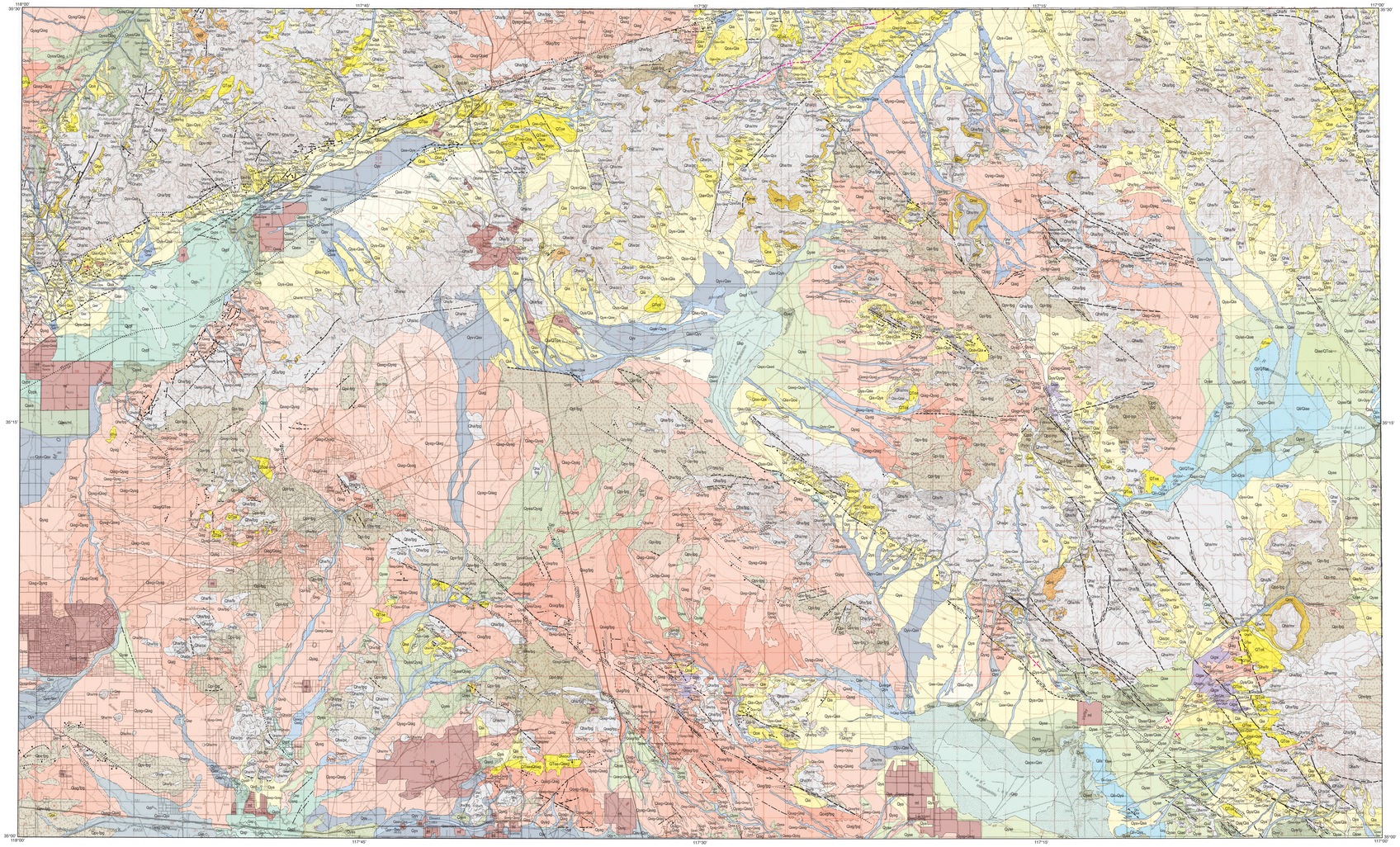
U.S. Department of the Interior
U.S. Geological Survey

Scientific Investigations Map 3107
Pamphlet accompanies map



Modified base from U.S. Geological Survey, 1976
Universal Transverse Mercator projection, zone 11
1927 North American Datum

APPROXIMATE MEAN DECLINATION, JANUARY 1, CENTER OF MAP, 2012

SCALE 1:100 000

CONTOUR INTERVAL 50 METERS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MAP LOCATION

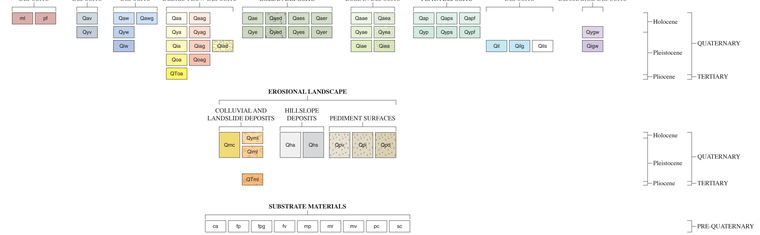
Surficial geology mapped by Lee Amoroso (2002–2005) and David M. Miller (1999–2005)
GIS database and digital cartography by Lee Amoroso, David M. Miller, and Shannon R. Leslie
Edited by J.L. Zigler
Digital cartographic production by Darlene A. Ryan
Manuscript approved for publication December 30, 2009

Surficial Geologic Map of the Cuddeback Lake 30′ x 60′ Quadrangle, San Bernardino and Kern Counties, California

By
Lee Amoroso and David M. Miller
2012

CORRELATION OF MAP UNITS

[See Description of Map Units (in pamphlet) for precise unit ages. Unit boxes shown without color represent bedrock underlying surficial deposits shown on map]



LIST OF MAP UNITS

[Explanation of Composite Symbols: Surficial geologic units that form thin veneers over other units are shown with the younger, or overlying, unit indicated first, followed by a slash, and the older, underlying unit. Thus, Qyv/Qoa indicates a veneer of unit Qyv overlying unit Qoa. Where the lateral extent of deposits is too small to show individually at the map scale, they are grouped as two units separated by a plus sign (+), with the most common deposit listed first. Thus, Qyv+Qia indicates an area with both Qyv and Qia deposits, and Qya is more common than Qia. Pediments are erosional surfaces that are represented by two terms separated by a hyphen (-). The first term indicates the degree to which the pediment is dissected and the second term indicates substrate materials. Thus, Qpv-fpg indicates a veneered pediment (Qpv) cut into grus-forming felsic plutonic rock (fpg). Unit boxes shown without color represent bedrock underlying surficial deposits shown on map. See Description of Map Units (in pamphlet) for complete unit descriptions]

DEPOSITIONAL LANDSCAPE

ANTHROPOGENIC DEPOSITS

- **mf** — **Made land or artificial fill (latest Holocene)**
- **pf** — **Ponded fill (latest Holocene)**

VALLEY-AXIS DEPOSITS

- **Qav** — **Active valley-axis deposit (latest Holocene)**
- **Qyv** — **Young valley-axis deposit (Holocene and latest Pleistocene)**

WASH DEPOSITS

- **Qaw** — **Active wash deposit (latest Holocene)**
- **Qawg** — **Active wash deposit composed primarily of grus (latest Holocene)**
- **Qyw** — **Young wash deposit (Holocene and latest Pleistocene)**
- **Qiw** — **Intermediate-age wash deposit (late to middle Pleistocene)**

ALLUVIAL AND DEBRIS-FLOW DEPOSITS

- **Qaa** — **Active alluvial fan deposit (latest Holocene)**
- **Qaag** — **Active alluvial fan deposit composed of grus (latest Holocene)**
- **Qya** — **Young alluvial fan deposit (Holocene and latest Pleistocene)**
- **Qyag** — **Young alluvial fan deposit composed of grus (Holocene and latest Pleistocene)**
- **Qia** — **Intermediate-age alluvial fan deposit (late to middle Pleistocene)**
- **Qiag** — **Intermediate-age alluvial fan deposit composed of grus (late to middle Pleistocene)**
- **Qiad** — **Intermediate-age alluvial fan composed of debris-flow deposits (late to middle Pleistocene)**
- **Qoa** — **Old alluvial fan deposit (middle to early Pleistocene)**
- **Qoag** — **Old alluvial fan deposit composed of grus (middle to early Pleistocene)**
- **QTos** — **Extremely old alluvial fan deposit (early Pleistocene to Pliocene)**

EOLIAN DEPOSITS

- **Qae** — **Active eolian deposit (latest Holocene)**
- **Qaesd** — **Active eolian sand dune deposit (latest Holocene)**
- **Qaes** — **Active eolian sand sheet deposit (latest Holocene)**
- **Qaer** — **Active eolian sand ramp deposit (latest Holocene)**
- **Qye** — **Young eolian deposit (Holocene and latest Pleistocene)**
- **Qyesd** — **Young eolian sand dune deposit (Holocene and latest Pleistocene)**
- **Qyes** — **Young eolian sand sheet deposit (Holocene and latest Pleistocene)**
- **Qyer** — **Young eolian sand ramp deposit (Holocene and latest Pleistocene)**

MIXED ALLUVIAL AND EOLIAN DEPOSITS

- **Qaae** — **Active mixed alluvial and eolian deposit (latest Holocene)**
- **Qaes** — **Active mixed eolian and alluvial deposit (latest Holocene)**
- **Qyae** — **Young mixed alluvial and eolian deposit (Holocene and latest Pleistocene)**
- **Qyes** — **Young mixed eolian and alluvial deposit (Holocene and latest Pleistocene)**
- **Qiae** — **Intermediate-age mixed alluvial and eolian deposit (late to middle Pleistocene)**
- **Qies** — **Intermediate-age mixed eolian and alluvial deposit (late to middle Pleistocene)**

PLAYA DEPOSITS

- **Qap** — **Active playa deposit (Holocene)**
- **Qaps** — **Active playa sandy facies deposit (Holocene)**
- **Qapf** — **Active playa fringe deposit (Holocene)**
- **Qyp** — **Young playa deposit (Holocene and latest Pleistocene)**
- **Qyps** — **Young playa sandy facies deposit (Holocene and latest Pleistocene)**
- **Qypf** — **Young playa fringe deposit (Holocene and latest Pleistocene)**

LACUSTRINE DEPOSITS

- **Qil** — **Intermediate-age lacustrine deposit (late to middle Pleistocene)**
- **Qilg** — **Intermediate-age lacustrine gravel deposit (late to middle Pleistocene)**
- **Qils** — **Intermediate-age lacustrine sand deposit (late to middle Pleistocene)**

GROUNDWATER-DISCHARGE DEPOSITS

- **Qygw** — **Young groundwater wetland deposit (Holocene and latest Pleistocene)**
- **Qigw** — **Intermediate-age groundwater wetland deposit (late to middle Pleistocene)**

EROSIONAL LANDSCAPE

COLLUVIAL AND LANDSLIDE DEPOSITS

- **Qmc** — **Mass-movement colluvial deposits (Holocene and Pleistocene)**
- **Qymt** — **Young mass-movement landslide deposit (Holocene and latest Pleistocene)**
- **Qimt** — **Intermediate-age mass-movement landslide deposit (Pleistocene)**
- **QTmt** — **Extremely old mass-movement landslide deposit (early Pleistocene to Pliocene)**

HILLSLOPE DEPOSITS

- **Qha** — **Abundant hillslope deposits (Holocene and Pleistocene)**
- **Qhs** — **Sparse hillslope deposits (Holocene and Pleistocene)**

PEDIMENT SURFACES

- **Qpv** — **Veneered pediment (Holocene and Pleistocene)**
- **Qpi** — **Incised pediment (Holocene and Pleistocene)**
- **Qpd** — **Deeply dissected pediment (Holocene and Pleistocene)**

SUBSTRATE MATERIALS (PRE-QUATERNARY)

- **ca** — **Carbonate rocks**
- **fp** — **Felsic plutonic rocks**
- **fpg** — **Felsic plutonic rocks that weather to grus**
- **fv** — **Felsic volcanic rocks**
- **mp** — **Mafic plutonic rocks**
- **mv** — **Mafic volcanic rocks**
- **mr** — **Metamorphic rocks**
- **pc** — **Partly consolidated deposits and rocks**
- **sc** — **Schistose rocks**

SYMBOL EXPLANATION

Contact—Long-dashed where approximate; short-dashed where inferred

Gradational contact

Lineament

Fault—Long-dashed where approximate; short-dashed where inferred; dotted where concealed. Queries added where identity or existence may be questionable

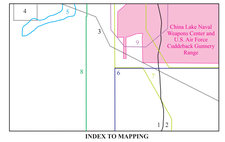
Normal—Bar and ball on downthrown block

Right-lateral, strike-slip—Arrows show relative motion

Left-lateral, strike-slip—Arrows show relative motion

Fold

Anticline—Long-dashed where approximate; short-dashed where inferred



INDEX TO MAPPING

Surficial geology

1. L. Amoroso, compiled and mapped 2002–2005
2. D.M. Miller, mapped 1999–2005

Bedrock geology

3. Dibblee, 1967
4. Cox and Diggles, 1986
5. Carr and others, 1997
6. Dibblee, 1968
7. Oskin and Iriondo, 2004
8. Troxel and Morton, 1962
9. Smith, 1964

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Digital files available at http://pubs.usgs.gov/sim/3107/

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