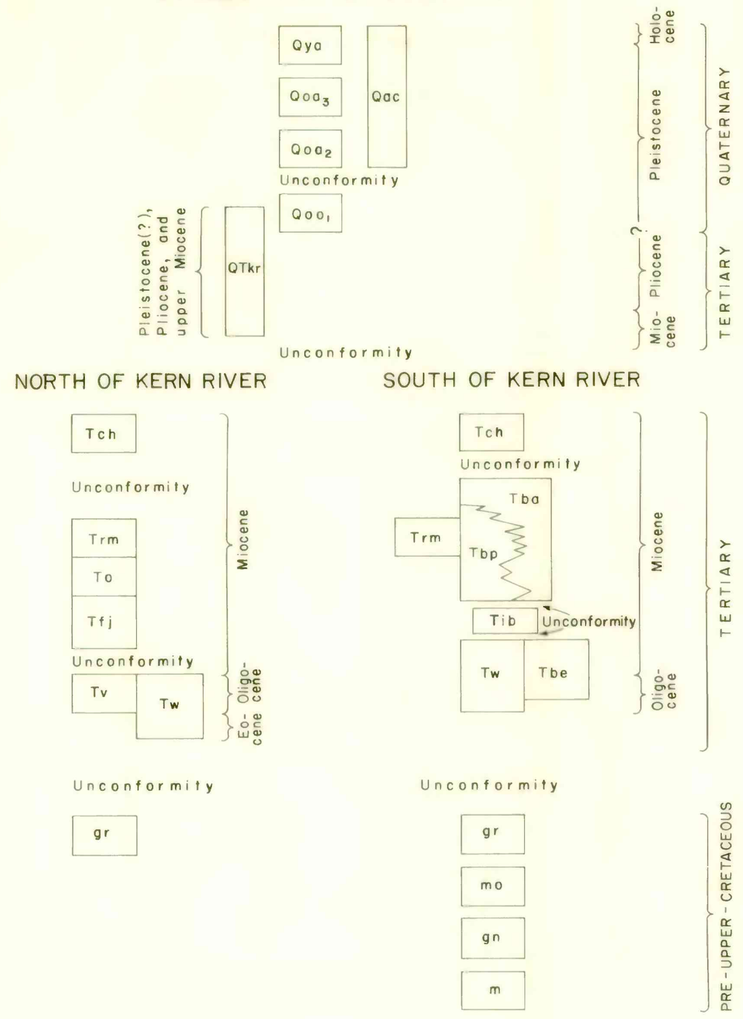
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN-FILE REPORT
86-188
SHEET 5 of 5

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qya — YOUNGER ALLUVIUM (HOLOCENE AND UPPER PLEISTOCENE)--Sand, gravel, silt, and clay in channels, flood plains, and lowest terraces

Qac — ALLUVIUM AND COLLUVIUM (HOLOCENE AND PLEISTOCENE)--Undivided alluvial and colluvial deposits, mostly in small isolated basins or filled valleys

OLDER ALLUVIUM (PLEISTOCENE)--Sand, gravel, silt, and clay underlying higher terraces and in dissected alluvial fans

Qoa_3 — Underlying low- to medium-high terraces along modern streams and relatively undissected old alluvial fans

Qoa_2 — Forming higher terraces and in extensive older alluvial fans

Qoa_1 — Underlying dissected remnants of oldest alluvial fans

QTkr — KERN RIVER FORMATION (PLEISTOCENE?, PLIOCENE, AND UPPER MIOCENE)--Nonmarine, coarse-grained, pebbly arkosic sandstone and conglomerate, containing thin interbeds of drab-colored siltstone and mudstone; thicker lenticular bodies of siltstone or claystone locally in lower part

Tch — CHANAC FORMATION (UPPER MIOCENE)--Nonmarine, light-gray, friable, coarse-grained pebbly arkosic sandstone, brown clayey sandstone, and brown or greenish-gray sandy claystone or mudstone

BENA GRAVEL (MIOCENE)--Divided into:

Tba — Alluvial fan facies--Poorly bedded and poorly sorted pebble and cobble conglomerate, arkosic sandstone and interbeds of sandy siltstone or mudstone

Tbp — Paralic facies--Heterogeneous sequence including light-gray massive claystone, grayish-yellow siltstone and silty shale with interbeds of coarse-grained sandstone, laminated claystone, and conglomerate bearing large claystone clasts

Trm — ROUND MOUNTAIN SILT (MIDDLE AND LOWER? MIOCENE)--Marine, brown massive micaceous siltstone, diatomaceous shale, and bone-bearing sandy siltstone to silty sandstone

To — OLCESE SAND (LOWER MIOCENE)--Marine, fine- to coarse-grained sandstone with silty sandstone and sandy siltstone interbeds in upper and lower parts; fine- to coarse-grained, crossbedded sandstone (nonmarine in part) in middle

Tfj — FREEMAN SILT AND JEWETT SAND, UNDIVIDED (LOWER MIOCENE)--Marine, gray to gray brown, thin bedded and massive, micaceous sandy siltstone, silty claystone, and fine- to very fine-grained concretionary sandstone

Tib — ILMON BASALT (LOWER MIOCENE)--Dark greenish-gray, medium-coarse crystalline basalt

Tw — WALKER FORMATION (LOWER MIOCENE, OLIGOCENE, AND UPPER EOCENE)--Nonmarine, light-greenish-gray to white, massive or crossbedded, medium- to coarse-grained kaolinitic sandstone; greenish-gray claystone to sandy claystone, and pebbly sandstone to sandy conglomerate

Tbe — BEALVILLE FANGLOMERATE (LOWER MIOCENE AND UPPER OLIGOCENE)--Light gray to gray-green, massive, unsorted rubble of angular to subrounded granitic boulders, and crudely bedded conglomerate of smaller bounders and rounded cobbles; all with yellowish-gray to pale-olive mudstone or clayey sandstone matrix

Tv — VEDDER SAND (OLIGOCENE)--Marine, light gray to greenish-gray, fine- to coarse-grained sandstone and grayish-green sandy siltstone interbeds

gr — GRANITIC ROCKS (PRE-UPPER CRETACEOUS)--Mostly biotite tonalite and hornblende-biotite tonalite

ma — MAFIC ROCKS (PRE-UPPER CRETACEOUS)--Diorite and gabbro, includes some ultramafic rocks

gn — GNEISSIC ROCKS (PRE-UPPER CRETACEOUS)--Hornblende or biotite gneiss and felsic gneiss

m — METAMORPHIC ROCKS (PRE-UPPER CRETACEOUS)--Metasedimentary and metavolcanic rocks, mostly mica schist

MAP SYMBOLS

Contact

Fault, showing dip
Dashed where inferred, dotted where concealed;
U, upthrown side;
D, downthrown side

Surface rupture associated with the 1952 earthquake

Strike and dip of beds

Apparent dip of beds

Landslide

The accompanying geologic maps depict the geology at a scale of 1:24,000 for part of the area shown at 1:125,000 by Bartow (1984). A fifth 1:24,000 scale quadrangle, Rio Bravo Ranch, which adjoins Pine Mountain on the south and Oil Center on the east, was published previously as an Open-File Report (Bartow, 1981). Although the stratigraphic units on the Rio Bravo Ranch quadrangle are the same as on the adjoining quadrangles of this report, there are minor differences in stratigraphic nomenclature and formation symbols (see Table 1 for equivalents).

The Tertiary geology of the southeastern San Joaquin Valley is shown (at 1:125,000 scale) by Bartow (1984) and the stratigraphy is discussed in more detail by Addicott (1970) and by Bartow and McDougall (1984). The Sierra Nevada basement rocks are discussed by Ross (1980; 1983). The geology of the Bena quadrangle (SW¼ Breckenridge Mountain quadrangle) was described by Dibblee and Chesterman (1953).

The location of surface ruptures associated with the 1952 Kern County earthquakes was taken from the California Division of Mines and Geology (1976).

REFERENCES

Addicott, W. O., 1970, Miocene gastropods and biostratigraphy of the Kern River area, California: U.S. Geological Survey Professional Paper 642, 174 p.

Bartow, J. A., 1981, Geologic map of the Rio Bravo Ranch quadrangle, California: U.S. Geological Survey Open-File Report 81-152, scale 1:24,000.

Bartow, J. A., 1984, Geologic map and cross sections of the southeastern margin of the San Joaquin Valley, California: U.S. Geological Survey Miscellaneous Investigations Map I-1496, scale 1:125,000.

Bartow, J. A., and McDougall, Kristin, 1984, Tertiary stratigraphy of the southeastern San Joaquin Valley, California: U.S. Geological Survey Bulletin 1529-J, 41 p.

California Division of Mines and Geology, 1976, Special study zones; Oil Center and SW¼ Breckenridge Mountain Bena quadrangles: Sacramento, scale 1:24,000.

Dibblee, T. W., Jr., and Chesterman, C. W., 1953, Geology of the Breckenridge Mountain quadrangle, California: California Division of Mines and Geology Bulletin 168, 56 p.

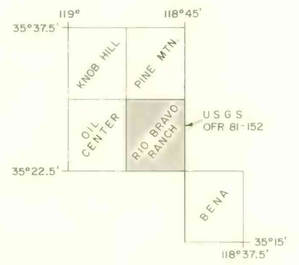
Ross, D. C., 1980, Reconnaissance geologic map of basement rocks of the southernmost Sierra Nevada (north to 35°30' N): U.S. Geological Survey Open-File Report 80-307, 22 p. scale 1:125,000.

----- 1983, Hornblende-rich, high-grade metamorphic terranes in the southernmost Sierra Nevada, California and implications for crustal depths and batholith roots: U.S. Geological Survey Open-File Report 83-465, 51 p.

TABLE 1.--EQUIVALENT FORMATION SYMBOLS OF THE RIO BRAVO RANCH QUADRANGLE, OFR 81-152 (Bartow, 1981)

Formation	This report	OFR 81-152
Alluvium	Qac	Qu
Older alluvium	Qoa_3	Qoa_1
	Qoa_2	Qoa_2
	Qoa_1	Qoa_3
Bena Gravel		
alluvial fan facies	Tba	Tbau
paralic facies	Tbp	Tbal

QUADRANGLE INDEX



EXPLANATION TO ACCOMPANY
GEOLOGIC MAPS OF THE KNOB HILL, PINE MOUNTAIN, OIL CENTER, AND BENA QUADRANGLES, CALIFORNIA

by
J. Alan Bartow

1986

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.