secular variations in magmatism during a continental arc to post-arc transition—Plio-Pleistocene volcanism in the Lake Tahoe/Truckee area, Northern Sierra Nevada, California: Lithos, v. 123, no. 1–4, p. 225–242.
Cousens, B.L., Henry, C.D., Stevens, C., Varve, S., John, D.A., and Wetmore, S., 2019, Igneous rocks in the Fish Creek Mountains and environs, Battle Mountain area, north-central Nevada—a microcosm of Cenozoic igneous activity in the northern Great Basin, Basin and Range Province, USA: Earth-Science Reviews, v. 192, p. 403–444.
Cousens, B., Wetmore, S., and Henry, C.D., 2013, The Pliocene-Quaternary Buffalo Valley volcanic field, Nevada—post-extension-intraplate magmatism in the north-central Great Basin, USA: Journal of Volcanology and Geothermal Research, v. 268, p. 17–35.
dePolo, C.M., Henry, C.D., Zuza, A.V., Micander, and Faulds, J.E., 2018, Sparkling or still? A tour of geology from Soda Lakes to Stillwater Marsh, Nevada: Nevada Bureau of Mines and Geology Educational Series E-63, 25 p.
Glancy, P.A., 1986, Geohydrology of the basalt and unconsolidated sedimentary aquifers in the Fallon area, Churchill County, Nevada: U.S. Geological Survey Water-Supply Paper 2263, 2 plates, 70 p.
John, D.A., du Bray, E.A., Box, S.E., Vikre, P.G., Rytuba, J.J., Fleck, R.J., and Moring, B.C., 2015, Geologic map of the Bodie Hills, California and Nevada: U.S. Geological Survey Scientific Investigations Map SIM-3318, scale 1:50,000, 64 p.
Johnson, P.J., Valentine, G.A., Cortés, J.A., and Tadini, A., 2014, Basaltic tephra from monogenetic Marcath volcano, central Nevada: Journal of Volcanology and Geothermal Research, v. 281, p. 27–33.
Maurer, D.K., and Welch, A.H., 2001, Hydrogeology and geochemistry of the Fallon basalt and adjacent aquifers, and potential sources of basalt recharge, in Churchill County, Nevada: U.S. Geological Survey Water-Resources Investigations Report 01-4130, 2 plates, 72 p.
Ramelli, A.R., Oswald, J.A., Vadurro, G., Menges, C.M., and Paces, J.B., 2004, Quaternary faulting on the Solitario Canyon fault, in Quaternary Paleoseismology and Stratigraphy of the Yucca Mountain Area, Nevada: U.S. Geological Survey, Professional Paper 1689, p. 89–110.
Rodrigues, K. and Ruprecht, P., 2023, Exploring luminescence-based methods for dating phreatomagmatic eruptions: a case study from Soda Lake, NV: Geological Society of America Abstracts with Programs, v. 55, no. 4.
Schwartz, K.M., and Faulds, J.E., 2004, Preliminary geologic map of most of the Chalk Hills quadrangle, Storey County, Nevada: Nevada Bureau of Mines and Geology Open-File Report 2004-11, 1:24,000 scale.
Smith, K.D., von Seggern, D., Blewitt, G., Preston, L., Anderson, J.G., Wernicke, B.P., and Davis, J.L., 2004, Evidence for deep magma injection beneath Lake Tahoe, Nevada-California: Science, v. 305, p. 1,277–1,280.
Valentine, G.A., and Cortés, J.A., 2013, Time and space variations in magmatic and phreatomagmatic eruptive processes at Easy Chair (Lunar Crater volcanic field, Nevada, USA): Bulletin of Volcanology, v. 75, no. 752, 13 p.
Valentine, G.A., Cortés, J.A., Widom, E., Smith, E.I., Rasoazanamparany, C., Johnsen, R., Briner, J.P., Harp, A.G., and Turrin, B., 2017, Lunar Crater volcanic field: Geosphere, v. 13, no. 2, p. 391–438.
Valentine, G.A., and Keating, G.N., 2007, Eruptive styles and inferences about plumbing systems at Hidden Cone and Little Black Peak scoria cone volcanoes (Nevada, U.S.A.): Bulletin of Volcanology, v. 70, p. 105–113.
Valentine, G.A., Krier, D.J., Perry, F.V., and Heiken, G., 2007, Eruptive and geomorphic processes at the Lathrop Wells scoria cone volcano: Journal of Volcanology and Geothermal Research, v. 161, p. 57–80.
Valentine, G.A., and Perry, F.V., 2006, Decreasing magmatic footprints of individual volcanoes in a waning basaltic field: Geophysical Research Letters, v. 33, 5 p.
Wood, C.A., and Kienle, J, 1990, Volcanoes of North America—United States and Canada: Cambridge University Press, 354 p.
Younger, Z.P., Valentine, G.A., and Gregg, T.K.P., 2019, `A'ā lava emplacement and the significance of rafted pyroclastic material—Marcath volcano (Nevada, USA): Bulletin of Volcanology, v. 81, 15 p.

Suggested citation:
dePolo, C.M., Micander, R., and Faulds, J.E., 2026, Quaternary volcanoes in Nevada: Nevada Bureau of Mines and Geology Open-File Report 2026-01, scale 1:1,000,000.

Preparation and publication supported by the Nevada Office of Emergency Management / Homeland Security, https://www.oem.nv.gov/, and the Federal Emergency Management Agency (FEMA), https://www.fema.gov/.

Cartographic and style review by Jennifer Vlcan.
Compilation and layout by Rachel Micander.
Layout and design assistance provided by Christina Clack.
Additional contributions provided by Christopher D. Henry.

First edition, January 2026

Published by the Nevada Bureau of Mines and Geology

This map was produced on an electronic plotter directly from digital files. Dimensional calibration may vary between electronic plotters and X and Y directions on the same plotter, and paper may change size; therefore, scale and proportions may not be exact on copies of this map.

Nevada Bureau of Mines and Geology
Mackay School of Earth Sciences and Engineering
College of Science
University of Nevada, Reno

For sale by:
Nevada Bureau of Mines and Geology
2175 Raggio Pkwy.
Reno, Nevada 89512
ph. (775) 682-8766
nbmg.unr.edu; nbmg@unr.edu