PRELIMINARY GEOLOGIC MAP OF THE BLACK MOUNTAIN 7.5' QUADRANGLE LOS ANGELES AND VENTURA COUNTIES, CALIFORNIA

VERSION 2.0

By
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Digital preparation by
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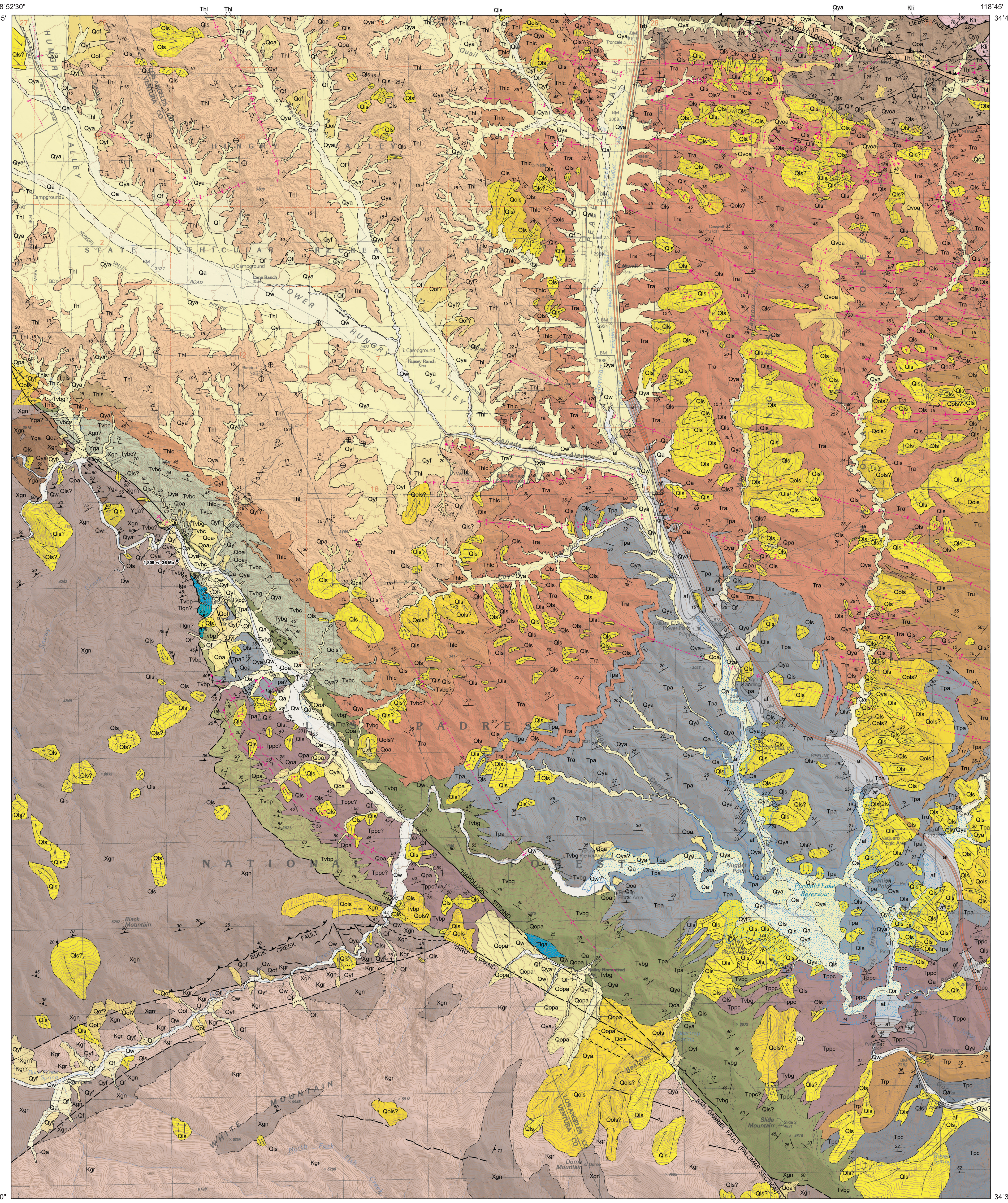


DESCRIPTION OF MAP UNITS

SURFICIAL UNITS

af — **Artificial fill and disturbed areas (Holocene, historic)**—Consists of anthropogenic deposits of earth-fill soils derived from local sources. Mapped primarily along Interstate 5 and near the Pyramid Lake reservoir, including the dam embankment fill overlying Posey Canyon Shale at Piru Gorge.

Qw — **Wash deposits (late Holocene)**—Unconsolidated sand, gravel, cobbles, and boulders deposited in recently active stream channels. Deposits are generally derived from local bedrock or reworked from other local Quaternary sources. Subject to localized reworking and new sediment deposition during storm.

Qf — **Modern alluvial fan deposits (late Holocene)**—Unconsolidated to weakly consolidated, poorly sorted, sand, gravel, cobble, and boulder deposits with intermixed silt forming active, essentially undissected, alluvial fans. Includes small to large cones at the mouths of stream canyons and broad aprons of coarse debris adjacent to mountain fronts. Clasts are derived from local up-slope sources and typically unweathered with little to no oxidation. Unit includes local poorly bedded and sorted debris flow deposits containing pebble- to boulder-size clasts.

Qa — **Modern alluvium (late Holocene)**—Unconsolidated to weakly consolidated, mostly undissected, sand, silt, and pebble to cobble gravel recently deposited parallel to localized stream valleys and/or spread more regionally onto alluvial plains of larger river valleys.

Qpa — **Ponded alluvium (Holocene)**—Unconsolidated to weakly consolidated, moderately sorted and bedded sand and silt with minor gravel ponded upstream of multiple landslide failures.

Qls — **Landslide deposits (Holocene to late Pleistocene)**—Unconsolidated to moderately well-consolidated jumbled rock debris consisting of surficial failures resulting from soil and rock creep, debris flows, and large-scale rotational rockslides generally sourced from underlying material. Recognizable by topographic expression or chaotic internal structure; queried where landslide existence is questionable.

Qya — **Younger alluvium (Holocene to late Pleistocene)**—Unconsolidated thin- to thick-bedded gravel. Deposited in canyon areas, below the distal ends of Qyf and in point bar and overbank settings associated with active stream channels. Locally more than one level of younger alluvium is present.

Qyf — **Younger alluvial fan deposits (middle Holocene to late Pleistocene)**—Unconsolidated to weakly consolidated, silty and coarse- to very coarse-grained sand with pebbles and cobbles; moderately to well-stratified. Surfaces are undissected to slightly dissected.

Qof — **Older fan deposits (late to middle Pleistocene)**—Slightly to moderately consolidated, poorly sorted, silty pebbly sand to coarse gravel and boulder fan deposits. Fan surfaces are typically moderately dissected.

Qoa, Qoa_2, Qoa_1 — **Older alluvium (late to middle Pleistocene)**—Unconsolidated to moderately consolidated, fluvial pebbly fine- to coarse-grained sand and silt along stream valleys and alluvial flats of larger stream drainages; exhibits weak rubification. Unit is massive to moderately stratified and is moderately gullied to deeply dissected, commonly forming isolated deposits with terrace surfaces. Qoa likely includes alluvial deposits of several different ages, but individual levels are only differentiated where two different terrace levels (defined as upper older Qoa_1 and lower younger Qoa_2) occur step-wise immediately adjacent to each other above Piru Creek in Hardluck Canyon. Note that previous mapping suggested the two levels may have been the same unit offset by a splay of the San Gabriel Fault; however, field observations suggest they are two separate levels.

Qopa — **Older ponded alluvium (late to middle Pleistocene)**—Unconsolidated to moderately consolidated, fluvial, weakly stratified, fine- to coarse-grained sand with pebbles and cobbles and silt in hanging valley along San Gabriel fault in headwaters of Tin Cup Canyon, west of Pyramid Lake. Unit is interpreted to be ponded upstream of large older landslide that failed across the San Gabriel fault in the headwaters of Beartrap Canyon and blocked southeastern drainage from the hanging valley tributary. Alluvium accumulated until headward erosion generated a new drainage path down Tin Cup canyon and where the local change in base level led to incision of the ponded alluvium near the old Bailey Homestead.

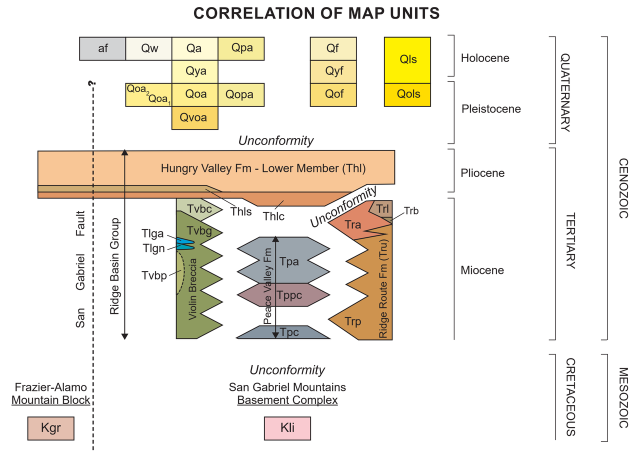
Qols — **Older Landslide deposits (late to middle Pleistocene)**—Moderately consolidated jumbled rock debris and breccia. Recognizable by topographic expression or chaotic internal structure; Pleistocene age derived from degree of incision and cross-cutting relationships. Includes large landslide in headwaters of Beartrap Canyon that likely blocked drainage from hanging valley to northwest and buried older alluvium at toe (TQls-12 of Weber, 1988, modified based on lidar).

Qvoa — **Very old alluvium (early Pleistocene)**—Moderately to well-consolidated, highly dissected silt, sand, and gravel with minor cobbles and clay along high ridgelines in the northeastern corner of the quadrangle; original alluvial surface degraded due to erosion and only weak to moderate rubification observed.

TERTIARY SEDIMENTARY ROCKS OF RIDGE BASIN GROUP

The Ridge Basin Group is comprised of four interrelated, late Miocene formations, the Castaic Formation, Violin Breccia, Peace Valley Formation, and Ridge Route Formation, and the latest Miocene to Pliocene Hungry Valley Formation, which caps deposition in Ridge Basin (Crowell, 2003b). The late Miocene strata were deposited on the northeast side of the San Gabriel Fault as the basin sagged during progressive movement along a transtensional bend in the fault, forming a persistent basin northeast of the Frazier Mountain area. Sediment accumulated in the basin from a local source of dominantly Proterozoic gneissic basement rock southwest of the fault and more extensively from highlands to the northeast of the basin, and then migrated to the southeast away from the fault-rejuvenated depocenter during right-lateral-normal oblique slip along the San Gabriel Fault (Crowell, 2003c). The migratory nature of the depocenter allowed the deposition of up to 14,000 m of sediment with a shingled geometry such that ...

CORRELATION OF MAP UNITS



MAP SYMBOLS

MESOZOIC INTRUSIVE ROCKS

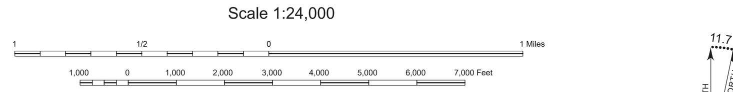
PROTEROZOIC METAMORPHIC AND INTRUSIVE ROCKS

REFERENCES - CITED IN EXPLANATION

REFERENCES – NOT CITED IN EXPLANATION BUT USED IN MAP PREPARATION:

AIR PHOTOS/DIGITAL IMAGERY

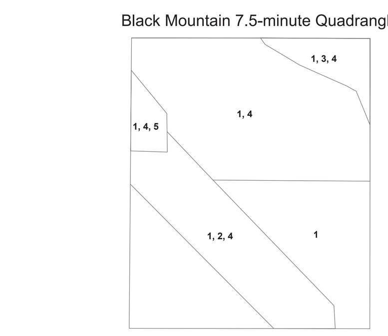
Scale 1:24,000



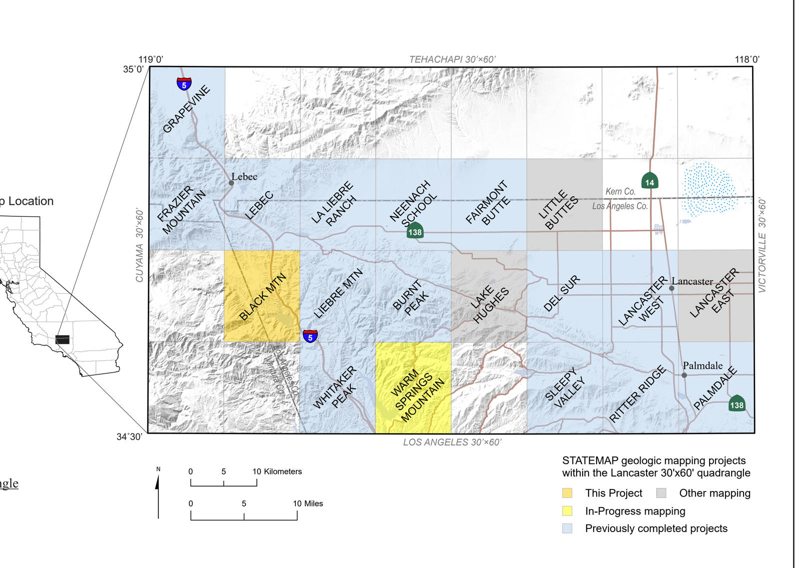
Contour Interval 40 Feet
Dotted Lines Represent 20-Foot Contours
National Geodetic Vertical Datum of 1929

Approximate Mean Declination, 2024

Black Mountain 7.5-minute Quadrangle



Map Location



AUTHORSHIP DOCUMENTATION AND PRODUCT LIMITATIONS

PUBLICATION TITLE: Preliminary Geologic Map of the Black Mountain 7.5’ Quadrangle, Los Angeles County, California
Preliminary Geologic Map 21-02, Version 2.0

LIMITATIONS: This map is considered preliminary, and the California Department of Conservation makes no warranties as to the suitability of this product for any given purpose. This map should not be considered as an authoritative or comprehensive source for landslide and seismic hazard data. For landslide data, please visit the California Geological Survey Landslides web page at: **https://www.conservation.ca.gov/cgs/landslides**. For seismic hazards data and Zones of Required Investigation, please visit the California Geological Survey Seismic Hazards Program web page at: **https://www.conservation.ca.gov/cgs/sh/program**.

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