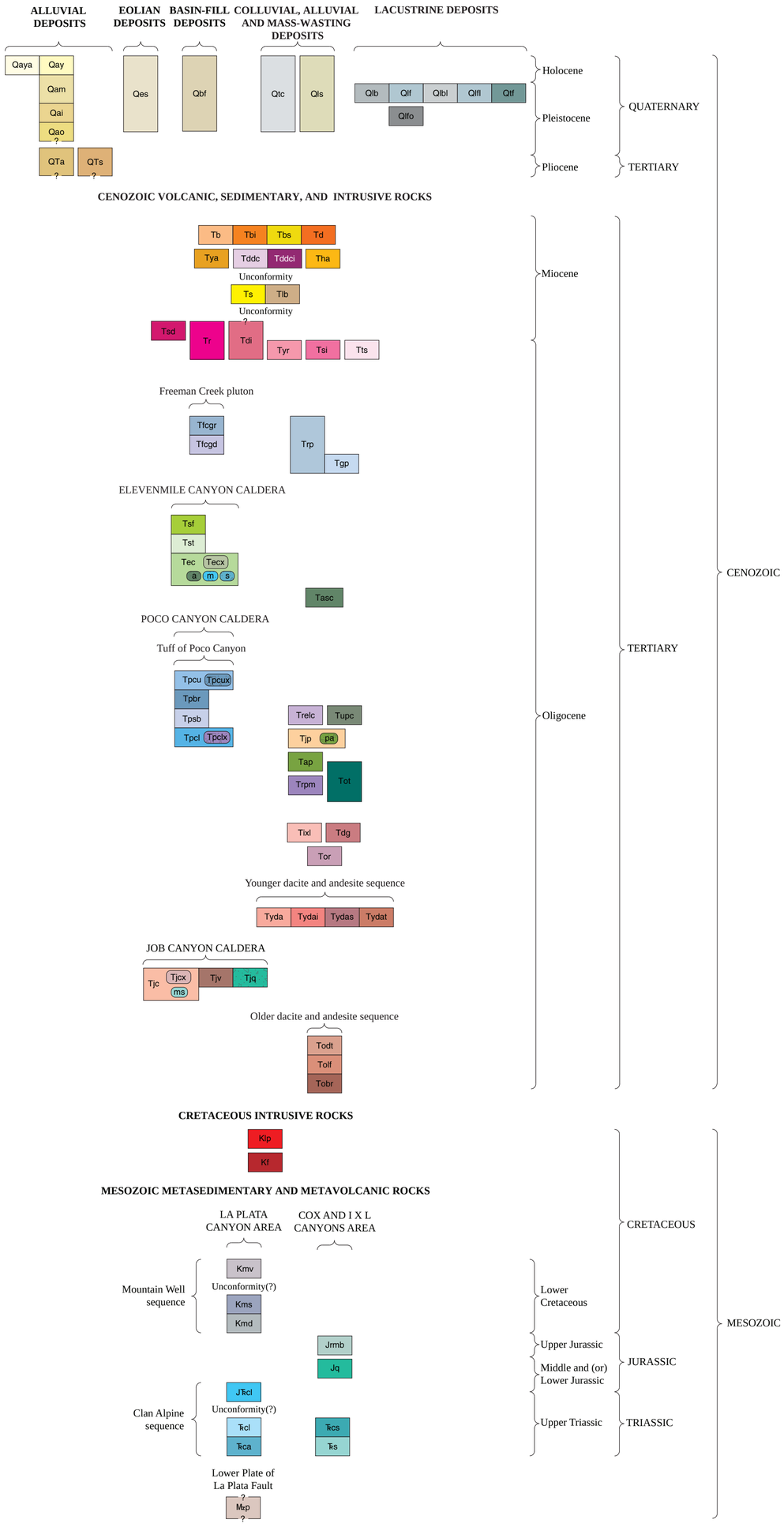
U.S. Department of the Interior
U.S. Geological Survey

Prepared in cooperation with the
Nevada Bureau of Mines and Geology

Scientific Investigations Map 3521
Sheet 2 of 2
Pamphlet accompanies map

CORRELATION OF MAP UNITS

[Queries at tops and (or) bottoms of CMU boxes indicate age uncertainty. See Description of Map Units (in pamphlet) for precise unit ages]



LIST OF MAP UNITS

[See Description of Map Units (in pamphlet) for complete unit descriptions.]

ALLUVIAL DEPOSITS

- Qaya — **Mainstream alluvium (Holocene)**
- Qay — **Young alluvial deposits (Holocene)**
- Qam — **Young to intermediate alluvial deposits (Holocene and late Pleistocene)**
- Qai — **Intermediate alluvial deposits (late and middle Pleistocene)**
- Qao — **Old alluvial deposits (middle and early? Pleistocene)**
- QTa — **Very old alluvial deposits (early Pleistocene and Pliocene?)**
- QTs — **Very old sediments (early Pleistocene and Pliocene?)**

EOLIAN DEPOSITS

- Qes — **Eolian sand (Holocene to middle Pleistocene)**

BASIN-FILL DEPOSITS

- Qbf — **Basin-fill deposits (Holocene to middle Pleistocene)**

COLLUVIAL, ALLUVIAL, AND MASS-WASTING DEPOSITS

- Qtc — **Talus, colluvium, and alluvium, undifferentiated (Holocene to middle Pleistocene)**
- Qls — **Landslide deposits (Holocene to middle Pleistocene)**

LACUSTRINE DEPOSITS

- Qlb — **Beach and shoreline deposits of Lake Dixie (late Pleistocene)**
- Qlf — **Sediments of Lake Dixie (late Pleistocene)**
- Qlbl — **Beach and shoreline deposits of Lake Lahontan (late Pleistocene)**
- Qlfl — **Sediments of Lake Lahontan (late Pleistocene)**
- Qtf — **Tufa deposits (late Pleistocene)**
- Qlfo — **Older sediments of Lake Dixie (middle Pleistocene)**

CENOZOIC VOLCANIC, SEDIMENTARY, AND INTRUSIVE ROCKS

- Tb — **Basalt (middle Miocene)**
- Tbi — **Basalt intrusions (middle Miocene)**
- Tbs — **Basaltic sedimentary rocks (middle Miocene)**
- Td — **Diabase (middle Miocene)**
- Tya — **Andesite (middle Miocene)**
- Tddc — **Dacite of Diamond Canyon (middle Miocene)**
- Tddci — **Porphyritic dacite intrusions (middle Miocene)**
- Tha — **Hornblende andesite (middle Miocene)**
- Ts — **Sedimentary rocks (Miocene)**
- Tlb — **Landslide breccia (Miocene)**
- Tsd — **Silicic dikes (Miocene)**
- Tr — **Rhyolite (Miocene or Oligocene)**
- Tdi — **Dacite intrusions (Miocene? and Oligocene)**
- Tyr — **Younger Rhyolite (Oligocene)**
- Tsi — **Silicic intrusive rocks (Oligocene)**
- Tts — **Tuffs and sedimentary rocks (Oligocene)**

Freeman Creek pluton (Oligocene)

- Tfcgr — **Granite**
- Tfcgd — **Granodiorite porphyry**
- Trp — **Rhyolite porphyry (Oligocene)**
- Tgp — **Granite porphyry (Oligocene)**

ELEVENMILE CANYON CALDERA
[Units Tsf, Tst, Tec, Tecx]

- Tsf — **Silicic lava flows (Oligocene)**
- Tst — **Sedimentary tuff unit (Oligocene)**
- Tec — **Tuff of Elevenmile Canyon (Oligocene)**
- Tecx — **Megabreccia, undivided (Oligocene)**
- a — **Megabreccia blocks of andesite of Sheep Canyon within tuff of Elevenmile Canyon**
- m — **Megabreccia blocks of marble**
- s — **Megabreccia blocks of black argillite**
- Tasc — **Andesite of Sheep Canyon (Oligocene)**

POCO CANYON CALDERA
[Units Tpcu, Tpbr, Tpsb, Tpcl]

Tuff of Poco Canyon (Oligocene)

- Tpcu — **Upper cooling unit**
- Tpcux — **Megabreccia blocks of underlying tuff and breccia of Government Trail Canyon and rhyolite of Pirouette Mountain**
- Tpbr — **Tuff and breccia of Government Trail Canyon**
- Tpsb — **Sandstone and breccia**
- Tpcl — **Lower cooling unit**
- Tpclx — **Megabreccia blocks of rhyolite of Pirouette Mountain**
- Trelc — **Rhyolite of East Lee Canyon (Oligocene)**
- Tupc — **Tuff of upper Poco Canyon (Oligocene)**
- Tjp — **Tuff of Job Peak (Oligocene)**
- pa — **Blocks of propylitized andesite porphyry**
- Tap — **Andesite porphyry (Oligocene)**
- Tot — **Older tuffs, undifferentiated (Oligocene)**
- Trpm — **Rhyolite of Pirouette Mountain (Oligocene)**
- Tixl — **IXL pluton (Oligocene)**
- Tdg — **Diorite and granodiorite (Oligocene)**
- Tor — **Older rhyolite (Oligocene)**

Younger dacite and andesite

- Tyda — **Younger dacite and andesite unit, undivided (Oligocene)**
- Tydai — **Dacite and andesite intrusions**
- Tydas — **Lacustrine sedimentary rocks**
- Tydat — **Dacite tuff**

JOB CANYON CALDERA
[Units Tjc, Tjcx, Tjv, Tjq]

- Tjc — **Tuff of Job Canyon (Oligocene)**
- Tjcx — **Megabreccia, undivided**
- ms — **Brecciated metashale and metasiltsone in the Tuff of Job Canyon**
- Tjv — **Metavolcanic megabreccia**
- Tjq — **Quartzite megabreccia**

Older dacite and andesite unit (Oligocene)

- Todt — **Dacite tuff**
- Tolf — **Lava flows**
- Tobr — **Breccia, conglomerate, and tuffs, undifferentiated**

CRETACEOUS INTRUSIVE ROCKS

- Klp — **La Playa Canyon pluton (Cretaceous)**
- Kf — **Felsite (Cretaceous)**

MESOZOIC METASEDIMENTARY AND METAVOLCANIC ROCKS

LA PLATA CANYON AREA

Mountain Well sequence (Lower Cretaceous?)—Divided into:

- Kmv — **Andesitic metavolcanic rocks**
- Kms — **Metasedimentary rocks, undifferentiated**
- Kmd — **Dacitic volcanic-felsite flows and sedimentary breccia**

Clan Alpine sequence (Lower Jurassic and Upper Triassic)—Divided into:

- JTrcl — **Upper limestone (Lower Jurassic and (or) Upper Triassic)**
- Trcl — **Lower limestone (Upper Triassic)**
- Trca — **Argillite (Upper Triassic)**

Lower plate of the La Plata Fault

- Mzp — **Phyllite (lower Mesozoic?)**

COX AND I X L CANYONS AREA

- Jrmb — **Rhyolite megabreccia (Upper Jurassic)**
- Jq — **Quartzite (Middle and (or) Lower Jurassic)**

Clan Alpine sequence (Triassic)—Divided into:

- Trcs — **Calcareous siltstone and sandstone (Triassic)**
- Trs — **Siltstone and argillite (Triassic)**

EXPLANATION OF MAP SYMBOLS

[Ar, argon; K, potassium; U, uranium; Pb, lead; SHRIMP, sensitive high-resolution ion microprobe]

Contact—Solid where location is accurate; long-dashed where location is approximate

Fault—Solid where location is accurate; long-dashed where location is approximate; short-dashed where location is inferred; dotted where location is concealed; queried where identity or existence is questionable

Fault, sense of slip unspecified

Normal fault—Ball and bar on downthrown block

Thrust fault—Sawteeth on upper plate

Low-angle normal fault—Half circles on downthrown block

Dike

Neatline

Limit of geologic mapping

PLANAR POINT FEATURES

Bedding—Showing strike and dip

- 20 — **Inclined**
- 65 — **Overturned**
- **Horizontal**
- **Vertical**

Metamorphic foliation—Showing strike and dip

- 20 — **Inclined**
- **Vertical**

Flow foliation—Showing strike and dip

- 10 — **Inclined**
- **Vertical**

Eutaxitic foliation—Showing strike and dip

- 5 — **Inclined**
- **Vertical**

Sample localities—Showing sample number; sample numbers refer to table 1 (in pamphlet)

- H06-33 — **$^{40}Ar/^{39}Ar$ sample**
- 89-DJ-1 — **K-Ar sample**
- 17-DJ-1 — **U-Pb SHRIMP sample**
- C — **Fossil locality**—in unit Trcl (see Description of Map Units)

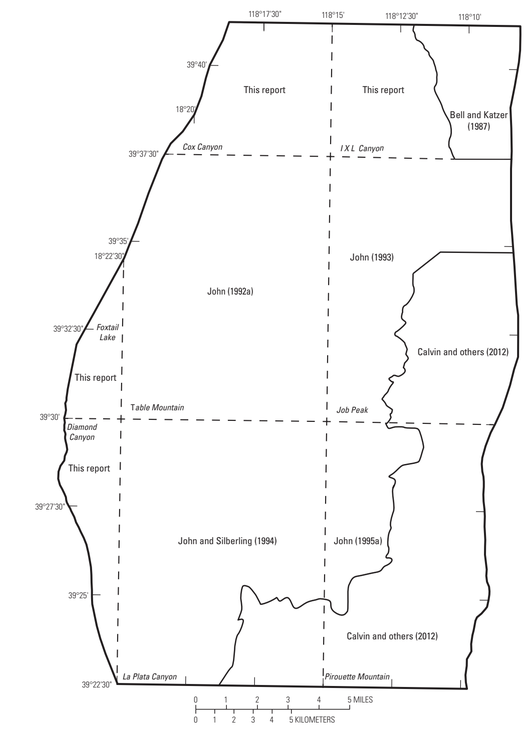


Figure 3. Index map showing principal sources of previous geologic mapping used as a basis for the new geologic map, which is demarcated by heavy black line. Dashed lines show outlines of 7-1/2 minute quadrangles with quadrangle names in italics.

Geologic Map of the Southern Stillwater Range, Nevada

By

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ISSN 2329-132X (online)
https://doi.org/10.3133/sim3521

Digital files available at https://doi.org/10.3133/sim3521 and https://doi.org/10.5066/P9WW1EUF

Suggested citation: John, D.A., Colgan, J.P., Berry, M.E., Henry, C.D., and Silberling, N.J., 2024, Geologic map of the southern Stillwater Range, Nevada: U.S. Geological Survey Scientific Investigations Map 3521, 2 sheets, scale 1:24,000, 39-p. pamphlet, https://doi.org/10.3133/sim3521.

Associated data for this publication: Colgan, J.P., Berry, M.E., and John, D.A., 2024, Digital database of the geologic map of the southern Stillwater Range, Nevada: U.S. Geological Survey data release, https://doi.org/10.5066/P9WW1EUF.

Colgan, J.P., John, D.A., Henry, C.D., and Watts, K.E., 2017, Geochemical and geochronologic data from the Stillwater Range, Clan Alpine, and Desatoya Mountains, Nevada (ver. 3.0, December 2023): U.S. Geological Survey data release, https://doi.org/10.5066/F7P26X2V.