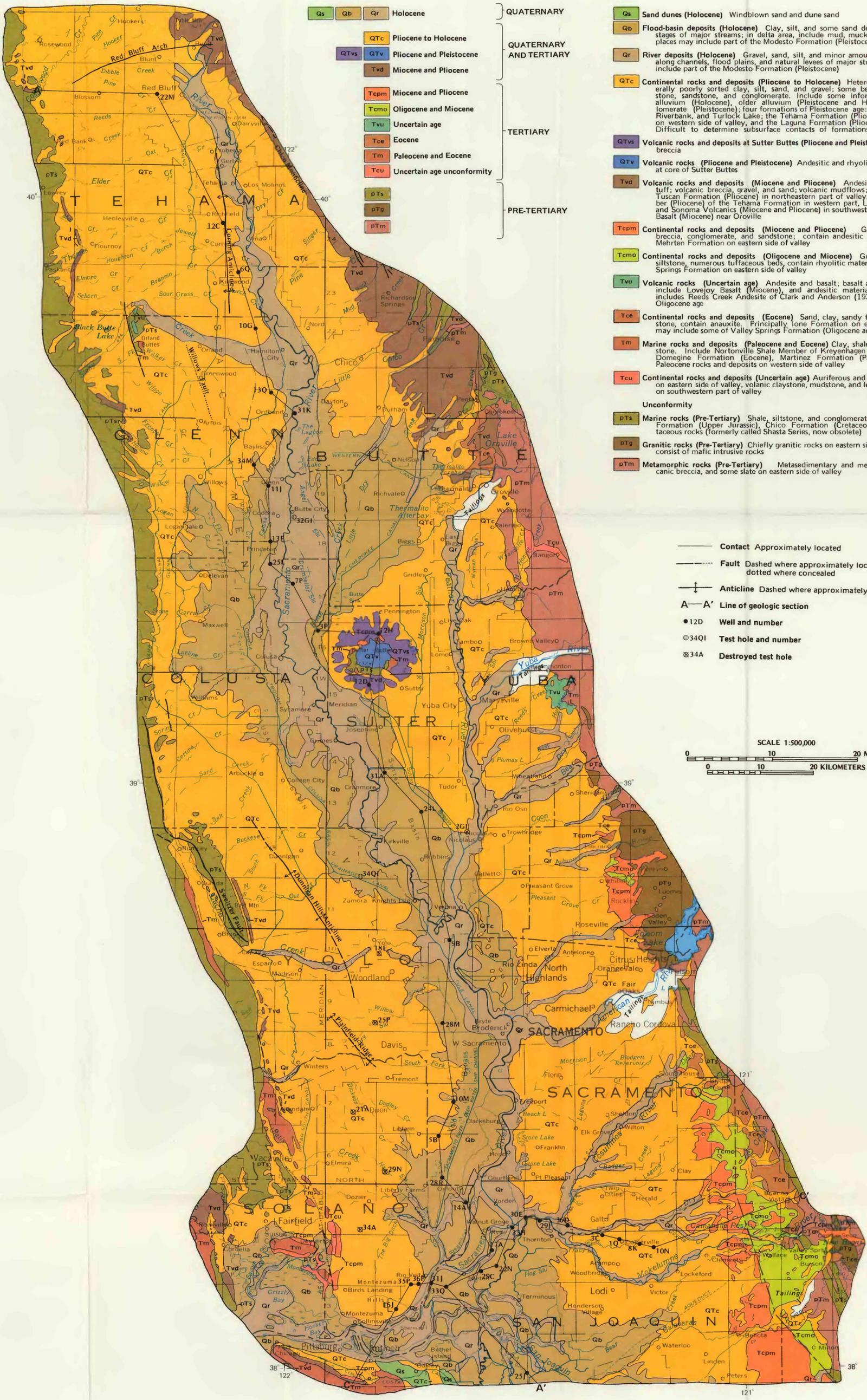


EXPLANATION

CORRELATION OF MAP UNITS

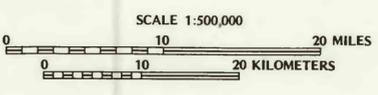
DESCRIPTION OF MAP UNITS



Unit	Age Group
Qs, Qb, Qr	Holocene
QTc	Pliocene to Holocene
QTvs, QTv	Pliocene and Pleistocene
Tvd	Miocene and Pliocene
Tcpm	Miocene and Pliocene
Tcmo	Oligocene and Miocene
Tvu	Uncertain age
Tce	Eocene
Tm	Paleocene and Eocene
Tcu	Uncertain age unconformity
pTs	Pre-Tertiary
pTg	Pre-Tertiary
pTm	Pre-Tertiary

Qs	Sand dunes (Holocene)	Windblown sand and dune sand
Qb	Flood-basin deposits (Holocene)	Clay, silt, and some sand deposited during flood stages of major streams; in delta area, include mud, muck, loam, and sand. In places may include part of the Modesto Formation (Pleistocene)
Qr	River deposits (Holocene)	Gravel, sand, silt, and minor amounts of clay deposited along channels, flood plains, and natural levees of major streams. In places may include part of the Modesto Formation (Pleistocene)
QTc	Continental rocks and deposits (Pliocene to Holocene)	Heterogeneous mix of generally poorly sorted clay, silt, sand, and gravel; some beds of claystone, siltstone, sandstone, and conglomerate. Include some informal units: younger alluvium (Holocene), older alluvium (Pleistocene and Holocene?), and fanlomerate (Pleistocene), four formations of Pleistocene age: Red Bluff, Modesto, Riverbank, and Turlock Lake; the Tehama Formation (Pliocene and Pleistocene) on western side of valley, and the Laguna Formation (Pliocene) on eastern side. Difficult to determine subsurface contacts of formations and informal units
QTvs	Volcanic rocks and deposits at Sutter Buttes (Pliocene and Pleistocene)	Tuff and tuff breccia
QTv	Volcanic rocks (Pliocene and Pleistocene)	Andesitic and rhyolitic porphyry and tuff at core of Sutter Buttes
Tvd	Volcanic rocks and deposits (Miocene and Pliocene)	Andesite; obsidian; pumice; tuff; volcanic breccia, gravel, and sand; volcanic mudflows; some basalt. Include Tuscan Formation (Pliocene) in northeastern part of valley, Nomlaki Tuff Member (Pliocene) of the Tehama Formation in western part, Lawlor Tuff (Pliocene) and Sonoma Volcanics (Miocene and Pliocene) in southwestern part, and Lovejoy Basalt (Miocene) near Oroville
Tcpm	Continental rocks and deposits (Miocene and Pliocene)	Gravel, sand, silt, clay, breccia, conglomerate, and sandstone; contain andesitic material; principally Mehrten Formation on eastern side of valley
Tcmo	Continental rocks and deposits (Oligocene and Miocene)	Gravel, sand, silt, clay, siltstone, numerous tuffaceous beds, contain rhyolitic material; principally Valley Springs Formation on eastern side of valley
Tvu	Volcanic rocks (Uncertain age)	Andesite and basalt; basalt at Orland Buttes may include Lovejoy Basalt (Miocene), and andesitic material east of Marysville includes Reeds Creek Andesite of Clark and Anderson (1938) of late Eocene or Oligocene age
Tce	Continental rocks and deposits (Eocene)	Sand, clay, sandy to gravelly clay, sandstone, contain anaxite. Principally lone Formation on eastern side of valley, may include some of Valley Springs Formation (Oligocene and Miocene)
Tm	Marine rocks and deposits (Paleocene and Eocene)	Clay, shale, siltstone, and sandstone. Include Nortonville Shale Member of Kreyenhagen Formation (Eocene), Domegine Formation (Eocene), Martinez Formation (Paleocene), and some Paleocene rocks and deposits on western side of valley
Tcu	Continental rocks and deposits (Uncertain age)	Auriferous and non-auriferous gravel on eastern side of valley, volcanic claystone, mudstone, and lenses of conglomerate on southwestern part of valley
Unconformity		
pTs	Marine rocks (Pre-Tertiary)	Shale, siltstone, and conglomerate. Include Knoxville Formation (Upper Jurassic), Chico Formation (Cretaceous), and Lower Cretaceous rocks (formerly called Shasta Series, now obsolete)
pTg	Granitic rocks (Pre-Tertiary)	Chiefly granitic rocks on eastern side of valley, in places consist of mafic intrusive rocks
pTm	Metamorphic rocks (Pre-Tertiary)	Metasedimentary and metavolcanic rocks, volcanic breccia, and some slate on eastern side of valley

- Contact Approximately located
- - - Fault Dashed where approximately located, dotted where concealed
- ↕ Anticline Dashed where approximately located
- A—A' Line of geologic section
- 12D Well and number
- ⊙ 34QI Test hole and number
- ⊗ 34A Destroyed test hole



Base from U.S. Geological Survey, California State base, 1968

Geology modified from California Department of Water Resources, 1978, and California Division of Mines and Geology, 1960, 1962a,b, 1963, and 1966a

GEOLOGIC MAP OF THE SACRAMENTO VALLEY, CALIFORNIA