NEVADA BUREAU OF MINES AND GEOLOGY
RENO AREA MAP 4Bg

MT. ROSE NE QUADRANGLE
GEOLOGIC MAP

# MT ROSE NE QUADRANGLE

# GEOLOGY

## H. F. Bonham, Jr. and David K. Rogers, 1983

Supplementary mapping was provided by John W. Bell, E. C. Bingler, and Dennis T. Trexler. Geology of Steamboat Hills area modified from White and others (1964).


REFERENCES

Silberman, M. L., White, D. E., Keith, T. E. C., and Dockter, R. D. (1979) Duration of hydrothermal activity at Steamboat Springs, Nevada, from ages of spatially associated volcanic rocks: U.S. Geological Survey Professional Paper 458-D, 14 p.

White, D. E., Thompson, G. A., and Sandberg, C. H. (1964) Rocks, structure, and geologic history of Steamboat Springs thermal area, Washoe County, Nevada: U.S. Geological Survey Professional Paper 458-B, 62 p.


Scale 1:24,000

0 0.5 1 KILOMETER
0 1000 METERS

CONTOUR INTERVAL 20 FEET
DOTTED LINES ARE 10-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

0 0.5 1 MILE
0 2000 4000 FEET

Topographic base from
U.S. Geological Survey
Mt. Rose NE 7½' quadrangle, 1969

Cartography by Larry Jacox


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Qfl **Floodplain and lake deposits.** Interbedded gray to pale grayish-yellow silt and fine sand; contains thin lenses of peat; fluvial and lacustrine deposits up to 7 m (23 ft) thick. Little or no soil development (entisols)

Qa **Alluvial bajada deposits.** Thin sheet-like aprons of fine- to medium-grained clayey sand and intercalated muddy, medium pebble gravel; deposits of low gradient streams that reworked older gravelly outwash and alluvial fan deposits; weakly weathered and largely undissected. Little or no soil development (entisols)

Qaf **Alluvial fan of Windy Hill.** Locally derived silty to muddy, medium pebble gravel transported from the large Evans Creek drainage area; engulfs high-standing remnants of Donner Lake Outwash. These fan deposits intertongue with and become part of the alluvial bajada, Qa. Generally undissected, but contains scattered remnants of older alluvium

Qsu **Sand, undifferentiated.** Local deposits of fine to medium sand; eolian, alluvial outwash, and colluvial slope wash deposits

Qtm **Tahoe Outwash—Mount Rose Fan Complex.** Glacial outwash stream deposits of volcanic and granitic composition; light yellowish- to orange-brown; sandy large cobble to boulder gravel containing characteristically fresh granitic lag gravel. Strongly developed 1-m (3 ft) thick soil profile; dark yellowish-brown, prismatic argillic B-horizon; typically no siliceous or calcic duripan development; granitic boulders partly to thoroughly decomposed where buried in soil. Deposits locally only thin veneers; some undifferentiated areas

Qoa **Older alluvium.** Highly dissected remnants of muddy, sandy small pebble gravel in alluvial deposits transported from Thomas Creek; soil profile 1-2 m (3-6 ft) thick with strongly developed argillic B-horizon; local duripan development. Also includes areas of older alluvium in Steamboat Hills

Qs **Sidestream deposits.** Fluvial silt and medium sand associated with Tahoe Outwash deposits along the Truckee River; soil profile similar to Qtm

Qmb **Mud-volcanic breccia.** Heterogeneous mixture of bleached and iron-stained boulders and fragments of volcanic rocks opaline and chalcedonic sinter, and disintegrated granitic debris

Qdo **Donner Lake Outwash.** Bouldery outwash forming strath terraces on bedrock; extensive mantle thickening eastward; unconsolidated small cobble gravel and interbedded coarse sand. Highly rounded clasts; unit locally contains very large, deeply weathered boulders of basalt and quartz monzonite more than 2 m (6 ft) in diameter. Strongly developed soil profile 2-3 m (6-10 ft) thick; prismatic argillic B-horizon; weakly to strongly developed siliceous and calcic duripan 1-2 m (3-6 ft) thick; granitic clasts thoroughly disintegrated in weathered profile

Qdm **Donner Lake Outwash—Mount Rose Fan Complex.** Pediment and thin fan deposits from major streams draining alpine glaciers on Mount Rose; brown to brownish-gray, sandy, muddy, poorly sorted large pebble gravel; cobbles and small boulders common. Clasts dominantly volcanic (porphyritic andesite and latite); surface granitic clasts rare. Deeply weathered, strongly developed soil profile similar to Qdo; locally overlain by undifferentiated veneer of Qtm; well cemented and/or hydrothermally altered in Steamboat Hills area

Qp **Pediment gravel.** Veneers of moderately to poorly sorted medium pebble to cobble gravel < 3 m (10 ft) thick; commonly occurs as gravel sheet < 1 m (3 ft) thick over bedrock and older pediment and alluvial fan gravels; clast content dominantly volcanic. Strongly developed soil profile; thick argillic B-horizon locally overlying siliceous and calcic duripan

Qpf **Alluvial fan deposits of Peavine Mountain.** Yellowish-brown gravel and gravelly muddy sand consisting of angular pebbles to small cobble-sized clasts of andesite and white bleached andesite in matrix of muddy sand; unconformably overlies steeply dipping beds of sandstone of Hunter Creek (Th). Strongly developed soil profile; argillic B-horizon ½ m (2 ft) or more thick; typically overlies thick calcic and siliceous duripan

sr **Hot-spring sinter.** Siliceous sinter ranging in age from late Pliocene to present. Older sinter is white to gray chalcedony; locally contains mercury sulfides; younger sinter is light gray to tan porous opal

Tsb **Basaltic andesite of Steamboat Hills.** Dark gray flows with phenocrysts of plagioclase and olivine in intergranular matrix of pyroxene, plagioclase, Fe-Ti oxides. Source of flows is cinder cone in SW/4 S32,T18N,R20E. K-Ar age: 2.53 ± 0.1 m.y.

Toa **Old alluvium of Steamboat Hills.** Pediment deposits underlying Tsb. Pebble to cobble gravel consisting of angular to subangular granitic, volcanic, and metamorphic clasts and arkosic sands. Locally well cemented and/or strongly hydrothermally altered

Tb **Basalt and basaltic andesite of Carson Range.** Dark gray basaltic-appearing flows with prominent platy flow jointing; mineralogically similar to Tsb

Th **Sandstone of Hunter Creek. Th:** Undifferentiated.
$Th_1$: Brown to gray, medium- to thick-bedded, subangular coarse sand; intercalated tuff and subrounded andesite pebble to cobble conglomerate; grades upward into thin-bedded silt and diatomaceous silt. $Th_2$: White to light gray, massive to thin-bedded diatomaceous siltstone with minor beds of yellowish-tan medium sand; iron oxide staining of fractures in siltstone common. $Th_3$: Tan, gray to reddish-brown, thin- to thick-bedded, alternating layers of fine to coarse sand; intercalated layers of well rounded pebbles; cross-bedding common in sand fractions; basal contact conformable with $Th_2$

Tkf **Kate Peak Formation. Tkf:** Hornblende-pyroxene andesite and dacite flows with minor breccia
Tkfb and volcanic conglomerate. **Tkfb:** Hydrothermally
Tkb bleached Tkf. **Tkb:** Hornblende-pyroxene dacite and
Tki andesite lahars, pyroclastic breccia, volcanic con-
Tkd glomerate, and sandstone with minor flows. **Tki:** Intrusive hornblende-pyroxene-biotite dacite. **Tkd:** Flow-dome complexes of hornblende-biotite rhyodacite porphyry

Ta **Alta Formation.** Flows of dark fine-grained soda trachyte; occurs in Steamboat Hills area

Kgd **Biotite-hornblende granodiorite**

pKm **Metasedimentary and metavolcanic rocks.** Graywacke, argillite, slate, phyllite, hornfels, metatuff and breccia, volcanic conglomerate, and marble

**Contact.** Dashed where approximately located; dotted where concealed

**Fault.** Dashed where approximately located; dotted where concealed; queried where presence uncertain

**Undifferentiated landslide deposits**

**Artificial fill.** Not all fill areas shown

**Strike and dip of beds**

**Strike and dip of flow layering**

**Phreatic explosion crater.** (Steamboat Hills)