GEOLOGIC MAP OF THE CENTRAL PUNCHBOWL BLOCK, EASTERN SAN GABRIEL MOUNTAINS, SOUTHERN CALIFORNIA, USA

LEGEND

QUATERNARY

Qg | **Qa** | **Qls** | **Qt**

Qg - active-stream-channel deposits: Gravel and sand.
Qa - alluvial-fan deposits: Gravel, sand and mud.
Qls - landslide deposits: Coherent slumps (only mapped where obscuring a contact).
Qt - talus: Loose, angular gravel (only mapped where obscuring a contact).

- UNCONFORMITY -

Qoa

Older alluvium: Inactive, uplifted, unconsolidated deposits of alluvial gravel and sand.

- UNCONFORMITY -

NEOGENE

Np
Npb

Punchbowl Formation (of Noble, 1953, 1954); middle to upper Miocene, non-marine
Np: Gray to white to tan conglomerate, arkosic sandstone and minor mudrock, containing clasts of gneiss, granitoid, sandstone from the San Francisquito Fm. (Pεsf), andesite and Pelona Schist (KPεps).
Npb - basal member: Pink to red to buff conglomerate and sandstone, containing clasts of gneiss, granitoid, Pelona Schist (KPεps) and sandstone from the San Francisquito Fm. (Pεsf). Transitions into Np; definition of upper boundary somewhat arbitrary.

Nps / **Npss**

Paradise Springs formation (parts of various units of Punchbowl Formation of Dibblee, 2002a,b,c); middle Miocene, non-marine
Nps: Bright red conglomerate and sandstone, clasts dominated by sandstone from the San Francisquito Fm. (Pεsf), with minor amounts of volcanics (Pεvv), gneiss and, in the upper section, Pelona Schist (KPεps).
Npss - schist breccia: Very poorly sorted breccia of 100% Pelona Schist (KPεps) clasts, with deep maroon sandstone matrix.

PALEOGENE

PεNv / **Pεvv** / **PεNvg** | **Pε?gd**

Vasquez Formation (“Tprc” unit of Punchbowl Fm. of Dibblee, 2002a,b,c); upper Oligocene to lower Miocene, non-marine
PεNv: Bright red conglomerate and very coarse to very fine sandstone, with minor siltstone and lacustrine carbonate. Conglomerate contains clasts of granitoid (Mzgr), volcanics (Pεvv) and sandstone and conglomerate intraclasts. Near Paradise Springs, some clasts of sandstone from the San Francisquito Fm. (Pεsf) are present. No clasts of schist present. Highly metasomatized in easternmost exposure.
Pεvv - volcanics: Trachyandesite flows, interbedded with lower PεNv, containing abundant, cm-scale plagioclase laths. Fractured, and locally brecciated, with tan carbonate filling fractures and cementing the breccia. Locally contains entrained clasts of PεNv. A porphyritic rhyolite present as clasts in nearby conglomerate is presumably closely related, but is not found as outcrop.
PεNvg - granitoid breccia: White, very poorly sorted breccia of 100% quartz monzodiorite (Mzgr) clasts, with only minor maroon sandstone matrix.

Pε?gd: White to tan, very fine-grained, leucocratic hypabyssal intrusive. Complexly intruded into Pelona Schist (KPεps) and mylonite (KPε?my), commonly parallel to schistosity and foliation.

- UNCONFORMITY -

Pεsf

San Francisquito Formation (of Dibblee, 1967; Martinez Formation of Noble, 1954); Paleocene to Eocene, marine
Clay shale, dark brown to gray, well bedded, poorly exposed, with interbedded, more resistant tan sandstone and minor conglomerate.

- UNCONFORMITY -

MESOZOIC

KPε?my

Dark-gray mylonite with white feldspar augen. Foliation variably developed. Emplaced structurally above the Pelona Schist (KPεps) along the Vincent thrust. Complexly intruded by Pε?gd.

KPεps

Pelona Schist, dominantly meta-arkose; Late Cretaceous to Paleogene
Gray to brown, fine-to-coarse-grained mica schist, composed of mica, quartz and plagioclase, with minor quartz veins. Schistosity generally strong but locally weak. Schistosity commonly tightly folded. Locally fractured and altered in eastern part of map area near faulted contact with Nv. Complexly intruded by Pε?gd.

Mzqdc

Wilson Diorite (of Miller, 1934) Complex of gray to black quartz diorite intruded into gneiss. Quartz diorite is fine-to-coarse-grained, massive to gneissoid, and consists of plagioclase, biotite, hornblende, and minor quartz and potassium feldspar. Locally highly fractured, especially along the Punchbowl fault, and locally complexly intruded by aplite.

Mzgr

White to tan to gray, fine-to-medium-grained intrusive, containing quartz, potassium feldspar, plagioclase, variable amounts of biotite, and, locally, minor hornblende. Composition varies from granite to quartz monzonite to granodiorite to quartz monzodiorite.

PALEOPRO-TEROZOIC

Xgn

White-and-black banded, well foliated gneiss, composed of quartz, feldspar and biotite. Locally includes a coarse-grained, hornblende-rich amphibolite. Highly fractured. Locally cataclastic along the Vincent thrust.

Coffey et al.
Figure 3
Manuscript #XXXX

ANGELES NATIONAL FOREST
Pinyon Ridge
Blue Ridge
Fenner Canyon
Holcomb Canyon
Paradise Springs
Punchbowl fault
Blue Ridge fault
Vincent Gulch
Bear Gulch
South Fork
Rock Cr
Devils Chair

Geology mapped by Kevin T. Coffey,
2012 August - 2017 May

Cross sections in Figure 4

LOCATION OF DETRITAL-ZIRCON SAMPLE:

○ dz7

GEOLOGIC SYMBOLS

STRIKE AND DIP OF SEDIMENTARY BEDDING:

53 inclined | 87 overturned | vertical

STRIKE AND DIP OF OTHER PLANAR FEATURES:

38 foliation | 65 schistosity | 82 joint

CONTACT:
long-dashed where approximately located, short-dashed where inferred, dotted where concealed by surficial sediment.

FAULT:
long-dashed where approximately located, short-dashed where inferred, dotted where concealed by surficial sediment; short, solid arrow and number indicate dip of the fault; long, open arrow and number indicate trend and plunge, respectively, of slickenlines; perpendicular line and “90” indicate a vertical fault; parallel arrows indicate inferred relative lateral movement; “D” and “U” symbols indicate inferred relative dip-slip movement where fault type is unknown (D = downthrown side, U = upthrown side); solid teeth indicate a thrust fault, and point toward the hanging wall.

51 18 90 D U

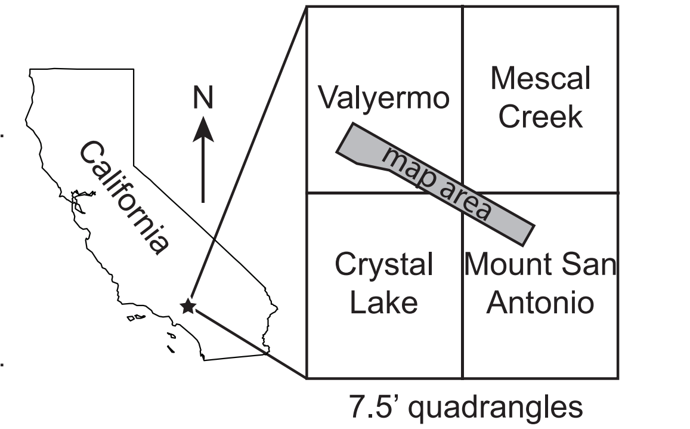
ANTICLINE OR ANTIFORM:
long-dashed where approximately located, short-dashed where inferred, dotted where concealed by surficial sediment; arrow and number indicate trend and plunge, respectively, of fold axis.

32

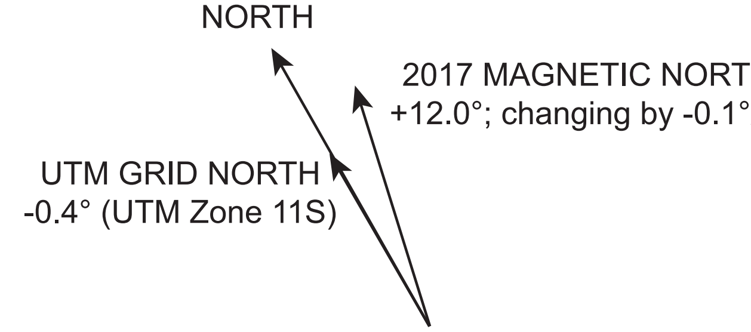
SYNCLINE OR SYNFORM:
long-dashed where approximately located, short-dashed where inferred, dotted where concealed by surficial sediment; arrow and number indicate trend and plunge, respectively, of fold axis.

29

Map Location:

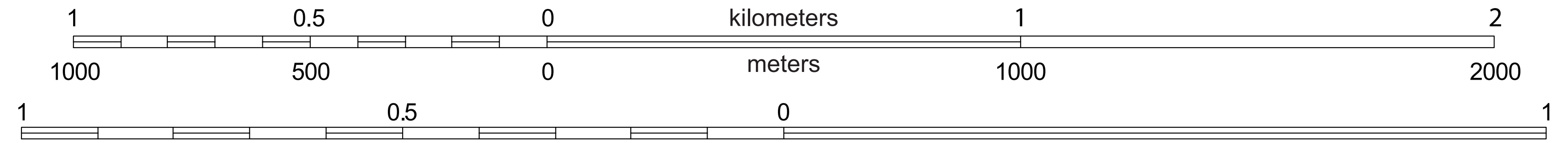


7.5’ quadrangles



Declination from NOAA National Geophysical Data Center, calculated 2017 September using the World Magnetic Model (WMM)

SCALE 1:12000



Contour interval is 40 feet (approximately 12.2 meters)
Datum is North American Vertical Datum of 1988 (NAVD88)

Basemap is a composite of parts of USGS US Topo 2012 Valyermo, Mescal Creek, Crystal Lake and Mount San Antonio 7.5’ quadrangles

USGS basemap road classification:

State Route
Local Road
4-Wheel Drive

State Route
Forest Service Primary Route
Forest Service Passenger Route
Forest Service High-Clearance Route

USGS basemap data sources:

Geodetic reference system:
North American Datum of 1983 (NAD83)

Roads: ©2006-2011 TomTom
Roads within US Forest Service Lands: FSTopo Data
Names: GNIS, 2011
Hydrography: National Hydrography Dataset, 2010
Contours: National Elevation Dataset, 2000
Boundaries: Census, IBWC, IBC, USGS, 1972-2010