



Map from U.S. Geological Survey, 1957, revised 1970
Transverse Mercator projection
SCALE 1:250,000
CONTOUR INTERVAL, 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 10-FOOT INTERVALS
TRANSVERSE MERCATOR PROJECTION
NAD 83, DATUM, SPHERICAL DATUM OF 1983
Map was approved for publication November 21, 1987

DESCRIPTION OF MAP UNITS
Numbers in parentheses are optimum U-Pb isotopic ages on zircon in millions of years before present, and numbers in brackets are previously established Rb-Sr whole-rock age determinations in millions of years before present by R.W. Kistler. Rocks designated mid-Cretaceous have isotopic ages that indicate an optimum age in the range of 100 to 90 Ma.

VOLCANIC ROCKS AND SURFICIAL DEPOSITS
Quaternary and Tertiary

PLUTONIC ROCKS
All areas

Metamorphosed sedimentary and volcanic rocks and hypabyssal intrusive rocks
All areas

West slope of Sierra Nevada

Eastern Sierra Nevada and Benton Range

White and Inyo Mountains

Mariposa 1° by 2° quadrangle

Geological units and their descriptions:

- Mount Givens Granodiorite (90)**—Megacrystic biotite granite and granodiorite. Tabular alkali feldspar megacrysts average 1.5 cm thick and 3 cm long.
- Granite of Tansah Lake—Felsic biotite granite** containing 3 to 7 percent biotite.
- Granodiorite of upper Blue Canyon**—Medium-grained granodiorite.
- Granite of Woods Ridge (51)** (Late Jurassic)—Fine to medium-grained, megacrystic biotite granite and granodiorite. Contains tabular to blocky, subhedral alkali feldspar megacrysts and fine-grained, anhedral biotite flakes.
- Tonalite of Aspen Valley (Early Cretaceous?)**—Dark, medium-grained biotite-hornblende tonalite and quartz diorite.
- Intrusive suite of Yosemite Valley (Early Cretaceous)**
- Talk Granite and leucogranite of Ten Lakes**—Biotite granite. Talk Granite is fine to medium-grained; leucogranite of Ten Lakes is medium to coarse grained.
- Granite of Rancheria Mountains**—Coarse-grained biotite granite and granodiorite. Alkali feldspar megacrysts are locally abundant.
- El Capitan Granite (102)**—Includes Double Rock, Mount Hoffman, and Gray Peak plutons. Coarse-grained, equigranular to megacrystic biotite granite and granodiorite.
- Intrusive suite of Washburn Lake (mid-Cretaceous)**
- Granite porphyry of Cony Crag**—Contains sparse phenocrysts of plagioclase, quartz, and alkali feldspar in a fine-grained groundmass.
- Granite of Turner Lake**—Granite and felsic granodiorite containing tabular alkali feldspar megacrysts 1 to 2 mm across in a medium-grained groundmass.
- Granodiorite of Red Devil Lake (98)**—Zoned from inclusion-rich hornblende-biotite granodiorite in the outer margins to inclusion-free biotite granite in the core.
- Intrusive suite of Merced Peak (mid-Cretaceous)**
- Granite of Ordinance Creek**—Fine to medium-grained granite. Characterized by glomeroporphyritic biotite.
- Granodiorite of the Peak and Shovel Mine area**—Fine to medium-grained, highly variable rock ranging in composition from leucogranite to tonalite.
- Granodiorite of McKinley Grove**—Megacrystic hornblende-biotite granodiorite. Alkali feldspar megacrysts 2 to 3 cm across are set in a medium-grained groundmass.
- Granodiorite of Mono Dome (93-6)** and **Tioga Lake (Late Cretaceous)**—Medium-grained, dark-gray rocks. Granodiorite of Mono Dome grades from granodiorite to quartz diorite and contains perthene as well as amphibole. Amphibole in granodiorite of Mono Dome is mostly altered to chlorite.
- Leucogranite of Rowen Creek (95)** (Late Cretaceous)—Light-colored, equigranular felsic granodiorite. Contains abundant small inclusions of hornblende-biotite granodiorite.
- Leucogranite of Whiskey Ridge (103) and Stevenson Creek**—Hornblende-biotite granodiorites of uncertain affiliation.
- Granite porphyry of Star Lakes (108-4)** (Early Cretaceous)—Granite porphyry, leucogranite porphyry, and granodiorite porphyry.
- Granite diorite dikes in the Goddard**—Intrusive diorite masses in the back of El Capitan.
- Granite of the Eddipen**—Granite and Rutter Range rock (see text).
- Granodiorite of Shelf Lake**—Medium-grained hornblende-biotite granodiorite and quartz diorite. Hornblende prisms commonly contain pyroxene cores.
- Leucogranite of Gravelly Peak (99)**—Light-colored, medium-grained rock.
- Granodiorites of King and Fish Creeks** and **other small plutons**—Biotite granite and granodiorite—Medium to coarse-grained. Granite of Margaret Lakes is generally shaly.
- Granodiorite at the northwest end of the Mount Givens Granodiorite**
- Granodiorite of Camino Creek**—Fine to medium-grained rock of variable composition and texture. Composition ranges from quartz diorite to granite.
- Granodiorites of Bassow Meadow and Grizzly Creek**—Medium-grained, equigranular hornblende-biotite granodiorite and tonalite. Granodiorite of Grizzly Creek is characterized by conspicuous rounded quartz phenocrysts averaging about 5 mm across.
- Sheared granitoids of the Goddard septum (Jurassic?) and Jurassic**
- Granite of Bear Dome (Aurasc?)**—Medium-grained, xenomorphic granitic biotite granite. Fine-grained megacrystic granodiorite and granodiorite.
- Granite of Finger Peak**—Medium-grained, light-colored biotite granite. Contains about 5 percent biotite.
- Granodiorite of Mount Reinstein**—Hornblende-biotite granodiorite containing 16 to 23 percent mafic minerals.
- Sheared quartz syenite (157)** (Late Jurassic)
- Older granitic rocks of the western foothills (Late and Middle Jurassic)**
- Granite of Woods Ridge (51)** (Late Jurassic)—Fine to medium-grained, megacrystic biotite granite and granodiorite. Contains tabular to blocky, subhedral alkali feldspar megacrysts and fine-grained, anhedral biotite flakes.
- Tonalite of Granite Creek (163)** (Middle Jurassic)—Medium-grained hornblende-biotite tonalite. Has a strong easterly foliation that parallels the principal cleavage in adjacent country rock. Locally shows hornblende.
- Ultramafic rocks (Jurassic? to late Paleozoic?)**—Cherty light to dark-green and black serpentinite, conspicuously nodular on weathered surfaces. Locally metamorphosed to aggregates of talc and olivine plus anthophyllite or actinolite.
- Eastern Sierra Nevada and Benton Range**
- Granodiorites of Coyote Flat and Cartridge Pass (Late Cretaceous)**—Form two small plutons. Both plutons are compositionally zoned, the Coyote Flat weakly and the Cartridge Pass strongly. Both granodiorite in the margins to granite in the core.
- Quartz monzonite of Asolán Buttes, granite of Mono Lake, and leucogranites of Elbery Lake and Williams Butte (Late Cretaceous)**—Granite of Mono Lake is medium-grained hornblende-biotite granite, and quartz monzonite of Asolán Buttes is white to light-gray granite that is strongly zoned and is characterized by delicate biotite books, hornblende needles, and large titanite subhedral inclusions.
- Granite of Sage Hen Flat (144)**—Medium-grained biotite granite.
- Granodiorite of Cable Creek**—Medium-gray, medium-grained biotite-hornblende granodiorite, locally megacrystic and locally foliated.
- Quartz monzonite of Mount Barcroft (161)**—Dark-gray, medium-grained quartz monzonite and quartz monzonite.
- Soldier Pass Intrusive Suite? (Middle Jurassic)**
- Cottwood Creek Granite (170)**—Light-gray, medium- to coarse-grained, megacrystic granite. Tabular alkali feldspar megacrysts are as long as 3 cm.
- Granodiorite of Beer Creek**—Medium-gray, fine- to medium-grained granodiorite, quartz monzonite, and quartz monzonite. Texture is notably ragged.
- Monzonite of Joshua Flat (170)**—Medium-gray, fine- to medium-grained, equigranular, weakly foliated monzonite and quartz monzonite.
- Metamorphosed sedimentary and volcanic rocks and hypabyssal intrusive rocks**
All areas
- Metavolcanic rocks, undivided (Mesozoic)**
- Minerals sequence (mid-Cretaceous)**
- Porphyries and other subvolcanic intrusions (100)**
- Ash-flow tuff, breccia, and thinly laminated tuff (100)**
- Mariposa Formation and adjacent strata (Late Jurassic)**
- Metaporpho (Late Jurassic)**
- Greenstone of Bullion Mountain [187:10] (Late and (or) Early Jurassic)**
- King sequence (Jurassic and (or) Triassic)**—Quartzite, schist, hornfels, and marble.
- Phyllite of Briceburg (Early Triassic)**
- Phyllite and chert of Hite Cove (Early Triassic)**
- Phyllite of Briceburg and phyllite and chert of Hite Cove, undivided (Triassic)**
- Enigrant(?) Formation (Late Cambrian)**

LIST OF 15-MINUTE QUADRANGLE GEOLOGIC MAPS USED IN COMPILED

Bateman, P.C., 1965a, Geology and tungsten mineralization of the Bishop district, California. U.S. Geological Survey Professional Paper 470, 208 p. Includes Bishop, Mount Tom, Big Pine, and northeastern part of Mount Goddard quadrangles.

———, 1965b, Geologic map of the Bishop Mountain quadrangle, Fresno County, California. U.S. Geological Survey Geologic Quadrangle Map GQ-428, scale 1:62,500.

———, 1965c, Geologic map of the Bass Lake quadrangle, west-central Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1656, scale 1:62,500.

Bateman, P.C., and Bonasca, A.J., 1982, Geologic map of the Millerton Lake quadrangle, west-central Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1548, scale 1:62,500.

Bateman, P.C., Bonasca, A.J., Marchand, D.E., and Swaka, W.N., 1982, Geologic map of the Burnwood quadrangle, Madras and Mariposa Counties, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1555, scale 1:62,500.

Bateman, P.C., Kistler, R.W., Peck, D.L., and Bonasca, A.J., 1983, Geologic map of the Tioga Meadows quadrangle, Yosemite National Park, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1570, scale 1:62,500.

Bateman, P.C., and Krauskopf, K.B., 1987, Geologic map of the El Portal quadrangle, west-central Sierra Nevada, California. U.S. Geological Survey Miscellaneous Field Studies Map MF-198, scale 1:62,500.

Bateman, P.C., Lockwood, J.P., and Lydon, P.A., 1971, Geologic map of the Kaiser Peak quadrangle, central Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-994, scale 1:62,500.

Bateman, P.C., and Moore, G., 1965, Geologic map of the Mount Goddard quadrangle, Fresno and Inyo Counties, California. U.S. Geological Survey Geologic Quadrangle Map GQ-429, scale 1:62,500.

Bateman, P.C., and Wines, D.R., 1972, Geologic map of the Huntington Lake quadrangle, central Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-994, scale 1:62,500.

Crowder, D.F., Robinson, P.F., and Harris, D.L., 1972, Geologic map of the Benton quadrangle, Mono County, California and Esmeralda and Mineral Counties, Nevada. U.S. Geological Survey Geologic Quadrangle Map GQ-1013, scale 1:62,500.

Crowder, D.F., and Shandrin, M.F., 1972, Geologic map of the White Mountain Peak quadrangle, Mono County, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1012, scale 1:62,500.

Dodge, F.C.W., and Calk, L.C., 1987, Geologic map of the Lake Eleanor quadrangle, central Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1639, scale 1:62,500.

Haber, N.K., 1968, Geologic map of the Shavette Peak quadrangle, Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-728, scale 1:62,500.

Haber, N.K., and Rinehart, C.D., 1965, Geologic map of the Devils Postpile quadrangle, Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-437, scale 1:62,500.

Kistler, R.W., 1966, Geologic map of the Mono Craters quadrangle, Mono and Tuolumne Counties, California. U.S. Geological Survey Geologic Quadrangle Map GQ-462, scale 1:62,500.

Krauskopf, K.B., 1971, Geologic map of the Mount Barcroft quadrangle, California-Nevada. U.S. Geological Survey Geologic Quadrangle Map GQ-960, scale 1:62,500.

———, 1970, Geologic map of the Mariposa quadrangle, Mariposa County, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1586, scale 1:62,500.

Krauskopf, K.B., and Bateman, P.C., 1977, Geologic map of the Glass Mountain quadrangle, Mono County, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1099, scale 1:62,500.

Lockwood, J.P., and Lydon, P.A., 1975, Geologic map of the Shaver Lake quadrangle, central Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1271, scale 1:62,500.

Lockwood, J.P., and Lydon, P.A., 1975, Geologic map of the Mount Abbot quadrangle, central Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1155, scale 1:62,500.

Nelson, C.A., 1966a, Geologic map of the Wauchuca Mountain quadrangle, Inyo County, California. U.S. Geological Survey Geologic Quadrangle Map GQ-529, scale 1:62,500.

———, 1966b, Geologic map of the Blanco Mountain quadrangle, Inyo and Mono Counties, California. U.S. Geological Survey Geologic Quadrangle Map GQ-529, scale 1:62,500.

———, 1972, Geologic map of the Merced Peak quadrangle, central Sierra Nevada, California. U.S. Geological Survey Geologic Quadrangle Map GQ-1531, scale 1:62,500.

Rinehart, C.D., and Ross, D.C., 1957, Geologic map of the Casa Diablo Mountain quadrangle, California. U.S. Geological Survey Geologic Quadrangle Map GQ-99, scale 1:62,500.

———, 1964, Geology and mineral deposits of the Mount Morrison quadrangle, Sierra Nevada, California, with a section on a geologic study of Lone Valley, by L.C. Robinson, D.T., and Crowder, D.F., 1973. Geologic map of the Davis Mountain quadrangle. U.S. Geological Survey Geologic Quadrangle Map GQ-1078, scale 1:62,500.

PRE-TERTIARY BEDROCK GEOLOGIC MAP OF THE MARIPOSA 1° BY 2° QUADRANGLE, SIERRA NEVADA, CALIFORNIA; NEVADA

By
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1992

Bateman, P.C., 1982. Plate 1 in the overall set of the Sierra Nevada batholith, California. U.S. Geological Survey Professional Paper 1483.