U. S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

MAP AND CHECKLISTS OF JURASSIC AND CRETACEOUS MACROFOSSIL LOCALITIES WITHIN THE SAN JOSE 1:100,000 QUADRANGLE, CALIFORNIA, AND DISCUSSION OF PALEONTOLOGICAL RESULTS

Includes collections housed at the California Academy of Sciences, Natural History Museum of Los Angeles County, University of California, Berkeley, Museum of Paleontology, and new U. S. Geological Survey localities since 1990

BY

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Map number	Locality identifier	Quadrangle abbreviation	Age	*Buchia crassicollis solida* (Lahusen)	*Buchia elderensis* (Anderson)	*Buchia pacifica* (Jeletzky)	*Buchia piochii* (Gabb)	*Buchia terebratuloides* (Lahusen)	*Buchia trigonoides* (Lahusen)	*Buchia* sp.	Lucinid	Mytilid	*Nuculana* sp.	Ostreid	*Parvamussium* sp.	*Thurmanniceras californicum* (Stanton)	Ammonite indet.	Berriasellid	*Bochianites* sp.	*Kilianella crassiplicata* (Stanton)	Belemnite indeterminate	*Cylindroteuthis* sp.	Gastropod indeterminate	Scaphapod (Small)	Serpulid	Solitary coral	Discinisciid	*Callianassa* sp.	Shark tooth	Bryozoa
1	CAS61455	CR	Berr.	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1	LSJU1800	CR	Tith. & Val.? (mixed?)	—	—	?	×	×	—	—	—	×	—	—	—	—	—	×	—	—	×	—	—	—	—	—	—	—	—	—
2	M8801	SJE	Tith. & Val. (mixed)	—	×	×	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	M8802	SJE	M. - L. Tith.	—	×	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4	LSJU1807	SJE	Tith.?	—	?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5	M8720	STH	M. - L. Tith.	—	*cf.*	—	?	—	—	—	—	—	×	—	×	—	×	—	—	—	—	—	×	×	×	?	×	—	—	—	?
6	CAS33574	LG	E. Val.	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	?	—	—	—	—	—	—	—	—	—	—
10	CAS31249	MC	Indet.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—
10	CAS31250	MC	Indet.	—	—	—	—	—	—	—	—	—	—	?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
29	UCB B-771	CM	Ox. - Val.	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
97	CAS33543	CVP	L. Tith.	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
117	LSJU3416	CVP	L. Tith.	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
118	M8733	CVP	Indet.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—
127	CAS33510	CVP	E. - M. Val.	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
127	LSJU3430	CVP	L. Val.	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
127	LSJU3431	CVP	L. Val.	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
127	UCB B-783	CVP	E. - M. Val.?	—	—	*cf.*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
128	CAS33568	CVP	Val.	—	—	—	—	—	—	—	—	—	—	—	—	—	*cf.*	—	—	—	—	—	—	—	—	—	—	—	—	—	—
128	M8731	CVP	Tith. - Haut.	—	—	—	—	—	—	—	?	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	×	—	—
140	CAS33463	CVP	E. - M. Val.	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
140	CAS33485	CVP	Prob. Tith.	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—
140	CAS33490	CVP	E. - M. Val.	—	—	?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
140	CAS33491	CVP	E. - M. Val.	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
140	CAS33492	CVP	E. - M. Val.	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
143	LSJU3432	CVP	Tith.	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
143	M8672A,C,D	CVP	Tith.	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
144	CAS33573	CVP	Tith. - Haut.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—
145	M8725	CVP	Prob. Cret.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	×	—	—	—
146	M8730	CVP	Tith. - Haut.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	×	—	—
175	M8673	CVP	Tith.	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
178	LSJU2537	LO	Tith.?	—	—	—	—	?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
178	M8723	LO	L. Tith.	—	—	—	—	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—
179	M8721	LO	Prob. Tith.	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—
180	M8722	LO	L. Tith.?	—	—	—	—	?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 1. Taxonomic checklist for Late Jurassic through Valanginian macrofossil localities in the San Jose 1:100,000 quadrangle.

INTRODUCTION

This report is a follow-up of Elder and Miller (1990) "Checklists of Jurassic and Cretaceous macrofauna from U. S. Geological Survey collections within the San Jose 1:100,000 map sheet, California", which covered collections housed at the U. S. Geological Survey in Menlo Park. This new study lists all of the remaining Jurassic and Cretaceous macrofaunal localities and taxa for the map sheet that are found in collections housed at other California repositories. The report also lists new U. S. Geological Survey localities collected during recent geologic and paleontologic studies in the San Jose map sheet and registered since Elder and Miller (1990).[1] These two compilations, therefore, represent nearly all material known from the San Jose sheet.

With few exceptions, all listed collections from the following repositories have been reviewed by the authors in order to maintain a consistent classification scheme: California Academy of Sciences (including Stanford University collections), Natural History Museum of Los Angeles County, and University of California, Berkeley, Paleontological Museum. Information from theses and publications on the area, such as Maddock (1955), Schilling, (1962), Anderson (1958), Matsumoto (1960), and Bishop (1970) was considered, but fossil identifications were verified by the authors before listing in this report. However, we did include a few localities that we were not able to locate in museum collections, but that had faunal lists in one of the above sources. These rare exceptions include Matsumoto's (1960) identification of ammonites from several collections, and Schilling's (1962) listed identifications for a number of missing collections. Alternatively, some collections found at the repositories were excluded from the report because of inadequate locality information.

Following the presentation of the fossil checklists, this report will discuss some of the results and implications of this taxonomic and biostratigraphic data. Important highlights of this discussion include new age control for several localities in the Franciscan Complex, establishment of a Valanginian age for a poorly dated Lower Cretaceous unit in the Great Valley sequence north of Pacheco Pass, and refinement of age control on Upper Cretaceous rocks near Loma Prieta.

MACROFAUNAL CHECKLISTS

Tables 1 through 3 list the fossil localities and macrofauna present in the San Jose 1:100,000 map sheet and found in the studied institutions. Locality numbers on the tables are preceded by the following letter codes that indicate the invertebrate locality register to which they belong: CAS = California Academy of Sciences, LA = Los Angeles County Museum, LSJU = Stanford University, M = U. S. Geological Survey, Menlo Park Mesozoic localities (except two localities designated by the suffix, "Cenozoic"), UCB = University of California, Berkeley.

In order to facilitate easier reading of the faunal checklists, the localities have been divided into the three tables based on age. Table 1 lists the fossil localities and corresponding fossils present for rocks of Late Jurassic (Tithonian) through Valanginian age. Although this table lists an Oxfordian through Valanginian age range for one locality containing indeterminate species of *Buchia*, there is no evidence of Oxfordian age rocks in the map area. Table 2 is a checklist for localities of Albian through Santonian age; no fossil localities are known from the

[1] Appendix A lists changes made in taxonomic identifications between Elder and Miller (1990) and this report.

Hauterivian through Aptian Stages in the map area. Table 3 lists localities and fossils of Campanian and Maastrichtian age, and includes several samples that appear to be of Paleocene or possibly early Eocene age. Localities containing no age diagnostic taxa have been placed in the age group with which they most likely belong based on known geology and stratigraphy of the area.

Plate 1 shows map numbers representing one or more fossil localities plotted on the San Jose 1:100,000 sheet, with the map numbers of each age group designated by a different symbol. Ages and quadrangle names corresponding to the abbreviations used in the fossil checklists are shown in Tables 4 and 5, respectively. Exact locality information is listed in Appendix B, and Appendix C lists the locality numbers sequentially and ties them to the map numbers of Appendix B, Plate 1, and Tables 1 to 3.

MACROFAUNAL RESULTS AND IMPLICATIONS

Study of existing and new collections made during mapping of the San Jose 100,000 sheet have yielded a number of new results and clarified age control on several different structural blocks within the area. Outcrop areas of Mesozoic rocks and specific belts of rock referred to in the following discussion are shown in Figure 1. The age and correlation of specific Mesozoic rock units are depicted in Figure 2. Mesozoic macrofossils from the study area basically are derived from four domains. The first is a fault bounded block located in the Sierra Azul Range of the Santa Cruz Mountains to the northeast of the San Andreas fault. This block contains thin slivers of Upper Jurassic and Lower Cretaceous rocks that structurally overly an ophiolite section, and that are in turn structurally overlain by Campanian to possibly Maastrichtian turbidite deposits. The second domain is a band of Upper Jurassic and Cretaceous rocks of the Great Valley sequence found along the west flank of the Diablo Range in the San Jose quadrangle. The third domain is the sparsely fossiliferous Franciscan Complex, which includes several fossil localities in the core of the Diablo Range. In addition, one locality of Upper Jurassic Great Valley-like rocks was recently found intercalated with the Franciscan Complex in the Santa Teresa Hills. The fourth, and most prolific area for fossils, is the Great Valley sequence exposed along the eastern margin of the Diablo Range. Here, the Coast Range ophiolite is overlain by thin slivers of Tithonian and Berriasian rocks, which are overlain by a Valanginian sequence that is in turn overlain by an apparently continuous sequence from the lower Cenomanian through much of the Maastrichtian Stage. The following discussion summarizes our findings for these areas.

SIERRA AZUL BLOCK

Most of the results of the macrofossil analysis of Mesozoic rocks in the Sierra Azul block (Fig. 1, area 1) can be found in Elder (1991) and McLaughlin et al. (1991). In brief, the lowest sedimentary unit in the sequence is comprised of thin slices of shale, cherty arkosic wacke, and radiolarian tuff that are faulted between the Coast Range ophiolite and the overlying Campanian rocks (Fig. 2). Nodular shale and silicified carbonate beds in this unit have yielded *Buchia piochii, B. uncitoides, B. pacifica,* and *B. keyserlingi,* which indicate that deposition occurred from the Tithonian through the Valanginian. The shale facies of this unit contain *Buchia* and rare ammonites, suggesting a deep-water depositional setting. However, a pebbly, gritty sandstone (loc. 22 in Elder and Miller, 1990) at one locality has yielded a Tithonian bivalve

Table 4. Age abbreviations used in Tables 1 to 3.

Abbreviation	Age or Other
Jur.	Jurassic
Ox.	Oxfordian
Tith.	Tithonian
Cret.	Cretaceous
Berr.	Berriasian
Val.	Valanginian
Haut.	Hauterivian
Alb.	Albian
Cenom.	Cenomanian
Tur.	Turonian
Con.	Coniacian
Sant.	Santonian
Camp.	Campanian
Maas.	Maastrichtian
E.	Early
M.	Middle
L.	Late

Table 5. Quadrangle abbreviations used in Tables 1 to 3.

Abbreviation	Quadrangle Name (1:24,000)
CR	Calaveras Reservoir
CM	Copper Mountain
CVP	Crevison Peak
GHS	Gilroy Hot Springs
HR	Howard Ranch
LL	Laurel
LO	Lick Observatory
LP	Loma Prieta
LG	Los Gatos
MC	Mississippi Creek
MTB	Mount Boardman
OP	Orestimba Peak
PT	Patterson
SJE	San Jose East
SLD	San Luis Dam
STH	Santa Teresa Hills
WR	Wilcox Ridge

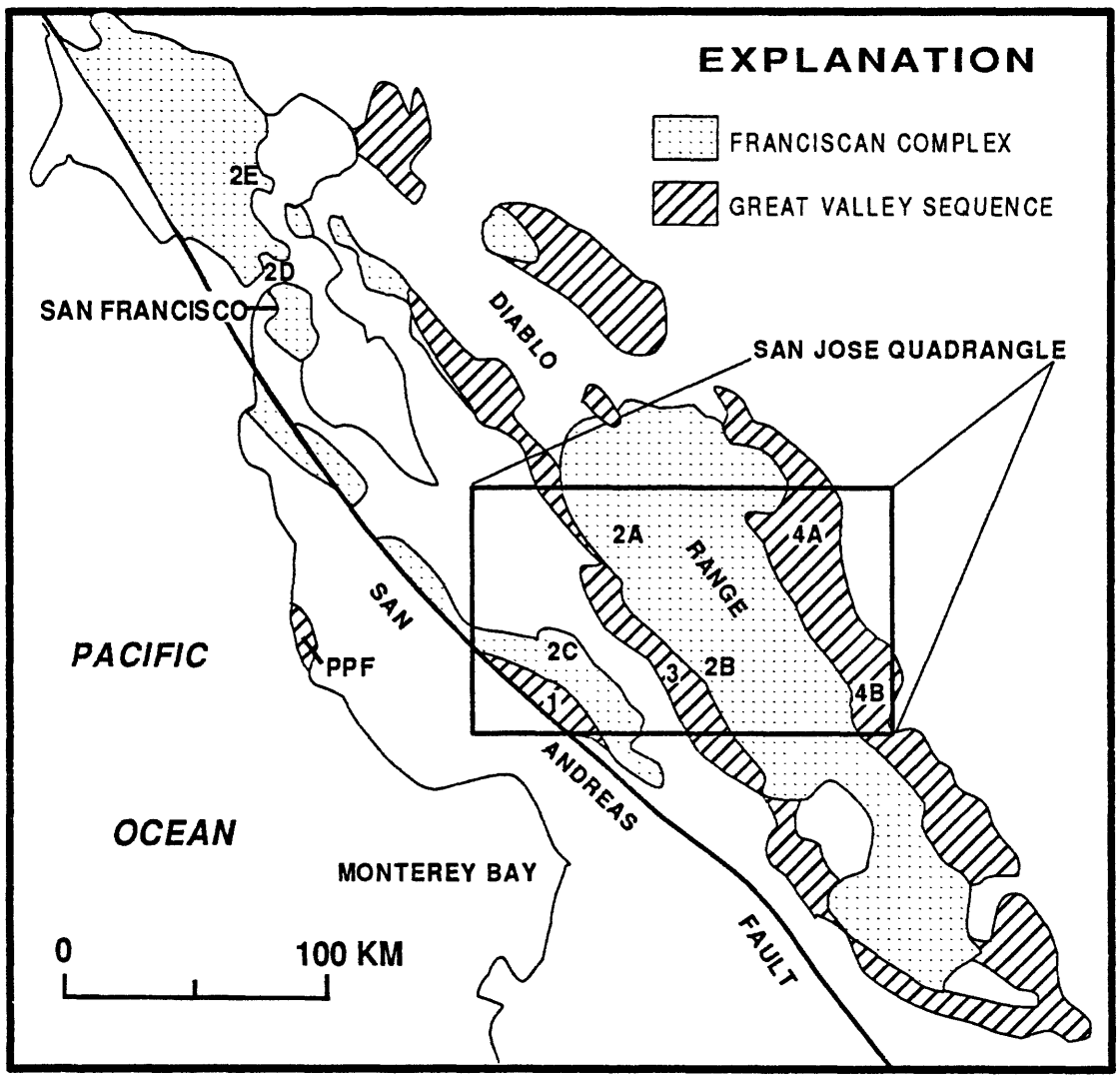

Figure 1. Map of the San Francisco Bay region showing the location of the San Jose 1:100,000 map, and specific areas referred to in text and depicted in stratigraphic columns in Figure 2. 1 = Sierra Azul block. 2 = localities in the Franciscan Complex; 2A = locality in the Eylar Mountain terrane; 2B = locality in the Burnt Hills terrane; 2C = lower Great Valley-like rocks incorporated in Permanente terrane; 2D = Alcatraz terrane; 2E = Novato Quarry terrane. 3 = Great Valley sequence on the west flank of the Diablo Range. 4 = Great Valley sequence on the east flank of the Diablo Range; 4A = Del Puerto Canyon area; 4B = Pacheco Pass area. PPF = Pigeon Point Formation.

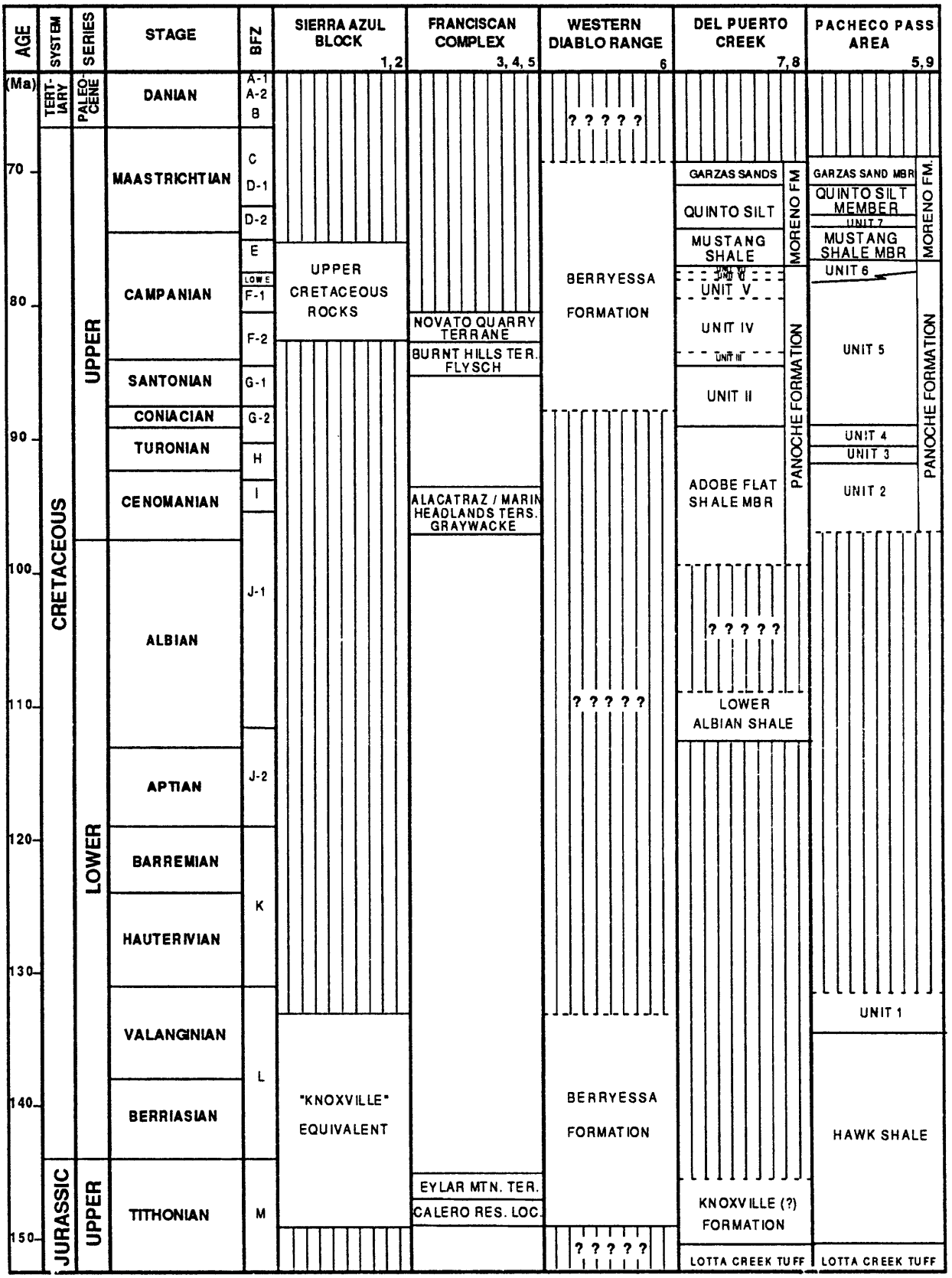

Figure 2. See caption on following page.

⇐ Figure 2. Correlation and time-stratigraphic distribution of Jurassic and Cretaceous rock units discussed in text. Ages shown for Franciscan Complex terranes are those indicated by macrofossil determinations discussed in the text and are not complete; the overlapping ages for many of these terranes indicated by microfossil information could not be shown within one column. Vertical lines indicate time not represented in the rock record. Numbers adjacent to the column headings indicate sources of age and nomenclature in addition to that determined on this study. 1 = McLaughlin et al. (1991), 2 = Elder (1991), 3 = Hertlein (1956), 4 = Bailey et al. (1964), 5 = Bennison et al. (1991), 6 = Carter (1970), 7= Maddock (1964), 8 = Bishop (1970), 9 = Schilling (1962). Benthic foraminiferal zones (BFZ) from Goudkoff (1945) and Berry (1974).

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assemblage that includes *"Glycymeris" ovatus* and *Lima* sp., implying deposition at, or transport from, shelf depths.

The macrofauna of the overlying Campanian rocks has been discussed in detail by Elder (1991). In brief, the Campanian section in the Sierra Azul consists of a basal conglomeratic turbidite channel deposit, overlain by a flysch-like interval of finely interbedded shale and sandstone beds, which is in turn overlain by an argillitic interval containing carbonate concretions and some thick-bedded sandstones. One new locality of significance has been found in these rocks (loc. 7, Pl. 1, Tab. 3; this report) since Elder (1991). Although stratigraphic relationships are not clearly evident, this locality is thought to lie immediately above the conglomerate at the base of the Upper Cretaceous section and to be essentially age-equivalent to the oyster beds discussed in Elder (1991). The new locality contains a diverse and unusual transported fauna indicative of mixed rocky littoral to sublittoral and sandy bottom habitats. Among the taxa indicative of rocky or hard substrates are at least four species of Patellacean gastropods, abundant *Mytilus*, and densely-packed beds of *Isocrinus*.

Several of the sandy-substrate bivalves found for the first time in the Upper Cretaceous rocks of the Sierra Azul are also found in the Pigeon Point Formation to the west of the San Andreas fault (Fig. 1, area PPF), indicating that these deposits are similar in age. The most age indicative of these is the middle Campanian species, *Meekia (Mygallia) bella*, but *Glycymeris (Glycymerita)* cf. *apletos, Cymbophora popenoei*, and probably *Cymbophora stantoni* also occur in both areas. The strong rocky-shoreline component of the Sierra Azul assemblage is lacking from the Pigeon Point Formation, however, and the Sierra Azul assemblage differs to an even greater degree from middle Campanian rocks on the east flank of the Diablo Range near Pacheco Pass (Fig. 1, area 4B), which are finer-grained on the whole and contain sparse, deeper-water faunal assemblages. Overall faunal composition of the Sierra Azul block suggests that it was deposited to the south of the Great Valley in an area near the coastal margin (Elder, 1991).

A review of the taxa present in the Upper Cretaceous rocks of the Sierra Azul indicates that the sequence extends from the middle Campanian, as indicated by *Meekia (Mygallia) bella* at the top of the basal conglomerate, into the late Campanian, as indicated by a mixed assemblage of *Baculites anceps pacificus, B. orientalis, B. occidentalis,* and *B. rex* from the upper part of the section (Fig. 2). Age control from the lowermost and uppermost parts of the

unit is lacking, so the age range may be somewhat greater. There is presently no definitive evidence for any Maastrichtian rocks in the block, however.

FRANCISCAN COMPLEX

Macrofossils in the Franciscan Complex are rare. Much of the recent information on the Franciscan is noted in Elder and Miller (1990) and Bennison et al. (1991). This information includes the identification of a single *Buchia fisheriana* (loc. 35 in Elder and Miller, 1990) from the Eylar Mountain terrane (Cotton, 1972), indicating a Tithonian age for that locality (Fig. 1, area 2A). In addition, recollection of several localities in a flysch-like sequence of the Burnt Hills terrane (locs. 42- 44 in Elder and Miller, 1990) yielded a macrofossil assemblage indicative of a late Santonian to early Campanian age (Fig. 1, area 2B). This assemblage, which includes *Sphenoceramus nagaoi, S. orientalis orientalis, S.* sp. aff. *S. naumanni,* and *Bostrychoceras* sp., indicates an age slightly older than the *Sphenoceramus schmidti* reported from similar flysch-like sequences in the Novato Quarry terrane (Fig. 2, area 2E) (Bailey et al., 1964; Blake et al., 1984). An Early Cretaceous (Murchey and Jones, 1984) to latest Santonian age is now indicated for the Burnt Hills terrane.

Several new macrofossil localities in the Franciscan Complex are reported here for the first time. These include a new locality in the Permanente terrane near Calero Reservoir. This locality (loc. 5, Pl. 1, Tab. 1) occurs in a small sliver of rock that resembles the lower part of the Great Valley sequence and that contains a relatively diverse Tithonian shelf assemblage preserved in a mixture of shale and gritty to pebbly detrital serpentinite. The presence of sedimentary serpentinite suggests erosion of either exposed ophiolitic basement during the Tithonian, or, perhaps, exposed serpentinitic material extruded by tectonic forces as Moiseyev (1970) suggested for detrital serpentinite deposits found on the west flank of the Sacramento Valley between Wilbur Springs and Lake Berryessa. The new locality near Calero Reservoir is the most southerly documented detrital serpentinite locality, although Moiseyev (1970) suggested that some of the serpentinite in the New Almaden district might be of detrital origin.

Also of note, an important new inoceramid specimen has been found on Alcatraz Island in the Franciscan Complex slightly to the northwest of the map area (Fig. 1, area 2D). Blake et al. (1984) assigned Alcatraz Island to a terrane of its own based on the apparent age difference between the graywacke of Alcatraz Island, from which Valanginian *Buchia pacifica* has been reported (Armstrong and Gallagher, 1977), and the graywacke of the nearby Marin Headlands terrane, from which an early to middle Cenomanian *Mantelliceras* specimen was reported (Hertlein, 1956). The new inoceramid specimen and review of old material from Alcatraz Island suggest, however, that at least some of the graywacke on the island is of Cenomanian age.

The new Alcatraz specimen appears to belong to the Cenomanian *Inoceramus pictus* group. Examination of the plaster casts of the Alcatraz specimens used by Gabb (1869) to describe *Inoceramus ellioti* suggests that that species belongs to the *Inoceramus crippsi* group, as Matsumoto (1960) also noted. These identifications taken together imply a lower to middle Cenomanian age for at least some of the rocks on Alcatraz (Fig. 2).

The *Buchia pacifica* specimens reported from Alcatraz by Armstrong and Gallagher (1977) indicate a Valanginian age. Unfortunately, these specimens appear to have been lost, and recent investigation of their locality yielded no fossils (C. Wahrhaftig, oral commun., 1992). This locality is less than two hundred feet stratigraphically below the new inoceramid locality in

an apparently continuous graywacke sequence (C. Wahrhaftig, oral commun., 1992). It seems unlikely that a Valanginian to Cenomanian age span would be condensed within such a stratigraphically short graywacke interval. This leads us to speculate that the crushed specimens illustrated by Armstrong and Gallagher (1977) might actually be the middle Cenomanian inoceramid, *Inoceramus gradilis* Pergament, which looks very similar to *Buchia pacifica*. An early to middle Cenomanian age for Alcatraz Island is consistent with the age indicated by Hertlein's (1956) *Mantelliceras* specimen reported from graywacke at the north end of the Golden Gate Bridge in the Marin Headlands terrane and suggests that the Alcatraz terrane of Blake et al. (1984) may be equivalent to the upper clastic part of the Marin Headlands terrane.

GREAT VALLEY SEQUENCE ON THE WEST FLANK OF THE DIABLO RANGE

The macrofossils from the Great Valley sequence on the west flank of the Diablo Range in the San Jose 1:100,000 sheet (Fig. 1, area 3) are largely indicative of Late Jurassic and Early Cretaceous ages. Upper Cretaceous rocks also are present, although their age is poorly constrained (Fig. 2). Most macrofossils occur in a dark colored predominantly shaly sequence that has been referred to as the Berryessa Formation (Crittenden, 1951). By far the most common fossils are *Buchia* bivalves (locs. 1-3, 178-180, Tab. 1). These include the Tithonian species *Buchia piochii, B. elderensis, B. fischeriana,* and *B. terebratuloides,* and the Valanginian species *B. pacifica.* At one locality near the north side of the quadrangle (loc. 1; CAS61455; Pl. 1, Tab. 1), rocks of Berriasian age are indicated by the presence of *B. trigonoides*. Two localities contain mixed Tithonian and Valanginian faunas, possibly due to outcrop mixing of carbonate concretions from different stratigraphic levels.

Two localities near Gilroy contain an inoceramid and a cerithiid suggestive of younger Cretaceous rocks (locs. 9, 177, Pl. 1, Tab. 2), but accurate age determination is lacking. A younger age in this area is supported by the report of an *Anapachydiscus* sp. (Coniacian to Maastrichtian in age; identified by D. L. Jones)a short distance to the north in Larios Canyon (T. 9 S., R 4 E., sec. 28, ctr. SW 1/4; Carter, 1970). This specimen was not located in this study. In addition, Carter (1970) noted *Baculites* sp., and inoceramid prisms in this area, also indicative of a Late Cretaceous age.

GREAT VALLEY SEQUENCE ON THE EAST FLANK OF THE DIABLO RANGE

The Mesozoic Great Valley sequence on the east flank of the Diablo Range (Fig. 1, areas 4A and 4B) is comprised of at thick section of Tithonian through Maastrichtian strata. Although there are several notable breaks in the Lower Cretaceous section, the sedimentary record of the Upper Cretaceous appears to be continuous from the Cenomanian through the mid-Maastrichtian in the San Jose quadrangle (Fig. 2). The largest and most widespread gap in the sequence is found between Valanginian strata and the overlying upper Albian to lower Cenomanian basal part of the Panoche Formation. In the northern part of the quadrangle near Del Puerto Canyon, however, a thin fault-bounded interval of lower Albian shale overlies the Coast Range ophiolite and underlies Turonian strata on the east flank of the Del Puerto piercement (Maddock, 1964) (Fig. 2). This is the only record of early Albian deposits in the San Jose 1:100,000 quadrangle, although these deposits are well represented to the north on the eastern flank of the Diablo Range (Bishop, 1970; Elder and Miller, 1992), and may be present in the Wisenor Shale to the south (Briggs, 1953).

Most of the macrofossils found in the Great Valley sequence on the east flank of the Diablo Range are nearshore taxa that were transported via turbidity currents into deep water environments where they are preserved in sandstone and conglomerate beds. However, by the mid-Maastrichtian, both siltstones and sandstones containing apparently *in situ* or little transported shallow water taxa were deposited across the east flank of the Diablo Range in the study, suggesting that basinal infilling from the northeast to the southwest (Cherven, 1983) had progressed to the degree such that shelf and nearshore environments were developed across the area. For the most part, the more fine-grained siltstone and shale portions of the Upper Cretaceous section are poorly represented in the macrofossil collections, but foraminifers from these intervals (Schilling, 1962), as well as scattered macrofossils collected from intercalated sandstone, conglomerate, and concretion beds within them, yield ages from all stages.

Many of the fossils found in Upper Cretaceous conglomerates of the Great Valley sequence are derived from reworked clasts of sandstone and conglomerate. In cases where dating of both the fossiliferous clasts and the conglomerate containing them are possible, the clasts typically cannot be differentiated in age from the matrix. Some exceptions are the mixing of a Cenomanian clast into an early Turonian conglomerate at loc. 102 (Pl. 1, Tab. 2) and a probable Santonian clast in a Maastrichtian conglomerate (loc. 137, Pl. 1, Tab. 2). Some clasts containing Turonian species also are present in Coniacian to Santonian age conglomerates at several localities. In general, however, the conglomerate clasts containing macrofossils (often conglomerates themselves) in the Great Valley sequence of the San Jose quadrangle appear to have been reworked shortly after cementation, perhaps from the walls of the turbidite channels.

Several sandy conglomerate beds containing mostly limestone or calcareous mudstone concretions as clasts also are found in the study area. An excellent example of this is found at locality 27 (Pl. 1, Tab. 3) south of Del Puerto Canyon, where reworked concretions containing abundant *Baculites anceps pacificus* form most of the clasts of a conglomerate at the top of a thick sandstone bed in the middle part of Bishop's (1970) unit V (Fig. 2). This bed is apparently traceable northward to Hospital Creek, where Bishop (1970) reported the same type of bed containing the same fossils at approximately the same horizon. This bed lies approximately at the base of the widely developed Sacramento shale (Bartow and Nilsen, 1990) and may reflect a condensed interval associated with this apparent transgressive pulse.

Tithonian - Valanginian Faunas

The lower part of the Great Valley sequence in the Pacheco Pass area on the east side of the Diablo Range locally consists of dark concretionary shaly siltstone. Schilling (1962) called this shaly unit with some conglomeratic beds the Hawk shale (Fig. 2). Concretions from this unit contain Tithonian fossils near the base and Valanginian fossils from a short distance upsection; no Berriasian fossils have been found, and that stage may be omitted from the sequence. Fossils include the middle to late Tithonian species *Buchia piochii* and *B. elderensis,* and the Valanginian species *B. pacifica* and *B. keyserlingi.*

A second unit of siltstone with thin sandstone interbeds (unit 1, Fig. 2) lies above a thin conglomeratic interval at the top of Schilling's Hawk shale and below a thick conglomerate that is here considered the basal unit of the Panoche Formation in the southern part of the San Jose quadrangle (Schilling included this in his lower formation C of the Panoche group). This siltstone unit was correlated to the Wisenor Shale of Briggs (1953) in the Ortigalita Peak quadrangle to the south by Bennison et al. (1991, fig. 3). Anderson (1958) reported the late

Valanginian to early Hauterivian genus *Neocraspedites* from this unit near Quinto Creek (loc. 128, CAS33568; Pl. 1, Tab. 1) and the upper Barremian to Aptian genus *Hemibaculites* on Romero Creek (loc. 144; Pl. 1, Tab. 1). If the latter identification were correct, then this would represent the only occurrence of Barremian or Aptian deposits in the San Joaquin Valley (see queried age of unit 1, Pacheco Pass area, Fig. 2; Bennison et al., 1991). Reinspection of these ammonites and further collecting of the unit has revealed, however, that the *Neocraspedites* can be compared to *Thurmanniceras californicum* of Valanginian age and the *Hemibaculites* can be assigned to the genus *Bochianites*, which ranges from the Tithonian to the Hauterivian. This evidence implies that unit 1is of Valanginian age and is probably conformable with the underlying the Hawk shale. Although unit 1 is typically sparsely fossiliferous, silty concretions near its top often contain callianassid shrimp, and *Bochianites* is fairly common.

Albian to Cenomanian Faunas

Albian to Cenomanian age macrofossils are uncommon in the San Jose quadrangle. As noted above, thin slivers of lower Albian rocks are preserved on the east flank of the Del Puerto piercement in Del Puerto Canyon, as indicated by the presence of *Leconteites lecontei* (loc. 98, Elder and Miller, 1990; loc. 17, CAS28322, this report). An Albian age is also suggested at one locality on the west side of the piercement at the base of the Adobe Flat Shale Member of the Panoche Formation of Maddock (1964), where a *Biplica* with affinities to the Albian species *B. michaeli* has been found (loc. 36, Pl. 1, Tab. 2). In addition, a fauna near the base of the Adobe Flat Shale Member on the west side of the piercement at locality 19 (Pl. 1, Tab. 2) suggests a Cenomanian age for part of that unit, as does a possible *Calycoceras* sp. near the base of the member on the east side (loc. 17, UCB B-7311; Pl. 1, Tab. 2). Otherwise, fossils in the Adobe Flat Shale Member, which is faulted against the Coast Range ophiolite or Franciscan Complex throughout much of the northern part of the San Jose quadrangle, are indicative of the Turonian Stage (Fig. 2).

Fossils are uncommon in the thick conglomerate that forms the base of the Panoche Formation in the southern part of the quadrangle (unit 2, Fig. 2); this conglomerate unit forms a broad lens, tonguing northward into mudstone deposits between Quinto and Garzas Creeks and likewise interfingering with fine-grained deposits to the south of the quadrangle (see Bennison et al., 1991; Fig. 3). Fossils found in both clasts and the matrix of this conglomerate unit provide approximately the same age. A fossiliferous clast found near the base of the conglomerate on Quinto Creek near McDowell Spring contains a diverse assemblage indicative of a late Albian to early Cenomanian age (loc. 69 in Elder and Miller, 1990). Adjacent to this locality, apparently from the matrix of the conglomerate, Matsumoto (1960) reported the late early to middle Cenomanian ammonite species *Turrilites costatus* (loc. 129, CAS27858; Pl. 1, Tab. 2). In addition, a clast containing a Cenomanian nearshore assemblage is known from a tongue of this conglomeratic unit (loc. 102, Pl. 1, Tab. 2) that apparently overlies, or is nearly correlative with, early Turonian fossils localities in a sandstone bed at locality 98 (Pl. 1, Tab. 2) (B. F. Cox, oral commun., 1993). Otherwise, only a large specimen of *Puzosia?* sp. from locality 168 (Pl. 1, Tab. 2) is known from this conglomerate.

Turonian Faunas

The Turonian stage is well represented on the east flank of the Diablo Range in the San Jose quadrangle. This stage is one of the few Cretaceous stages that can be widely broken down into substages in the area. The lower Turonian is characterized by faunas containing the inoceramid bivalves *Mytiloides opalensis* (non Böse), *Mytiloides mytiloides*, and *Mytiloides labiatus*. These species are found in lower Turonian sandstones and shales on the east flank of the Diablo Range across the entire San Jose quadrangle. Only at locality 98 (Pl. 1, Tab. 2), adjacent to Garzas Creek in Indian Wells Canyon, are these bivalves associated with a diverse assemblage, including the ammonites *Euomphaloceras* sp. aff. *E. septemseriatum* and *Sciponoceras kossmati*. The lower Turonian is well represented near the base of the Adobe Flat Shale Member of the Panoche Formation in the northern part of the quadrangle and has been recognized near the south side of the quadrangle on the north flank of Basalt Hill (loc. 171, Pl. 1, Tab. 2) at the base of unit 3 (Fig. 2).

The middle and upper Turonian are represented in unit 4 (Fig. 2). A fauna containing *Collignoniceras woollgari* at locality 132 (Pl. 1, Tab. 2) along Quinto Creek and a clast containing a fauna associated with *Tragodesmoceras ashlandicum* in a Turonian conglomerate on San Luis Reservoir (loc. 94, Elder and Miller , 1990) reflect the middle Turonian. The upper Turonian is the best represented substage in the area and is indicated by faunas containing ammonites of the genus *Subprionocyclus*. The ammonites *Yezoites puerculus, Scalarites mihoensis*, and *Hyphanotoceras* are present as well. A particularly good late Turonian ammonite fauna, as well as a distinctive new species of high-spired *Opalia (Claviscala)* indicative of the Turonian, is present at locality 169 (Pl. 1, Tab. 2), just east of the generating plant at San Luis Dam. Late Turonian is the youngest date indicated for the Adobe Flat Shale Member, as reflected by fossils at locality 46 (Pl. 1, Tab. 2).

Many Turonian nearshore assemblages lacking ammonites cannot be assigned to substages, but do contain a characteristic Turonian fauna. This fauna includes the bivalves *Meekia (Meekia) radiata, Meekia (Mygallia) takeoana, Calva (Egelicalva) spissa, Pachycardium? remondianum, Glycymeris pacificum*, and the gastropods *Turritella hearni, Arrhoges californicus*, and *Gymnarus manubriatus*.

Coniacian to Santonian Faunas

Macrofossil faunas from the Coniacian and Santonian Stages of the San Jose quadrangle are mostly derived from conglomerates in the lower part of unit 5 (Fig. 2). The degree to which this material is present in clasts versus the matrix of the conglomerate is unknown. There are several collections from this level that appear to contain late Turonian fossils, thus some of the material appears to be reworked. For the most part, however, if the material is from clasts, it appears to be of approximately the same age as the matrix. The Coniacian and Santonian assemblages found in these conglomerates are quite diverse and contain a number of undescribed taxa. Although these assemblages were called the "Pioneer fauna" on many old locality descriptions, they are apparently somewhat younger than the Turonian rocks of Anderson's (1943) Pioneer group, to which this name refers.

Ammonites of Coniacian age are rare in the quadrangle. There are several localities that apparently contain the Coniacian ammonite genus *Peroniceras* in place (locs. 43, 133, Pl. 1, Tab. 2). Locality 133 on Quinto Creek is the type locality of *Peroniceras quintoense* Anderson.

Otherwise, the diverse molluscan assemblages found in the conglomerates contain only rare fragments of ammonites assignable to *Hyphanotoceras* sp. and *Kossmaticeras* sp. Often these assemblages only can be assigned a nonspecific Coniacian or Santonian age based on the bivalves present. Typical bivalves in these assemblages include *Meekia (Meekia) louella, Calva (Egelicalva) taffi, Calva (Microcalva) elderi,* two undescribed species of *Cymbophora* (one concentrically ribbed and one smooth), *Pterotrigonia evansana, Phelopteria* sp., *Glycymeris veatchii,* and *Glycymeris* cf. *pacificus*. Gastropods include a new species of *Biplica?* with affinities to *Biplica isoplicata, Gyrodes quercus, Cylichna* sp., and a volutid questionably assigned to *Volutoderma gabbi.*

Localities well constrained by macrofauna to the Santonian Stage are nearly lacking in the quadrangle. A cluster of localities near the mouth of Garden Canyon in Del Puerto Canyon suggest a Santonian age for the conglomerate and sandstone in that area. Indicative fossils include *Inoceramus (Platyceramus)* cf. *amakusensis, Inoceramus (Platyceramus)* cf. *japonicus,* and *Kossmaticeras* aff. *japonicus*. Bishop (1970) reported a specimen with affinities to the lower Campanian ammonite *Canadoceras multicostatum* Whiteaves from one of these localities (loc. 14, CAS 28323, Pl. 1, Tab. 2), but this specimen was not observed in this review of the collection. It is possible that the "missing" specimen was *Kossmaticeras* aff. *japonicus,* which superficially resembles *C. multicostatum.*

Campanian Faunas

The lower Campanian is very poorly represented in the macrofossil collections of the Great Valley sequence in the San Jose quadrangle, and Schilling (1962) found no foraminiferal evidence for the lower Campanian. This general lack of early Campanian fossils seems to be due to a poorly fossiliferous interval of sandstone and siltstone in unit 5 (Fig. 2) or formation B of Schilling (1962), rather than to a disconformity. However, a hiatus in this part of the section cannot be ruled out, as strata of this age are apparently missing to the south in the Panoche Hills and Coalinga areas (Almgren, 1986). There are several localities near the base of the upper member of Schilling's formation B that contain macrofauna suggestive of the early Campanian (locs. 92, 93, 108, 112, Pl. 1, Tab. 3), but no definitive fossils of this age are known. Fossils at these localities include *Baculites* cf. *chicoensis, Inoceramus* cf. *chicoensis, I. subundatus,* and *I. (Cordiceramus)* sp.

The late Campanian is well represented in the molluscan macrofauna, but the Campanian-Maastrichtian boundary is poorly defined. The most widely found upper Campanian faunal indicator is *Baculites anceps pacificus,* which is associated with *Metaplacenticeras pacificum* at locality 27 (Pl. 1, Tab. 3) in a bed of reworked concretions. The inoceramids comparable with *I. (Endocostea) balticus, I. chicoensis,* and *I. subundatus* also are found associated with late Campanian faunas in unit 5, and *I.* cf. *vancouverensis* is found in unit 6, a sandstone interval underlying the Mustang Shale (Fig. 2). In addition, the late Campanian indicator species *Yaadia robusta* may be present in a more nearshore assemblage found at locality 150 (Pl. 1, Tab. 3). Other fossils typical of the Campanian interval include *Pachydiscus subcompressus obsoletus, Hypophylloceras ramosum, Tessarolax distorta, Indogrammatodon vancouverensis, Thyasira* sp., *Glycymeris veatchii,* and *Pterotrigonia evansana.*

Limestone lenses containing a Campanian fossil assemblage indicative of submarine spring deposits are found across the east flank of the Diablo Range in the San Jose quadrangle, as well as to the north and south. These lenses occur near the base of the Mustang shale member

of the Moreno Formation (Anderson, 1958) (Fig. 2). At one locality near the mouth of Romero Creek (loc. 89 in Elder and Miller, 1990; loc. 160, Pl. 1, Tab. 3, this report), this assemblage is associated with *Metaplacenticeras* cf. *pacificum,* indicating a late Campanian age. The common molluscan components of this assemblage are widely associated with submarine seep deposits and are thought to be symbiotic with chemotrophic bacteria (e.g., Gaillard et al., 1992). These components include *Thyasira cretacea,* a large *Solemya* sp., and a Vesicomyiid bivalve similar to *Calyptogena* sp. The limestone lenses are highly mottled with fecal pellets and contain many sand filled voids. Fragments of the fossiliferous limestone also are found reworked into overlying conglomerate-filled channels in the Mustang shale, where they commonly occur as rounded clasts that have been bored by *Lithophaga* bivalves on all sides. The borings and the rounded nature of the clasts indicate that they were exposed and rolled around on the sediment surface for some time before accumulating in the conglomeratic deposits.

Maastrichtian Faunas

The Maastrichtian is probably the most widely fossiliferous stage on the east flank of the Diablo Range in the San Jose quadrangle. Maastrichtian fossils in the quadrangle are primarily derived from sandstone beds directly overlying the Mustang shale member of the Moreno Formation (in unit 7 or basal part of the Quinto silt), and from the Garzas sand member, which locally forms the uppermost unit of the formation (Anderson, 1958) (Fig. 2). These sandy units contain an abundant, diverse, and poorly described macrofauna indicative of shallow-water conditions and have been referred to as "*Glycymeris* reefs" in the past, due to the great abundance of that bivalve in them.

Age diagnostic ammonites are rare in the Moreno Formation and become more sparse in the upsection direction. Most ammonites occur in the basal fine-grained part of the formation, which mainly consists of the late Campanian to early Maastrichtian Mustang shale member. Here, *Exiteloceras? diabloense, Baculites occidentalis,* and *Pachydiscus ootacodensis* have been found. Upsection, unit 7 at the base of the Quinto silt member contains *Glyptoxoceras subcompressus* and *Nostoceras splendidum.* The early late Maastrichtian (here referred to as the middle Maastrichtian) ammonite, *Baculites columna,* is present in both unit 7 and the Garzas sand. In addition, *Pachydiscus* cf. *subcompressus* appears to range into the Garzas sand. Although fragmentary inoceramids are common in the Maastrichtian of the San Jose quadrangle, only one species has been identified in this stage. A single specimen from the top of the Mustang shale member was referred to *Inoceramus* cf. *shikotanensis* by Schilling (1962; identified by D. L. Jones). This specimen was not relocated in this study.

Unit 7 and the Garzas sand member share a number of taxa in common, but there are some notable differences. First, the *Glycymeris* found in these units, which are the most common faunal component, appear to be different. *Glycymeris (Glycymerita) banosensis* is present in unit 7 and a *Glycymeris* with affinities to *G. (Glycymerita) veatchii major* occurs in the Garzas sand. The latter taxon appears more trigonal in shape than the former, has broader, more rounded radial ribbing and more pronounced growth lines, and has a more strongly developed sulcus on the posterior slope. However, most of the specimens from the Garzas sand are somewhat distorted and there is some intergradation of form between the two populations, such that rare specimens assigned to *Glycymeris (Glycymerita) banosensis* occur in the Garzas sand. *Turritella webbi paynei* is the only *Turritella* known from unit 7 (all occurrences in this

unit are southeast of the San Jose quadrangle in the Volta quadrangle), whereas both this species and *T. chaneyi* are present in the Garzas sand.

A number of taxa are apparently restricted to one or the other of the sandstone units. Fossils restricted to unit 7 include a very large pectinid with affinities to *Lyriochlamys traskii*, which occurs rarely in the San Jose quadrangle (loc. 59, Pl. 1, Tab. 3), but is more common to the southeast. This is the largest pecten known from the Cretaceous, being as large as many Tertiary species. Another species restricted to unit 7 in the area is *Opis pacificum*. Mollusks apparently confined to the Garzas sand in the quadrangle are *Turritella chaneyi, Perissitys stantoni, "Cassidulus" mercedensis, Anomia* n. sp. A (sulcate), a new concentrically ribbed species of *Cymbophora* with affinities to *C. ashburnerii*, and a species of a possible new genus of Pteriacia comparable to *Aguileria*. A new species of gastropod possibly referable to the genus *Priscoficus* also seems to be largely restricted to the Garzas sand, but may range lower at locality 109 (Pl. 1, Tab. 3). Common species present in both unit 7 and the Garzas sand include the bivalves *Meekia sella, Crassatella mercedensis, Clisocolus dubius, Septifer* n. sp., a large new species of *Idonearca*, a large *Pycnodonte (Pycnodonte)* sp., a large weakly costate exogyrid with affinities to *Exogyra ponderosa erraticostata* Stephenson, and the gastropods *Biplica miniplicata, Turritella webbi paynei,* and *Phasianella garzana.*

The highest assemblages identified unquestionably as occurring in the Garzas sand in the San Jose quadrangle contain both the characteristic early Maastrichtian species *Turritella chaneyi* and predominantly late Maastrichtian species *Calva (Calva) varians* (Saul, 1983; Saul and Popenoe, 1992). This co-occurrence indicates that the uppermost Cretaceous beds recognized in the quadrangle are of middle Maastrichtian age.

Paleocene-Eocene Faunas and the Cretaceous/Tertiary Boundary

Schilling (1962) used the occurrence of *"Placanomia inornata"* and *Panopea? smithii* to indicate a Paleocene or Eocene age for a predominantly sandstone unit that directly overlies the Garzas sand member of the Moreno Formation. Schilling correlated this upper sandstone unit with the Laguna Seca Formation of Payne (1951), which crops out to the south of the San Jose quadrangle in the Laguna Seca and Panoche Hills. Alternatively, Bartow et al. (1985) have correlated this sandstone with the Tesla Formation, which overlies the Moreno Formation to the north of the San Jose quadrangle in Corral Hollow. Schilling's (1962) samples from the Laguna Seca Formation that contained *"Placanomia inornata"* could not be found in this study. Consequently, this taxon could not be assessed and compared to Maastrichtian *Anomia* from the underlying Garzas sand member of the Moreno Formation. Several Garzas sand localities near Oat Gulch contain *Anomia* n. sp. A (sulcate), which typically has the radial plications characteristic of *Placanomia*. These plications may be the result of this species attaching to *Turritella chaneyi* shells, with which it occurs, but attachment has rarely been observed and a causal relationship is as yet to be established. *Placanomia inornata* Gabb is not characterized by radial plications and Stewart (1930) suggested that this probable Paleocene species may be allied to *Pododesmus (Monia).*

The one collection from which Schilling (1962) listed both *"Placanomia inornata"* and *Panopea? smithii* together (loc. 71.1, LSJU3433; Pl. 1, Tab. 3) also could not be relocated in this study, but several USGS collections made at approximately this stratigraphic level (loc. 76 in Elder and Miller, 1990; loc. 66 in this study) yielded abundant *Panopea? smithii* in life

position as well as several other bivalve species, but no "*Placanomia*". The type specimen of *Panopea? smithii,* which is a distinct, elongate, gaping bivalve having a broad sulcus running from the umbo to the center of the ventral margin, was found in the lower part of the Telsa Formation in Corral Hollow. This stratigraphic interval is considered to be Paleocene to lower Eocene in age (Throckmorton, 1988).

The *Panopea? smithii* beds near Oat Gulch and Garzas Creek occur a short distance below a thin (30m) interval of distinctive ferruginous sandstone and siltstone, which is present at least as far north as Orestimba Creek (Stewart et al., 1944). The apparently consistent stratigraphic relationship between this *"Placanomia inornata" / Panopea? smithii* fauna and the overlying ferruginous zone suggests that this interval can be correlated from at least Garzas to Orestimba Creek and probably farther north (Stewart et al., 1944). Siltstone beds in the ferruginous zone contain leaves and a brackish water fauna (loc. 77 in Elder and Miller, 1990; loc. 85 in this report) similar to that described by Throckmorton (1988) from the lower part of the Tesla Formation in Corral Hollow.

In summary, the bulk of the data suggests that the contact between the Paleocene to lower Eocene Tesla or Laguna Seca Formation and the middle Maastrichtian Garzas sand member of the Moreno Formation occurs below the *Panopea? smithii* fauna and above the *Glycymeris (Glycymerita)* aff. *veatchii major / Turritella chaneyi* fauna. There is no pronounced lithologic break in this zone, which tends to be poorly exposed, but as Payne (1951) suggested, an unconformity removing a good portion of the late Maastrichtian appears to be developed on the east flank of the Diablo Range in the San Jose quadrangle.

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APPENDIX A

Changes in taxonomic nomenclature between taxa lists in Elder and Miller (1990) and those in this report.

Table 2 (Elder and Miller, 1990).	Table 2 (this report).
Calva regina Popenoe	*Calva (Egelicalva) taffi* (Anderson)
Table 3 (Elder and Miller, 1990).	**Table 3 (this report).**
Baculites anceps Lamark	*Baculites anceps pacificus* Matsumoto & Obata
Clioscolus cordatus Whiteaves	*Clisocolus dubius* (Gabb)
Cymbophora? n. sp. (Large, concentric ornament)	*Cymbophora* aff. *ashburnerii* (Gabb)
Irregular echinoid	*"Cassidulus" mercedensis* Anderson
Panopea? n. sp. A (sulcate)	*Panopea? smithii* Hall and Ambrose
Protobusycon sp.	*Priscoficus?* sp.
Senis sp.	*Adelodonax altus* (Gabb) [in part]

APPENDIX B

Locality information for localities shown on Plate 1 and Tables 1 to 3.

Map number: 1 Locality: CAS61455 Collector: Unknown. Field Identifier: ?
Santa Clara County, Calaveras Reservoir 1:24,000 quadrangle. Township: 6S, Range: 1E; Unsurveyed.
In Cropley Creek S of Berryessa Creek.
Age: Berr.

Map number: 1 Locality: LSJU1800 Collector: Unknown. Field Identifier: ?
Santa Clara County, Calaveras Reservoir 1:24,000 quadrangle.
Berryessa Creek, 1/8 mi. N of junction of Piedmont and Swigertt Roads.
Age: Tith. & Val.? (mixed?)

Map number: 2 Locality: M8801 Collector: E. Brabb, 1992. Field Identifier: 92CB 3421.
Santa Clara County, San Jose East 1:24,000 quadrangle. Latitude: 37° 17.65' N Longitude: 121° 46.95' W.
Float E side of Silver Creek Valley Road, 800 ft S of Yerba Buena Rd.
Age: Tith. & Val. (mixed)

Map number: 3 Locality: M8802 Collector: E. Brabb, 1992. Field Identifier: 92CB 3422.
Santa Clara County, San Jose East 1:24,000 quadrangle. Latitude: 37° 17.58' N Longitude: 121° 46.78' W.
Sandstone and carbonate rubble on nose of hill.
Age: M. - L. Tith.

Map number: 4 Locality: LSJU1807 Collector: Unknown. Field Identifier: ?
Santa Clara County, San Jose East 1:24,000 quadrangle.
1.25 mi. SSE of Evergreen.
Age: Tith.?

Map number: 5 Locality: M8720 Collector: W. P. Elder, 1991. Field Identifier: 91E-1.
Santa Clara County, Santa Teresa Hills 1:24,000 quadrangle.
N side of E-W ridge ca. 1 mi. N of small dam on Calero Reservoir.
Age: M. - L. Tith.

Map number: 6 Locality: CAS33574 Collector: Unknown. Field Identifier: ?
Santa Clara County, Los Gatos 1:24,000 quadrangle. Township: 9S, Range: 1E; Section: 18; SE 1/4.
Austrian Gulch.
Age: E. Val.

Map number: 7 Locality: M8764 Collector: W. P. Elder, 1990. Field Identifier: 90E-21.
Santa Clara County, Loma Prieta 1:24,000 quadrangle. Township: 9S, Range: 1E; Section: 27; NW/NE/SW1/4.
W side of firebreak 160 m N of road down summit of Sierra Azul.
Age: M. Camp.

Map number: 8 Locality: CAS32900 Collector: E. L. Marier. Field Identifier: M-5.
Santa Cruz County, Loma Prieta 1:24,000 quadrangle. Township: 10S, Range: 1E; Section: 2; SE/SE 1/4.
Meyman Flat.
Age: Cret.

Map number: 8 Locality: CAS33711 Collector: Unknown. Field Identifier: ?
Santa Clara County, Laurel 1:24,000 quadrangle. Township: 10S, Range: 1E; Section: 1; SW/SW 1/4.
Meyman Flat.
Age: L. Camp.

Map number: 9 Locality: CAS31247 Collector: F. M. Anderson. Field Identifier: ?
Santa Clara County, Gilroy Hot Springs 1:24,000 quad. Township: 10S, Range: 4E; Section: 12; SW/SE 1/4.
Upper Branch of Coyote Creek, near Gilroy Hot Springs.
Age: Prob. L. Cret.

Map number: 10 Locality: CAS31249 Collector: Unknown. Field Identifier: ?
Santa Clara County, Mississippi Creek 1:24,000 quadrangle. Township: 9S, Range: 4E; Section: 2; SE? 1/4.
Mid fork of Coyote Creek, S of Stone house below forks. Locality uncertain.
Stratigraphic unit: Franciscan Complex, Eylar Mountain terrane Age: Indet.

Map number: 10 Locality: CAS31250 Collector: Unknown. Field Identifier: ?
Santa Clara County, Mississippi Creek 1:24,000 quadrangle. Township: 9S, Range: 4E; Section: 2; SE? 1/4.
Mid fork of Coyote Creek below forks and road. Locality uncertain.
Stratigraphic unit: Franciscan Complex, Eylar Mountain terrane Age: Indet.

Map number: 11 Locality: CAS27819 Collector: J. A. Taff, 1934. Field Identifier: ?
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 5S, Range: 6E; Section: 15; Ctr. SE 1/4.
Conglomerate on Kern Creek.
Stratigraphic unit: Panoche Formation Age: Camp.?

Map number: 11 Locality: CAS28321 Collector: J. A. Taff, 1935. Field Identifier: ?
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 5S, Range: 6E; Section: 15; SE/SE 1/4.
Boulders in conglomerate on S side of Kern Canyon.
Stratigraphic unit: Panoche Formation Age: L. Camp.

Map number: 12 Locality: UCB B-759 Collector: Marshall Maddock, 1952. Field Identifier: 28-72-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 5S, Range: 6E; Section: 26; NW/NE 1/4.
Sandstone on ridge E of Windmill Canyon.
Stratigraphic unit: Panoche Formation Age: L. Camp.

Map number: 13 Locality: CAS28324 Collector: J. A. Taff, 1935. Field Identifier: ?
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 5S, Range: 6E; Section: 35; SW/SW 1/4.
Gully on N side of Del Puerto Creek 500' below conglomerate.
Age: L. Cret.?

Map number: 14 Locality: CAS28323 Collector: J. A. Taff, 1935. Field Identifier: ?
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 5S, Range: 6E; Section: 35; SW/SW 1/4.
Gully on N side of Del Puerto Creek 1000' below conglomerate.
Stratigraphic unit: Panoche Formation Age: E. Sant.?

Map number: 15 Locality: M8729 Collector: W. P. Elder, 1990. Field Identifier: 90E-27.
Stanislaus County, Copper Mountain 1:24,000 quad. Township: 5S, Range: 6E; Sec.: 35; W line SW/SE 1/4.
Loose conglomerate block on S side of Del Puerto Rd.
Stratigraphic unit: Panoche Formation Age: Con. - Sant.

Map number: 15 Locality: UCB B-782 Collector: Marshall Maddock, 1952. Field Identifier: 29-71-1.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 5S, Range: 6E; Section: 35; SE/SW 1/4.
Siltstone below conglomerate at mouth of Garden Canyon.
Stratigraphic unit: Panoche Formation Age: Sant.?

Map number: 16 Locality: UCB B-760 Collector: Marshall Maddock, 1952. Field Identifier: 31-23-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 2; NW/NE 1/4.
Boulder in conglomerate on ridge on S side of Del Puerto Canyon.
Stratigraphic unit: Panoche Formation Age: Sant. - Camp.

Map number: 17 Locality: CAS28322 Collector: J. A. Taff, 1935. Field Identifier: ?
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 3; Ctr SW 1/4.
Road cut on N side of Del Puerto Creek.
Age: E. Alb.?

Map number: 17 Locality: UCB B-7311 Collector: N. L. Taliaferro, 1958. Field Identifier: ?
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 3; NE/SW 1/4.
Black shale on road in Del Puerto Canyon.
Stratigraphic unit: Panoche Formation Age: Cen.?

Map number: 18 Locality: UCB B-769 Collector: Marshall Maddock, 1952. Field Identifier: 31-70-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 7; SW/SW 1/4.
Shale road cut in Del Puerto Canyon.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: E. Tur.

Map number: 19 Locality: M8734 Collector: W. P. Elder, 1991. Field Identifier: 91E-22.
Stanislaus County, Mt. Boardman 1:24,000 quad. Township: 6S, Range: 5E; Sec.: 13; E line SE/SE/SW 1/4.
Blocks exposed by uprooted tree in small clearing.
Age: Prob. Cen.

Map number: 20 Locality: UCB B-770 Collector: Marshall Maddock, 1952. Field Identifier: 31-72-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 5E; Section: 24; SE/SE 1/4.
Gritty sandstone on bank of Adobe Creek.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: Tur.

Map number: 21 Locality: UCB B-761 Collector: Marshall Maddock, 1952. Field Identifier: 31-24-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 12; SW/NW 1/4.
Boulder in creek from conglomerate at head of tributary to Salado Creek.
Stratigraphic unit: Panoche Formation Age: Sant.

Map number: 22 Locality: UCB B-762 Collector: Marshall Maddock, 1952. Field Identifier: 31-25-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 12; Ctr SW 1/4.
Three boulders from conglomerate on slope S of tributary to Salado Creek.
Stratigraphic unit: Panoche Formation Age: Sant. - Camp.

Map number: 23 Locality: CAS29674 Collector: Unknown. Field Identifier: ?
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 5S, Range: 7E; Section: 30; E. section line.
Basal? Moreno sandstone N bank of Del Puerto Canyon.
Stratigraphic unit: Moreno Formation Age: L. Cret.

Map number: 24 Locality: CAS29602 Collector: Allan Bennison. Field Identifier: ?
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 5S, Range: 7E; Section: 29; Mid. NW 1/4.
Concretions in shale S of Del Puerto Creek.
Stratigraphic unit: Moreno Formation Age: L. Camp. - Maas.

Map number: 25 Locality: CAS29675 Collector: Unknown. Field Identifier: ?
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 5S, Range: 7E; Section: 29; W section line.
N bank of Del Puerto Canyon.
Stratigraphic unit: Moreno Formation Age: Camp. - Maas.

Map number: 26 Locality: CAS29666 Collector: Allan Bennison. Field Identifier: AB31.
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 5S, Range: 7E; Section: 29; Mid SW 1/4.
Boulders above the Panoche-Moreno contact S of Del Puerto Canyon.
Stratigraphic unit: Moreno Formation Age: L. Camp.?

Map number: 27 Locality: M8735 Collector: W. P. Elder, 1991. Field Identifier: 91E-21.
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 5S, Range: 7E; Section: 31; SW/SW/SW 1/4.
Conglomerate bed above seep SSW of hill 1257.
Stratigraphic unit: Panoche Formation Age: L. Camp.

Map number: 28 Locality: LA6360 Collector: R. B. Stewart, 1944. Field Identifier: F-59.
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 5S, Range: 7E; Section: 34; SW/NW 1/4.
Draw S of Black Gulch.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 29 Locality: UCB B-771 Collector: Marshall Maddock, 1952. Field Identifier: 31-49-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 21; SE/NW 1/4.
Concretion in shale near Lotta Creek.
Stratigraphic unit: Hawk Shale Age: Ox. - Val.

Map number: 30 Locality: UCB B-763 Collector: Marshall Maddock, 1952. Field Identifier: 31-26-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 14; SE/SE 1/4.
Boulder in conglomerate on ridge N of Salado Creek.
Stratigraphic unit: Panoche Formation Age: Sant. - Camp. ?

Map number: 31 Locality: CAS29671 Collector: Allan Bennison. Field Identifier: ?
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 6S, Range: 7E; Section: 16; Mid S 1/2.
Ridge between Salado and Little Salado Creeks?
Stratigraphic unit: Moreno Formation Age: L. Camp. - E. Maas.

Map number: 32 Locality: CAS33741 Collector: J. A. Taff, 1924. Field Identifier: ?
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 6S, Range: 7E; Section: 15; Mid W 1/2.
Shale near center of Moreno Formation on N side of Little Salado Valley.
Stratigraphic unit: Moreno Formation Age: Indet.

Map number: 32 Locality: LA635 Collector: R. B. Stewart, 1944. Field Identifier: F-57. 9
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 6S, Range: 7E; Section: 15; SW/NE 1/4.
S of Salado Creek.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 33 Locality: CAS29652 Collector: Allan Bennison. Field Identifier: ?
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 6S, Range: 7E; Section: 15; W/2/SW 1/4.
Sandstone in purplish shale on Little Salado Creek.
Stratigraphic unit: Moreno Formation Age: L. Camp.

Map number: 33 Locality: UCB A-4980 Collector: C. V. Booth, 1949. Field Identifier: F 28.
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 6S, Range: 7E; Section: 15; NW/SW 1/4.
Limestone concretion 100' below top of Moreno, Little Salado Creek.
Stratigraphic unit: Moreno Formation Age: Camp. - Maas.?

Map number: 34 Locality: UCB A-6642 Collector: R. N. Hacker, 1949. Field Identifier: F 61.
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 6S, Range: 7E; Section: 22; NW/NW 1/4.
Little Salado Creek.
Stratigraphic unit: Moreno Formation Age: Jur. - Cret.

Map number: 35 Locality: UCB B-765 Collector: Marshall Maddock, 1952. Field Identifier: 31-50-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 27; NE/NW 1/4.
Boulder in conglomerate S of Lotta Creek.
Stratigraphic unit: Panoche Formation Age: Con. - Sant.

Map number: 36 Locality: UCB B-772 Collector: Marshall Maddock, 1952. Field Identifier: 31-51-2F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 28; NW/SW 1/4.
Matrix of pebbly conglomerate W of Long Canyon.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: Alb. ?

Map number: 37 Locality: LA7030 Collector: R. V. Ingersoll, 1982. Field Identifier: ?
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 28; NW/SE 1/4.
Ridge E of Long Canyon.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: M. - L Tur.

Map number: 37 Locality: UCB B-779 Collector: Marshall Maddock, 1952. Field Identifier: 31-51-6F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 28; NE/SE 1/4.
Limestone concretion in float at head of Salado Creek.
Age: Alb.

Map number: 38 Locality: UCB B-766 Collector: Marshall Maddock, 1952. Field Identifier: 31-50-2F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 27; SE/NW 1/4.
Boulder in conglomerate S of Lotta Creek.
Stratigraphic unit: Panoche Formation Age: Tur.

Map number: 39 Locality: UCB B-767 Collector: Marshall Maddock, 1952. Field Identifier: 31-51-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 28; SE/SE 1/4.
Limestone boulders in conglomerate near head of Salado Creek.
Stratigraphic unit: Panoche Formation Age: Tur. - Sant.

Map number: 40 Locality: UCB B-773 Collector: Marshall Maddock, 1952. Field Identifier: 31-51-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 28; SW/SW 1/4.
Matrix? of conglomerate on hill slope W of Long Canyon.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: Cen.? - Tur.

Map number: 41 Locality: UCB B-764 Collector: Marshall Maddock, 1952. Field Identifier: 31-28-1F.
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 26; SE/SE 1/4.
Boulder in conglomerate on hillside S of Salado Creek.
Stratigraphic unit: Panoche Formation Age: Sant. - Camp. ?

Map number: 42 Locality: UCB B-778 Collector: Marshall Maddock, 1952. Field Identifier: 31-51-5F.
Stanislaus County, Wilcox Ridge 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 32; NE/SE 1/4.
Matrix of conglomerate ledge on ridge near head of Orestimba Creek.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: Tur.

Map number: 43 Locality: UCB B-776 Collector: Marshall Maddock, 1952. Field Identifier: 31-51-4F.
Stanislaus County, Wilcox Ridge 1:24,000 quadrangle. Township: 6S, Range: 6E; Section: 33; Central.
Matrix of conglomerate on crest of spur in Long Canyon.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: Con. ?

Map number: 44 Locality: CAS33722 Collector: Unknown. Field Identifier: ?
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 6S, Range: 7E; Section: 34; Mid W 1/2.
Crow Creek.
Age: L. Camp. - E. Maas.

Map number: 45 Locality: LA7168 Collector: R. B. Stewart, 1944. Field Identifier: F 53.
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 6S, Range: 7E; Section: 35; NW/SW 1/4.
Ridge N of Crow Creek.
Age: Cret.?

Map number: 46 Locality: UCB B-780 Collector: Marshall Maddock, 1952. Field Identifier: 31-52-2F.
Stanislaus County, Wilcox Ridge 1:24,000 quadrangle. Township: 7S, Range: 6E; Section: 5; SE/NE 1/4.
Ammonite in clast and gastropod in conglomerate matrix on ridge E of Long Canyon.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: L. Tur.

Map number: 47 Locality: UCB B-777 Collector: Marshall Maddock, 1952. Field Identifier: 31-53-1F.
Stanislaus County, Wilcox Ridge 1:24,000 quadrangle. Township: 7S, Range: 6E; Section: 5; SE/SE 1/4.
Sandstone boulder in float in creek bed SW of Mikes Peak.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: Prob. L. Cret.

Map number: 48 Locality: UCB B-768 Collector: Marshall Maddock, 1952. Field Identifier: 31-52-1F.
Stanislaus County, Wilcox Ridge 1:24,000 quadrangle. Township: 7S, Range: 6E; Section: 4; SE/SE 1/4.
Siltstone 70' below SS in saddle on Wilcox Ridge SE of Mikes Peak Lookout.
Stratigraphic unit: Panoche Formation Age: L. Cret.

Map number: 49 Locality: CAS27855 Collector: J. A. Taff, 1934. Field Identifier: ?
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 7S, Range: 7E; Section: 5; SE 1/4.
Crow Creek.
Stratigraphic unit: Panoche Formation Age: M. Camp.

Map number: 50 Locality: UCB B-774 Collector: Marshall Maddock, 1952. Field Identifier: 31-33-1F.
Stanislaus County, Wilcox Ridge 1:24,000 quadrangle. Township: 7S, Range: 6E; Section: 22; NW/SE 1/4.
Matrix of conglomerate on N Fork of Orestimba Creek.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: Tur.

Map number: 51 Locality: CAS27854 Collector: J. A. Taff, 1934. Field Identifier: ?
Stanislaus County, Wilcox Ridge 1:24,000 quadrangle. Township: 7S, Range: 6E; Section: 36; NW/SE 1/4.
Boulders in conglomerate on Orestimba Creek.
Stratigraphic unit: Panoche Formation Age: Con. - Sant.

Map number: 52 Locality: UCB B-775 Collector: Marshall Maddock, 1952. Field Identifier: 31-35-1F.
Stanislaus County, Wilcox Ridge 1:24,000 quadrangle. Township: 7S, Range: 6E; Section: 36; Mid S 1/2.
Shale on bank of Orestimba Creek.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: E. Tur.

Map number: 53 Locality: UCB A-4994 Collector: D. F. Collins, 1949. Field Identifier: #1.
Stanislaus County, Orestimba Peak 1:24,000 quad. Township: 7S, Range: 7E; Section: 25; SW cnr. NW 1/4.
Near top of Garzas sand on stream bank, Orestimba Creek.
Age: Prob. Maas.

Map number: 54 Locality: CAS29648 Collector: Allan Bennison. Field Identifier: AB26.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 7S, Range: 7E; Section: 26; SW/SW 1/4.
Concretionary sandstone near Orestimba Creek.
Stratigraphic unit: Moreno Formation Age: Prob. L. Cret.

Map number: 55 Locality: LA6489 Collector: W. P. Popenoe, 1944. Field Identifier: P 20-44.
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 7S, Range: 7E; Section: 35; SW/NW 1/4.
Sandstone on crest of ridge between Orestimba Creek and Oat Gulch.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 56 Locality: UCB 9047 Collector: Elftman. Field Identifier: 150.
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 7S, Range: 7E; Section: 33; SW/SE 1/4.
Orestimba Creek.
Stratigraphic unit: Panoche Formation Age: L. Camp. - E. Maas.?

Map number: 57 Locality: CAS33739 Collector: H. D. Elftman. Field Identifier: ?
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 7S, Range: 7E; Section: 33; S/2.
N of Garzas Creek.
Stratigraphic unit: Panoche Formation Age: Cret.

Map number: 58 Locality: M8770 Collector: B. F. Cox, 1991. Field Identifier: BY-105-3B.
Stanislaus County, Orestimba Peak 1:24,000 quad. Township: 7S, Range: 7E; Section: 33; Ctr S line SW 1/4.
Conglomerate in small saddle 100m W of hill 1613.
Stratigraphic unit: Panoche Formation Age: Con. - Sant.

Map number: 59 Locality: UCB A-4989 Collector: D. F. Collins, 1949. Field Identifier: #69.
Stanislaus County, Orestimba Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 2; W of Mid NW 1/4.
Sand lens E of Bennett Valley.
Stratigraphic unit: Moreno Formation Age: Maas.?

Map number: 60 Locality: UCB A-4991 Collector: D. F. Collins, 1949. Field Identifier: #1.
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 2; Mid E 1/2.
Sandstone 250' above base of Garzas sand, Bennett Valley.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 61 Locality: LA6358 Collector: R. B. Stewart, 1944. Field Identifier: F-29.
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 2; NE/SE 1/4.
About 2.1 miles S of Orestimba Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 62 Locality: M8776 Collector: B. F. Cox, 1991. Field Identifier: BX-139-1A.
Stanislaus County, Orestimba Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 8; Ctr SE/NE/SW 1/4.
LS concretion in siltstone S side of Jeep Road.
Stratigraphic unit: Panoche Formation Age: Prob. L. Cret.

Map number: 63 Locality: CAS29646 Collector: Unknown. Field Identifier: ?
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 11; Mid. N 1/2.
Oat Gulch.
Stratigraphic unit: Moreno Formation Age: Prob. Maas.

Map number: 64 Locality: LA6356 Collector: R. B. Stewart, 1944. Field Identifier: F-19.
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 12; NW/SW 1/4.
North of Garzas Creek on ridge to east of Oat Gulch.
Stratigraphic unit: Moreno Formation Age: M.? Maas.

Map number: 65 Locality: LA6357 Collector: R. B. Stewart, 1944. Field Identifier: F-18.
Stanislaus County, Orestimba Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 12; Ctr SW 1/4.
Ridge east of Oat Gulch.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 66 Locality: M9770 Cenozoic Collector: B. F. Cox, 1991. Field Identifier: BX-61-1A.
Stanislaus County, Orestimba Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 12; Ctr NW/SE 1/4.
SS bed N side of gully at mountain front 150m SW of Jeep Road.
Stratigraphic unit: Laguna Seca or Tesla Formation Age: Paleocene - E. Eocene

Map number: 67 Locality: LA6513 Collector: F. Schilling, 1959. Field Identifier: 705.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 12; SW/SE 1/4.
475' above base of Garzas sand in gully on east side of Oat Gulch.
Stratigraphic unit: Moreno Formation Age: Prob. Cret.

Map number: 67 Locality: LA6514 Collector: F. Schilling, 1959. Field Identifier: 703.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 12; SW/SE 1/4.
775' above base of Garzas sand on E side of Oat Gulch.
Stratigraphic unit: Moreno Formation Age: Prob. Cret.

Map number: 67 Locality: UCB A-3054 Collector: Allan Bennison, 1937. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 12; Mid SE 1/4.
Oat Gulch.
Stratigraphic unit: Moreno Formation Age: Prob. Maas.

Map number: 67 Locality: UCB A-3055 Collector: Allan Bennison, 1937. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 12; Mid SE 1/4.
Oat Gulch.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 68 Locality: UCB A-4976 Collector: W. Yerington, 1949. Field Identifier: WYQH F93.
Stanislaus County, Wilcox Ridge 1:24,000 quadrangle. Township: 7S, Range: 6E; Section: 26; Mid NW 1/4.
Orestimba Creek.
Stratigraphic unit: Adobe Flat Shale Member, Panoche Formation Age: Tur. - Sant.

Map number: 69 Locality: UCB A-4993 Collector: D. F. Collins, 1949. Field Identifier: #21.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Sec.: 12; Ctr E line SE/SW 1/4.
Garzas sand in Oat Gulch.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 70 Locality: UCB 10041 Collector: Elftman. Field Identifier: 127.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 13; NW/NE 1/4.
Oat Gulch.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 70 Locality: UCB 10043 Collector: Elftman. Field Identifier: 105.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 13; NW/NE/NE 1/4.
Oat Gulch.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 70 Locality: UCB 9045 Collector: Elftman. Field Identifier: 126.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 13; NW/NE 1/4.
Oat Gulch.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 70 Locality: UCB A-3008 Collector: Allan Bennison, 1937. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 13; Mid NE 1/4.
Oat Gulch.
Stratigraphic unit: Moreno Formation Age: Prob. Maas.

Map number: 71 Locality: LA6511 Collector: F. Schilling, 1959. Field Identifier: 701.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 13; Ctr E line NE 1/4.
Approx. 0.75 miles N of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M.? Maas.

Map number: 71 Locality: LA6512 Collector: F. Schilling, 1959. Field Identifier: 702.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 13; Ctr E line NE 1/4.
Approx. 1 mile N of Garzas Creek & 0.5 miles E of Oat Gulch.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 71 Locality: UCB A-1906 Collector: Allan Bennison. Field Identifier: 11.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 13; NE/SE/NE 1/4.
Oat Gulch.
Stratigraphic unit: Moreno Formation Age: Cret.?

Map number: 71.1 Locality: LSJU3433 Collector: F. Schilling, 1960. Field Identifier: 694.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 13; NE/NE/NE 1/4.
Sandstone, Oat Gulch.
Stratigraphic unit: Laguna Seca or Tesla Formation Age: Paleocene - E. Eocene

Map number: 72 Locality: LA6349 Collector: R. B. Stewart, 1944. Field Identifier: F-17.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 18; SW/NW 1/4.
West side of San Joaquin Valley. Approx. 0.5 mi. N of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 72 Locality: LA6350 Collector: R. B. Stewart, 1944. Field Identifier: F-42.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 18; SW/NW 1/4.
West side of San Joaquin Valley. Approx. 0.7 mi. N of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 72 Locality: M8778 Collector: B. F. Cox, 1991. Field Identifier: BX-41-1.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 8E; Section: 18; Ctr SW/NW 1/4.
Sandstone, SE-most NE trending gully in parallel drainage E of Oat Gulch.
Stratigraphic unit: Moreno Formation Age: Prob. Maas.

Map number: 72 Locality: UCB A-1907 Collector: Allan Bennison. Field Identifier: 12.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 8E; Section: 18; SW/NW/NW 1/4.
N of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 74 Locality: LA6501 Collector: F. Schilling, 1959. Field Identifier: 645.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 13; NE/SE 1/4.
550' above base of Quinto silt in gulch east of Oat Gulch N of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 75 Locality: LA6498 Collector: F. Schilling, 1959. Field Identifier: 164.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 13; SW/SE 1/4.
Ridge N of Garzas Creek and W of Oat Gulch.
Age: L. Cret.

Map number: 76 Locality: M8771 Collector: B. F. Cox, 1991. Field Identifier: BX-88-2D.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 14; S line NW/SE 1/4.
Concretions N side of Mule Gulch 400m W of cattle pond.
Stratigraphic unit: Panoche Formation Age: Prob. L. Cret.

Map number: 76 Locality: M8772 Collector: B. F. Cox, 1991. Field Identifier: BX-88-2C.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 14; S line NW/SE 1/4.
Concretions N side of Mule Gulch 400m W of cattle pond.
Stratigraphic unit: Panoche Formation Age: Prob. L. Cret.

Map number: 77 Locality: CAS29653 Collector: Allan Bennison. Field Identifier: AB23.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 13; SE/SE 1/4.
E side Oat Gulch at Garzas Creek.
Stratigraphic unit: Moreno Formation Age: L. Camp. - E. Maas.

Map number: 78 Locality: LA6505 Collector: F. Schilling, 1959. Field Identifier: 637.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 18; SW/SE 1/4.
S bank incised channel of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 79 Locality: CAS29582 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 19; NE/NE 1/4.
Boulder? from conglomerate in Long Canyon.
Stratigraphic unit: Panoche Formation Age: M. - L. Tur.?

Map number: 79 Locality: CAS29583 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 19; NE/NE 1/4.
Shale in Long Canyon.
Stratigraphic unit: Panoche Formation Age: L. Cret.

Map number: 80 Locality: CAS28313 Collector: J. A. Taff, 1934. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 24; Ctr NE 1/4.
Limestone boulders on S side Garzas Creek just below basal Moreno.
Stratigraphic unit: Panoche Formation Age: Camp.?

Map number: 81 Locality: UCB A-3158 Collector: Allan Bennison. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 19; Mid N 1/2.
S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: L. Camp. - E. Maas.

Map number: 82 Locality: LA10658 Collector: W. P. Popenoe, 1941. Field Identifier: 1583 Type Garzas
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; NW/NW 1/4.
Type Garzas 225 ft above base, between Garzas Creek and Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 82 Locality: LA10659 Collector: W. P. Popenoe, 1941. Field Identifier: 1584 Type Garzas
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; NW/NW 1/4.
Type Garzas 205 ft above base, between Garzas Creek and Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 82 Locality: LA10660 Collector: W. P. Popenoe, 1941. Field Identifier: 1583 Type Garzas
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; NW/NW 1/4.
Type Garzas 195 ft above base, between Garzas Creek and Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 82 Locality: LA2588 Collector: W. P. Popenoe, 1951. Field Identifier: S4-51.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 19; SE/NE 1/4.
Gully on a NW trending hill on s side of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 82 Locality: LA6351 Collector: R. B. Stewart, 1944. Field Identifier: F-16A.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
West side of San Joaquin Valley. Approx. 0.75 mi. S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 82 Locality: LA6352 Collector: R. B. Stewart, 1944. Field Identifier: F-16B-30.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
West side of San Joaquin Valley. Approx. 0.75 mi. S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: Prob. Maas.

Map number: 82 Locality: LA6353 Collector: R. B. Stewart, 1944. Field Identifier: F-16B.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
West side of San Joaquin Valley. Approx. 0.75 mi. S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 82 Locality: UCB 10045 Collector: Elftman. Field Identifier: 5.
Stanislaus County, Howard Ranch 1:24,000 quad. Township: 8S, Range: 8E; Section: 20; N1/2 NW/NW 1/4.
Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: Indet.

Map number: 83 Locality: CAS29106 Collector: Unknown. Field Identifier: ?
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Gray sandstone 200' below white sandstone S of mouth of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 83 Locality: CAS31081 Collector: J. J. Bryan, 1940. Field Identifier: JJB#2.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 83 Locality: LA6507 Collector: F. Schilling, 1959. Field Identifier: 59.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
N side of creek S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: Prob. Cret.

Map number: 83 Locality: LA6508 Collector: F. Schilling, 1959. Field Identifier: 69.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
N side of creek S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 83 Locality: LA6515 Collector: F. Schilling, 1959. Field Identifier: 9.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Garzas sand section, Whitney Canyon N along sec. line, 240' above base.
Stratigraphic unit: Moreno Formation Age: Prob. Cret.

Map number: 83 Locality: LA6516 Collector: F. Schilling, 1959. Field Identifier: 9+35.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Garzas sand section, Whitney Canyon N along sec. line, 270' above base.
Stratigraphic unit: Moreno Formation Age: M.? Maas.

Map number: 83 Locality: LA6517 Collector: F. Schilling, 1959. Field Identifier: 9+10.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Garzas sand section, Whitney Canyon N along sec. line, 280' above base.
Stratigraphic unit: Moreno Formation Age: M.? Maas.

Map number: 83 Locality: LA6518 Collector: F. Schilling, 1959. Field Identifier: 9+45.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Garzas sand section, Whitney Canyon N along sec. line, 320' above base.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 83 Locality: LA6519 Collector: F. Schilling, 1959. Field Identifier: 9+30.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Garzas sand section, Whitney Canyon N along sec. line, 350' above base.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 83 Locality: LA6520 Collector: F. Schilling, 1959. Field Identifier: 12.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Garzas sand section, Whitney Canyon N along sec. line, 370' above base.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 83 Locality: LA6521 Collector: F. Schilling, 1959. Field Identifier: 13.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Garzas sand section, Whitney Canyon N along sec. line, 410' above base.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 83 Locality: LA6522 Collector: F. Schilling, 1959. Field Identifier: 15+25.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Garzas sand section, Whitney Canyon N along sec. line, 535' above base.
Stratigraphic unit: Moreno Formation Age: Prob. Maas.

Map number: 83 Locality: LSJU3434 Collector: F. Schilling, 1960. Field Identifier: ?
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Whitney Canyon, 50 ft. above the Glycymeris reef.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 83 Locality: UCB A-1905 Collector: Allan Bennison. Field Identifier: 10.
Stanislaus County, Howard Ranch 1:24,000 quad. Township: 8S, Range: 8E; Section: 20; SW/SW/NW 1/4.
Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 83 Locality: UCB A-3214 Collector: Allan Bennison, 1937. Field Identifier: ?
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/NW 1/4.
Brown sandstone lenses in white sand S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 85 Locality: M9771 Cenozoic Collector: B. F. Cox, 1991. Field Identifier: BX-46-2.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 8E; Section: 18; Ctr SE/NW 1/4.
Squirrel diggings in small N-S gully near mountain front.
Stratigraphic unit: Laguna Seca or Tesla Formation Age: Paleocene - E. Eocene

Map number: 87 Locality: CAS29123 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 19; Central.
Calcareous shale, Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: E. Maas.

Map number: 87 Locality: LSJU3424 Collector: F. Schilling, 1960. Field Identifier: 50.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 19; NW/SE 1/4.
Limestone concretion, lower member formation A, Garzas Creek.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 88 Locality: LA6502 Collector: F. Schilling, 1959. Field Identifier: 70.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 19; SE/SE 1/4.
700' above base of Quinto silt on N side of Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: L. Cret.

Map number: 88 Locality: LA6504 Collector: F. Schilling, 1959. Field Identifier: 554.
Stanislaus County, Howard Ranch 1:24,000 quad. ?Township: 8S, Range: 8E; Sec.: 19; Ctr S line NE/SE 1/4.
1250' above base of Quinto silt on N side of creek S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: Indet.

Map number: 89 Locality: LA6509 Collector: F. Schilling, 1959. Field Identifier: 175.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; NE/SW 1/4.
Approx. 1.25 miles S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: Prob. Maas.

Map number: 90 Locality: LA6510 Collector: F. Schilling, 1959. Field Identifier: 612.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/SE 1/4.
N side of unnamed creek S of Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: L. Camp. - E. Maas.

Map number: 90 Locality: UCB A-1904 Collector: Allan Bennison. Field Identifier: 9.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; NW/SW/SE 1/4.
S of Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 90 Locality: UCB A-3215 Collector: Allan Bennison, 1939. Field Identifier: G-2.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/SE 1/4.
Brown coarse sandstone S of Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 90 Locality: UCB A-3217 Collector: Allan Bennison, 1939. Field Identifier: G-1.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/SE 1/4.
Thin conglomerate in soft white sandstone S of Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 90 Locality: UCB A-3218 Collector: Allan Bennison, 1939. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/SE 1/4.
Lenticular sandstone S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 91 Locality: CAS29647 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 19; SE/SE 1/4.
Whitney Canyon.
Stratigraphic unit: Moreno Formation Age: L. Cret.

Map number: 92 Locality: CAS33672 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 23; SW/NE 1/4.
Garzas Creek.
Age: Camp.?

Map number: 93 Locality: CAS29678 Collector: Allan Bennison. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 23; Ctr E section line.
Sandstone lens in shale on Garzas Creek.
Age: Camp. - Maas.

Map number: 94 Locality: CAS29094 Collector: Allan Bennison, 1938. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 23; E line NW/SE 1/4.
N bank of Garzas Creek.
Age: Cret.

Map number: 94 Locality: LSJU3422 Collector: F. Schilling, 1960. Field Identifier: 803.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 23; E line NW/SE 1/4.
Middle member formation B, Garzas Creek.
Stratigraphic unit: Panoche Formation Age: Camp. - Maas.

Map number: 95 Locality: M8773 Collector: B. F. Cox, 1991. Field Identifier: BX-115-1.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 22; SW/SW/SW 1/4.
SS float S side of hill 400m N of jct. Parnel Canyon and Garzas Creek.
Stratigraphic unit: Panoche Formation Age: Con. - Camp.

Map number: 96 Locality: CAS34410 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 29; Ctr E side NE 1/4.
N side of Garzas Creek.
Stratigraphic unit: Panoche Formation Age: Tur.?

Map number: 97 Locality: CAS33543 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 29; SE/SE 1/4.
Float S of Garzas Creek.
Stratigraphic unit: Hawk Shale Age: L. Tith.

Map number: 98 Locality: CAS29095 Collector: Allan Bennison. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 29; N/2/S/2.
Pebbly sandstone 800' below conglomerate on Garzas Creek.
Stratigraphic unit: Panoche Formation Age: E. Tur.

Map number: 98 Locality: CAS29491 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 29; N/2/S/2.
Pebbly sandstone W of Garzas Creek.
Stratigraphic unit: Panoche Formation Age: E. Tur.

Map number: 98 Locality: CAS31131 Collector: Allan Bennison. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 29; NE/SW 1/4.
Garzas Creek.
Stratigraphic unit: Panoche Formation Age: E. Tur.

Map number: 98 Locality: CAS33719 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 29; NE/SW 1/4.
Garzas Creek.
Stratigraphic unit: Panoche Formation Age: E. Tur.

Map number: 98 Locality: CAS33750 Collector: Allan Bennison, 1937. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 29; NE/SW 1/4.
N side of Garzas Creek.
Stratigraphic unit: Panoche Formation Age: Cret.

Map number: 98 Locality: UCB A-3392 Collector: Allan Bennison, 1940. Field Identifier: R.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 29; NE/SW 1/4.
Pebbly sandstone near Garzas Creek.
Stratigraphic unit: Panoche Formation Age: E. Tur.

Map number: 99 Locality: CAS29599 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 27; NW/NW 1/4.
Calcareous concretions in sandy shale on Garzas Creek.
Stratigraphic unit: Panoche Formation Age: Prob. L. Cret.

Map number: 100 Locality: CAS29669 Collector: Allan Bennison. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 31; NE/NE 1/4.
Mustang Creek.
Stratigraphic unit: Panoche Formation Age: L. Cret.

Map number: 101 Locality: CAS29670 Collector: Allan Bennison. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quad. Township: 8S, Range: 8E; Section: 32; Ctr N line NE/NW 1/4.
550' below base of Moreno near Mustang Creek.
Stratigraphic unit: Panoche Formation Age: L. Cret.

Map number: 102 Locality: CAS29490 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 28; SW/SW/SW 1/4.
Boulders in conglomerate 1/3 mile S of Garzas Creek.
Stratigraphic unit: Panoche Formation Age: Cen.

Map number: 103 Locality: LA6500 Collector: F. Schilling, 1959. Field Identifier: 698.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 29; NW/NW 1/4.
300' above base of Quinto silt between Garzas Creek and Mustang Creek.
Age: L. Camp. - Maas.

Map number: 104 Locality: CAS29600 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 23; Mid. SW 1/4.
Sandstone blocks on stream terrace N of Garzas Creek.
Stratigraphic unit: Panoche Formation Age: Con. - Sant.

Map number: 105 Locality: LA6354 Collector: R. B. Stewart, 1944. Field Identifier: F-34.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/SE 1/4.
West side of San Joaquin Valley, ca. 1.5 mi. S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 105 Locality: LA6355 Collector: R. B. Stewart, 1944. Field Identifier: F-34a.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 20; SW/SE 1/4.
West side of San Joaquin Valley. Approx. 1.50 mi. S of Garzas Creek.
Stratigraphic unit: Moreno Formation Age: E. Maas.

Map number: 106 Locality: LA6506 Collector: F. Schilling, 1959. Field Identifier: 182.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 29; SE/NE 1/4.
Summit of ridge approx. 1 1/8 miles N of Mustang Creek.
Stratigraphic unit: Moreno Formation Age: Prob. Maas.

Map number: 107 Locality: CAS27863 Collector: J. A. Taff, 1934. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 28; Mid SW 1/4.
Sandstone on ridge on N side of Mustang Creek.
Stratigraphic unit: Moreno Formation Age: E.? Maas.

Map number: 107 Locality: CAS2316 Collector: G. D. Hanna, 1930. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 28; SW 1/4.
N side of Mustang Creek.
Stratigraphic unit: Moreno Formation Age: Con. - Maas.

Map number: 108 Locality: LA6497 Collector: F. Schilling, 1959. Field Identifier: 185.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 30; Ctr SW 1/4.
Upper member formation B, Whitney Canyon.
Stratigraphic unit: Panoche Formation Age: Sant. - Camp.

Map number: 109 Locality: UCB A-1903 Collector: Allan Bennison. Field Identifier: 6.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 28; SE/SW 1/4.
N of Mustang Creek.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 111 Locality: CAS29676 Collector: Unknown. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 32; Mid NW 1/4.
Ridge N of Mustang Creek.
Age: Camp.?

Map number: 112 Locality: CAS27853 Collector: J. A. Taff, 1934. Field Identifier: 12.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 31; E 1/2.
Pebble bed near head of Mustang Gulch.
Stratigraphic unit: Panoche Formation Age: E. Camp.?

Map number: 113 Locality: LA6494 Collector: F. Schilling, 1959. Field Identifier: 188.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 36; SE/NW 1/4.
Approx. 1 mile S of Bear Gulch.
Stratigraphic unit: Panoche Formation Age: L. Cret.

Map number: 114 Locality: CAS29651 Collector: Allan Bennison. Field Identifier: 19.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 32; Mid W 1/2.
Squirrel diggings near Mustang Creek.
Stratigraphic unit: Panoche Formation Age: L. Cret.

Map number: 115 Locality: CAS29118 Collector: Allan Bennison. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 33; Mid S 1/2.
Impure limestone S of Mustang Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 115 Locality: UCB A-3006 Collector: Allan Bennison, 1937. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 33; Mid S 1/2.
S of Mustang Creek.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 116 Locality: M8780 Collector: B. F. Cox, 1991. Field Identifier: BZ-194-3A.
Merced County, Howard Ranch 1:24,000 quad. Township: 8S, Range: 8E; Section: 33; Ctr S line SW/SW 1/4.
Near top of small E-W gully 900m S of windmill on Mustang Creek.
Stratigraphic unit: Panoche Formation Age: Indet.

Map number: 117 Locality: LSJU3416 Collector: Allan Bennison, 1960. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 8S, Range: 7E; Section: 33; SW/SW 1/4.
Limestone concretions N of Hawk Rock.
Stratigraphic unit: Hawk Shale Age: L. Tith.

Map number: 118 Locality: M8733 Collector: B. F. Cox, 1991. Field Identifier: BZ-173-4.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 3; NE\SW 1/4.
Halfway up hill on W side of Warm Gulch 400m N of Quinto Creek.
Age: Indet.

Map number: 119 Locality: CAS29684 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 1; SE/NE 1/4.
Boulders? in conglomerate near Quinto Creek.
Stratigraphic unit: Panoche Formation Age: L. Cret.

Map number: 120 Locality: LSJU3419 Collector: F. Schilling, 1960. Field Identifier: 802.
Merced County, Howard Ranch 1:24,000 quad. Township: 9S, Range: 8E; Section: 3; Ctr S line NW/NW 1/4.
"Key bed" of Crevison sandstone S of Mustang Creek.
Stratigraphic unit: Moreno Formation Age: L. Camp. - Maas.

Map number: 120 Locality: UCB A-1902 Collector: Allan Bennison. Field Identifier: 6.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 3; NW/NW/NW 1/4.
S of Mustang Creek.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 121 Locality: CAS29105 Collector: Unknown. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 3; Mid NW 1/4.
Gray sandstone N of Quinto Creek.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 122 Locality: UCB A-1901 Collector: Allan Bennison, 1937. Field Identifier: ?
Stanislaus County, Howard Ranch 1:24,000 quad. Township: 9S, Range: 8E; Section: 3; NW/NE/SW 1/4.
Range front N of Quinto Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 122 Locality: UCB A-3058 Collector: Allan Bennison, 1937. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 3; Mid W 1/2.
Garzas sand? N of Quinto Creek.
Stratigraphic unit: Moreno Formation Age: Maas.

Map number: 123 Locality: CAS29107 Collector: Unknown. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 3; NE/SE/SW 1/4.
Gritty sandstone N of Quinto Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 123 Locality: UCB A-1900 Collector: Allan Bennison, 1937. Field Identifier: ?
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 3; NE/SE/SW 1/4.
N of Quinto Creek.
Stratigraphic unit: Moreno Formation Age: E. - M. Maas.

Map number: 124 Locality: CAS29650 Collector: Allan Bennison. Field Identifier: 15.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 4; NE/SE 1/4.
Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Prob. L. Cret.

Map number: 124 Locality: LA6499 Collector: F. Schilling, 1959. Field Identifier: 714.
Merced County, Howard Ranch 1:24,000 quad. Township: 9S, Range: 8E; Sec.: 4; Ctr S line SW/SE/NE 1/4.
650' above base of Mustang shale approx. 1.5 miles S of Mustang Creek.
Age: Indet.

Map number: 125 Locality: LA7176 Collector: W. P. Popenoe, 1944. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 8S, Range: 8E; Section: 33; Mid W 1/2.
South side of Mustang Creek.
Stratigraphic unit: Moreno Formation Age: M. Maas.

Map number: 126 Locality: CAS29592 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 1; NW/SE 1/4.
Pebbly sandstone lens near Quinto Creek.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 127 Locality: CAS33510 Collector: Unknown. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 3; SW 1/4.
Quinto Creek.
Stratigraphic unit: Hawk Shale Age: E. - M. Val.

Map number: 127 Locality: LSJU3430 Collector: F. Schilling, 1960. Field Identifier: 785.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 3; SE/SW 1/4.
Concretion near Quinto Creek.
Stratigraphic unit: Hawk Shale Age: L. Val.

Map number: 127 Locality: LSJU3431 Collector: F. Schilling, 1960. Field Identifier: 787.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 3; NW/SW 1/4.
Concretion near Quinto Creek.
Stratigraphic unit: Hawk Shale Age: L. Val.

Map number: 127 Locality: UCB B-783 Collector: Marshall Maddock, 1952. Field Identifier: Pacheco Pass
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 3; NE/SW 1/4.
Concretions N of Quinto Creek.
Stratigraphic unit: Hawk Shale Age: E. - M. Val.?

Map number: 128 Locality: CAS33568 Collector: Allan Bennison. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 3; SW/SE 1/4.
Quinto Creek, 0.2 mi. NW of McDowell Spring.
Age: Val.

Map number: 128 Locality: M8731 Collector: B. F. Cox, 1991. Field Identifier: BZ-88-1A,B,C,D.
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 3; Ctr SW\SE 1/4.
N side of Quinto Creek 400m NW of McDowell Spring.
Age: Tith. - Haut.

Map number: 129 Locality: CAS27852 Collector: J. A. Taff, 1934. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 3; SE/SE 1/4.
Boulder in conglomerate on N side Quinto Creek.
Age: Prob. L. Cret.

Map number: 129 Locality: CAS27858 Collector: J. A. Taff, 1954. Field Identifier: ?
Stanislaus County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 3; Ctr S 1/2 SE 1/4.
Matrix? of conglomerate on N side Quinto Creek.
Stratigraphic unit: Panoche Formation Age: E. - M. Cen.

Map number: 130 Locality: CAS29683 Collector: Allan Bennison. Field Identifier: 90.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 1; SW/SE/SE 1/4.
Quinto Creek.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 131 Locality: CAS29591 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 12; NE/NE 1/4.
Sandy lenses in shale near Quinto Creek.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 131 Locality: LSJU3426 Collector: F. Schilling, 1960. Field Identifier: 783.
Merced County, Crevison Peak 1:24,000 quad. Township: 9S, Range: 7E; Section: 12; Ctr W line NE/NE 1/4.
Upper member formation C, Quinto Creek.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 132 Locality: CAS28175 Collector: J. A. Taff, 1935. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 12; Mid NE 1/4.
Shale 300' below conglomerate bed on Quinto Creek.
Stratigraphic unit: Panoche Formation Age: M. Tur.

Map number: 132 Locality: CAS29598 Collector: P. Pioneer. Field Identifier: 52.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 12; Mid NE 1/4.
Silty shale on N side of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: M. Tur.

Map number: 132 Locality: UCB A-2957 Collector: Allan Bennison, 1937. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 12; Mid NE 1/4.
Quinto Creek.
Stratigraphic unit: Panoche Formation Age: M. Tur.

Map number: 133 Locality: CAS29596 Collector: Allan Bennison. Field Identifier: 72.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 7; NW/NE 1/4.
Shaly bank on N side of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Con.

Map number: 133 Locality: CAS29597 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 7; Mid N line.
Gritty sandstone on N side of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: L. Cret.

Map number: 133 Locality: M8774 Collector: B. F. Cox, 1991. Field Identifier: BZ-68-2.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 7; SE/NE/NW 1/4.
Nose of hill 100m N of jct. of Sulphur Spring Gulch and Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Con. - Sant.

Map number: 134 Locality: CAS29595 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 7; SW? 1/4.
S of Quinto Creek on Sulphur Spring Gulch.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 135 Locality: CAS29645 Collector: Unknown. Field Identifier: ?
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 10; SE/NW 1/4.
Quinto Creek.
Stratigraphic unit: Moreno Formation Age: Prob. L. Cret.

Map number: 136 Locality: UCB 10044 Collector: Elftman. Field Identifier: 162.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 10; SE/NE/NE 1/4.
N of Quinto Creek.
Stratigraphic unit: Moreno Formation Age: Prob. L. Cret.

Map number: 136 Locality: UCB A-3382 Collector: Allan Bennison, 1940. Field Identifier: G.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 10; NE/NE 1/4.
Upper part of Quinto silt N of Quinto Creek.
Stratigraphic unit: Moreno Formation Age: Camp. - Maas.

Map number: 137 Locality: UCB A-3160 Collector: Allan Bennison. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 11; SW/NW 1/4.
Reworked boulder N of Quinto Creek.
Stratigraphic unit: Moreno Formation Age: Con. - Sant.?

Map number: 138 Locality: M8732 Collector: B. F. Cox, 1991. Field Identifier: BZ-77-1.
Merced County, Crevison Peak 1:24,000 quad. Township: 9S, Range: 7E; Section: 12; Ctr. W line SE 1/4.
Bottom of small drainage between hill 1160 and 1207.
Stratigraphic unit: Panoche Formation Age: Prob. Cret.

Map number: 139 Locality: LA6490 Collector: F. Schilling, 1959. Field Identifier: 299.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 7; SE/SW 1/4.
S of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Cret.

Map number: 140 Locality: CAS33463 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 14; N 1/2.
Ridge N of Romero Creek.
Stratigraphic unit: Hawk Shale Age: E. - M. Val.

Map number: 140 Locality: CAS33485 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 14; NE/NW 1/4.
Ridge N of Romero Creek.
Age: Prob. Tith.

Map number: 140 Locality: CAS33490 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 14; NE/NW 1/4.
Ridge N of Romero Creek.
Stratigraphic unit: Hawk Shale Age: E. - M. Val.

Map number: 140 Locality: CAS33491 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 14; NE/NW 1/4.
Ridge N of Romero Creek.
Stratigraphic unit: Hawk Shale Age: E. - M. Val.

Map number: 140 Locality: CAS33492 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 14; NE/NW 1/4.
Ridge N of Romero Creek.
Stratigraphic unit: Hawk Shale Age: E. - M. Val.

Map number: 141 Locality: M8769 Collector: B. F. Cox, 1991. Field Identifier: BY 59-1.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 18; Ctr E line.
Float on ridgetop 400m SW of hill 1084.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 141 Locality: UCB A-3391 Collector: Allan Bennison, 1940. Field Identifier: Q.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 17; SW/NW 1/4.
Blocks of sandstone on ridge ca. 1 mi. S of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: M. Tur.

Map number: 142 Locality: LSJU3423 Collector: F. Schilling, 1960. Field Identifier: 821.
Merced County, Howard Ranch 1:24,000 quad. Township: 9S, Range: 8E; Sec.: 16; Ctr E line NE/SE/NE 1/4.
Upper member formation B, Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Camp.

Map number: 142 Locality: UCB A-3389 Collector: Allan Bennison, 1940. Field Identifier: O.
Merced County, Howard Ranch 1:24,000 quad. Township: 9S, Range: 8E; Sec.: 16; Ctr E line NE/SE/NE 1/4.
Canal excavation S side of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Camp.

Map number: 143 Locality: LSJU3432 Collector: F. Schilling, 1960. Field Identifier: 822.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 14; NW/NE/SE 1/4.
Romero Creek.
Stratigraphic unit: Hawk Shale Age: Tith.

Map number: 143 Locality: M8672A,C,D Collector: B. F. Cox, 1991. Field Identifier: BY113-1A,C,D.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 14; NW/NE/SE 1/4.
Ridge NW of intersection of Little Pine Canyon & Romero Creek.
Stratigraphic unit: Hawk Shale Age: Tith.

Map number: 144 Locality: CAS33573 Collector: Unknown. Field Identifier: ?
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 25; NE/NE/NE 1/4.
Romero Creek at base of Cottonwood Grade.
Age: Tith. - Haut.

Map number: 145 Locality: M8725 Collector: W. P. Elder, 1991. Field Identifier: 91E-11.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 13; SE/SW/SW 1/4.
Concretions, NW slope of Tile Canyon 280m from junction with Romero Creek.
Age: Prob. Cret.

Map number: 146 Locality: M8730 Collector: W. P. Elder, 1991. Field Identifier: 91E-12.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 24; NE/NW 1/4.
Concretions on NW slope 300m up next ravine SE of Tile Canyon.
Age: Tith. - Haut.

Map number: 147 Locality: CAS29593 Collector: Unknown. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 17; SW 1/4.
Sandstone lenses on N side of gully on ridge S of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 147 Locality: UCB A-3387 Collector: Allan Bennison, 1940. Field Identifier: L.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 17; SW/SW 1/4.
Sandstone S of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Tur.?

Map number: 148 Locality: LA6495 Collector: F. Schilling, 1959. Field Identifier: 686.
Stanislaus County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 16; SW/NE 1/4.
SE trending gully on S side of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Prob. Cret.

Map number: 150 Locality: CAS29677 Collector: Allan Bennison. Field Identifier: 48.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 15; SW/NW 1/4.
Near Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Camp.

Map number: 150 Locality: CAS33704 Collector: Unknown. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 16; Mid E line.
Near Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Camp.

Map number: 151 Locality: CAS29119 Collector: Unknown. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 14; Mid W line.
Pebbly sandstone near concrete tank on Quinto Creek.
Stratigraphic unit: Moreno Formation Age: Maas.?

Map number: 152 Locality: LSJU3425 Collector: F. Schilling, 1960. Field Identifier: 312.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 16; Ctr SW 1/4.
Lower member formation B, Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Sant.?

Map number: 153 Locality: UCB A-3390 Collector: Allan Bennison, 1940. Field Identifier: P.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 22; NE/NE 1/4.
Limestone lens S of Quinto Creek.
Stratigraphic unit: Panoche Formation Age: Prob. L. Cret.

Map number: 154 Locality: UCB A-3388 Collector: Allan Bennison, 1940. Field Identifier: M.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 20?; SE/SE 1/4.
Pebbly sandstone near Romero Creek? (Location Uncertain).
Stratigraphic unit: Panoche Formation Age: E. Tur.

Map number: 155 Locality: LA6496 Collector: F. Schilling, 1959. Field Identifier: 400.
Merced County, Howard Ranch 1:62,500 quadrangle. Township: 9S, Range: 8E; Section: 21; SW/NE 1/4.
Boulder in conglomerate 0.5 miles N of Romero Creek.
Stratigraphic unit: Panoche Formation Age: Con. - Camp.

Map number: 157 Locality: CAS29122 Collector: Allan Bennison. Field Identifier: 97.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 23; Ctr SE/SW 1/4.
Boulder from conglomerate N of Romero Creek.
Stratigraphic unit: Panoche Formation Age: L. Camp.

Map number: 157 Locality: CAS29667 Collector: Allan Bennison. Field Identifier: 89.
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 23; SE/SE/SW.
Basal conglomerate of Moreno Formation N of Romero Creek.
Stratigraphic unit: Moreno Formation Age: L. Cret.

Map number: 157 Locality: M8767 Collector: A. Bennison & W. Elder, 1990. Field Identifier: 90E-2
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 23; SE/SE/SW 1/4.
LS clast in conglomerate outcropping on hill W of California aqueduct.
Stratigraphic unit: Moreno Formation Age: Prob. L. Cret.

Map number: 158 Locality: LA6491 Collector: F. Schilling, 1959. Field Identifier: 531.
Merced County, Howard Ranch 1:62,500 quadrangle. Township: 9S, Range: 8E; Section: 29; NW/NE 1/4.
N side of Romero Creek.
Stratigraphic unit: Panoche Formation Age: Cret.

Map number: 159 Locality: CAS29586 Collector: Unknown. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quad. Township: 9S, Range: 8E; Section: 27; Ctr S line NW/NW 1/4.
Boulders in conglomerate on Romero Creek.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 160 Locality: M8766 Collector: A. Bennison & W. Elder, 1990. Field Identifier: 90E-2
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 26; Ctr SW/NE 1/4.
On slope 200m W of California Aqueduct 400m N of Romero Creek.
Stratigraphic unit: Moreno Formation Age: Camp.?

Map number: 161 Locality: UCB A-3434 Collector: Allan Bennison, 1940. Field Identifier: N.
Merced County, San Luis Dam 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 32; NE/SE 1/4.
Sandstone on SW side of ridge N of San Luis Reservoir.
Stratigraphic unit: Panoche Formation Age: L. Cret.

Map number: 162 Locality: LA6492 Collector: F. Schilling, 1959. Field Identifier: 717.
Merced County, San Luis Dam 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 34; SW/SW 1/4.
S of Romero Creek.
Stratigraphic unit: Panoche Formation Age: Tur.?

Map number: 163 Locality: LA6493 Collector: F. Schilling, 1959. Field Identifier: 508.
Merced County, San Luis Dam 1:24,000 quadrangle. Township: 9S, Range: 8E; Section: 34; SE/SE 1/4.
Boulder in conglomerate on ridge S of Romero Creek.
Stratigraphic unit: Panoche Formation Age: Cret.

Map number: 164 Locality: CAS29589 Collector: Allan Bennison. Field Identifier: 70.
Merced County, San Luis Dam 1:24,000 quad. Township: 10S, Range: 8E; Sec.: 2; W line 275m S of NW cnr.
Boulders in conglomerate W of O'Neill Forebay.
Stratigraphic unit: Panoche Formation Age: Con.

Map number: 165 Locality: CAS29588 Collector: Unknown. Field Identifier: ?
Merced County, San Luis Dam 1:24,000 quadrangle. Township: 10S, Range: 8E; Section: 24; Mid S 1/2.
Boulders in conglomerate E of San Luis Dam.
Stratigraphic unit: Panoche Formation Age: L. Tur.?

Map number: 166 Locality: CAS29585 Collector: Unknown. Field Identifier: ?
Merced County, San Luis Dam 1:24,000 quadrangle. Township: 10S, Range: 8E; Section: 24; Mid S line.
Sandstone boulders in conglomerate E of San Luis Dam.
Stratigraphic unit: Panoche Formation Age: L. Tur. & Con. (mixed)

Map number: 167 Locality: M8786 Collector: Allan Bennison, 1991. Field Identifier: None.
Merced County, San Luis Dam 1:24,000 quadrangle. Township: 10S, Range: 9E; Section: 20; NE/SE 1/4.
Ploughed shale blocks on section quarter road, N edge of orchard.
Stratigraphic unit: Panoche Formation Age: Camp.

Map number: 168 Locality: M8687 Collector: A. Bennison & W. Elder, 1991. Field Identifier: 91E-9
Merced County, San Luis Dam 1:24,000 quadrangle.
NE side of island/point just E of Romero Visitor Center.
Stratigraphic unit: Panoche Formation Age: Cen.?

Map number: 169 Locality: M8685 Collector: A. Bennison & W. Elder, 1990. Field Identifier: 90E-2
Merced County, San Luis Dam 1:24,000 quadrangle.
N bank 0.18 km below generating station at San Luis Dam.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 169 Locality: M8686 Collector: A. Bennison & W. Elder, 1990. Field Identifier: 90E-2
Merced County, San Luis Dam 1:24,000 quadrangle.
N bank 0.23 km below generating station at San Luis Dam.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 170 Locality: M8789 Collector: W. P. Elder, 1990. Field Identifier: 90E-17.
Merced County, San Luis Dam 1:24,000 quadrangle. Township: 10S, Range: 8E; Section: 28; Ctr NW/SE 1/4.
Sandstone near high water line of San Luis Reservoir.
Stratigraphic unit: Panoche Formation Age: Tur.?

Map number: 171 Locality: M8785 Collector: Allan Bennison, 1991. Field Identifier: None.
Merced County, San Luis Dam 1:24,000 quad. Township: 10S, Range: 8E; Section: 34; Ctr E line SW/N 1/4.
North side of Basalt Hill at top of slide area.
Stratigraphic unit: Panoche Formation Age: E. Tur.

Map number: 172 Locality: LSJU3446 Collector: F. Schilling, 1959. Field Identifier: 779.
Merced County, San Luis Dam 1:24,000 quadrangle. Township: 11S, Range: 8E; Section: 3; NE/NE 1/4.
Lower member formation C, E of Basalt Hill.
Stratigraphic unit: Panoche Formation Age: Prob. L. Cret.

Map number: 173 Locality: M8791 Collector: Allan Bennison, 1991. Field Identifier: None.
Merced County, San Luis Dam 1:24,000 quadrangle.
About 1000'S and 1300'W of SE corner of section 35, T10S, R8E.
Stratigraphic unit: Panoche Formation Age: Tur.

Map number: 174 Locality: CAS29590 Collector: Unknown. Field Identifier: ?
Merced County, San Luis Dam 1:24,000 quadrangle. Township: 10S, Range: 8E; Section: 36; Central.
Limestone float in gully SW of San Luis Dam.
Stratigraphic unit: Panoche Formation Age: Prob. Cret.

Map number: 175 Locality: M8673 Collector: B. F. Cox, 1991. Field Identifier: BY118-2.
Merced County, Crevison Peak 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 11; SW 1/4.
Ridge between Quinto & Romero Creeks. Latitude: 37° 9.80' N Longitude: 121° 9.90' W.
Stratigraphic unit: Hawk Shale Age: Tith.

Map number: 176 Locality: CAS31126 Collector: Unknown. Field Identifier: ?
Stanislaus County, Patterson 1:24,000 quadrangle. Township: 5S, Range: 6E; Section: 36; S half SE 1/4.
Del Puerto Creek.
Stratigraphic unit: Panoche Formation Age: Camp.

Map number: 177 Locality: CAS31248 Collector: F. M. Anderson. Field Identifier: ?
Santa Clara County, Gilroy Hot Springs 1:24,000 quad. Township: 11S, Range: 5E; Section: 6; Mid N 1/2.
Near road S from Gilroy Hot Springs.
Stratigraphic unit: Great Valley sequence Age: Indet.

Map number: 178 Locality: LSJU2537 Collector: Unknown. Field Identifier: ?
Santa Clara County, Lick Observatory 1:24,000 quadrangle.
1.5 miles SE of Bradford's. Exact location uncertain.
Age: Tith.?

Map number: 178 Locality: M8723 Collector: Ben Page, 1991. Field Identifier: LO845.
Santa Clara County, Lick Observatory 1:24,000 quadrangle.
Small drainage .2 mi. N of San Felipe Rd, .7 mi. SE of Silver Creek Road.
Age: L. Tith.

Map number: 179 Locality: M8721 Collector: Ben Page, 1991. Field Identifier: LO225A.
Santa Clara County, Lick Observatory 1:24,000 quadrangle.
N side San Felipe Rd, 115 m W of older PG&E line.
Age: Prob. Tith.

Map number: 180 Locality: M8722 Collector: Ben Page, 1991. Field Identifier: LO226.
Santa Clara County, Lick Observatory 1:24,000 quadrangle.
N side of San Felipe Rd, 60m W of culvert with white post "0529".
Age: L. Tith.?

Map number: 181 Locality: UCB A-3005 Collector: Allan Bennison, 1937. Field Identifier: ?
Merced County, Howard Ranch 1:24,000 quadrangle. Township: 9S, Range: 7E; Section: 1; SW/SE 1/4.
Gray sandstone on Quinto Creek.
Stratigraphic unit: Panoche Formation Age: L. Tur.

Map number: 182 Locality: UCB B-7312 Collector: N. L. Taliaferro, 1955. Field Identifier: ?
Stanislaus County, Copper Mountain 1:24,000 quadrangle. Township: 5S, Range: 6E; Section: 27; Ctr SW 1/4.
Garden Canyon.
Stratigraphic unit: Panoche Formation Age: Tur. - Sant. ?

Map number: 183 Locality: LSJU3421 Collector: F. Schilling, 1960. Field Identifier: 172.
Stanislaus County, Crevison Peak 1:24,000 quad. Township: 8S, Range: 7E; Section: 24; SW/SW/SW 1/4.
Near base of upper member formation B, Garzas Creek.
Stratigraphic unit: Panoche Formation Age: Camp. - Maas.

APPENDIX C

Locality identifiers alphanumerically listed and tied to map numbers used in report.

Locality Identifier	Map #	Locality Identifier	Map #
CAS2316	107	CAS29602	24
CAS27819	11	CAS29645	135
CAS27852	129	CAS29646	63
CAS27853	112	CAS29647	91
CAS27854	51	CAS29648	54
CAS27855	49	CAS29650	124
CAS27858	129	CAS29651	114
CAS27863	107	CAS29652	33
CAS28175	132	CAS29653	77
CAS28313	80	CAS29666	26
CAS28321	11	CAS29667	157
CAS28322	17	CAS29669	100
CAS28323	14	CAS29670	101
CAS28324	13	CAS29671	31
CAS29094	94	CAS29674	23
CAS29095	98	CAS29675	25
CAS29105	121	CAS29676	111
CAS29106	83	CAS29677	150
CAS29107	123	CAS29678	93
CAS29118	115	CAS29683	130
CAS29119	151	CAS29684	119
CAS29122	157	CAS31081	83
CAS29123	87	CAS31126	176
CAS29490	102	CAS31131	98
CAS29491	98	CAS31247	9
CAS29582	79	CAS31248	177
CAS29583	79	CAS31249	10
CAS29585	166	CAS31250	10
CAS29586	159	CAS32900	8
CAS29588	165	CAS33463	140
CAS29589	164	CAS33485	140
CAS29590	174	CAS33490	140
CAS29591	131	CAS33491	140
CAS29592	126	CAS33492	140
CAS29593	147	CAS33510	127
CAS29595	134	CAS33543	97
CAS29596	133	CAS33568	128
CAS29597	133	CAS33573	144
CAS29598	132	CAS33574	6
CAS29599	99	CAS33672	92
CAS29600	104	CAS33704	150

Locality Identifier	Map #	Locality Identifier	Map #
CAS33711	8	LA6511	71
CAS33719	98	LA6512	71
CAS33722	44	LA6513	67
CAS33739	57	LA6514	67
CAS33741	32	LA6515	83
CAS33750	98	LA6516	83
CAS34410	96	LA6517	83
CAS61455	1	LA6518	83
LA10658	82	LA6519	83
LA10659	82	LA6520	83
LA10660	82	LA6521	83
LA2588	82	LA6522	83
LA6349	72	LA7030	37
LA6350	72	LA7168	45
LA6351	82	LA7176	125
LA6352	82	LSJU1800	1
LA6353	82	LSJU1807	4
LA6354	105	LSJU2537	178
LA6355	105	LSJU3416	117
LA6356	64	LSJU3419	120
LA6357	65	LSJU3421	183
LA6358	61	LSJU3422	94
LA6359	32	LSJU3423	142
LA6360	28	LSJU3424	87
LA6489	55	LSJU3425	152
LA6490	139	LSJU3426	131
LA6491	158	LSJU3430	127
LA6492	162	LSJU3431	127
LA6493	163	LSJU3432	143
LA6494	113	LSJU3433	71.1
LA6495	148	LSJU3434	83
LA6496	155	LSJU3446	172
LA6497	108	M8672A,C,D	143
LA6498	75	M8673	175
LA6499	124	M8685	169
LA6500	103	M8686	169
LA6501	74	M8687	168
LA6502	88	M8720	5
LA6504	88	M8721	179
LA6505	78	M8722	180
LA6506	106	M8723	178
LA6507	83	M8725	145
LA6508	83	M8729	15
LA6509	89	M8730	146
LA6510	90	M8731	128

Locality Identifier	Map #	Locality Identifier	Map #
M8732	138	UCB A-3158	81
M8733	118	UCB A-3160	137
M8734	19	UCB A-3214	83
M8735	27	UCB A-3215	90
M8764	7	UCB A-3217	90
M8766	160	UCB A-3218	90
M8767	157	UCB A-3382	136
M8769	141	UCB A-3387	147
M8770	58	UCB A-3388	154
M8771	76	UCB A-3389	142
M8772	76	UCB A-3390	153
M8773	95	UCB A-3391	141
M8774	133	UCB A-3392	98
M8776	62	UCB A-3434	161
M8778	72	UCB A-4976	68
M8780	116	UCB A-4980	33
M8785	171	UCB A-4989	59
M8786	167	UCB A-4991	60
M8789	170	UCB A-4993	69
M8791	173	UCB A-4994	53
M8801	2	UCB A-6642	34
M8802	3	UCB B-7311	17
M9770 Cenozoic	66	UCB B-7312	182
M9971 Cenozoic	85	UCB B-759	12
UCB 10041	70	UCB B-760	16
UCB 10043	70	UCB B-761	21
UCB 10044	136	UCB B-762	22
UCB 10045	82	UCB B-763	30
UCB 9045	70	UCB B-764	41
UCB 9047	56	UCB B-765	35
UCB A-1900	123	UCB B-766	38
UCB A-1901	122	UCB B-767	39
UCB A-1902	120	UCB B-768	48
UCB A-1903	109	UCB B-769	18
UCB A-1904	90	UCB B-770	20
UCB A-1905	83	UCB B-771	29
UCB A-1906	71	UCB B-772	36
UCB A-1907	72	UCB B-773	40
UCB A-2957	132	UCB B-774	50
UCB A-3005	181	UCB B-775	52
UCB A-3006	115	UCB B-776	43
UCB A-3008	70	UCB B-777	47
UCB A-3054	67	UCB B-778	42
UCB A-3055	67	UCB B-779	37
UCB A-3058	122	UCB B-780	46

Locality Identifier	Map #
UCB B-782	15
UCB B-783	127