

MAP SHOWING OUTCROPS OF GRANITIC ROCKS AND
SILICIC, SHALLOW-INTRUSIVE ROCKS,
BASIN AND RANGE PROVINCE, NORTHERN CALIFORNIA

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INTRODUCTION

This map report is one of a series of geologic and hydrologic maps covering all or parts of the States within the Basin and Range province of the western United States. The map reports contain detailed information on subjects that characterize the geohydrology of the province, including the ground-water hydrology, ground-water quality, surface distribution of selected rock types, tectonic conditions, areal geophysics, Pleistocene lakes and marshes, and mineral and energy resources. This work is part of the U.S. Geological Survey's program for geologic and hydrologic evaluation of the Basin and Range province to identify potentially suitable regions for further study relative to isolation of high-level nuclear waste (Bedinger, Sargent, and Reed, 1984).

This map report, prepared from published geologic maps and reports, utilizing the project guidelines of Sargent and Bedinger (1984), shows areas of both deep and shallow granitic rocks in the Basin and Range province of northern California. As used in this report, a granitic rock is a feldspar-rich, crystalline or mostly crystalline, intrusive igneous rock. Also included are fine-grained and partly glassy, silicic, shallow-intrusive rocks, which, although generally not considered granitic rocks, may be suitable as repository rocks. Outcrops of both rock types have been grouped into outlined and numbered county areas on the map, and the areas are discussed in the Description of Map Units. The nomenclature of the geologic units is from published reports and does not necessarily conform to U.S. Geological Survey usage.

DESCRIPTION OF MAP UNITS
 [To convert feet (ft) to meters, multiply feet by 0.3048]

County- area number	Map symbol	Pluton	Geologic and radiometric age in millions of years (m.y.)	Lithology and comments	References for county area
LASSEN COUNTY (LA)					
LA-1	Tr		Miocene(?)	Light-colored, massive to jointed, partly silicified rhyolite, apparently forming an exogeneous dome. Based on topographic relief, the rhyolite apparently is at least 1,000 ft thick. Unit contains an abandoned gold mine.	California Department of Water Resources, 1963; Gay and Aune, 1958; Hazlett, 1984; Lydon and others, 1960
LA-2	Trd		Pliocene 3.8 ±0.9 m.y.	Southern one-half of area underlain by pale-tan to white, deeply weathered rhyolite in one or more flow domes. Northern one-half of area underlain by light-gray, hornblende dacite extrusive mass. Dacite at least 400 ft thick, and rhyolite at least 200 ft thick. K-Ar whole-rock age on rhyolite.	T.L.T. Grose, Colorado School of Mines, unpublished field data, 1982
LA-3	Kg	Pluton of Mahogany Peak area	Early Cretaceous 121 m.y.	Composite pluton of granodiorite and quartz monzodiorite; includes hornblende, biotite, magnetite, and sphene. Pluton contains about 20 percent by volume of roof pendants and large xenoliths. Granitic rocks extensive beneath surrounding volcanic rocks. Cut by many normal faults and bounded on northeast, southwest, and north by normal faults. Pluton intruded by Pliocene volcanic plugs; not significantly altered. K-Ar age of 121 m.y., based on concordant biotite-hornblende dates.	Evernden and Kistler, 1970; T.L.T. Grose, unpublished field data, 1982; Youngkin, 1980
LA-4	KJg		Early Cretaceous and Late Jurassic	Probably an outlier of the Mahogany Peak area. Lithologically similar to the rock in area LA-3.	T.L.T. Grose, unpublished field data, 1982

LA-5	KJg	Pluton of Goumaz area	Early Cretaceous and Late Jurassic	Uniform hornblende-biotite monzogranite. No notable faults, fractures, or roof pendants but is truncated in subsurface on northeast side, by regional fault. Contains magnetite and sphene.	T.L.T. Grose, unpublished field data, 1982
LA-6	KJg	Batholith of Diamond Mountain Area	Early Cretaceous and Late Jurassic	Massive biotite-hornblende granodiorite and monzogranite. Moderately faulted by north-west- to west-southwest-trending normal faults. South to Janesville, plugs of Miocene volcanic rocks intrude batholith. Placer gold found in Gold Run.	T.L.T. Grose, unpublished field data, 1982; Roberts, 1984
LA-7	KJg		Early Cretaceous and Late Jurassic	Granitic rocks ranging from diorite to monzogranite. Relationship to granitic rock of area LA-6 uncertain. A well drilled for gas on The Island, a few miles northwest of Herlong Junction, bottomed in granite at a depth of 4,200 ft.	Amesbury, 1967; Burnett and Jennings, 1962; Lydon and others, 1960

MODOC COUNTY (MO)

MO-1	Tr		Pliocene and Miocene 10 to 16+ m.y.	Light-colored rhyolite intrusive.	Gay and Aune, 1958; Luedke and Smith, 1981
MO-2	Tr		Miocene 7.1 to 8.9 m.y.	Light-colored, massive rhyolite, variously described as a flow, or as sills, dikes, and plugs; capped by obsidian. Locally more than 1,000 ft thick. Minor plugs or stocks locally.	Gay and Aune, 1958; Luedke and Smith, 1981; Russell, 1928
MO-3	Tr		Miocene 15.5 m.y.	Flows and plugs of light-colored, dense, flow-banded rhyolite containing biotite and feldspar phenocrysts and locally lithophysal texture. Much is aphanitic. Based on topography, unit about 1,000 ft thick.	Duffield and Weldin, 1976; Gay and Aune, 1958; Luedke and Smith, 1981; Russell, 1928

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