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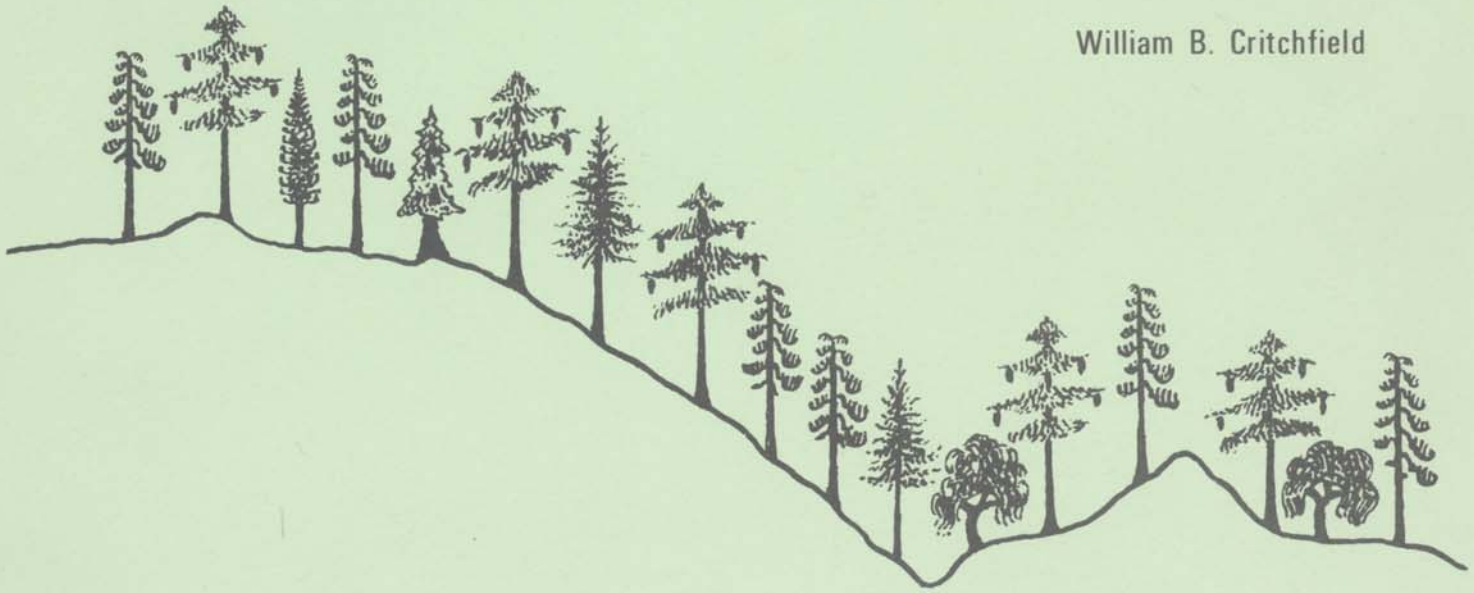
PACIFIC SOUTHWEST
Forest and Range
Experiment Station

PROFILES OF CALIFORNIA VEGETATION

William B. Critchfield



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The Author

WILLIAM B. CRITCHFIELD, a research geneticist, heads the Forest Service's Pioneer Research Unit on Hybridization and Evolution of Forest Trees, with headquarters in Berkeley, Calif. He is a native of Fargo, N.D. He earned a bachelor's degree (1949) in forestry and a doctorate (1956) in botany and genetics at the University of California, Berkeley. He then joined the Cabot Foundation for Botanical Research at Harvard University as a forest geneticist. From 1959 until his appointment as a pioneer research scientist in 1971, he was a member of the station's forest genetics research staff.

Assembled in this publication are 57 elevational profiles illustrating the natural vegetation of California. Collectively, they provide a picture of the dominant plant cover as it existed in the 1930's on about one-fifth of the State's land area (*table 1).* The profiles sample the vegetation from Redding to San Diego, and include such extremes as the redwoods of Santa Cruz County, the subalpine forest of the Sierra Nevada crest, and the Joshua-tree "woodland" of the Mojave Desert.

These profiles were produced by the Vegetation Type Map (VTM) survey of California, conducted by the Forest Service between 1927 and the early 1940's. This survey was the most ambitious attempt ever made to describe the complex vegetation of the State. The VTM crews mapped on the ground nearly 40 million acres of California (about 40 percent of the land area), plus an adjacent corner of Nevada. About 7 million acres, mostly in southern California, were covered by 23 vegetation type maps published between 1932 and 1943. These maps were printed in color and accompanied by elevational profiles of the vegetation. Most of the remaining 33 million acres were eventually covered by less complete blue-line prints (Wieslander 1961), but the profiles drafted to accompany many of them were not published. Forty-three of the 57 profiles are published here for the first time, and the other 14 appeared earlier on vegetation maps.

In the decades since the VTM survey, the vegetation of many parts of California has changed dramatically. Natural succession, logging, and urbanization are responsible for some of these changes. The most drastic and widespread alterations in the vegetation, however, have been due to fires–especially in the mountains of southern California. To some extent, then, these profiles are a historical record, providing a base line against which changes in the plant cover can be assessed. They also have a more permanent value in illustrating patterns of vegetation, and how these patterns are associated with variable factors of the environment. The profiles are most useful in showing directly the relation between the composition of the dominant vegetation and such ecological factors as elevation, exposure, slope, and maritime influences.

None of the profiles is dated or initialed, but according to A. E. Wieslander, who directed the VTM survey throughout its existence, the artist was Michael N. Dobrotin (1896-1952). Dobrotin immigrated from the U.S.S.R. in the 1920's, and worked for the Forest Service after he was graduated from the University of California School of Forestry in 1933. He drew these profiles between 1934 and 1938, and later worked for the State of California. Although much of the artistry of his work has been lost in the process of reducing the profiles, the high quality of the originals is shown in the illustrations accompanying *table 2.*

COVERAGE AND ARRANGEMENT

The VTM survey was part of the program of the California (now Pacific Southwest) Forest and Range Experiment Station. The original objective of the survey was to map the vegetation of all of California and part of Nevada, excluding deserts, cultivated land, and urban areas. After World War II, vegetation mapping of the State was reorganized and resumed on a smaller scale by the State Cooperative Soil-Vegetation Survey, which uses aerial-photo techniques and places greater emphasis on soil classification.

The mapping units of the VTM survey were the 15- and 30-minute topographic maps published by the U.S. Geological Survey, nearly all of them now superseded by greatly improved 7.5- and 15-minute maps. Each 30-minute quadrangle in California was assigned a number, beginning in the northeastern

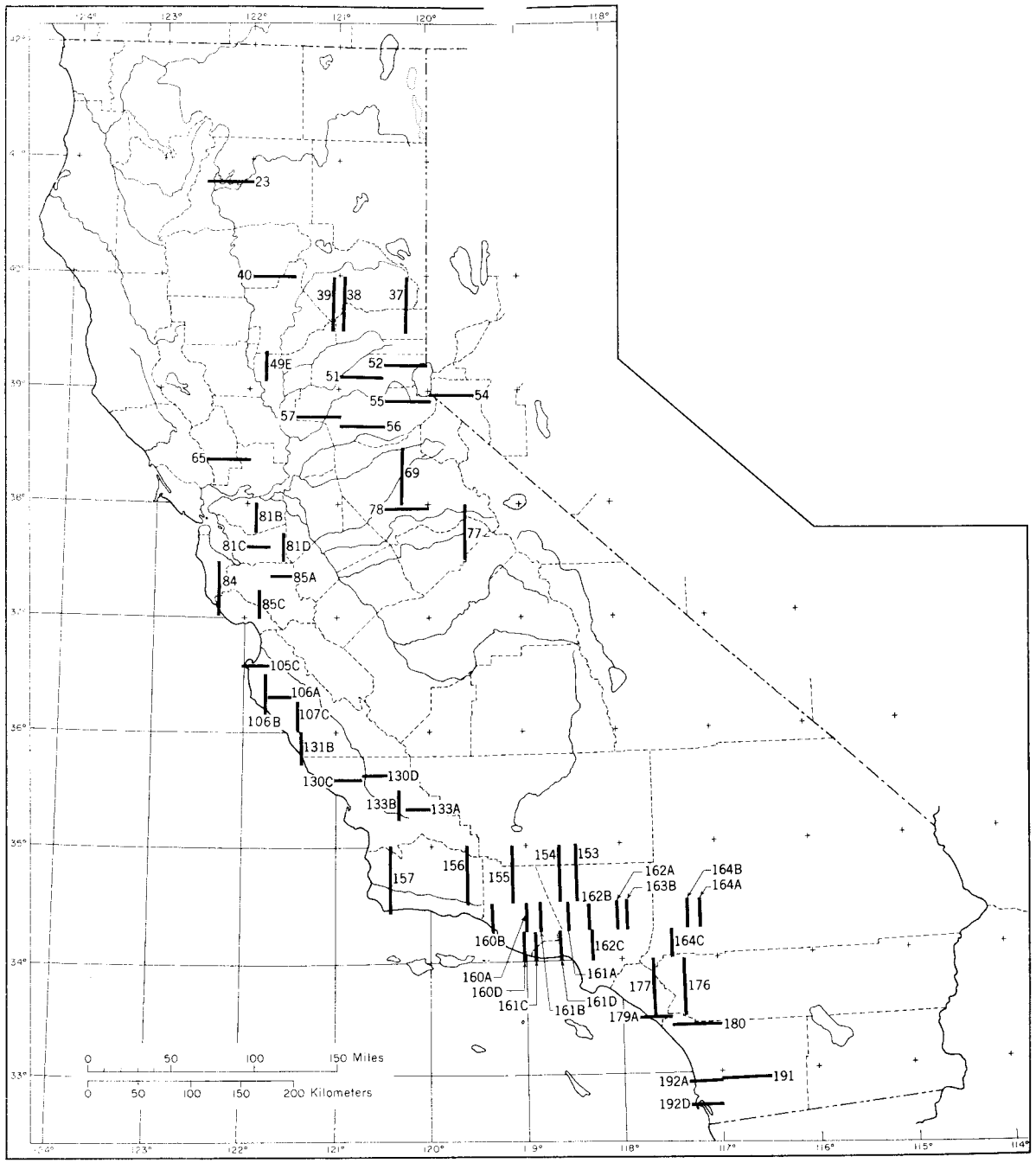

Figure 1– *Location of vegetation profiles. The numbers correspond to the 57 elevational pro files included in this publication.*

corner of the State. The four 15-minute quadrangles making up a 30-minute quadrangle were designated by adding to this number the letters A-D in the following sequence: NE (A), NW (B), SW (C), SE (D). These quadrangle designations have been retained here to identify the individual profiles.

The arrangement of the profiles follows the sequence in *table 1*. The 30-minute profiles precede the 15-minute profiles, and each group is arranged in numerical order. The two groups have been kept separate because they were drafted and are reproduced at different scales.

The profiles provide good coverage of the vegetation in the northern and central Sierra Nevada, and in the coastal mountains from Napa County south to the Mexican border (fig. 1). The principal forested regions sampled poorly or not at all are in the southern Sierra Nevada, the northern Coast Ranges, and northeastern California.

Other published profiles of various kinds fill some of these gaps. A series of generalized profiles across the Sierra Nevada includes one near Mount Whitney in the southern part of this range (Storer and Usinger 1963). A more detailed Sierra Nevada transect in the Yosemite region, near profile 77, extends east of the Sierra crest to Mono Lake (Hughes and Dunning 1949). The transects of Storie and Brown (1956), one across the northern Coast Ranges and the other in the central Sierra Nevada near VTM profiles 51-57, illustrate changes in soil types with elevation. Two of Knapp's schematic, large-scale profiles of evergreen, sclerophyllous vegetation types are outside the regions covered here–one on Santa Catalina Island and the other in the Garberville area of the northern Coast Ranges (Knapp 1961). A vegetation profile of the Lake Tahoe region of Nevada (Wilson 1941), probably drawn by M. N. Dobrotin, parallels profile 54 about 4 miles to the north.

The profiles can be used most effectively in the field by plotting the profile line on currently available topographic maps. The location of the profile lines is given in *table 1* to the nearest 0.1 minute of latitude or longitude. Occasional major topographic discrepancies can be expected; current maps are far more accurate than the maps available to the VTM survey.

SCALE OF PROFILES

The horizontal scale is approximately 2 miles to the inch on the 30-minute profiles, and 1.18 miles to the inch on the 15-minute profiles. The exaggerated vertical scale, about 2.6 times the horizontal scale, is shown on the profiles in thousands of feet.

The length of the profiles in miles is tabulated below; the exceptions are profile lines extended beyond a quadrangle to the Pacific Ocean:

	Orientation	*Length of profile (miles)*	*Exceptions*	
			Profile No.	*Length (miles)*
Group:				
30-minute	N-S	34.6	157	39.1
	E-W	26.4 (northern) to 29.5 (southern)		
15-minute	N-S	17.3	106B	20.1
	E-W	13.7 (northern) to 14.5 (southern)	192A	16.6
			192D	15.9

VEGETATION TYPES

The VTM crews mapped the vegetation by direct sketching from ridgelines, peaks, and other vantage points. Their routes of travel, mostly afoot, are shown on maps in the VTM files. Visual estimation of the dominant vegetation was supplemented by an extensive system of sample plots. Field identification of plant species was backed up by the collection and subsequent study of large numbers of plant specimens. These specimens-25,000 to 30,000 in all–were added to the Herbarium of the University of California at Berkeley in 1954, and are still available for reference.

The dominant vegetation was classified by broad vegetation types. The numbers below the profile line on all but a few of the profiles designate the vegetation type. The types are described and illustrated in *table 2*.

This classification of the vegetation was designed to serve a variety of land-management objectives, including fire and flood control. Semidesert chaparral (*table 2:* type 8), for example, was similar in composition to ordinary chaparral (type 6), but differed in its lesser density and reduced fire hazard. Timberland chaparral (type 7) was intended to segregate those chaparral areas capable of growing commercial timber. Because of these multiple objectives, the types used by the VTM survey were not widely adopted in the classification of California's vegetation. They have been displaced in current usage by the plant communities of Munz and Keck (1949, 1950, 1959), but there are many parallels between the two classifications. Type 4 includes two of their communities: Coastal Sage Scrub and Sagebrush Scrub. Types 5 to 8 are all included in their Chaparral. Type 15 equals their Redwood Forest, and types 16 to 18 are roughly equivalent to their Yellow Pine Forest.

Within the broad vegetation and land-use types used by the VTM, the vegetation was mapped in subunits to a 40-acre minimum (10 acres for remnant timber and woodland types). The subunits were defined by the dominant plant species. Letter symbols designating the dominant species or other cover category (annuals, meadow, etc.) are shown on the profiles below the type number These letter symbols are decoded in *table 3.*

A plant species was considered a dominant if it made up more than 20 percent of the plant cover, as viewed from above. In the case of Commercial timber trees, the definition of dominance was based on numbers of stems above a minimum diameter. In composite types; having dominant vegetation not consisting exclusively of trees. shrubs, or herbaceous plants, the dominants were determined and listed separately for each category.

As a general rule the dominant plant species were listed in decreasing older of abundance, but there were so many exceptions as to almost invalidate this useful practice. In composite types. tees were listed before shrubs. Commercial timber trees were listed before other trees, in order of decreasing economic importance: redwood (R) and sugar pine (S) first, then yellow pines (Y, J). Douglas-fir (D), (true firs (Ŵ, R̂), and incense-cedar (I) Shrubby communities adhered more closely to a sequence of decreasing abundance, but here too there were exceptions. Chamise (Af), for example, was almost always listed first in the vegetation type which it characterizes (*table 2:* type 5).

PLANT NAMES AND SYMBOLS

All plant species appearing as dominants on the profiles are listed alphabetically in *table 4,* together with their letter symbols and an indication of their occurrence on the profiles. The letter symbols were based on the common names of trees (with some exceptions in *Quercus*) and the scientific names of other plants. If the symbol was based on a scientific name that is no longer accepted, this name is listed in parentheses. In a few instances, the symbol for a tree species derives from a common name no longer widely used, and these names are also listed to make the symbol understandable. Examples are Y = yellow pine *(Pinus ponderosa)* and H = horse-chestnut *(Aesculus californica).* Where two letters were used to designate a tree species, the second capital letter is shown at a smaller size on the profiles.

Table 4 includes about 50 tree species, a few grasses (symbols underlined), a few other herbaceous plants (enumerated in *table 2:* type 2), and more than 100 shrubby and semishrubby species. Nomenclature follows Munz and Keck (1959), Munz (1968), and Little (1953). The biographical table in Munz arid Keck (1959, p. 1551) was used for abbreviations of author names.

Many of the pictorial symbols of different kinds of plants are shown in *table 2.* Most tree species are represented by individual symbols, but there are a few exceptions. *Pinus ponderosa* (Y) and *P. jeffreyi* (J) have the same symbol, and so do *Quercus agrifolia* (A), and *Q. wislizenii* (W). The same tree species was sometimes illustrated by different symbols on different profiles *(Pinus radiata* on profiles 84 and 105C). Grasses and all other herbaceous plants were designated by the same symbol (*table 2:* type 2). Shrubby species of the "soft chaparral" type have a single symbol *(table 2:* type 4), and most shrubs of the "hard chaparral" type share one symbol (*table 2:* type 6). Exceptions

are the two species of *Adenostoma* in California; the widespread chamise (Af) and the more restricted redshank (As) each has its own symbol.

Field identifications of the VTM survey crews were usually good, but the published vegetation type maps include this disclaimer: "Where minor variations occur which cannot be distinguished in the mapping, the symbols used may represent not only the species indicated but also its varieties, and occasionally, even closely related species." In problem genera, such as *Arctostaphylos* and *Ceanothus,* the delimitation of species has changed considerably in the past few decades, and I have indicated some of these changes in footnotes to *table 4.*

SUMMARY

Critchfield, William B.
1971. **Profiles of California vegetation.** Berkeley, Calif., Pacific SW. Forest & Range Exp. Sta., 54 p., illus. (USDA Forest Serv. Res. Paper PSW-76)

Oxford: 187(794).
Retrieval Terms: vegetation types; California; Sierra Nevada; southern California.

Assembled in this publication are 57 elevation profiles illustrating the natural vegetation of parts of montane California as it existed in the 1930's. The profiles are concentrated in the central and southern parts of the State, and include such vegetational extremes as the redwoods of Santa Cruz County, the subalpine forest of the Sierra Nevada crest, and the Joshua-tree "woodland" of the Mojave Desert.

The profiles were drawn by Michael N. Dobrotin for the U.S. Forest Service's Vegetation Type Map (VTM) survey, which mapped on the ground nearly half of the State's vegetation between 1927 and the early 1940's. Fourteen of the profiles were published on vegetation type maps between 1932 and 1943, and the rest are printed here for the first time. Each profile is oriented north-south or east-west, and covers a single 15- or 30-minute topographic quadrangle. The horizontal scale is 1.18–2 miles to the inch, and the exaggerated vertical scale is shown on the profiles.

In the decades since the VTM survey, the vegetation of many parts of California has been drastically altered by fire, logging, urbanization, and natural succession. The profiles provide both a historical record of the vegetation and a base line against which changes in the plant cover can be assessed. They also illustrate the association between vegetation patterns and variable factors of the environment, and show directly the relation between the composition of the dominant vegetation and such ecological factors as elevation, exposure, slope, and maritime influences.

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TABLES

Table 1–*Index of vegetation profiles*

Quadrangle			Profile location	
Number	Name	Date surveyed	Latitude (N)	Longitude (W)
		30-MINUTE QUADRANGLES		
23	Redding[1]	1932-33	40°48.0'	122°00' to 122°30'
37	Sierraville	1934-36	39°30' to 40°00'	120°15.0'
38	Downieville	1934-35	39°30' to 40°00'	120°56.8'
39	Bidwell Bar	1933-34	39°30' to 40°00'	121°04.0'
40	Chico	1933-34	39°59.1'	121°30' to 122°00'
51	Colfax	1933-34	39°06.0'	120°30' to 121°00'
52	Truckee	1934	39°13.3'	120°00' to 120°30'
54	Markleeville	1934	38°56.5'	119°30' to 120°00'
55	Pyramid Peak	1934	38°53.4'	120°00' to 120°30'
56	Placerville	1931-34	38°39.8'	120°30' to 121°00'
57	Sacramento	1931-34	38°45.1'	121°00' to 121°30'
65	Napa	1932	38°23.1'	122°00' to 122°30'
69	Big Trees	1935	38°00' to 38°30'	120°18.3'
77	Yosemite	1935	37°30' to 38°00'	119°35.7'
78	Sonora	1935-36	37°57.2'	120°00' to 120°30'
84	Santa Cruz	1935-36	37°00' to 37°30'	122°18.0'
153	Elizabeth Lake[1]	1928-34	34°30' to 35°00'	118°28.6'
154	Tejon	1935	34°30' to 35°00'	118°39.1'
155	Mt. Pinos	1930-34	34°30' to 35°00'	119°10.1'
156	Santa Ynez	1935-36	34°30' to 35°00'	119°38.5'
157	Lompoc	1930-35	34°30' to 35°00'	120°27.1'
176	Elsinore [1]	1930-34	33°30' to 34°00'	117°22.0'
177	Corona[1]	1930-34	33°30' to 34°00'	117°41.0'
180	San Luis Rey[1]	1931	33°24.8'	117°00' to 117°30'
191	Cuyamaca	1930-34	32°56.7'	116°30' to 117°00'
		15-MINUTE QUADRANGLES		
49E	Marysville Buttes	1934	39°05' to 39°20'	121°49.2'
81B	Mt. Diablo	1932-37	37°45' to 38°00'	121°54.9'
81C	Pleasanton	1932	37037.7'	121°45' to 122°00'
81D	Testa	1932	37°30' to 37°45'	121°36.3'
85A	Mt. Hamilton	1931	37°20.7'	121°30' to 121°45'
85C	New Almaden [1]	1935-36	37°00' to 37°15'	121°50.6'

Table 1 --*Index of vegetation profiles*, continued

Quadrangle			Profile location	
Number	Name	Date surveyed	Latitude (N)	Longitude (W)
		15-MINUTE QUADRANGLES		
105C	Monterey	1915, 1930-32	36°34.8'	121°45' to 122°00'
106A	Jamesburg	1930-32	36°18.3'	121°30' to 121°45'
1060	Point Sur	1929-32	36°15' to 36°30'	121°47.5'
107C	Junipero Serra	1929-32	36°00' to 36°15'	121°25.1'
130C	Adelaida	1937	35°36.2'	120°45' to 121°00'
130D	Paso Robles	1937	35°37.2'	120°30' to 120°45'
1310	Cape San Martin	1929-30	35°45' to 36°00'	121°23.3'
133A	La Panza	1937	35°19.5'	120°00' to 120°15'
1330	Pozo	1936-37	35°15' to 35°30'	120°21.1'
160A	Santa Paula	1930-34	34°15' to 34°30'	119°00.5'
1600	Ventura	1930-34	34°15' to 34°30'	119°22.0'
160D	Hueneme	1931-34	34°00' to 34°15'	119°01.3'
161A	Santa Susana[1]	1928-34	34°15' to 34°30'	118°33.5'
161B	Piru [1]	1930-34	34°15' to 34°30'	118°50.8'
161C	Triunfo Pass[1]	1930-34	34°00' to 34°15'	118°55.0'
161D	Calabasas[1]	1930-34	34°00' to 34°15'	118°39.1'
162A	Tujunga[1]	1928-33	34°15' to 34°30'	118°02.3'
1620	San Fernando[1]	1928-34	34°15' to 34°30'	118°19.8'
162C	Santa Monica	1930-33	34°00' to 34°15'	118°18.8'
1630	Rock Creek[1]	1928-33	34°15' to 34°30'	117°56.0'
164A	Deep Creek	1935	34°15' to 34°30'	117°10.7'
164B	Hesperia	1935	34°15' to 34°30'	117°18.3'
164C	San Bernardino[1]	1929-30	34°00' to 34° 15'	117°29.0'
179A	Capistrano	1931	33°29.8'	117°30' to 117°45'
192A	La Jolly	1931	32°55.l'	117°00' to 117°15'
192D	San Diego	1931	32°43.3'	117°00' to 117°15'

[1] Profile published with vegetation type map of quadrangle. Of the 23 published profiles, 14 are still available and are included here. Their publication dates were: 1934 - 164C; 1936 - 1620; 1937 - 153, 161A, 162A, 16313; 1938 - 176, 16113, 161D; 1939 - 23, 161C: 1940 - 177; 1942 - 85C; 1943 - 180.

Table 2–*Key to vegetation types*

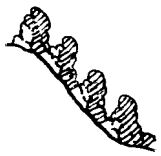
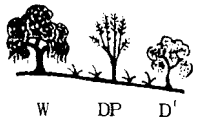
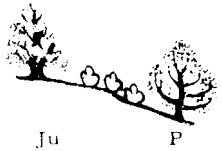
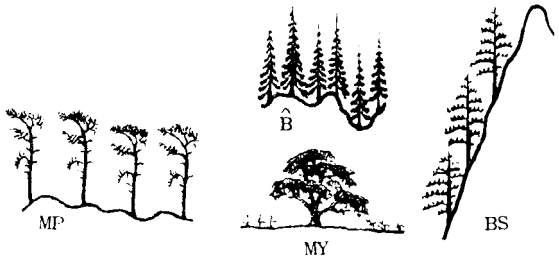
Type	Description and symbol
1	*Barren (Ba):* Areas which are practically devoid of vegetation, including areas typed as desert (De). None
2	*Grassland (Gr):* Uncultivated areas with vegetation of grasses and associated low herbaceous plants. Also included here are meadows (Md) and vegetation dominated by a wide variety of non-woody plants (Eci, Emo, Hgr, Mhi, Pta, Sca, Skt, Wm). 
3	*Cultivated or urban (Cu, Res):* Cultivated or recently cultivated lands, regularly cropped natural hay lands, irrigated pastures, and residential and industrial areas.  Res Cu
4	*Sagebrush:* Associations of thinly branched shrubs with soft, brittle wood. Characteristic genera are Artemisia, Salvia, Eriogonum, and Baccharis. 
5	*Chamise chaparral:* Chaparral associations in which chamise (At) is one of the dominant species.  Af
6	*Chaparral:* Dense associations of thickly branched, hard-woody shrubs. Characteristic genera are Arctostaphylos, Ceanothus, and the shrubby species and forms of Quercus. 
7	*Timberland chaparral:* Chaparral associations occupying areas capable of growing commercial timber trees, and including at least one dominant shrub commonly associated with timber trees. In practice, the use of this type was mostly confined to Sierra Nevada chaparral, particularly at middle and upper elevations. Same as type 6
8	*Semidesert chaparral:* Open chaparral associations, usually bordering the desert and lacking the dense, uninterrupted cover of the chaparral type proper (type 6). Characteristic genera arc the same as in type 6, plus Cercocarpus. 
9	*Woodland-chaparral:* Open stands of broad-leaved trees and Digger pine (DP) with intervening spaces occupied by shrubs of the chaparral types (5-8); includes both uniform mixtures of woodland and chaparral, and mosaics—areas of the two types too small to map.  DP B
10	*Woodland-sagebrush:* Open stands of broad-leaved trees and Digger pine (DP) with intervening spaces occupied by species of the sagebrush type (4); includes both mixtures and mosaics, as in type 9.  A

Table 2–*Key to vegetation types.* continued

Type	Description and symbol
11	*Woodland-grass:* Open stands of broad-leaved trees and Digger pine (DP) with intervening spaces occupied by grasses and other low herbaceous vegetation of type 2; includes both mixtures and mosaics, as in types 9 and 10. 
12	*Woodland:* Stands of broad-leaved trees, Digger pine (DP), or both, forming a closed or nearly closed canopy: includes riparian woodland. 
13	*Pinyon-juniper:* Associations which include pinyon pine. (P) or junipers (Jc, Jo, Ju) among the dominants. 
14	*Miscellaneous conifers:* Associations in which at least one of the minor coniferous tree species ($\hat{B}$, DY, MY, SY, TY, BP, CP, K, MP, TP, BS, and sometimes DP) is a dominant. 

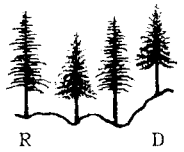
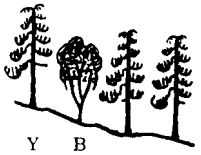
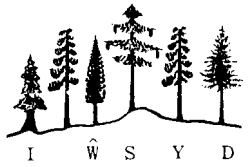
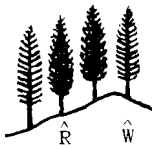
Type	Description and symbol
15	*Redwood and redwood/Douglas-fir:* Forests in which redwood (R) alone or redwood and Douglas-fir (D) are among the dominants. 
16	*Douglas-fir and Douglas-fir/fir:* Forests with Douglas-fir (D), or Douglas-fir and white fir ($\hat{W}$) among the dominant species, and not including redwood (R) or pines (J, S, Y) among the dominants. 
17	*Pine and pine/Douglas-fir:* Forests in Which one or more of the commercially important pines (J, S, Y) are among the dominant species, with or without Douglas-fir (D). 
18	*Pine/fir and pine/Douglas-fir/fir:* Forests in which pines (J, S, Y) and firs ($\hat{R}$, $\hat{W}$) are among the dominants. with or without Douglas-fir (D). 

Table 2–*Key to vegetation types*, continued

Type	Description and symbol
19	*Fir:* Forests consisting mostly of true firs ($\hat{R}$,$\hat{W}$) 
21	*Plantations:* Primarily species of *Eucalyptus* (Eu). 

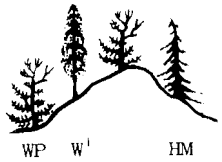
Type	Description and symbol
20,22	*High-elevation and subalpine coniferous forest:* Forests in which one or more of the following conifers are dominant: lodgepole pine (L), western white pine (V), whitebark pine (WP), limber pine (LP), mountain hemlock (HM). 

Table 3–*Alphabetical key to letter symbols of plant names and other ground-cover designations*

Symbol	Plant name or other designation	Symbol	Plant name or other designation	Symbol	Plant name or other designation
A	Quercus agrifolia	Apa	Artemisia tridentata var. parishii	Aw	Arctostaphylos obispoensis
A	Populus tremuloides	Api	Arctostaphylos pilosula	B	Quercus kelloggii
A	Alnus rhombifolia	Apm	Arctostaphylos pumila	$\overline{B}$	Populus trichocarpa
Aaa	Arctostaphylos auriculata	Aps	Arctostaphylos mewukka	$\hat{B}$	Abies bracteata
Aan	Arctostaphylos pechoensis var. viridissima	Apy	Arctostaphylos parryana	Ba	barren
Aar	Artemisia arbuscula	Ar	Arctostaphylos rudis	Bh	Bromus mollis
Ab	Xylococcus bicolor	Arc	Artemisia cana	BP	Pinus muricata
Ac	Artemisia californica	As	Adenostoma sparsifolium	Bp	Baccharis pilularis
Acn	Arctostaphylos canescens	Ase	Arctostaphylos nummularia var. sensitive	Br	Bromus diandrus
Adr	Artemisia dracunculus	Ast	Arctostaphylos stanfordiana	Bru	Bromus rubens
Af	Adenostoma fasciculatum	At	Arctostaphylos tomentosa	BS	Pseudotsuga macrocarpa
Ag	Arctostaphylos glauca	Atb	Atriplex lentiformis ssp. breweri	BT	Sequoia gigantea
Agl	Arctostaphylos glandulosa	Ate	Atriplex canescens	By	Baccharis viminea
Alo	Allenrolfia occidentalis	Ate	Alnus tenuifolia	C	Quercus chrysolepis
Am	Arctostaphlos manzanita	All	Atriplex lentiformis	Cb	Cercocarpus betuloides
Ama	Arctostaphylos mariposa	Atp	Atriplex polycarpa	Cc	Ceanothus cuneatus
An	Arctostaphylos nevadensis	Atr	Artemisia tridentata	Cch	Castanopsis chrysophylla (shrub form)
Ani	Arctostaphylos nissenana	AV	Avena sp.	Cco	Ceanothus cordulatus
Ann	annuals	Av	Arctostaphylos viscida	Ccr	Ceanothus crassifolius
Ap	Arctostaphylos patula	AVb	Avena barbata	Cd	Ceanothus leucodermis

Table 3–*Alphabetical key to letter symbols of Want names and other ground-cover designations*, continued

Symbol	Plant name or other designation	Symbol	Plant name or other designation	Symbol	Plant name or other designation
Cde	Ceanothus dentatus	Eci	Erodium cicutarium	Lpu	Leptodactylon pungens
Cec	Cercis occidentalis	Ecr	Eriodictyon crassifolium	Lpx	Lupinus sp.
Cf	Chamaebatia foliolosa	Ee	Haplopappus ericoides	Ls	Lotus scoparius
Cg	Ceanothus greggii	Ef	Eriogonum fasciculatum	Lsq	Lepidospartum squamatum
Cgp	Ceanothus greggii var. perplexans	Efc	Eriogonum cinerium	Lsu	Lonicera subspicata var. johnstonii
Chb	Haplopappus bloomeri	Emo	Erodium moschatum	Lt	Larrea tridentata
Chn	Chrysothamnus nauseosus	Enc	Encelia californica	M	Arbutus menziesii
Chr	Chrysothamnus sp.	Enf	Encelia farinosa	M	Acer macrophyllum
Chv	Chrysothamnus viscidiflorus	Epa	Haplopappus palmeri	Md	meadow
Ci	Ceanothus integerrimus	Epi	Haplopappus pinifolius	Mhi	Medicago polymorpha
Cj	Ceanothus jepsonii	Epv	Ephedra viridis	MP	Pinus radiata
Cl	Cercocarpus ledifolius	Eu	Eucalyptus sp.	MY	Cupressus macrocarpa
Cm	Ceanothus megacarpus	Ew	Eriogonum wrightii	Ng	Nicotiana glauca
Cn	Cornus nuttallii	$\overline{F}$	Populus fremontii	Ox	Opuntia sp.
Co	Ceanothus oliganthus	Fc	Fremontodendron californicum	P	Pinus monophylla
Cof	Corethrogyne filaginifolia	Fd	Fraxinus dipetala	Pa	Fleteromeles arbutifolia
CP	Pinus coulteri	Fm	Festuca megalura	Pan	Penstemon antirrhinoides
Cpa	Ceanothus palmeri	Gf	Garrya fremontii	Pe	Prunus emarginata
Cpl	Ceanothus papillosus	Gfl	Garrya flavescens	Pf	Prunus fasciculata
Cpo	Ceanothus prostratus	Gr	grasses	Pg	Purshia glandulosa
Cpr	Ceanothus parryi	Gsa	Gutierrezia sarothrae	Pi	Prunus ilicifolia
Cpv	Ceanothus parvifolius	Gv	Garrya veatchii	Pm	Pickeringia montana
Cri	Ceanothus rigidus	H	Aesculus californica	Pse	Pluchea sericea
Cs	Castanopsis sempervirens	Hd	Holodiscus discolor	Pt	Purshia tridentata
Cso	Ceanothus sorediatus	Hgr	Helianthus gracilentus	Pta	Pteridium aquilinum var. pubescens
Csp	Ceanothus spinosus	HM, Hm	Tsuga mertensiana	Qa	Quercus agrifolia (shrub form)
Ct	Ceanothus thyrsiflorus	Hm	Hordeum sp.	Qc	Quercus chrysolepis (shrub form)
Cto	Ceanothus tomentosus	Hys	Hymenoclea salsola	QD	Quercus Xalvordiana
Cu	cultivated	I	Libocedrus decurrens	Qd	Quercus dumosa
Cv	Ceanothus velutinus	J	Pinus jeffreyi	Qdu	Quercus durata
Cve	Ceanothus verrucosus	Jc	Juniperus californica	Qgb	Quercus garryana var. breweri
D	Pseudotsuga menziesii	Jo	Juniperus occidentalis	Qgs	Quercus garryana var. semota
D[1]	Quercus douglasii	Ju	Juniperus osteosperma	Qk	Quercus kelloggii (shrub form)
De	desert	K	Pinus attenuata	Qv	Quercus vaccinifolia
DIs	Distichlis spicata	L	Pinus contorta	Qw	Quercus wislizenii (shrub form)
DP	Pinus sabiniana	L[1]	Umbellularia californica	R	Sequoia sempervirens
Dr	Dendromecon rigida	La	Lupinus albifrons	$\hat{R}$	Abies magnifica
DY	Cupressus sargentii	Ld	Lithocarpus densiflorus (shrub form)	Rc	Rhamnus californica
E	Quercus engelmannii	Lde	Lithocarpus densiflorus var. echinoides	Rci	Rhamnus crocea var. ilicifolia
Ec	Eriodictyon californicum	LP	Pinus flexilis	Rd	Rhus diversiloba

Table 3–*Alphabetical key to letter symbols of plant names and other ground-cover designations,* continued

Symbol	Plant name or other designation	Symbol	Plant name or other designation	Symbol	Plant name or other designation
Res	residential (aid other urban use)	Sli	Haplopappus linearifolius	Vo	Vaccinium ovatum
Ri	Rhus integrifolia	Sm	Salvia mellifera	W	Quercus wislizenii
RI	Rhus laurina	So	Styrax officinalis var. californica	W[1]	Pinus monticola
S	Pinus lambertiana	SY	Cupressus sargentii	Ŵ	Abies concolor
S	Platanus racemosa	Sx	Sally sp	WC	Juglans californica
Sa	Salvia apiana	T	Lithocarpus densiflorus	Wm	Wyethia mollis
Saa	Salicornia virginica	Tc	Tetradymia canescens	WP	Pinus albicaulis
Sca	Scirpus acutus	TP	Pinus torreyana	Y	Pinus ponderosa
Scr	Salvia dorrii	Ty	Cupressus forbesii		Yucca brevifolia
Sg	Sambucus caerulea	Uc	Umbellularia californica (shrub form)	Ym	Yucca schidigera
Skt	Salsola pestifera	V	Quercus lobata	Yw	Yucca whipplei
Sl	Salvia leucophylla				

Table 4–*Plant names and occurrence on profiles*

Scientific name	Symbol	Common name	Occurrence[1]
Abies bracteata D. Don	B̂	bristleconc fir, Santa Lucia fir	106A
A. concolor (Gord & Glen.) Lindl.	Ŵ	white fir	SN, SC
A. magnifica .A. Murr.	R̂	California red fir	SN
Acer macrophyllum Pursh	M	bigleaf maple	SN, CR, SC
Adenostoma fasciculation H & A.	Af	chamise	SN, CR, SC
A. sparsifolium Torr.	As	redshank, ribbonwood	161C, D
Aesculus californica (Spach) Nutt.	H	California buckeye, horse-chestnut	SN, CR, SC
Allenrolfia occidentalis (Wats.) Kuntze	Alo	bush pickleweed, iodine bush	156
Alnus rhombifolia Nutt	A	white alder	SN, CR, SC
A. tenuifolia Nutt.	Ate	mountain alder, thinleaf alder	52
Arbutus menziesii Pursh	M	Pacific madrone	CR
Arctostaphylos auriculata Eastw. *(A*	Aaa		81B
A. canescens Eastw.	Acn	hoary manzanita	CR
A. glandulosa Eastw.	Agl	Eastwood manzanita	CR, SC
A. glauca Limn.	Ag	bigberry manzanita	CR, SC
A. manzanita Parry	Am	common manzanita	65. 81B
A. mariposa Dudl.	Ama	Mariposa manzanita	77, 78
A. mewukka Merriam *(A. pastillosa* Jeps.)	Aps	Indian manzanita	51, 69

Table 4 –*Plant names and occurrence on profiles,* continued

Scientific name	Symbol	Common name	Occurrence[1]
A. nevadensis Gray	An	pinemat manzanita	SN
A. nissenana Merriam	Ani	Eldorado manzanita	56
A. nummularia var. *sensitiva* (Jeps.) McMinn (*A. sensitiva* Jeps.)	Ase	littleberry manzanita	84
A. obispoensis Eastw.	Aw	serpentine manzanita	130C, 131B
A. parryana Lemmon	Apy	Parry manzanita	155
A. patula Greene	Ap	greenleaf manzanita	SN
A. pechoensis var. *viridissima* Eastw. *(A. andersonii* Gray)	Aan	Lompoc manzanita	157
A. pilosula Jeps. & Wies.	Api	La Panza manzanita	133A
A. pumila Nutt.	Apm	dune manzanita	105C
A. rudis Jeps. & Wies.	Ar	shagbark manzanita	157
A. stanfordiana Parry	Ast	Stanford manzanita	65
A. tomentosa (Pursh) Lindl.[3]	At	woollyleaf manzanita	CR, SC
A. viscida Parry	Av	whiteleaf manzanita	SN
Artemisia arbuscula Nutt.	Aar	low sagebrush	37
A. californica Less.	Ac	California sagebrush, coast sagebrush	CR, SC
A. cana Pursh	Arc	hoary sagebrush	37
A. dracunculus L.	Adr	tarragon	177
A. tridentata Nutt.	Atr	big sagebrush	SN, SC
A. tridentata var. *parishii* (Gray) Jeps.	Apa		156
A triplex canescens (Pursh) Nutt.	Ate	wingscale, fourwing saltbush	156
A. lentiformis (Torr.) Wats.	MI	lenscale	161B
A. lentiformis ssp. *breweri* (Wats.) Hall & Clem. (*A. breweri* Wats.)	Atb		160B
A. polycarpa (Torr.) Wats.	Atp	allscale	156
Avena sp.[4]	—		SC
A. barbata Brot.[4]	AVb	slender wild oats	CR
Baccharis pilularis DC.	Bp	chaparral broom, coyote brush	CR, SC
B. viminea DC.	By	mule fat	CR, SC
Bromus mollis L. *(B. hordeaceus* L.)[4]	Bh	soft chess	CR, SC
B. diandrus Roth *(B. rigidus* Roth)[4]	—	ripgut brome	CR
B. rubens L.[4]	Bru	red brome	CR, SC
Castanopsis chrysophylla (Dougl.) A. DC. (shrub form)	Cch	golden chinquapin	84
C. sempervirens (Kell.) Dudl.	Cs	bush chinquapin, Sierra chinquapin	SN
Ceanothus cordulatus Kell.	Cco	mountain whitethorn, snowbush	SN
C. crassifolius Torr.	Ccr	hoaryleaf ceanothus	SC
C cuneatus (Hook.) Nutt.	Cc	buckbrush, wedgeleaf ceanothus	SN, CR, SC

Table 4–*Plant names and occurrence on profiles,* continued

Scientific name	Symbol	Common name	Occurrence[1]
C. dentatus T. & G.[5]	Cde	cropleaf ceanothus	133B
C. greggii Gray	Cg	desert ceanothus	SC
C. greggii var. *perplexans* (Trel.) Jeps.	Cgp	cupleaf ceanothus	191
C. integerrimus H. & A.	Ci	deerbrush, deerbrush ceanothus	SN, CR, SC
C. jepsonii Greene	Cj	muskbrush, Jepson ceanothus	65
C. leucodermis Greene *(C. divaricatus* Nutt.)	Cd	chaparral whitethorn	SC
C. megacarpus Nutt.	Cm	bigpod ceanothus	SC
C. oliganthus Nutt.	Co	hairy ceanothus	SC
C. palmeri Trel.[6]	Cpa	Palmer ceanothus	156
C. papillosus T. & G.	Cpl	wartleaf ceanothus	CR
C. parryi Trel.	Cpr	Parry ceanothus	65
C. parvifolius (Wats.) Trel.	Cpv	littleleaf ceanothus	55
C. prostratus Benth.	Cpo	squaw carpet	37, 40
C. rigidus Nutt.	Cri	Monterey ceanothus	105C
C. sorediatus H. & A.[7]		Jimbrush	CR, SC
C. spinosus Nutt.	Csp	red-heart, greenbark ceanothus	SC
C. thyrsiflorus Esch.	Ct	blue blossom, bluebrush, wild lilac	CR
C. tomentosus Parry	Cto	woollyleaf ceanothus	51, 192A
C. velutinus Dougl.	Cv	tobacco brush, snowbrush	37, 54
C. verrucosus Nutt.	Cve	wartystem ceanothus	192A, D
Cercis occidentalis Torr. Cso	Cec	California redbud, western redbud	23
Cercocarpus betuloides Nutt.	Cb	western mountain-mahogany, birchleaf mountain-mahogany	SN, CR, SC
C. ledifolius Nutt.	Cl	desert mountain-mahogany, curlleaf mountain-mahogany	37
Chamaebatia foliolosa Benth.	Cf	bearmat, mountain misery	SN
Chrysothamnus sp.	Chr	rabbitbrush	54
C. nauseosus (Pall.) Britton	Chn	rubber rabbitbrush	SN, SC
C. viscidiflorus (Hook.) Nutt.	Chv	rabbitbrush	37, 155
Corethrogyne filaginifolia (H. & A.) Nutt.	Cof		161A, B
Cornus nuttallii Aud.	Cn	Pacific dogwood	38, 40
Cupressus forbesii Jeps.	TY	Tecate cypress	177
C. macrocarpa Hartw.	MY	Monterey cypress	105C
C sargentii Jeps.	SY	Sargent cypress	130C
C. sargentii Jeps. *(C. sargentii* var. *duttonii* Jeps.)	DY		81D
Dendromecon rigida Benth.	Dr	bush poppy	156
Distichlis spicata (L.) Greene	DIs	saltgrass	161A

Table 4–*Plant names and occurrence on profiles,* continued

Scientific name	Symbol	Common name	Occurrence[1]
Encelia californica Nutt.	Enc	California encelia	SC
E. farinosa Gray	Enf	brittle-bush, desert encelia, incienso	164C, 176
Ephedra viridis Coy.	Epv	green ephedra	SC
Eriodictyon californicum (H. & A.) Torr.	Ec	California yerba santa	78
E. crassifolium Benth.	Ecr	thickleaf yerba Santa	192D
Eriogonum cinerium Benth.	Efc	ashyleaf buckwheat	160D, 161C
E. fasciculatum Benth.	Ef	California buckwheat	CR, SC
E. wrightii Torr.	Ew	Wright buckwheat	154
Erodium cicutarium (L.) L Hér.[4]	Eci	redstem filaree	CR, SC
E. moschatum (L.) L Hér.[4]	Emo	whitestem filaree	164B
Eucalyptus sp.[4]			SC
Festuca megalura Nutt.	Fm	foxtail fescue	CR
Fraxinus dipetala H. & A.	Ed	flowering ash, two-petal ash	SN, CR
Fremontodendron californicum Coy.	Fc	California fremontia, flannel bush	164A
Garrya flavescens Wats.	Gfl	pale silktassel	85A
G. fremontii Torr.	Gf	Fremont silktassel	SN, CR
G. veatchii Kell.	Gv	Veatch silktassel	155, 156
Gutierrezia sarothrae (Pursh) Britt. & Rusby	Gsa	broom snakeweed	154, 163B
Haplopappus bloomeri Gray *(Chrysothamnus bloomeri* Greene)	Chb	Bloomer goldenbush	55
H. ericoides (Less.) H. & A. *(Ericameria ericoides* Jeps.)	Ee	heather goldenbush	157
H. linearifolius DC. *(Stenotopsis linearifolia* Rydb.)	Sli	narrowleaf goldenbush	CR, SC
H. palmeri Gray *(Ericameria palmeri* Hall)	Epa	Palmer goldenbush	161A
H. pinifolius Gray *(Ericameria pinifolia* Hall)	Epi	pine goldenbush	161B
Helianthus gracilentus Gray	Hgr	slender sunflower	161C
Heteromeles arbutifolia M. Roem. *(Photinia arbutifolia* Lindl.)	Pa	Christmasberry, toyon	SN, CR, SC
Holodiscus discolor (Pursh) Maxim.	Hd	cream bush, ocean spray	84
Hordeum sp.	Hm	barley	CR
Hymenoclea salsola T. & G.	Hys	white burrobrush	SC
Juglans californica Wats.	WC	California walnut	SC
Juniperus californica Carr.	Jc	California juniper	CR, SC
J. occidentalis Hook.	Jo	western juniper	37, 77
J. osteosperma (Torr.) Little *(J. utahensis* Lemmon)	Ju	Utah juniper	54

Table 4–*Plant names and occurrence on profiles,* continued

Scientific name	Symbol	Common name	Occurrence[1]
Larrea tridentata Sessé & Moçiño	Lt	creosote bush	164A, B
Lepidospartum squamatum (Gray) Gray	Lsq	scalebroom	SC
Leptodactylon pungens (Torr.) Rydb.	Lpu	granite-gilia	55, 155
Libocedrus decurrens Torr.	l	incense-cedar	SN, SC
Lithocarpus densiflorus (H. & A.) Rehd.	T	tanoak, tanbark-oak	SN, CR
L. densiflorus (shrub form)	Ld		106B, 131B
L. densiflorus var. *echinoides* (R. Br.) Abrams	Lde	dwarf tanoak	23, 38
Lonicera subspicata var. *johnstonii* Keck	Lsu	southern honeysuckle	130D
Lotus scoparius (Nutt.) Ottley	Ls	deerweed	CR, SC
Lupinus sp.	Lpx	lupine	55, 154
L. albifrons Benth.	La	silver lupine	160D
Medicago polymorpha L. *(M. hispida* Gaertn.)[4]	Mhi	bur-clover	CR
Nicotiana glauca Grah.[4]	Ng	tree tobacco	SC
Opuntia sp.	Ox	prickly-pear, cholla	164C
Penstemon antirrhinoides Benth.	Pan	yellow penstemon	176
Pickeringia montana Nutt.	Pm	chaparral-pea	CR
Pinus albicaulis Engelm.	WP	whitebark pine	54, 55
P. attenuata Lemmon	K	knobcone pine	SN, CR
P. contorta Dougl.	L	lodgepole pine	SN
P. coulteri D. Don	CP	Coulter pine	CR, SC
P. flexilis James	LP	limber pine	155
P. jeffreyi Grey. & Balf.	J	Jeffrey pine	SN, SC
P. lambertiana Dougl.	S	sugar pine	SN, CR, SC
P. monophylla Ton. & Hem.	P	singleleaf pinyon	SN, SC
P. monticola Dougl.	W'	western white pine	SN
P. muricata D. Don	BP	bishop pine	157
P. ponderosa Lawson	Y	ponderosa pine, yellow pine	SN, CR, SC
P. radiata D. Don	MP	Monterey pine	84, 105C
P. sabiniana Dougl.	DP	Digger pine	SN, CR, SC
P. torreyana Parry	TP	Torrey pine	192A
Platanus racemosa Nutt.	$\overline{S}$	California sycamore	SN, CR, SC
Pluchea sericea (Nutt.) Coy.	Pse	arrowweed	156
Populus fremontii Wats.	$\overline{F}$	Fremont cottonwood	SN, CR, SC
P. tremuloides Michx.	$\overline{A}$	quaking aspen	37, 77
P. trichocarpa T. & G.	$\overline{B}$	black cottonwood	SN, SC
Prunus emarginata Dougl.	Pe	bitter cherry	SN
P. fasciculata (Torr.) Gray	Pf	desert almond	164A
P. ilicifolia (Nutt.) D. Dietr.	Pi	hollyleaf cherry, islay	SC
Pseudotsuga macrocarpa (Vasey) Mayr	BS	bigcone Douglas-fir, bigcone spruce	SC

Table 4–*Plant names and occurrence on profiles,* continued

Scientific name	Symbol	Common name	Occurrence[1]
P. menziesii (Mirb.) Franco	D	Douglas-fir	SN, CR
Pteridium aquilinum var. *pubescens* Underwood	Pta	bracken	SN, CR, SC
Purshia glandulosa Curran	Pg	desert bitterbrush	164A
P. tridentata (Pursh) DC.	Pt	antelope bitterbrush	54
Quercus agrifolia Née	A	coast live oak, California live oak	CR, SC
Q. agrifolia (shrub form)	Qa		157
Q. Xalvordiana Eastw.[8]			130D, 133B
Q. chrysolepis Liebm.	C	canyon live oak	SN, CR, SC
Q. chrysolepis (shrub form)	Qc		CR, SC
Q. douglasii H. & A.	D'	blue oak	SN, CR
Q. dumosa Nutt.	Qd	California scrub oak	SN, CR, SC
Q. durata Jeps. QD	Qdu	leather oak	CR
Q. engelmannii Greene	E	Engelmann oak	SC
Q. garryana var. *breweri* (Engelm.) Jeps.	Qgb	Brewer oak	23,40
Q. garryana var. *semota* Jeps.	Qgs	Kaweah white oak	154
Q. kelloggii Newb.	B	California black oak	SN, CR, SC
Q. kelloggii (shrub form)	Qk		23
Q. lobata Née	V	California white oak, valley oak	SN, CR, SC
Q. vaccinifolia Kell.	Qv	huckleberry oak	SN
Q. wislizenii A. DC.	W	interior live oak	SN, CR, SC
Q. wislizenii (shrub form)	Qw		SN, CR, SC
Rhamnus californica Esch.	Rc	California coffeeberry, California buckthorn	CR, SC
R. crocea var. *ilicifolia* (Kell.) Greene	Rci	hollyleaf redberry, hollyleaf buckthorn	SN, CR
Rhus diversiloba T. & G.	Rd	poison-oak	SN, CR, SC
R. integrifolia (Nutt.) Benth. & Hook.	Ri	lemonadeberry, lemonade sumac	SC
R. laurina Nutt.	Rl	laurel sumac	SC
Salicornia virginica L. *(S. ambigua* Michx.)	Saa	glasswort, pickleweed	192A
Salix sp.	Sx	willow	SN, CR, SC
Salsola pestifera A. Nels. *(S. kali* var. *tenuifolia* Tausch.)[4]	Skt	Russian-thistle	54, 161A
Salvia apiana Jeps.	Sa	white sage	SC
S. dorrii (Kell.) Abrams *(S. carnosa* Dougl.)	Scr	desert sage	SC
S. leucophylla Greene	Sl	purple sage	SC
S. mellifera Greene	Sm	black sage	CR, SC

Table 4–*Plant names and occurrence on profiles,* continued

Scientific name	Symbol	Common name	Occurrence[1]
Sambucus caerulea Raf. *(S. glauca* Nutt.)	Sg	blue elderberry	161B, 177
Scirpus acutus Muhl.	Sca	common tule	49E
Sequoia gigantea (Lindl.) Dcne.	BT	giant sequoia, big-tree	69, 77
S. sempervirens (D. Don) Endl.	R	redwood	CR
Styrax officinalis var. *californica* (Torr.) Rehd.	So	snowdrop bush	23
Tetradymia canescens DC.	Tc	gray horsebrush	37, 54
Tsuga mertensiana (Bong.) Carr.	HM, Hm	mountain hemlock	SN
Umbellularia californica (H. & A.) Nutt.	L'	California-laurel, California-bay	CR, SC
U. californica (shrub form)	Uc		SN, CR
Vaccinium ovatum Pursh	Vo	California huckleberry	84
Wyethia mollis Gray	Wm		37, 52
Xylococcus bicolor Nutt. *(Arctostaphylos bicolor* Gray)	Ab	Mission manzanita	SC
Yucca brevifolia Engelm.	YB	Joshua-tree	SC
Y. schidigera Roezl *(Y. mohavensis* Sarg.)	Ym	Mohave yucca, Spanish dagger	164A
Y. whipplei Torr.	Yw	quixote plant, Our Lord's candle, chaparral yucca	SC

[1]Profile numbers are listed if plant is represented on only one or two profiles. The geographic occurrence of plants on three or more profiles is indicated by these symbols: SN (Sierra Nevada: profiles 33-56, 69-78), CR (Coast Ranges: profiles 65 and 81-133), and SC (Southern California: profiles 153-192).

[2]The manzanita designated Acn on profiles 106A, 107C, and 131B is now considered part of the *A. glandulosa* complex.

[3]The manzanita designated At on profiles 130C to 191 is now considered part of the *A. glandulosa* complex. This is also true of all but the low-elevation occurrences near the coast on profiles 84, 85C, and 106B.

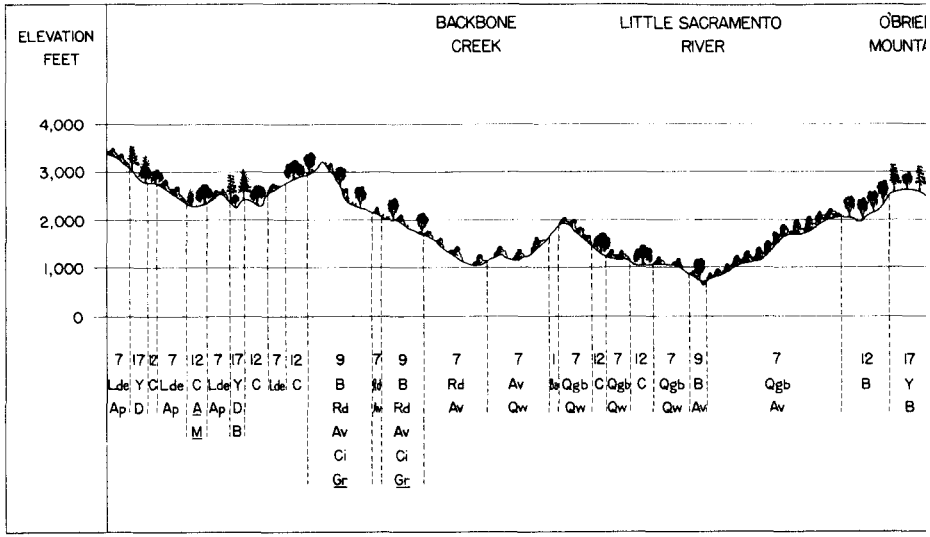
[4]lntroduced.

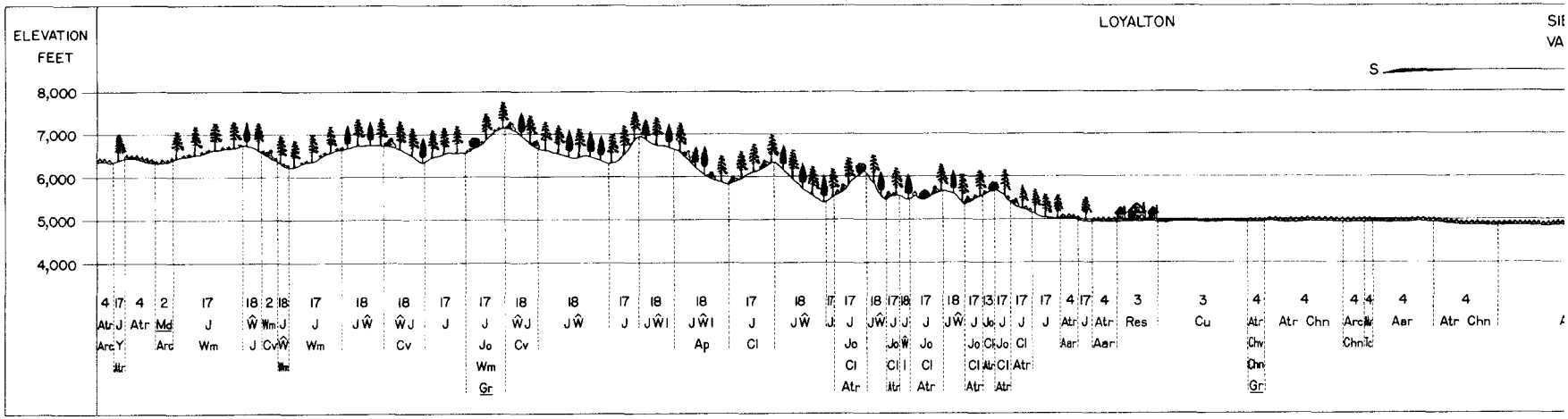
[5]Typical *C. dentatus* occurs only near the coast, according to McMinn (1942). The ceanothus designated Cde on profile 133B is probably *C. foliosus* var. *medius* McMinn, thought to be closely related to *C. dentatus* (McMinn 1942, p. 223).

[6]McMinn (1942, p. 187) identified this ceanothus of Santa Barbara and Ventura Counties as *C. integerrimus,* but noted that it is "undoubtedly very closely related to *C. palmeri*."

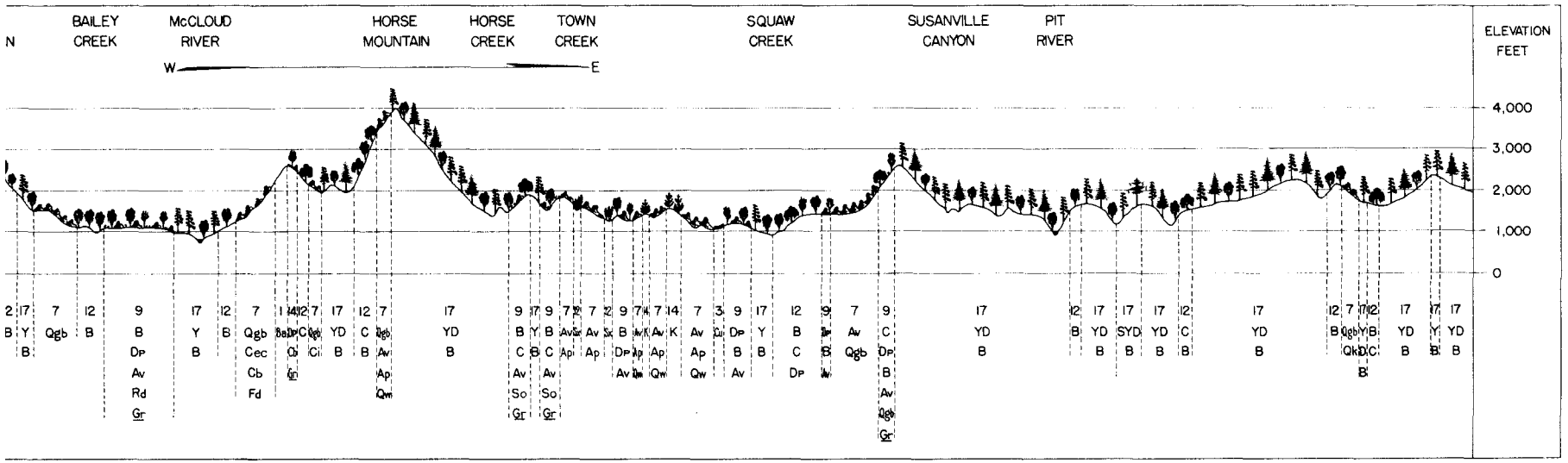
[7]The ceanothus identified as Cso on profile 191 is probably the closely related C *oliganthus.*

[8]Typed as the tree form of *Q. dumosa,* but now considered a mixture of *Q. turbinella* and hybrid derivatives of *Q. douglasii* and *Q. turbinella.*

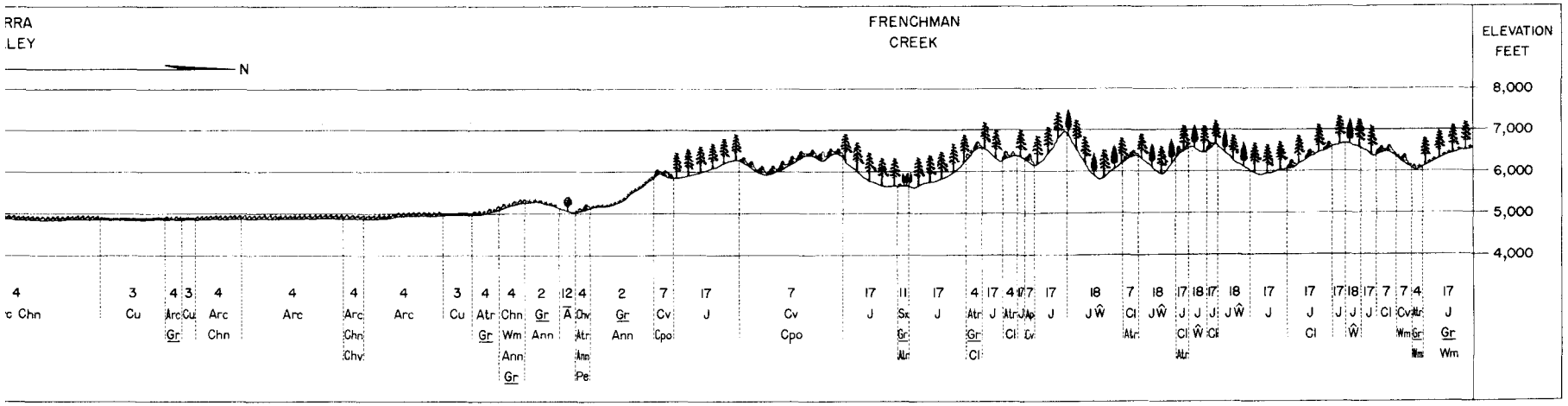

ELEVATION
FEET
4,000
3,000
2,000
1,000
0
BACKBONE
CREEK
LITTLE SACRAMENTO
RIVER
OBRIE
MOUNT


ELEVATION
FEET
8,000
7,000
6,000
5,000
4,000
LOYALTON
SI
VA
S

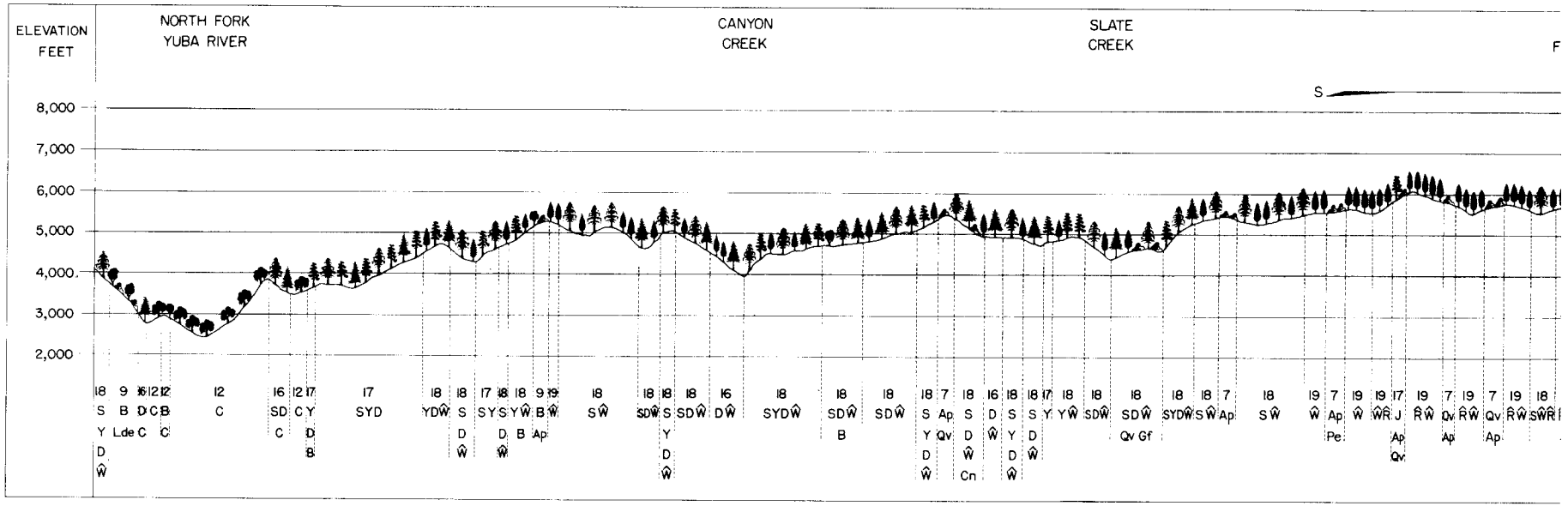
23 Redding



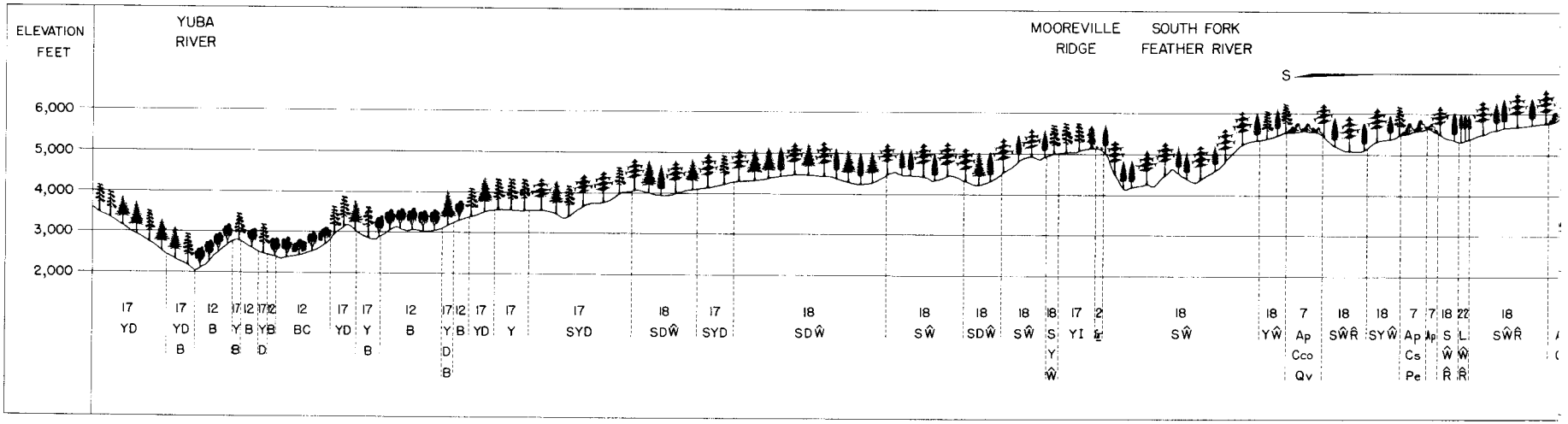
37 Sierraville

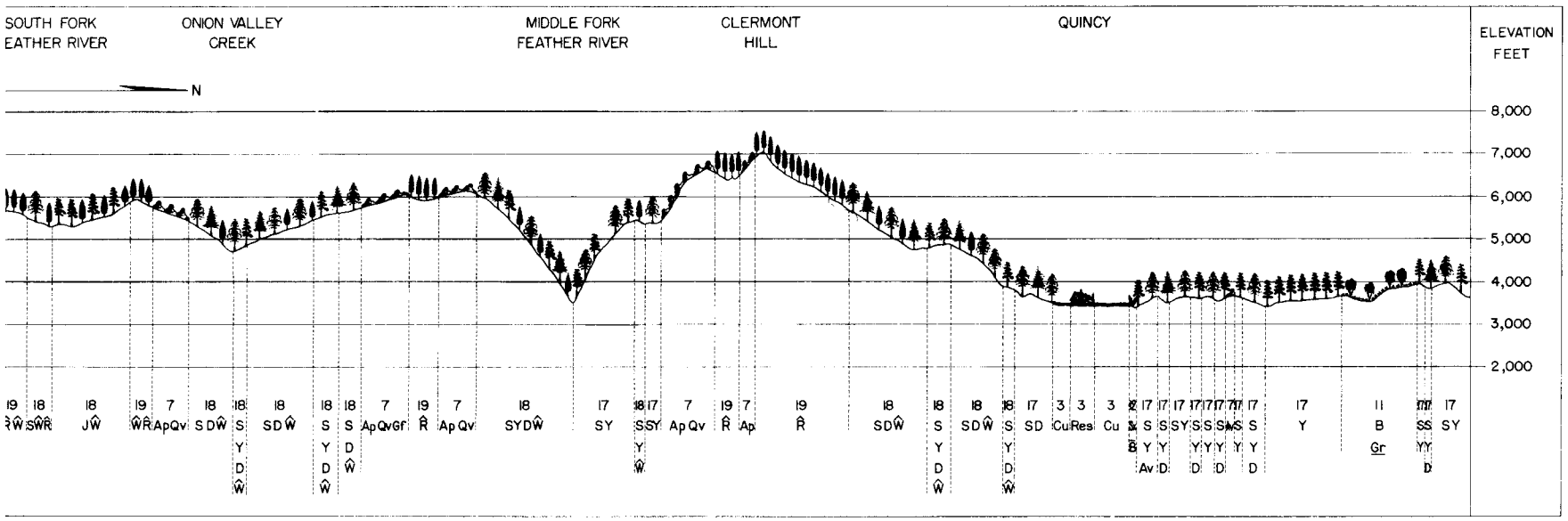


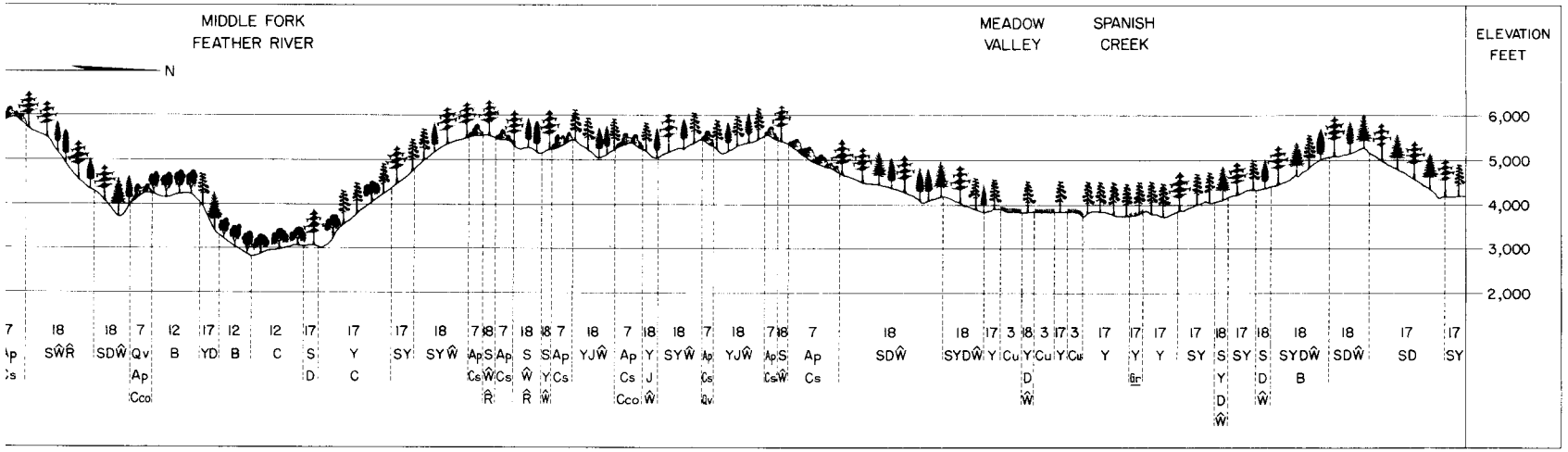
38 Downieville

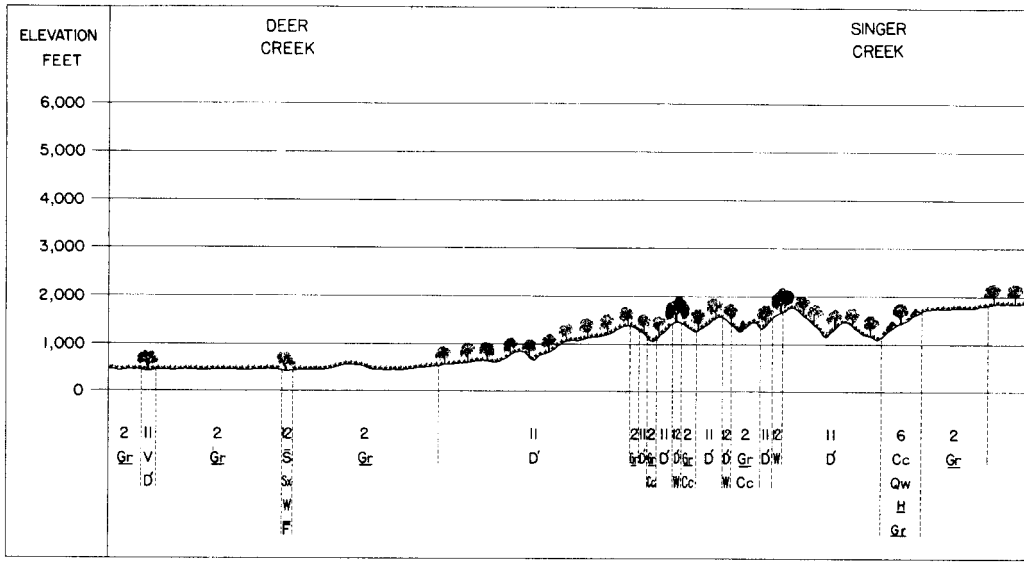


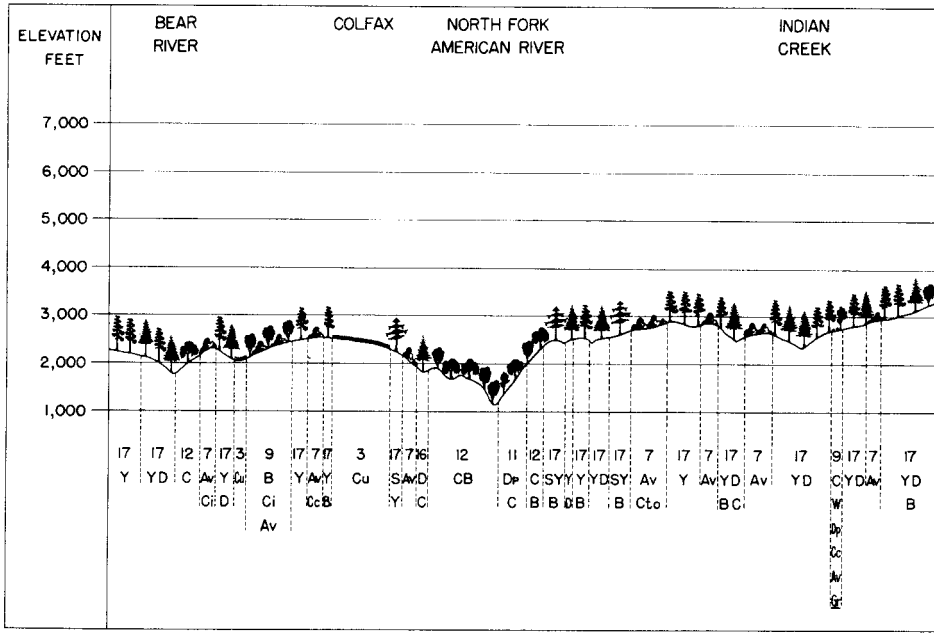
39 Bidwell Bar



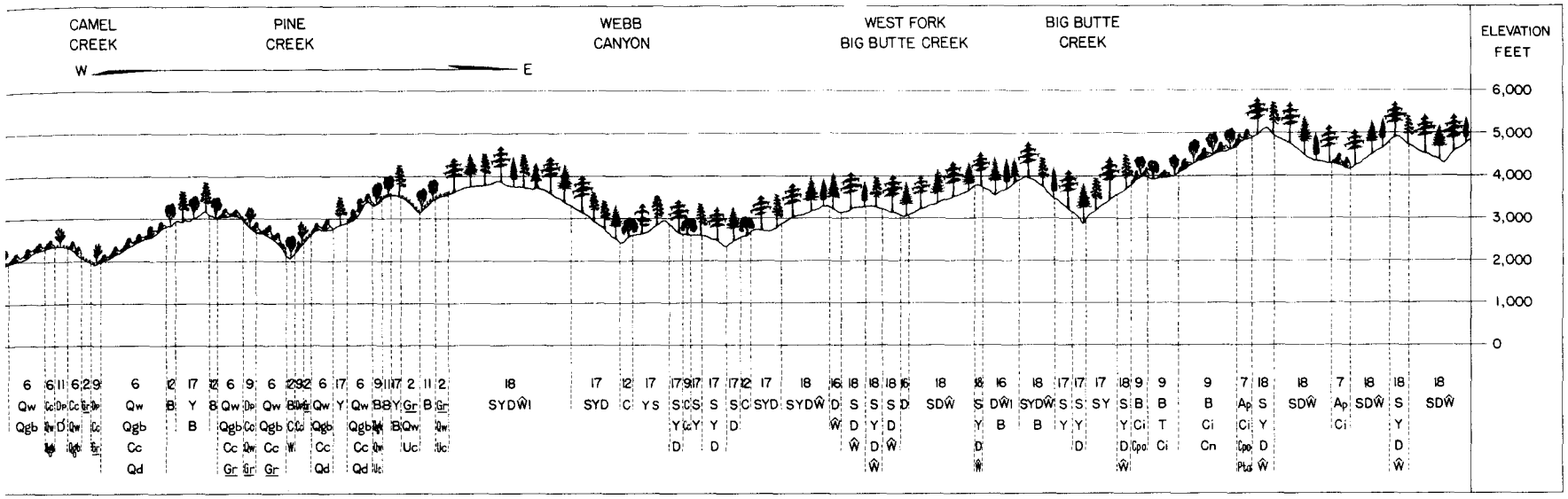

SOUTH FORK
EATHER RIVER
ONION VALLEY
CREEK
MIDDLE FORK
FEATHER RIVER
CLERMONT
HILL
QUINCY
ELEVATION
FEET
N
8,000
7,000
6,000
5,000
4,000
3,000
2,000


MIDDLE FORK
FEATHER RIVER
MEADOW
VALLEY
SPANISH
CREEK
ELEVATION
FEET
N
6,000
5,000
4,000
3,000
2,000

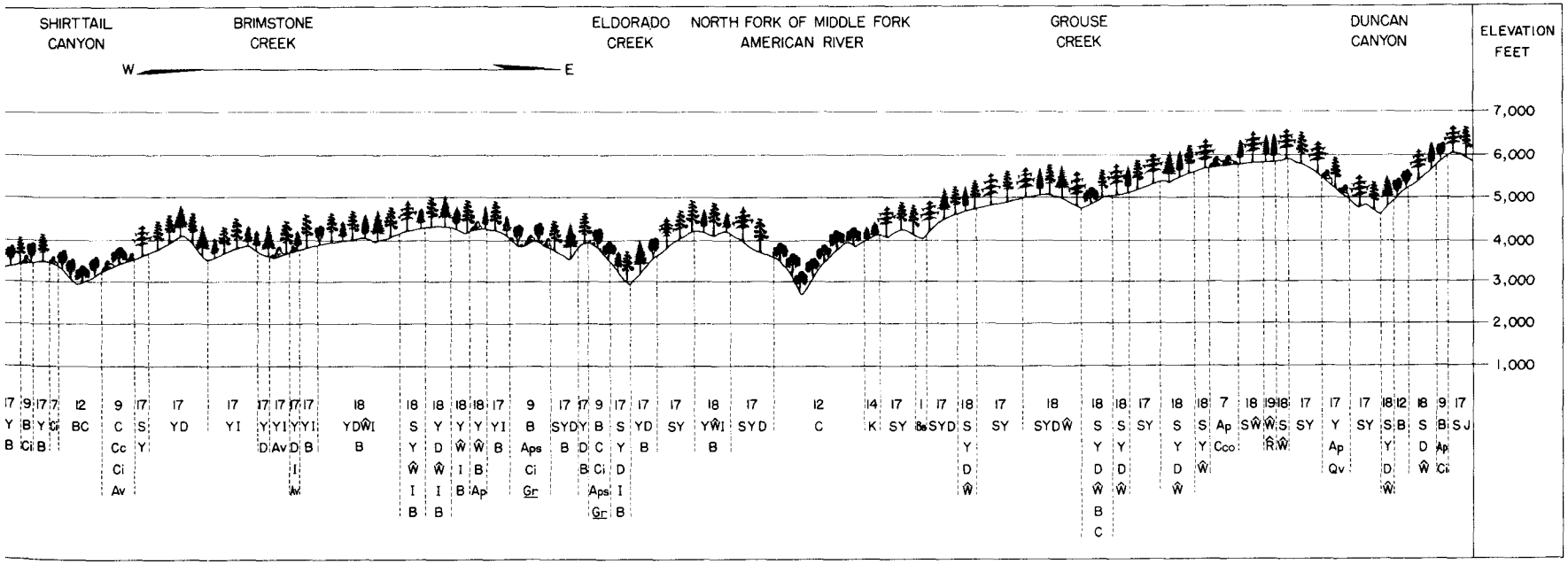

ELEVATION
FEET
DEER
CREEK
SINGER
CREEK
6,000
5,000
4,000
3,000
2,000
1,000
0


ELEVATION
FEET
BEAR
RIVER
COLFAX
NORTH FORK
AMERICAN RIVER
INDIAN
CREEK
7,000
6,000
5,000
4,000
3,000
2,000
1,000

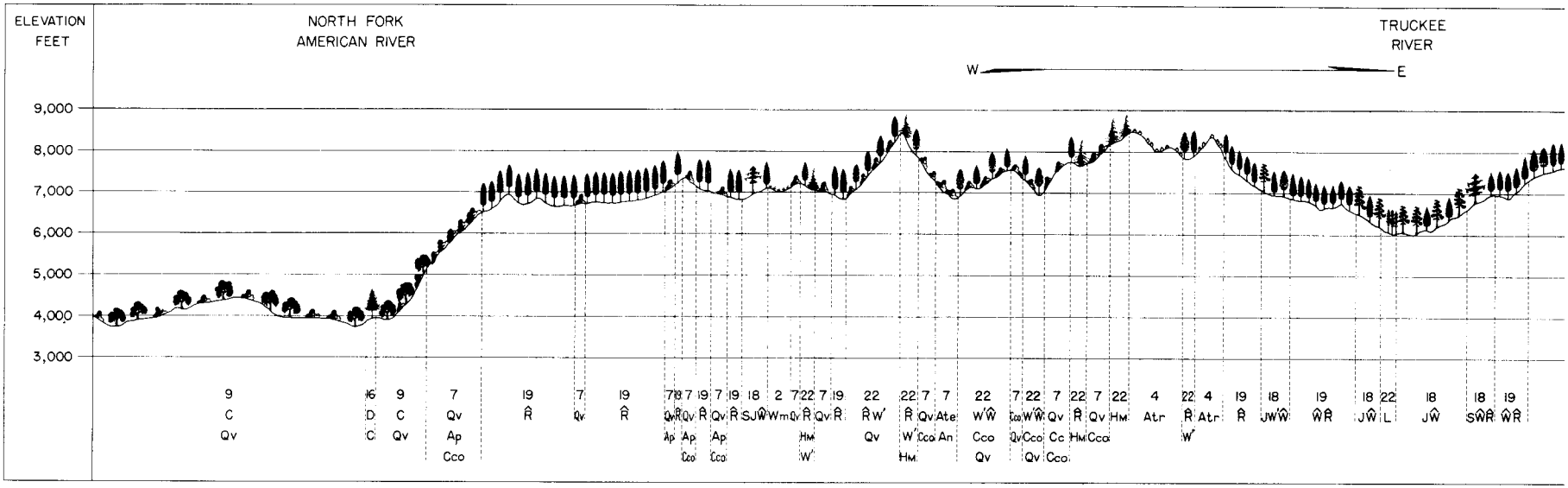
40 Chico



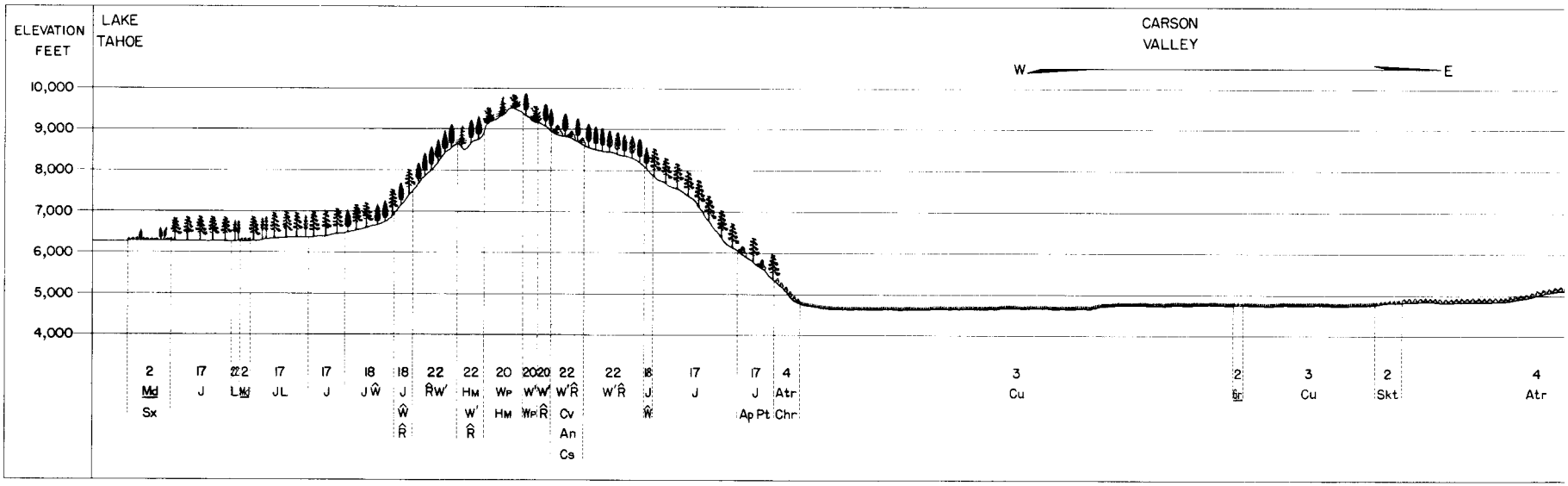
51 Colfax

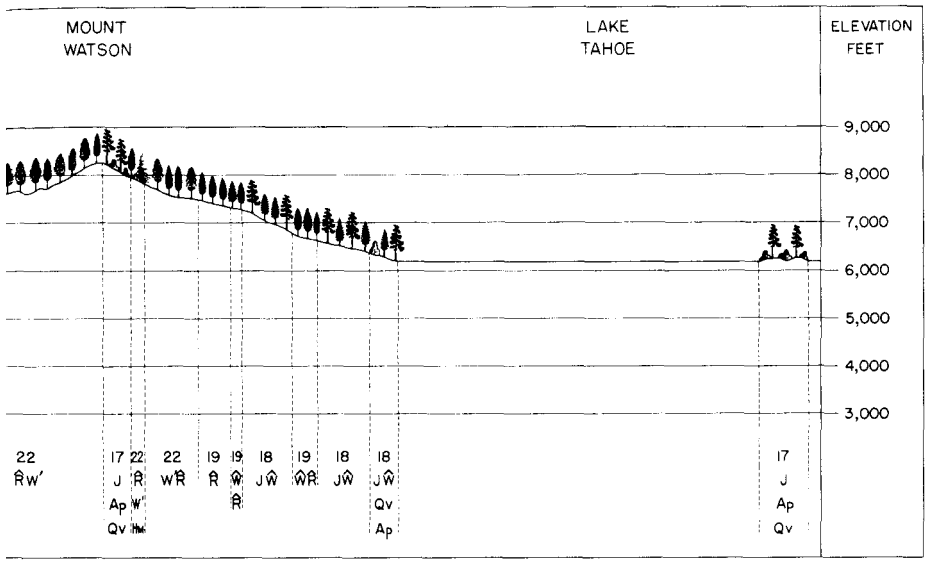


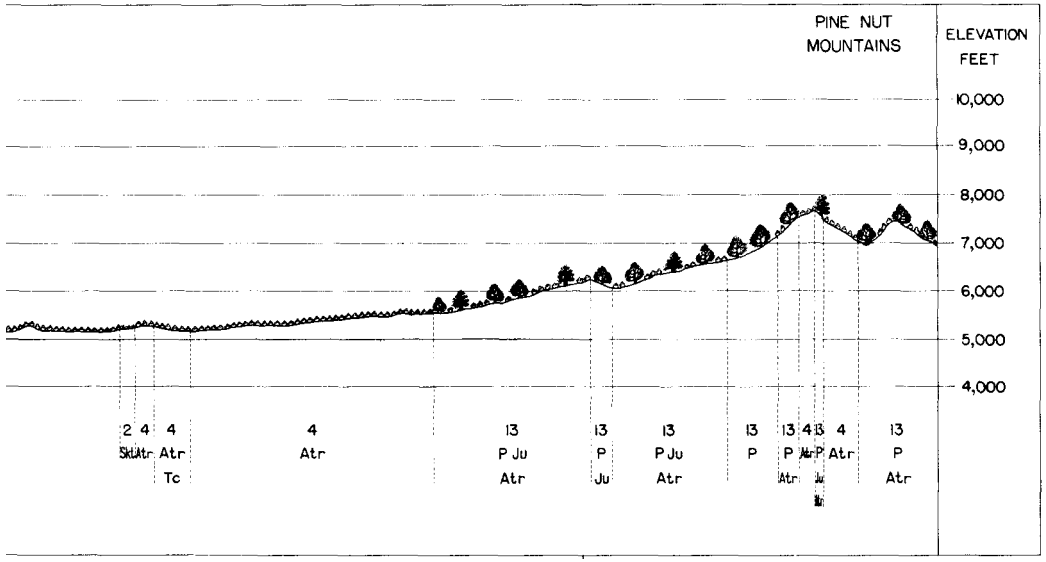
52 Truckee

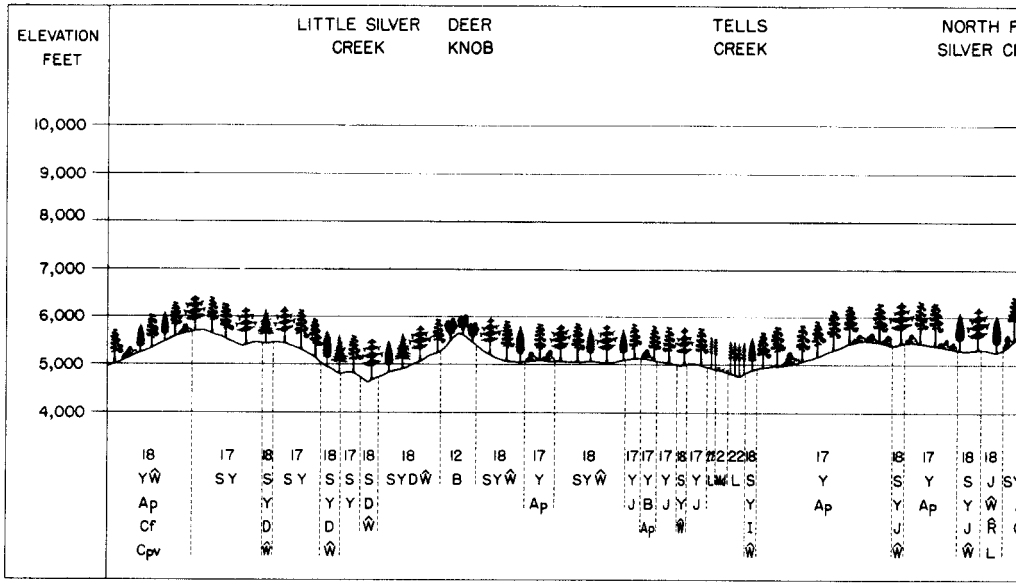


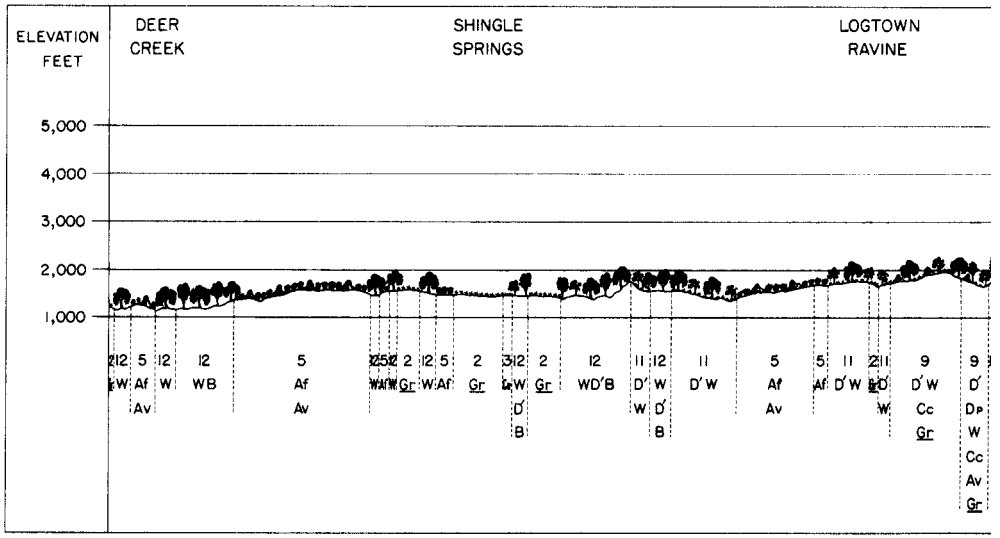
54 Markleeville



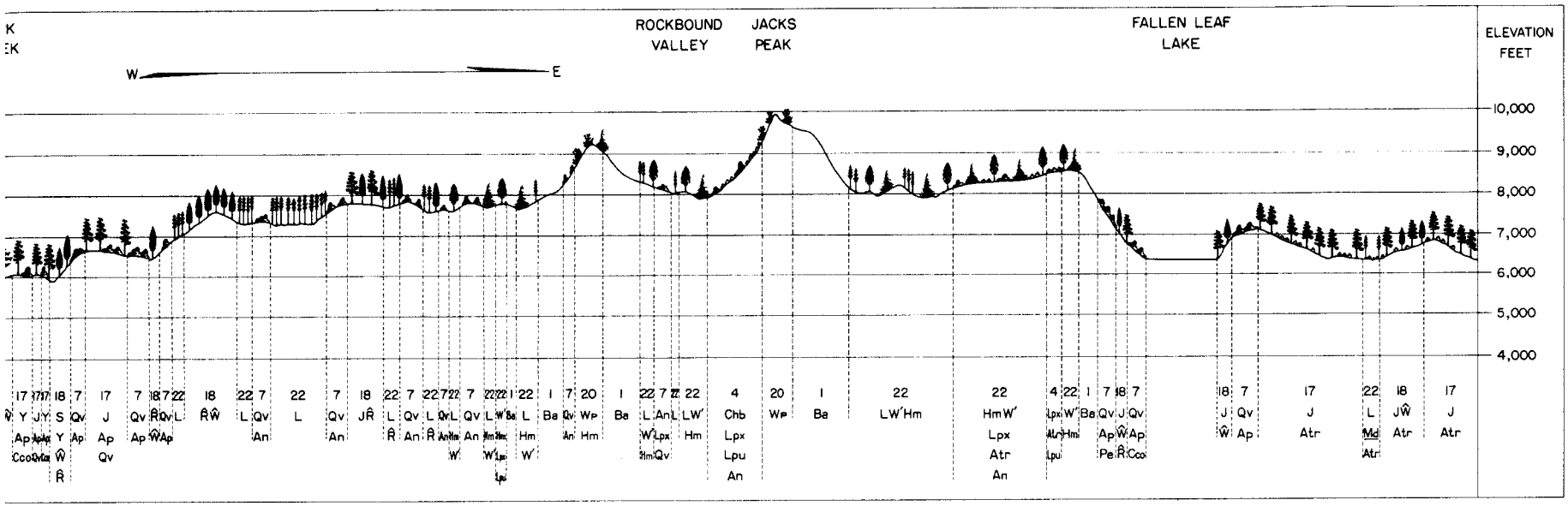

MOUNT
WATSON
LAKE
TAHOE
ELEVATION
FEET
9,000
8,000
7,000
6,000
5,000
4,000
3,000


PINE NUT
MOUNTAINS
ELEVATION
FEET
10,000
9,000
8,000
7,000
6,000
5,000
4,000

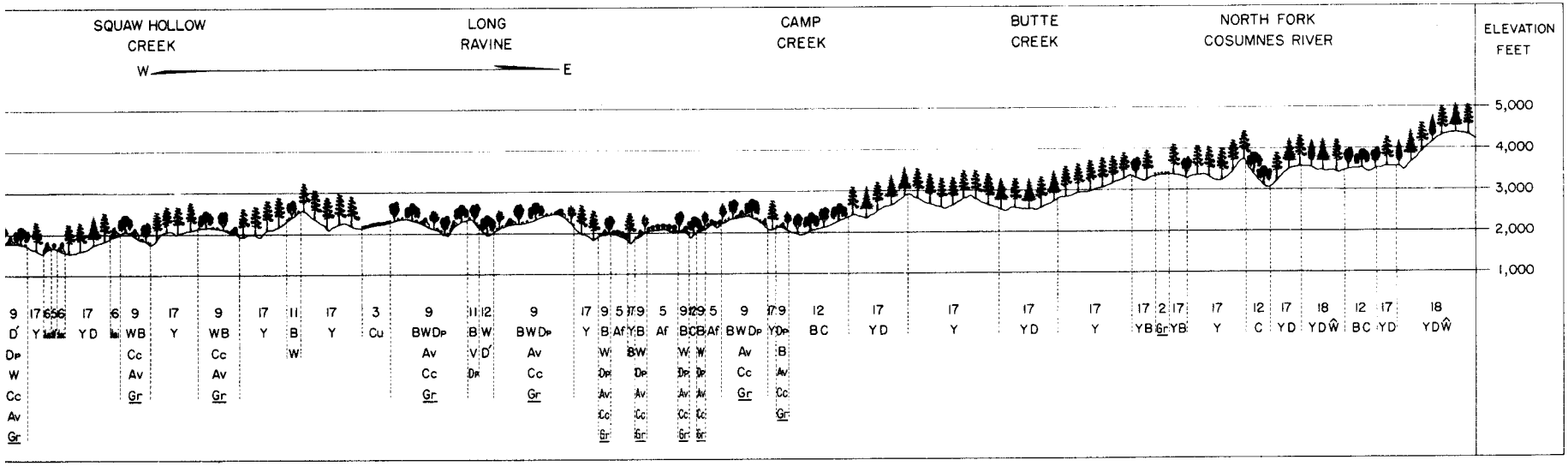

ELEVATION FEET
LITTLE SILVER CREEK
DEER KNOB
TELLS CREEK
NORTH F
SILVER CI
10,000
9,000
8,000
7,000
6,000
5,000
4,000


ELEVATION FEET
DEER CREEK
SHINGLE SPRINGS
LOGTOWN RAVINE
5,000
4,000
3,000
2,000
1,000

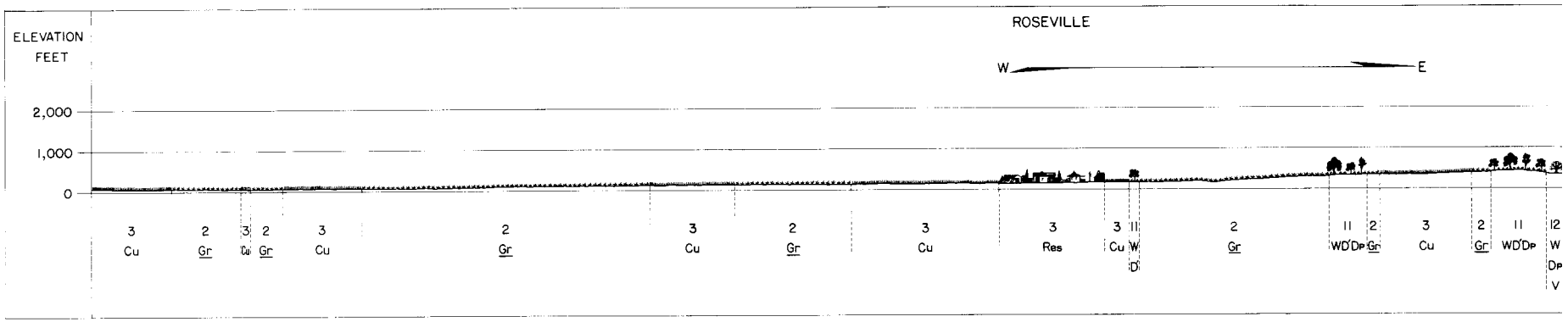
55 Pyramid Peak



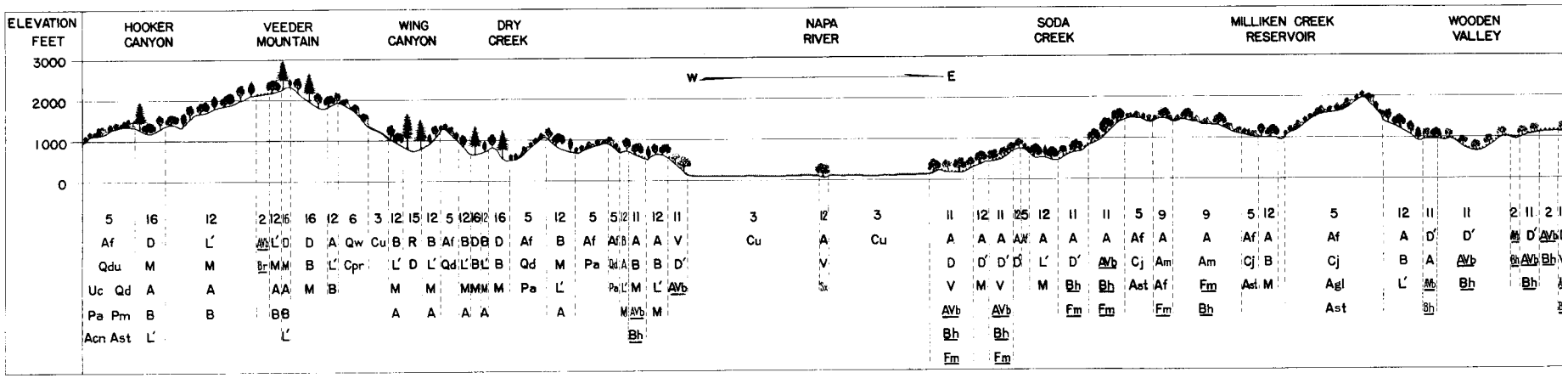
56 Placerville

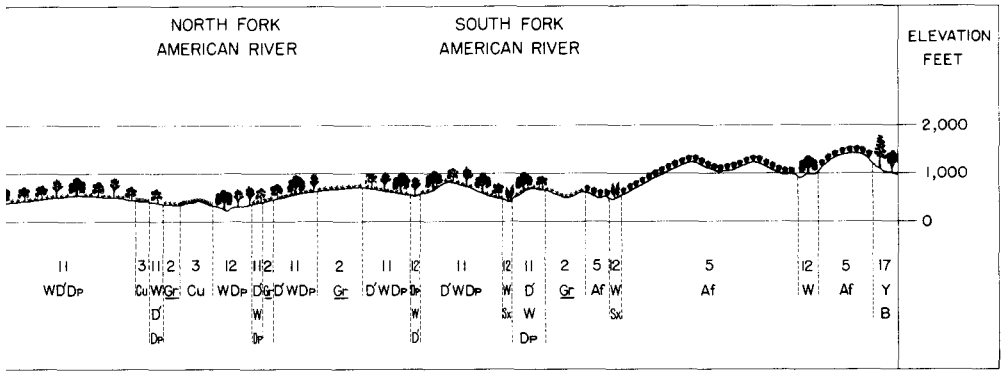


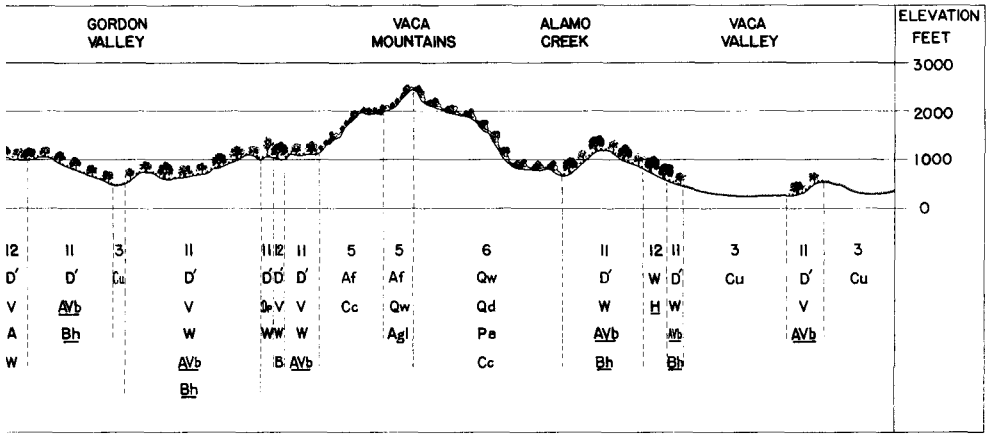
57 Sacramento

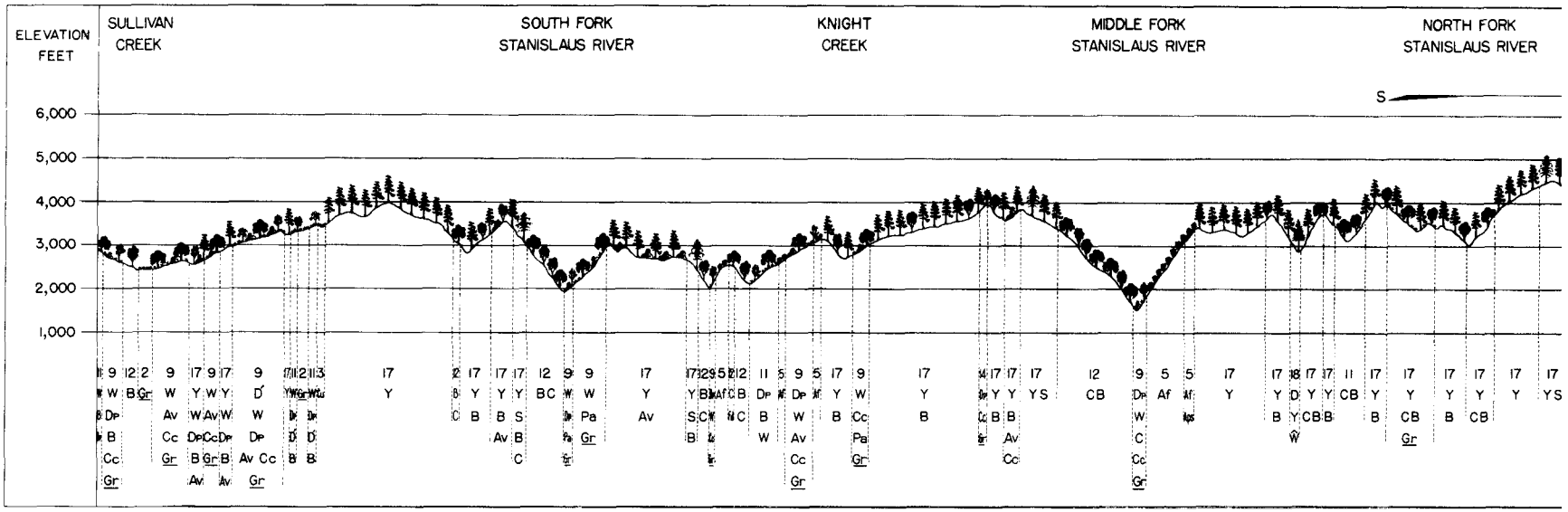


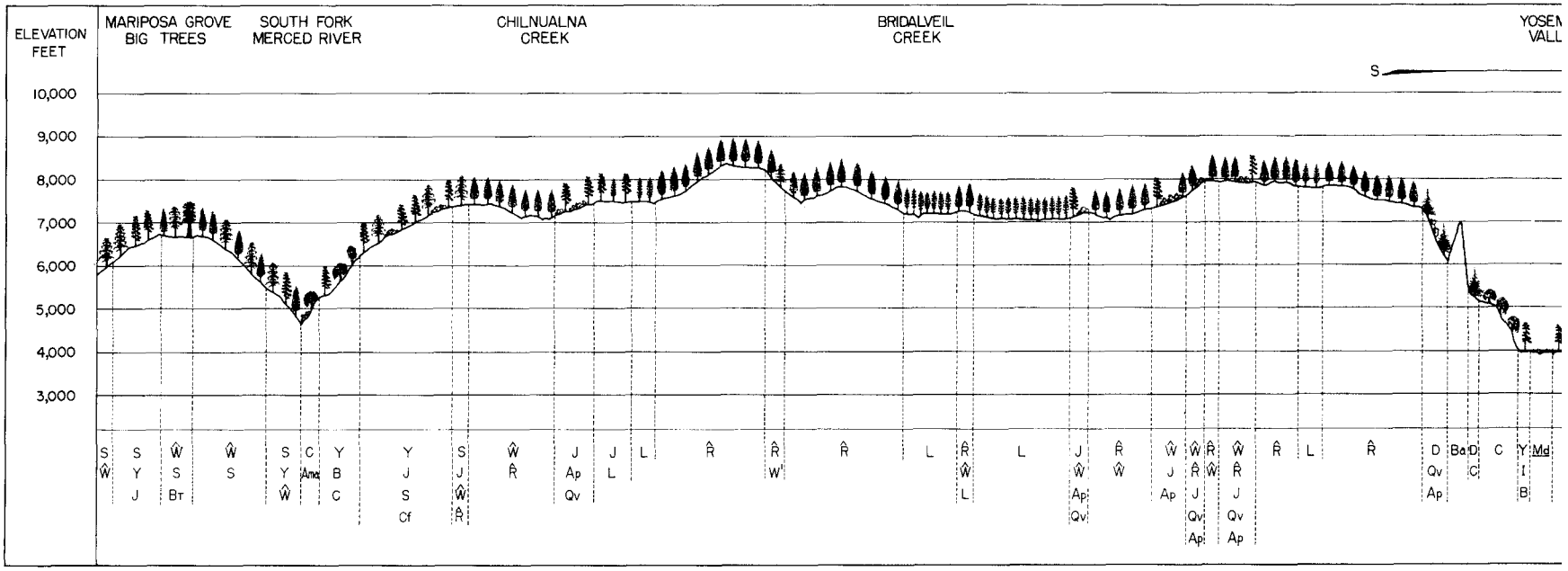
65 Napa



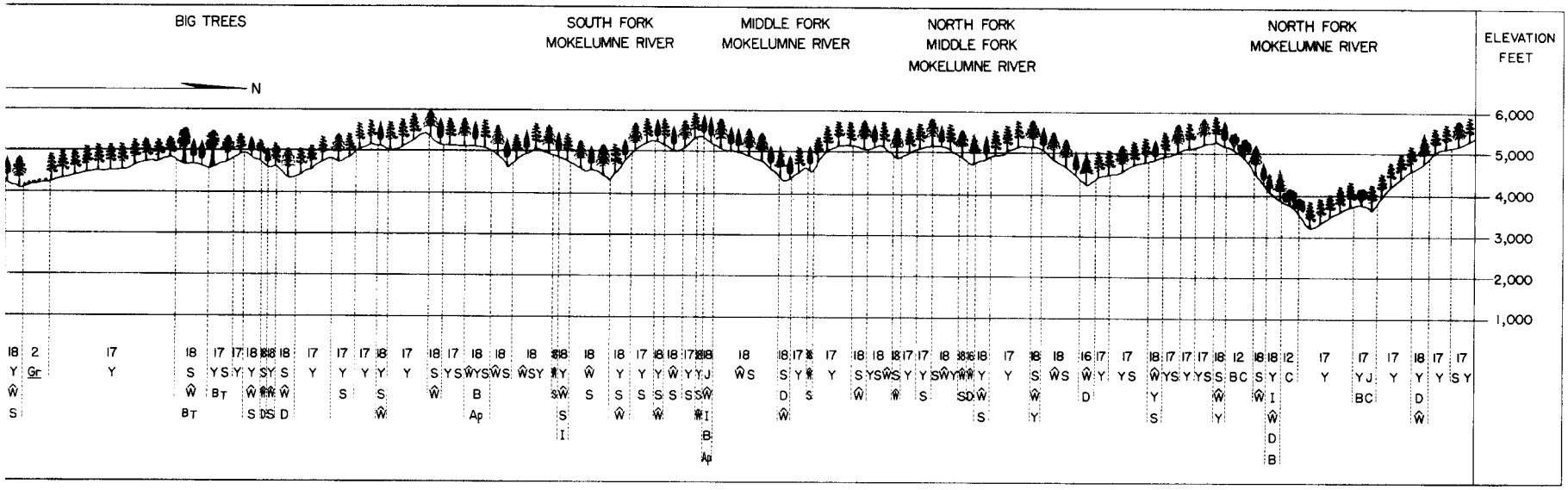

NORTH FORK
AMERICAN RIVER
SOUTH FORK
AMERICAN RIVER
ELEVATION
FEET
2,000
1,000
0


GORDON
VALLEY
VACA
MOUNTAINS
ALAMO
CREEK
VACA
VALLEY
ELEVATION
FEET
3000
2000
1000
0

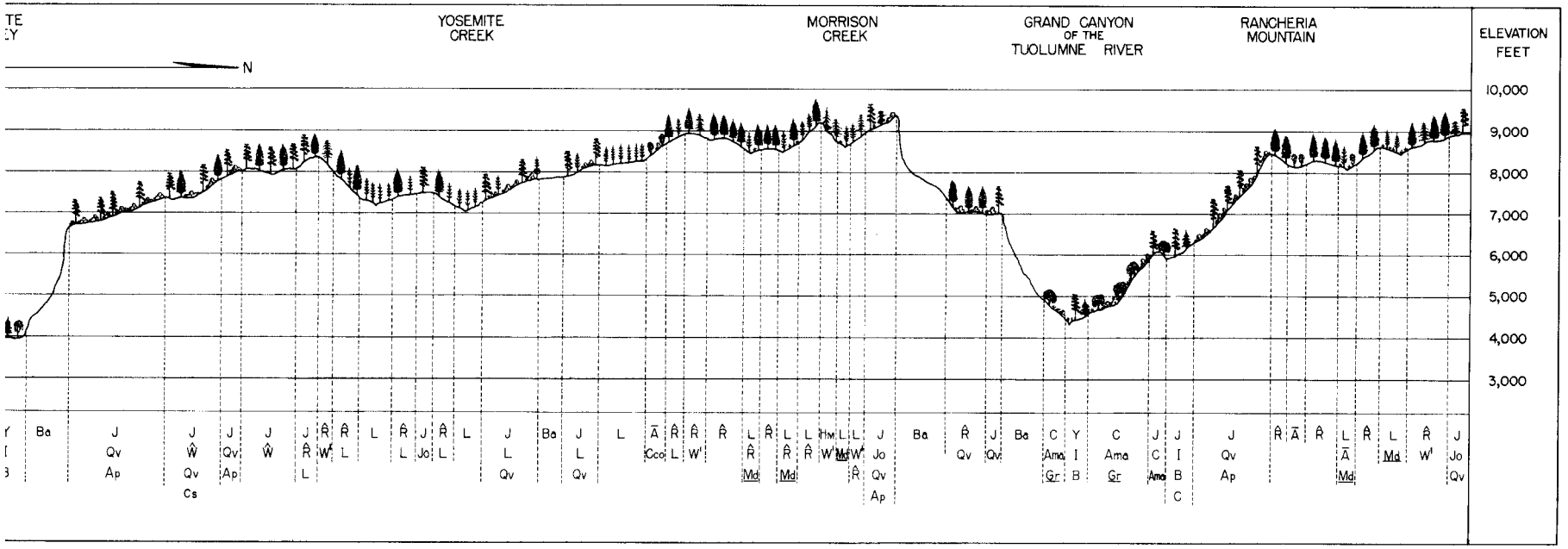

ELEVATION FEET
SULLIVAN CREEK
SOUTH FORK STANISLAUS RIVER
KNIGHT CREEK
MIDDLE FORK STANISLAUS RIVER
NORTH FORK STANISLAUS RIVER
6,000
5,000
4,000
3,000
2,000
1,000


ELEVATION FEET
MARIPOSA GROVE BIG TREES
SOUTH FORK MERCED RIVER
CHILNUALNA CREEK
BRIDALVEIL CREEK
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000

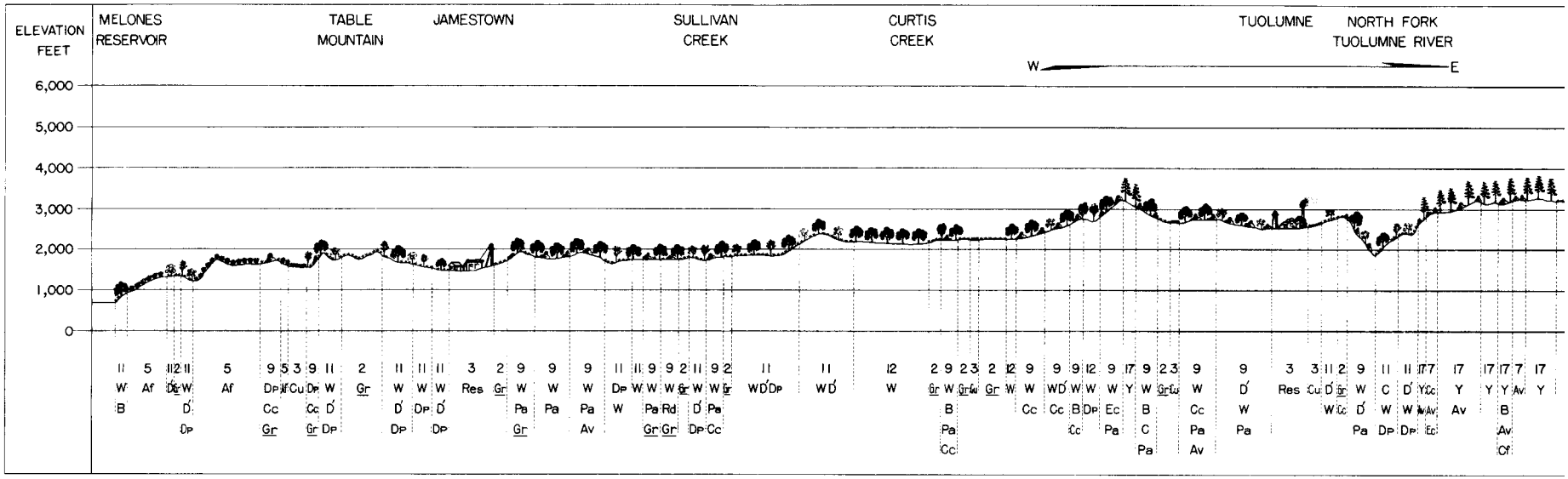
69 Big Trees



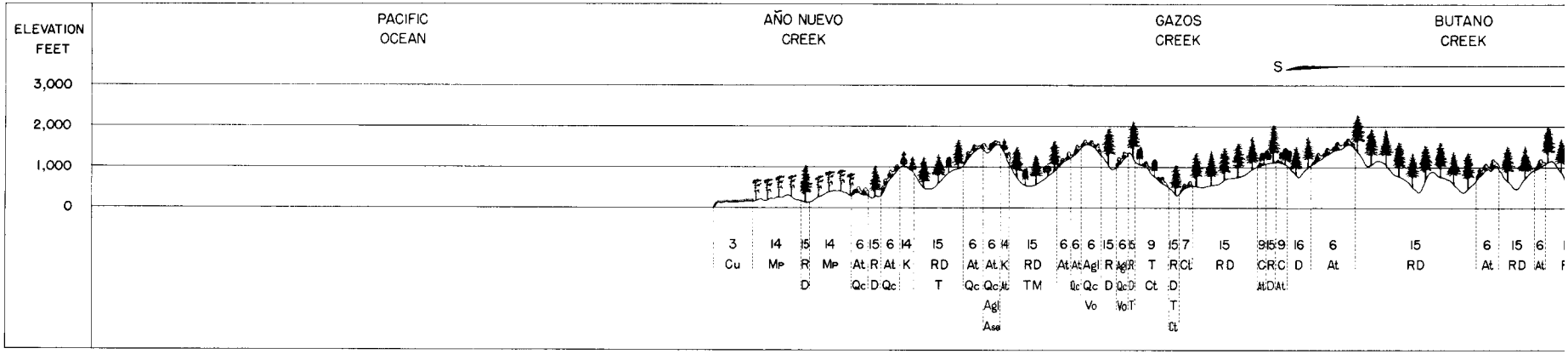
77 Yosemite

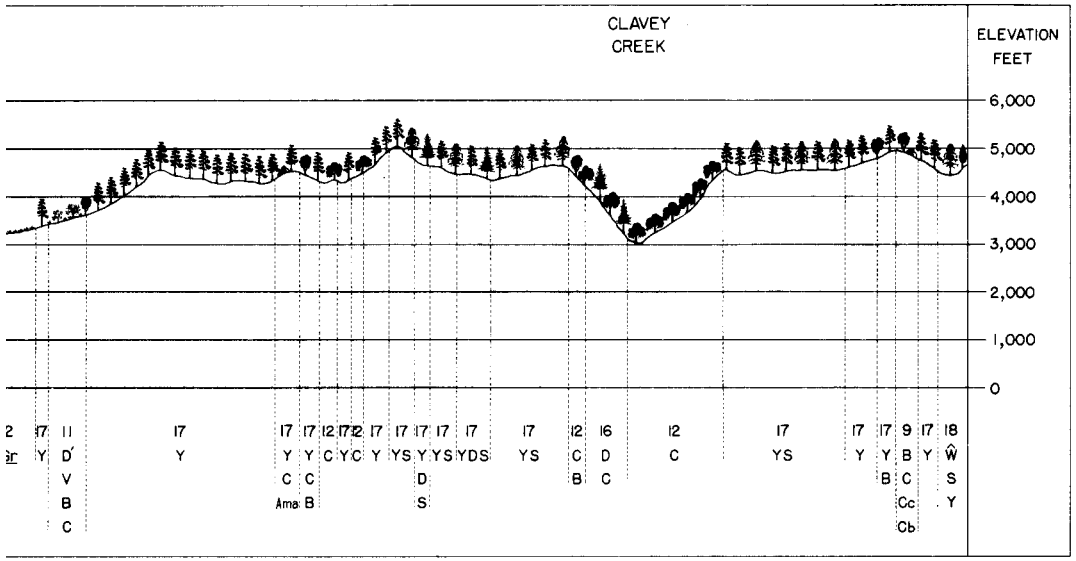


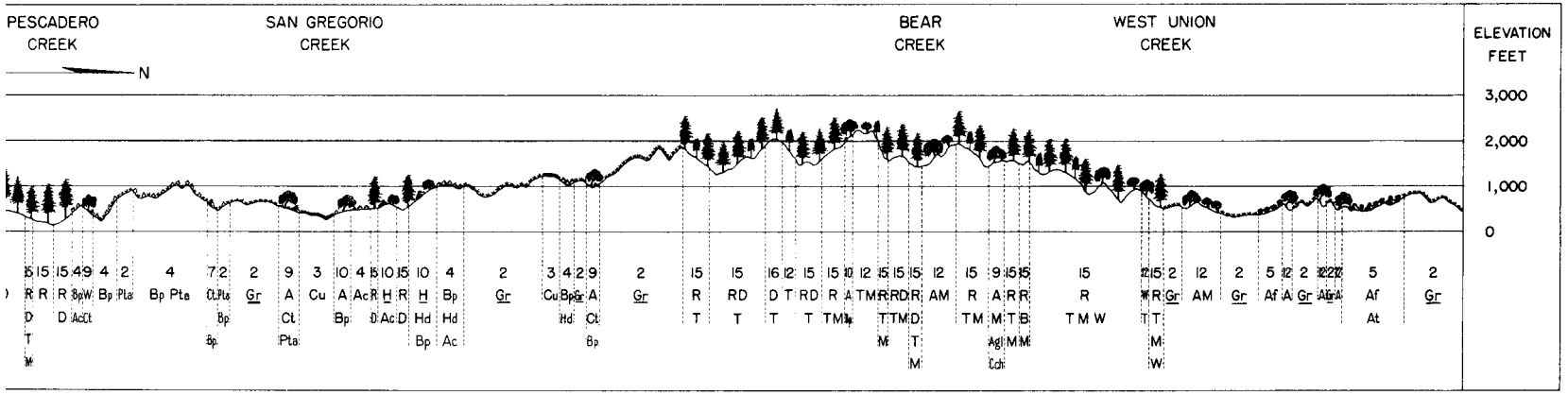
78 Sonora

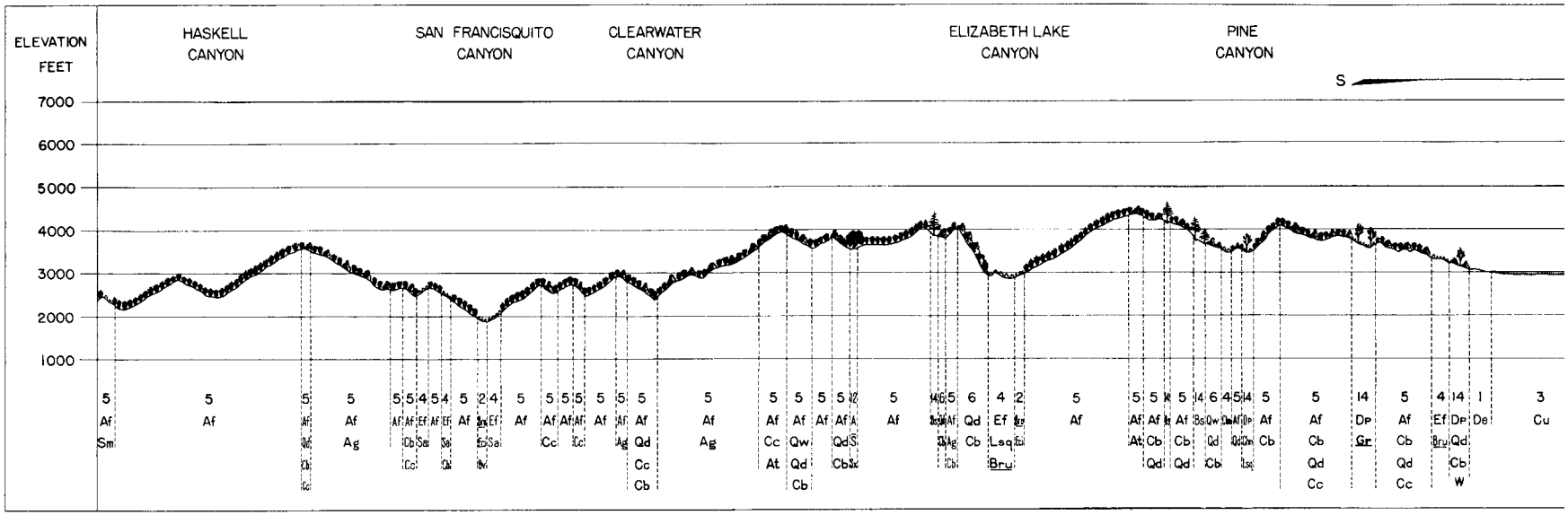


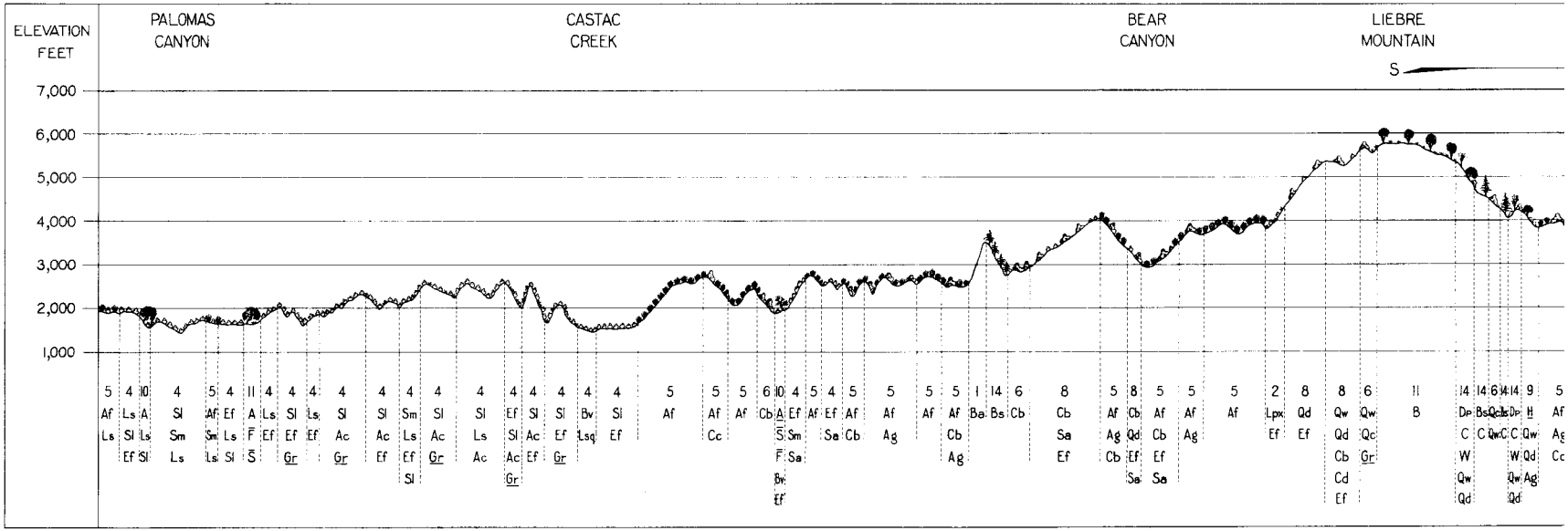
84 Santa Cruz



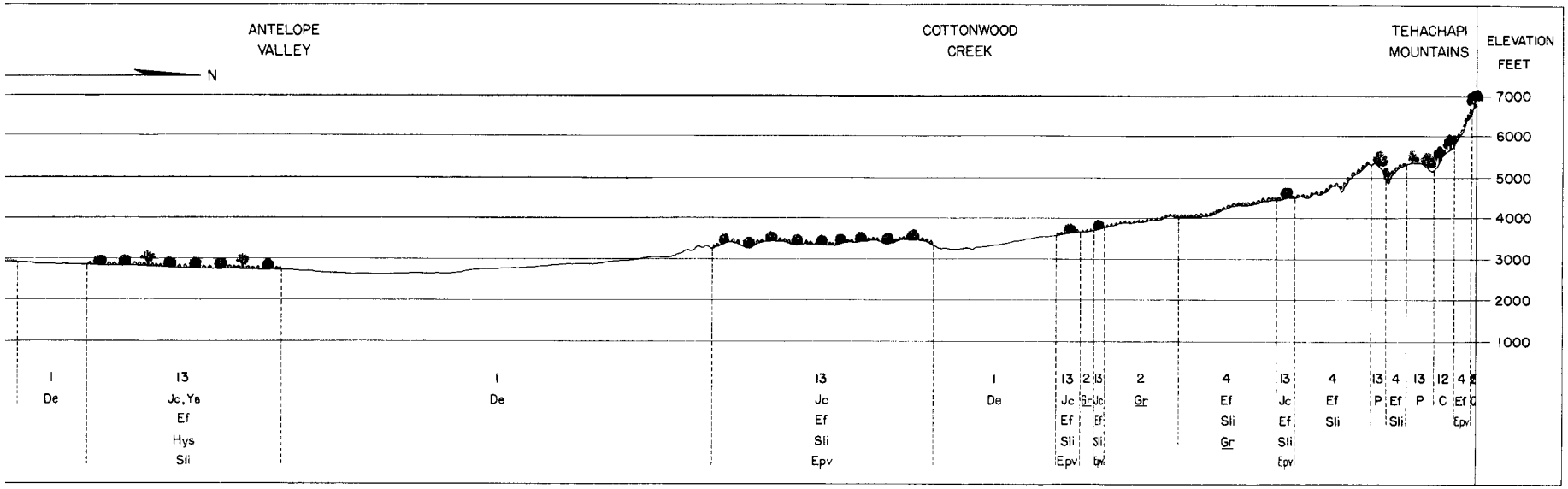

CLAVEY
CREEK
ELEVATION
FEET
6,000
5,000
4,000
3,000
2,000
1,000
0


PESCADERO
CREEK
SAN GREGORIO
CREEK
BEAR
CREEK
WEST UNION
CREEK
N
ELEVATION
FEET
3,000
2,000
1,000
0

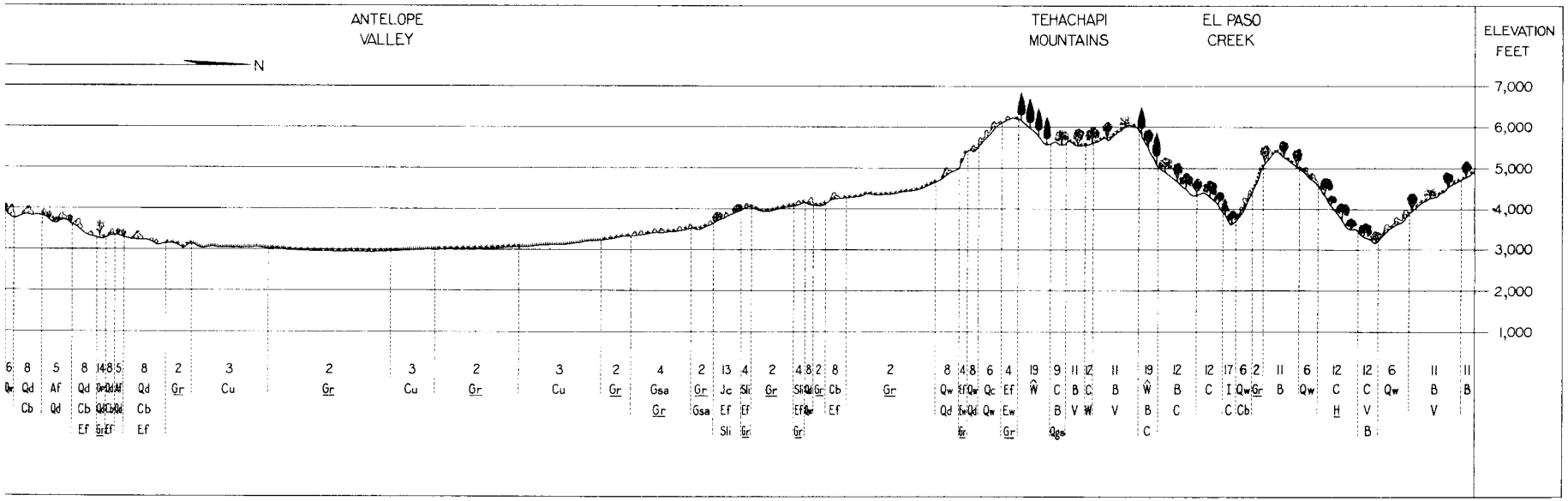

ELEVATION
FEET
HASKELL
CANYON
SAN FRANCISQUITO
CANYON
CLEARWATER
CANYON
ELIZABETH LAKE
CANYON
PINE
CANYON
S
7000
6000
5000
4000
3000
2000
1000

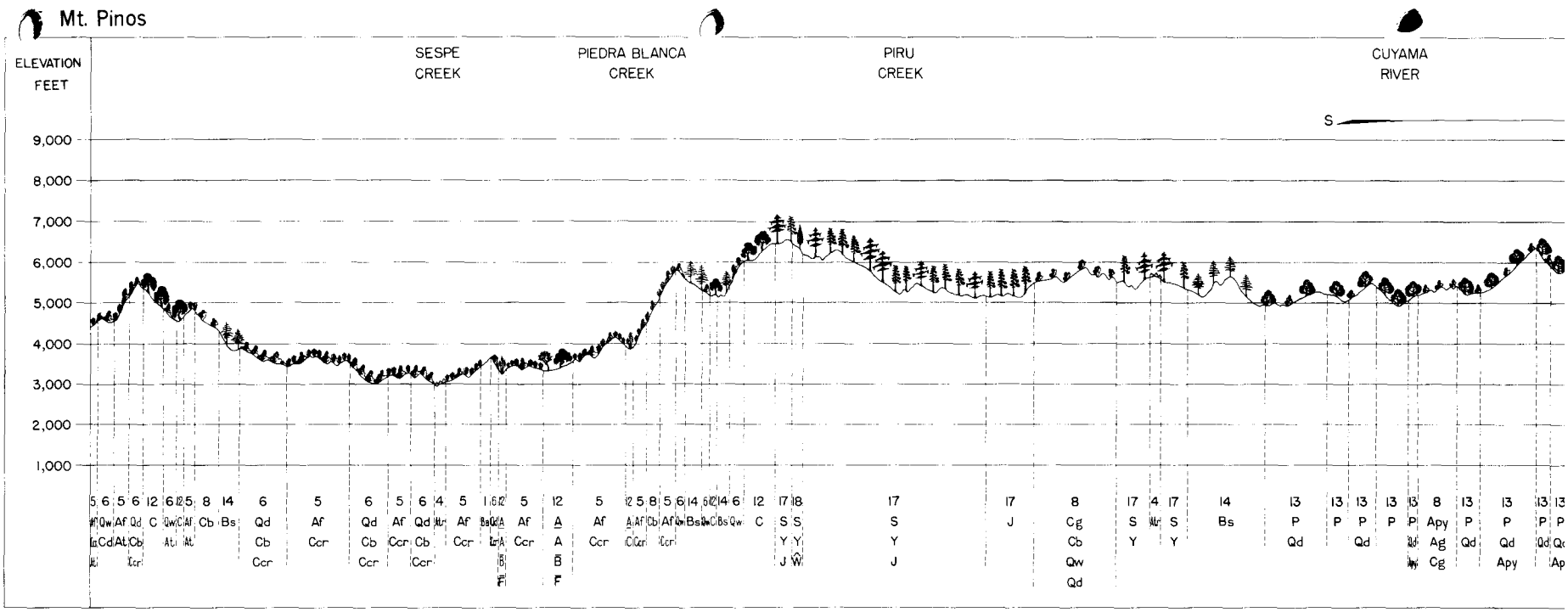

ELEVATION
FEET
PALOMAS
CANYON
CASTAC
CREEK
BEAR
CANYON
LIEBRE
MOUNTAIN
S
7,000
6,000
5,000
4,000
3,000
2,000
1,000

153 Elizabeth Lake

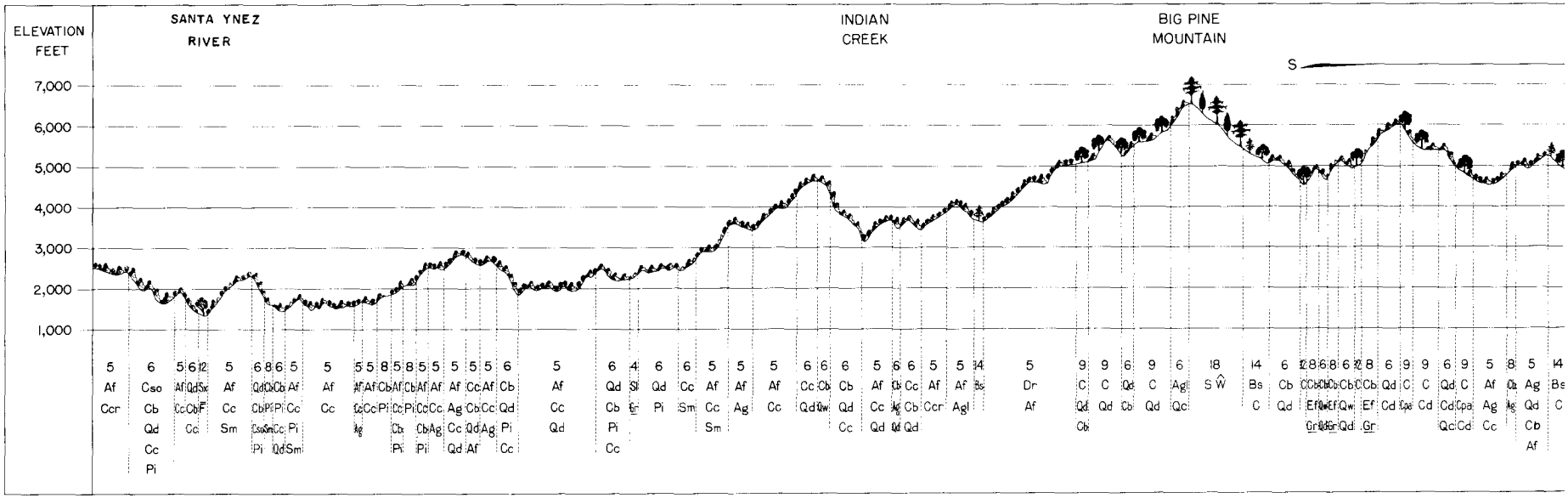


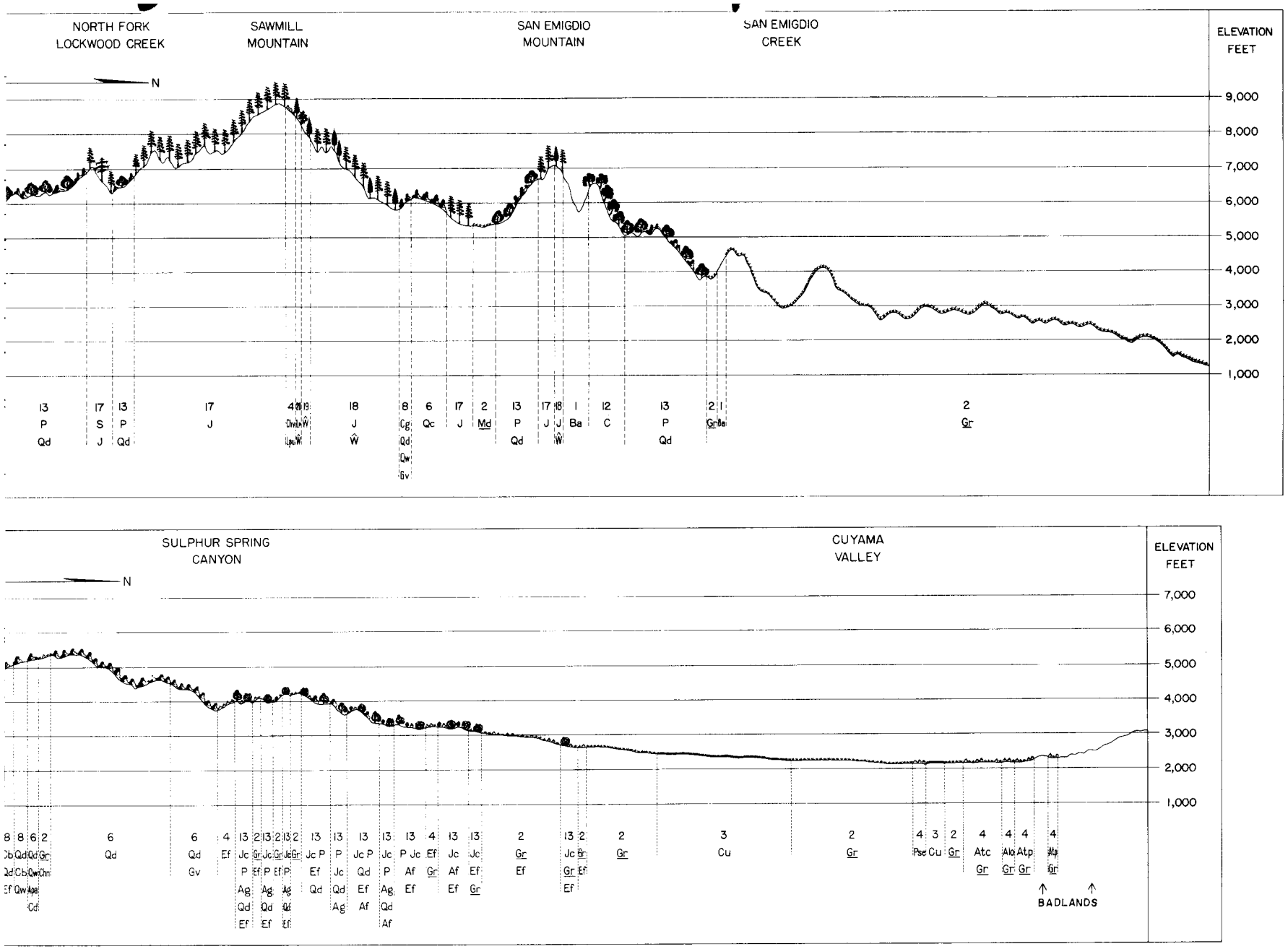
154 Tejon



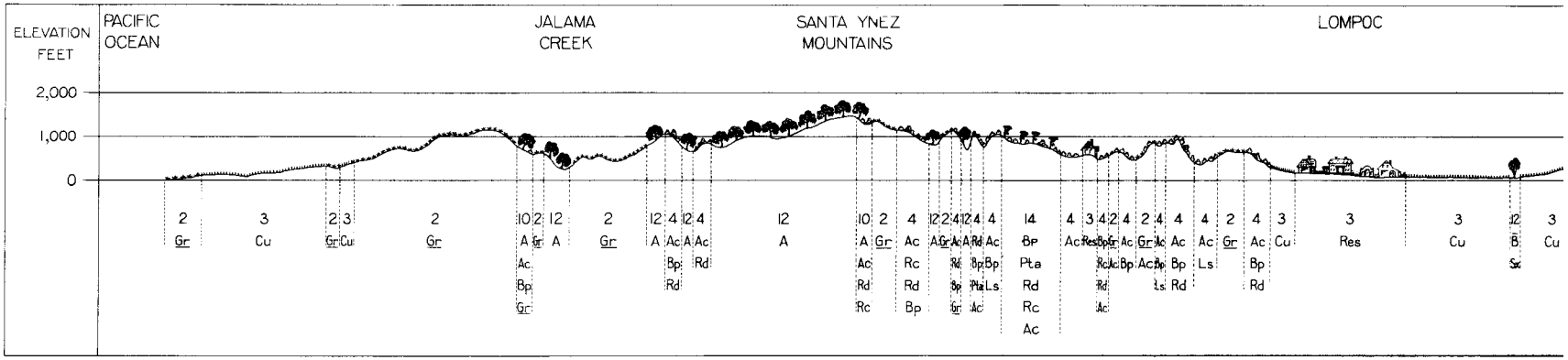


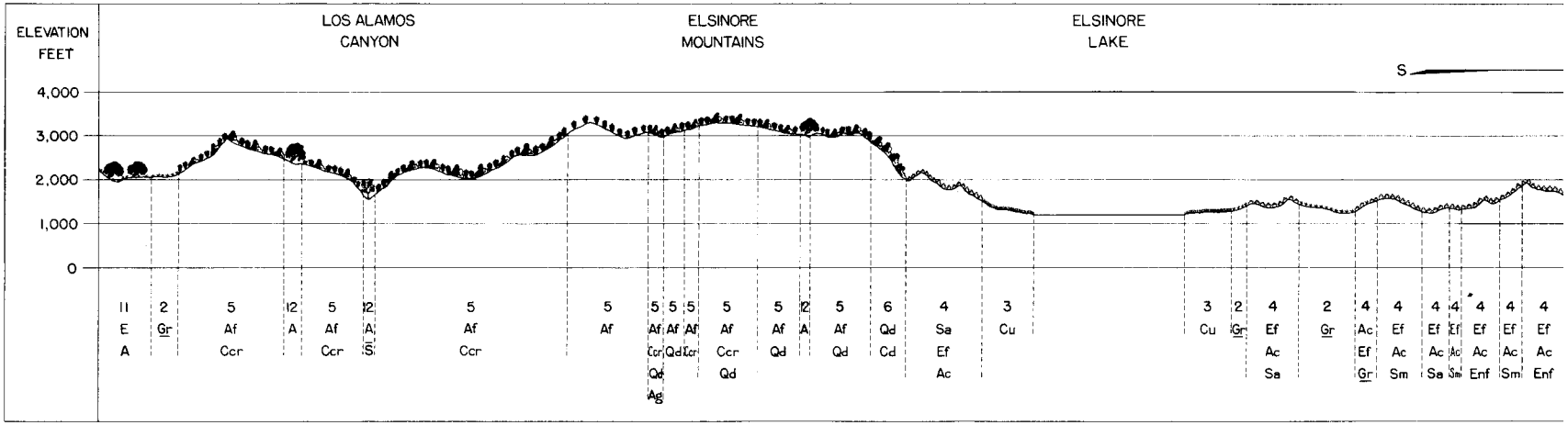
156 Santa Ynez



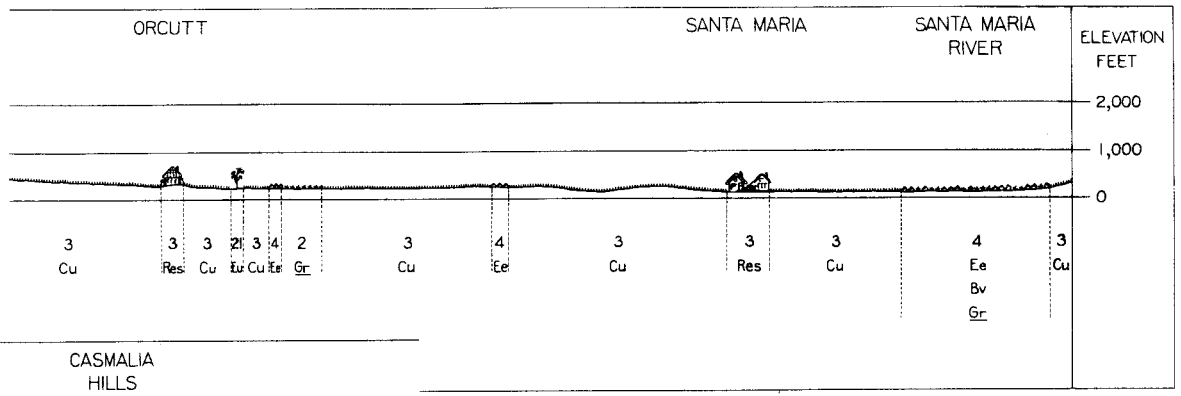

NORTH FORK
LOCKWOOD CREEK
SAWMILL
MOUNTAIN
SAN EMIGDIO
MOUNTAIN
SAN EMIGDIO
CREEK
ELEVATION
FEET
N
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000

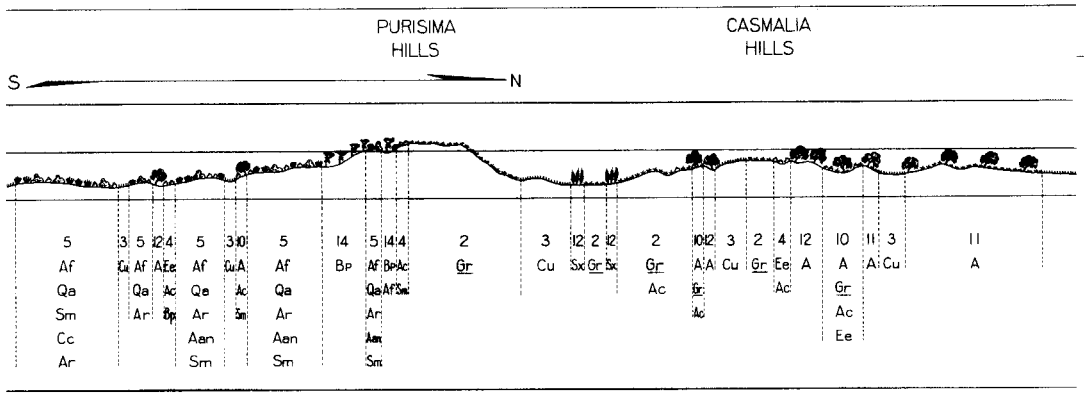
SULPHUR SPRING
CANYON
CUYAMA
VALLEY
ELEVATION
FEET
N
7,000
6,000
5,000
4,000
3,000
2,000
1,000
BADLANDS


ELEVATION FEET
PACIFIC OCEAN
JALAMA CREEK
SANTA YNEZ MOUNTAINS
LOMPOC
2,000
1,000
0

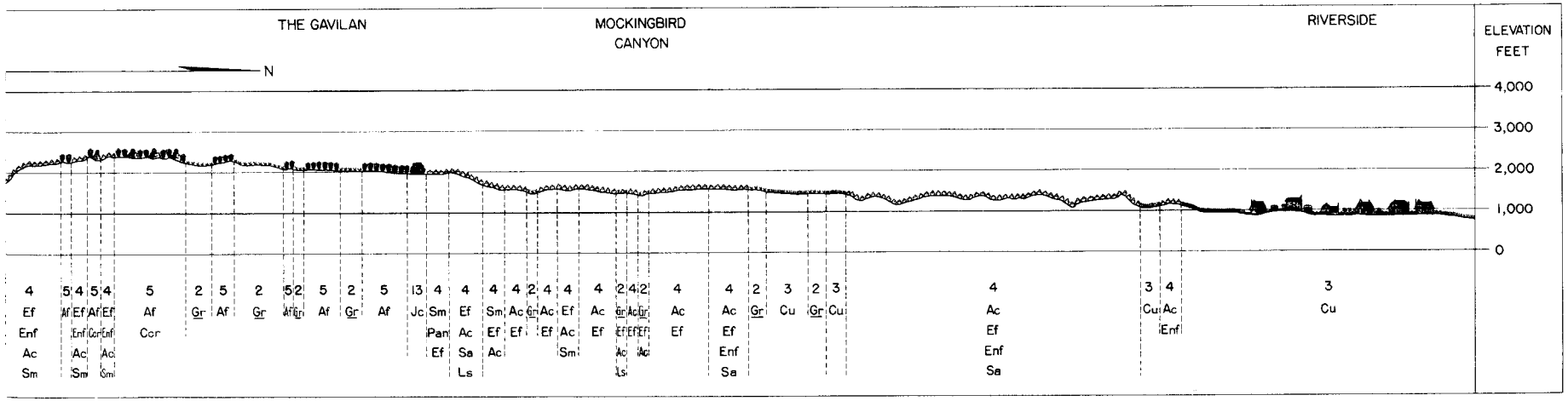

ELEVATION FEET
LOS ALAMOS CANYON
ELSINORE MOUNTAINS
ELSINORE LAKE
S
4,000
3,000
2,000
1,000
0

157 Lompoc

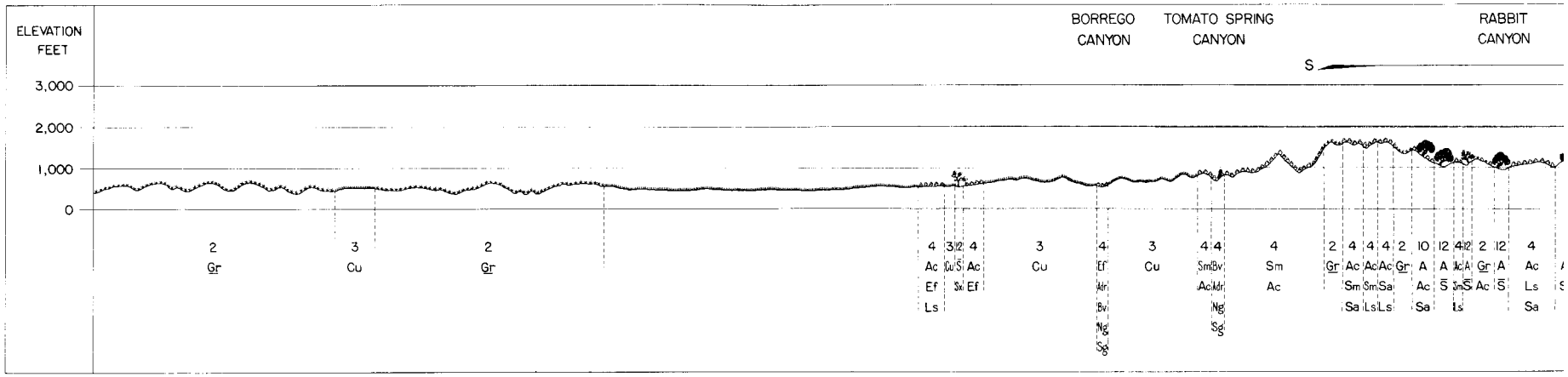




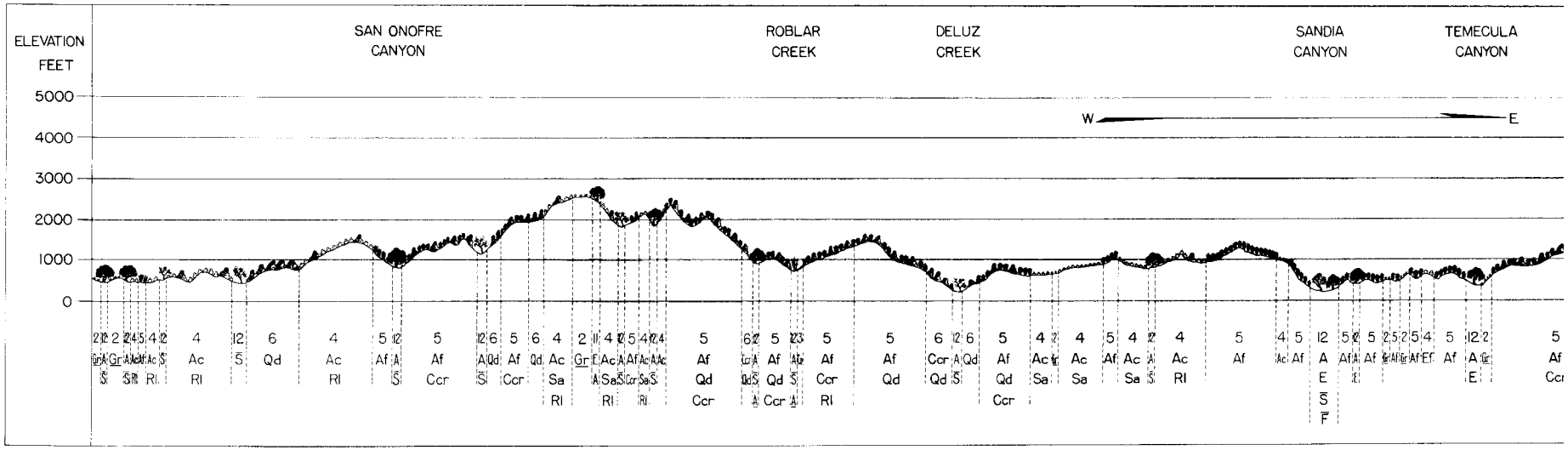
176 Elsinore

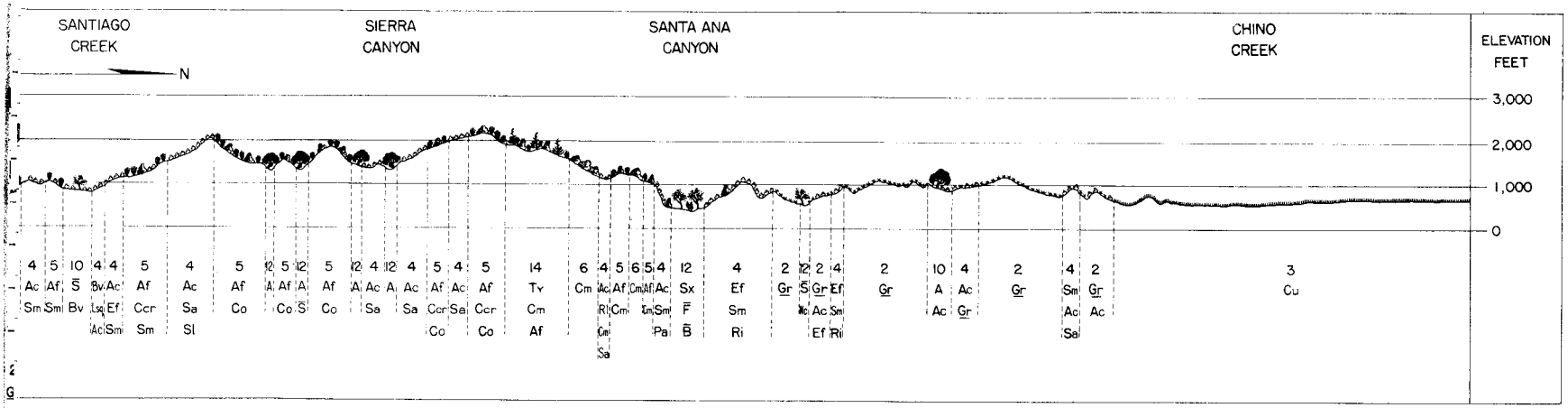


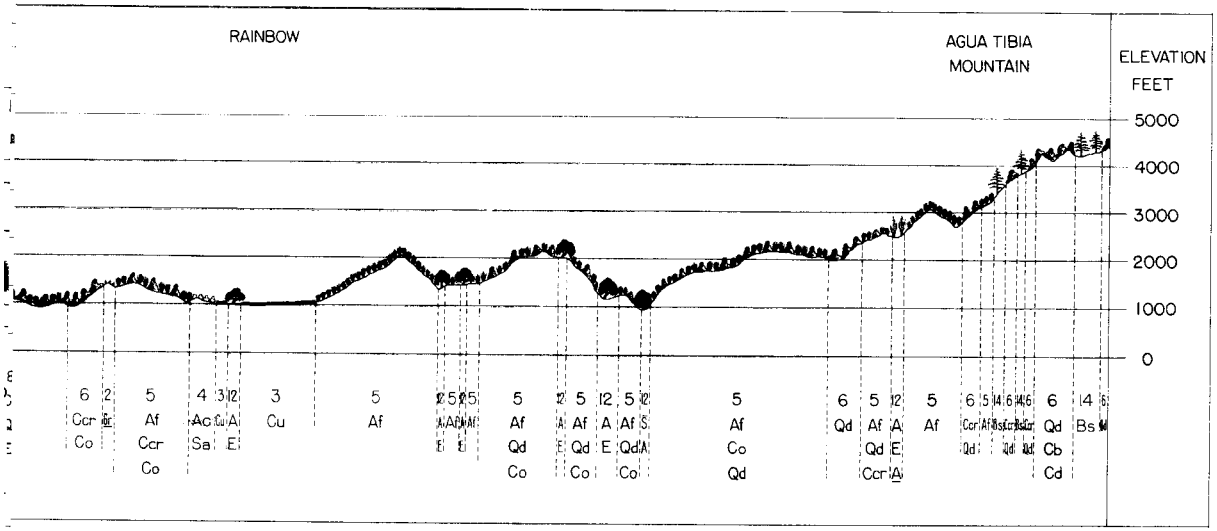
177 Corona

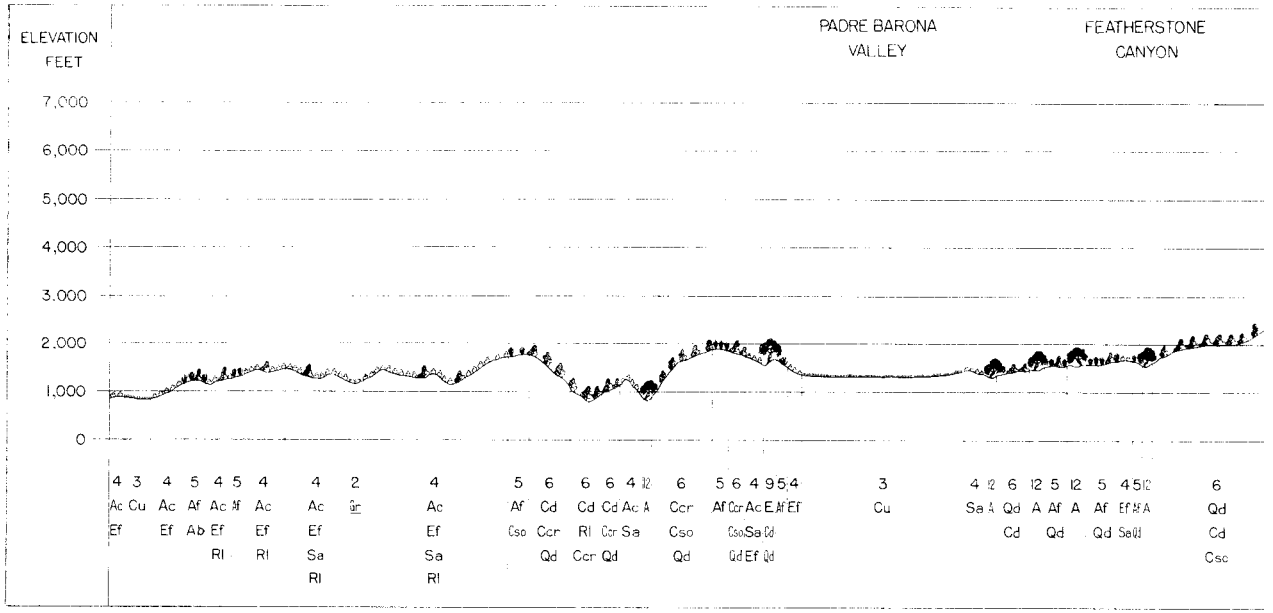


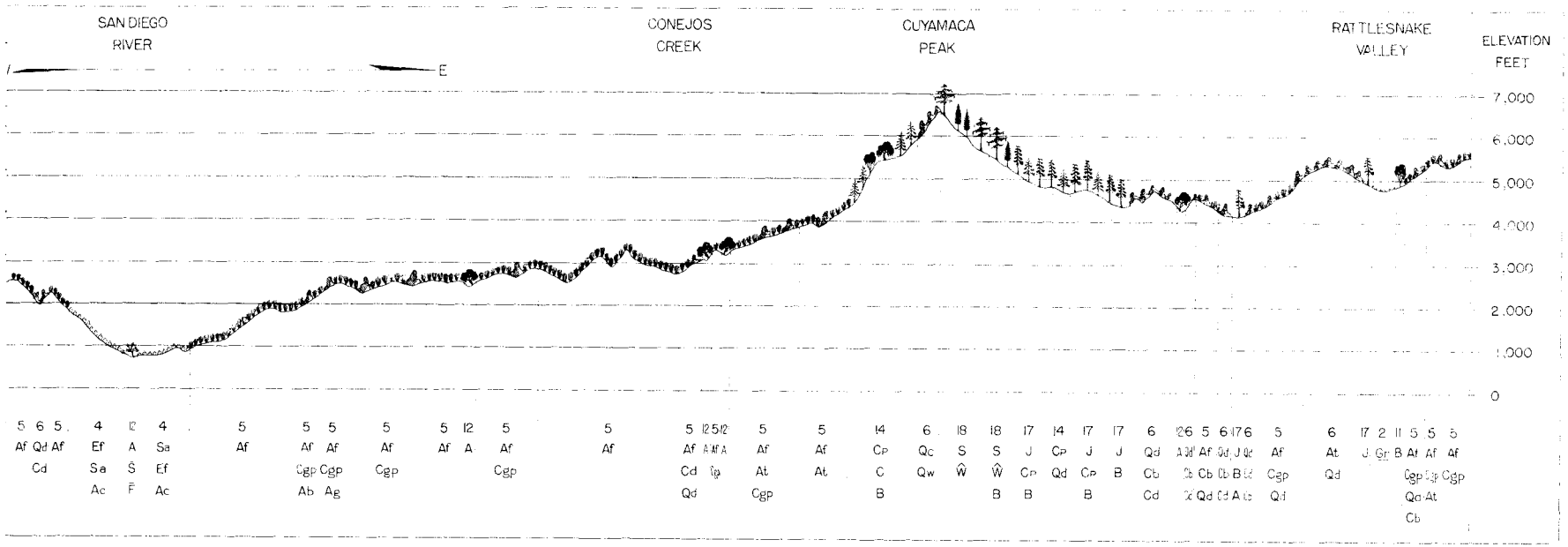
180 San Luis Rey



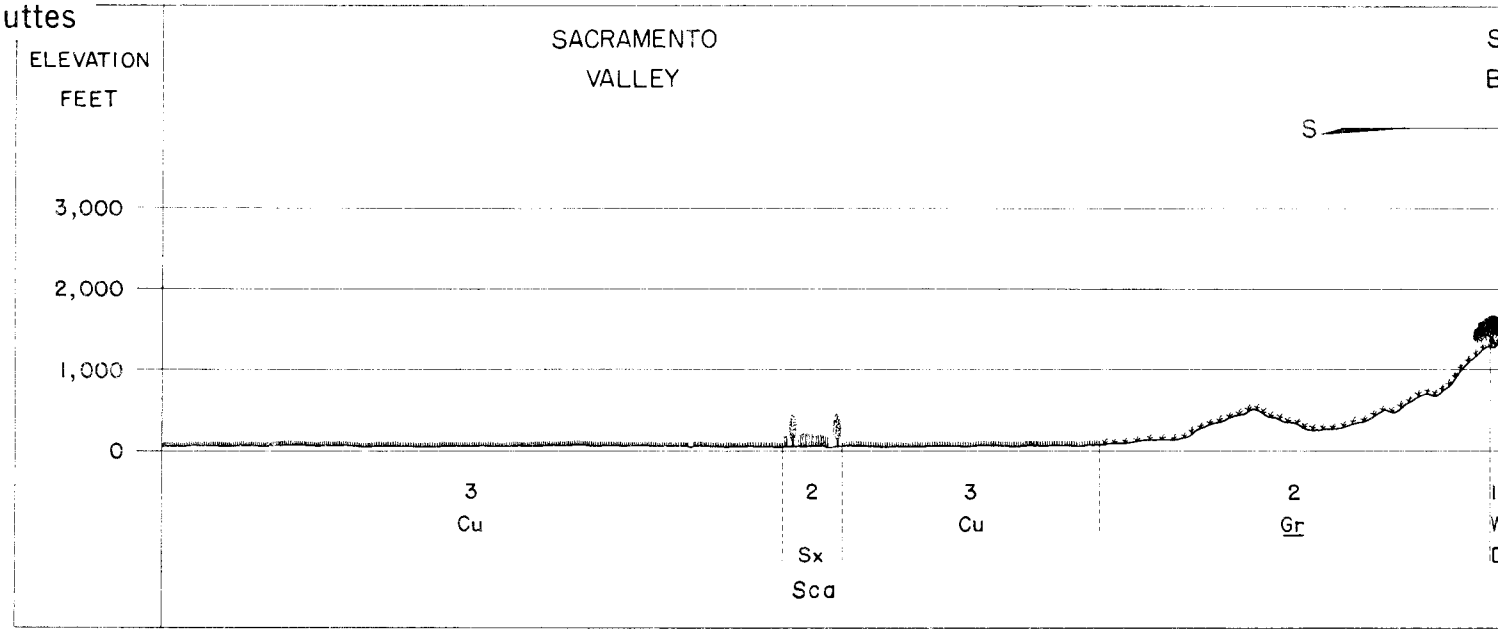

SANTIAGO CREEK
SIERRA CANYON
SANTA ANA CANYON
CHINO CREEK
N
ELEVATION FEET
3,000
2,000
1,000
0


RAINBOW
AGUA TIBIA MOUNTAIN
ELEVATION FEET
5000
4000
3000
2000
1000
0

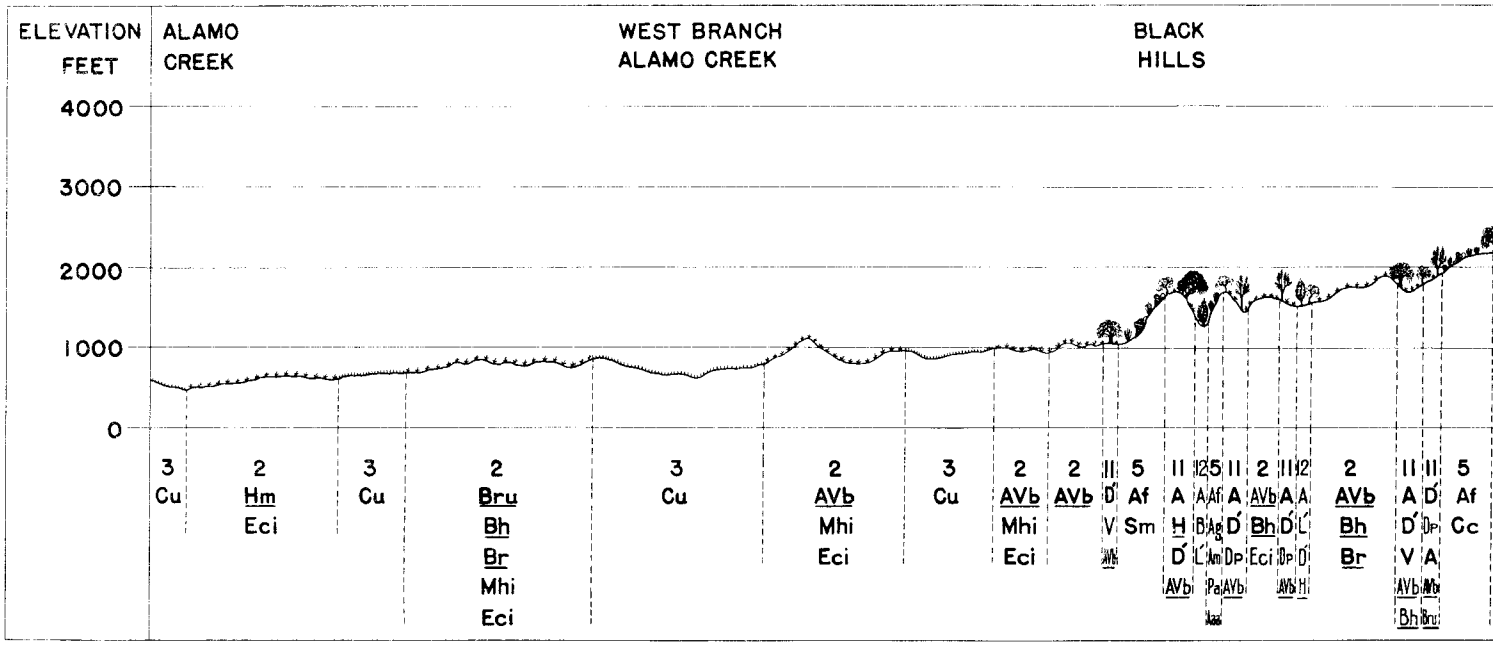

ELEVATION
FEET
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
PADRE BARONA
VALLEY
FEATHERSTONE
CANYON

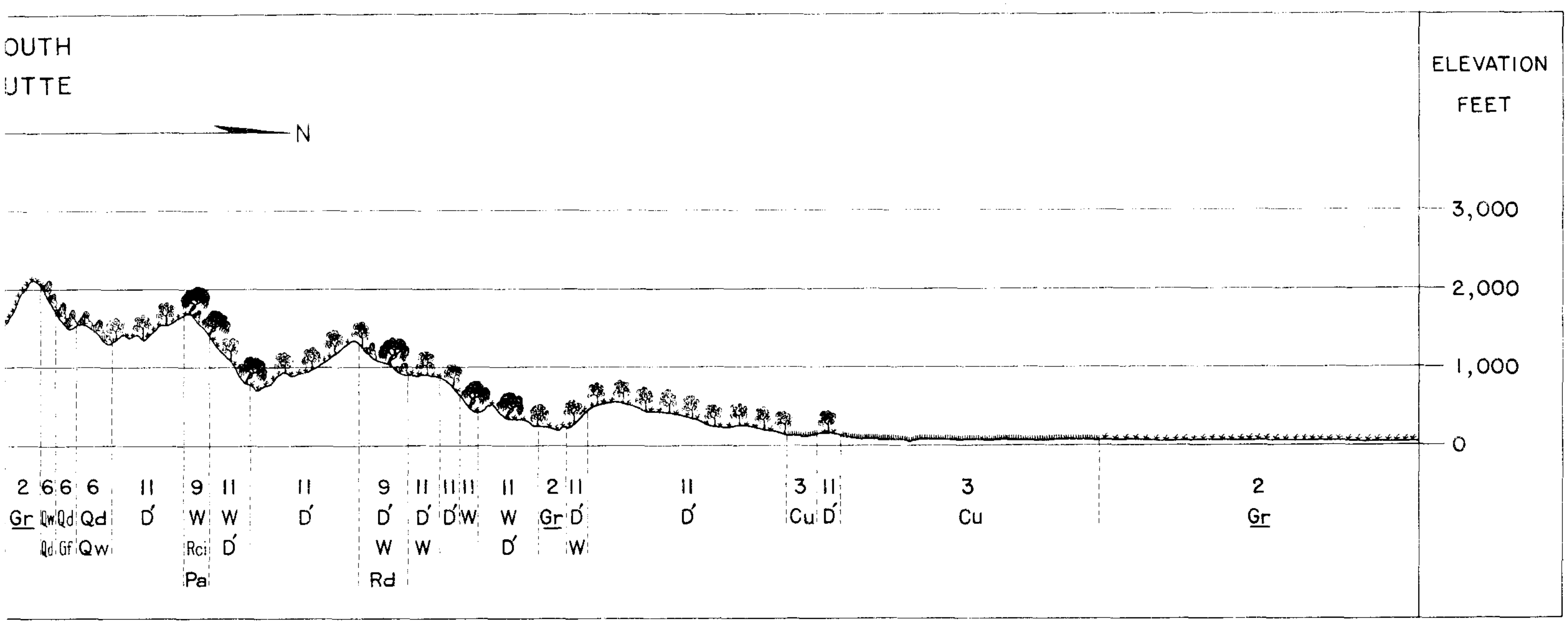

SAN DIEGO RIVER
CONEJOS CREEK
CUYAMACA PEAK
RATTLESNAKE VALLEY
ELEVATION FEET
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0

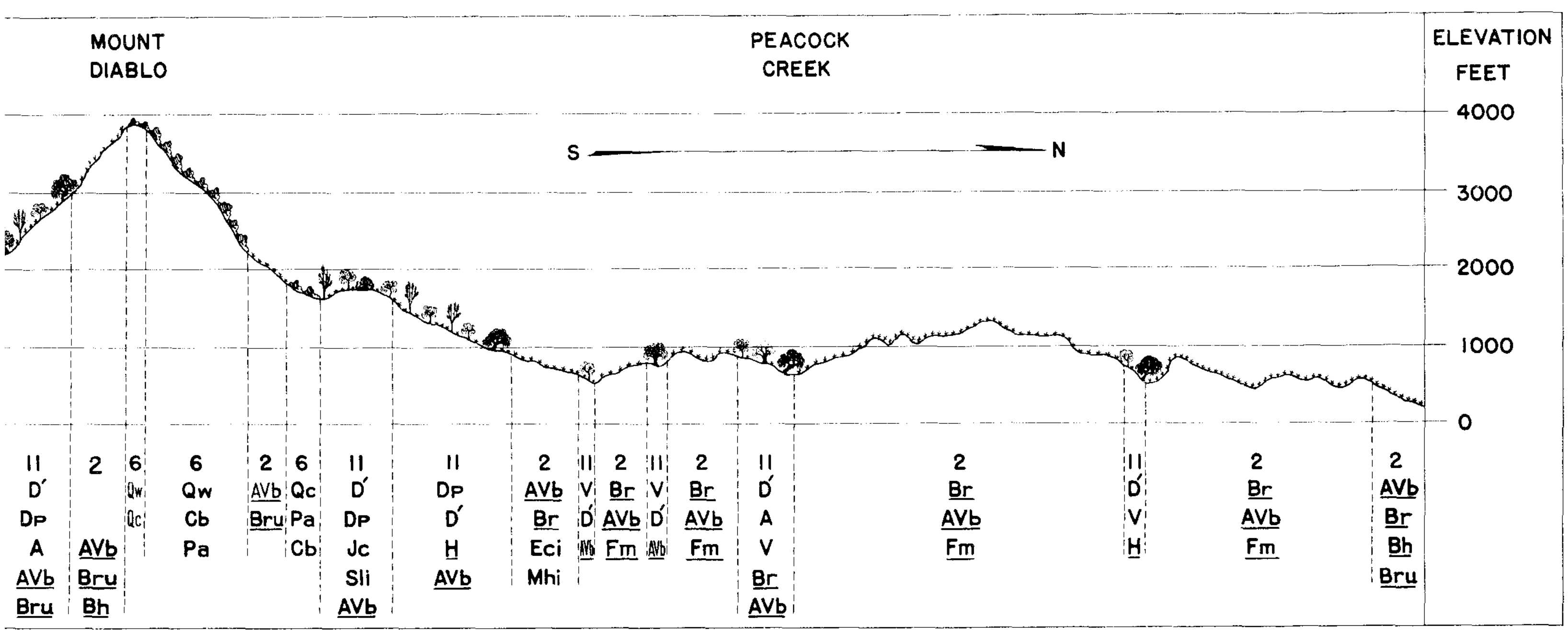
49E Marysville Buttes

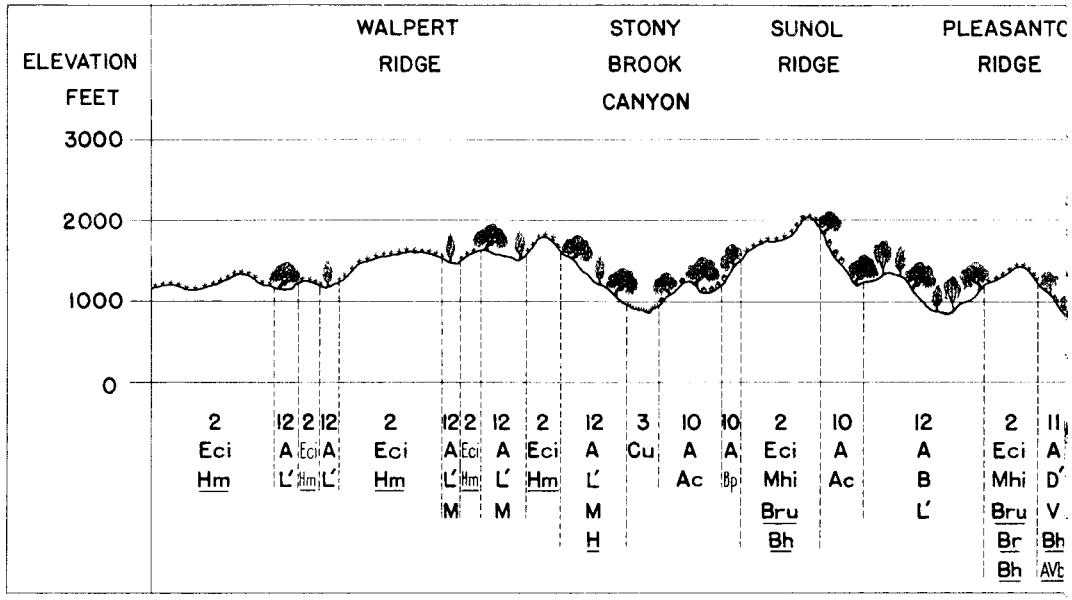


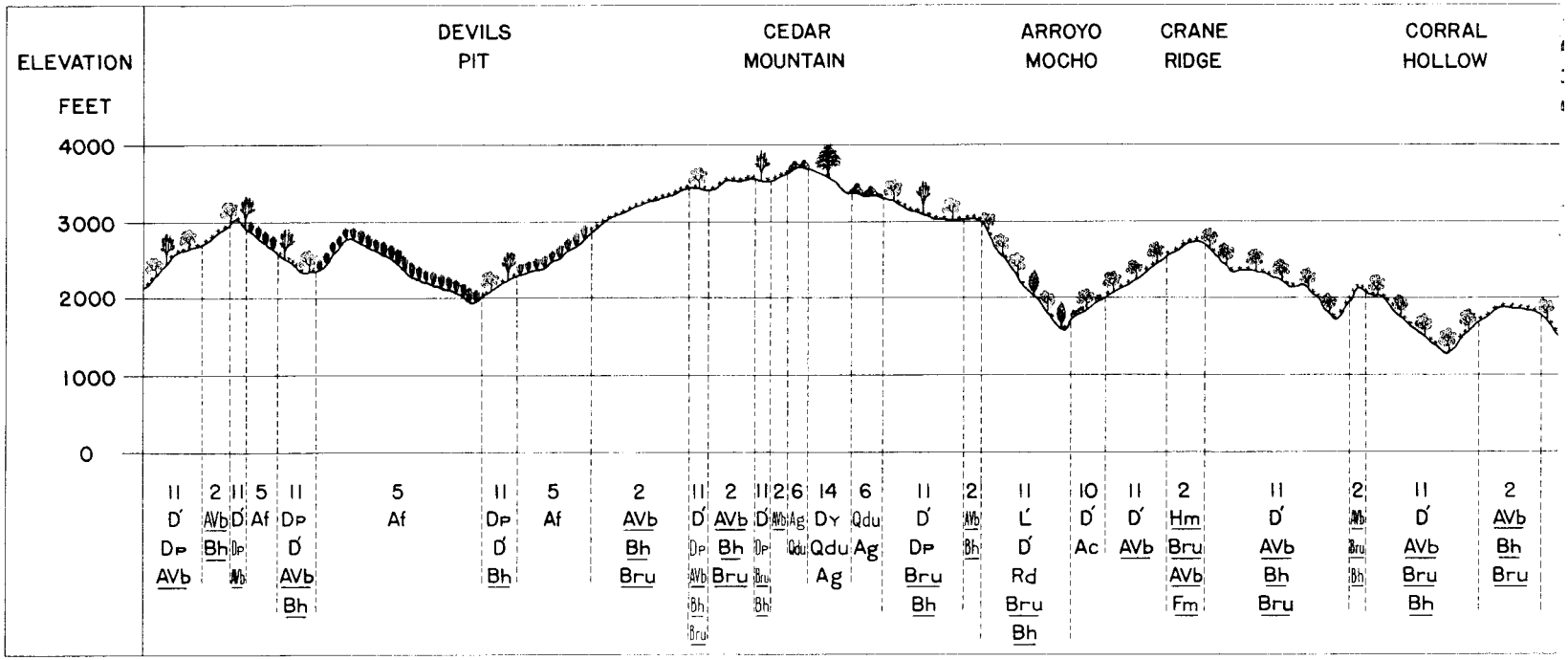
81B Mt. Diablo

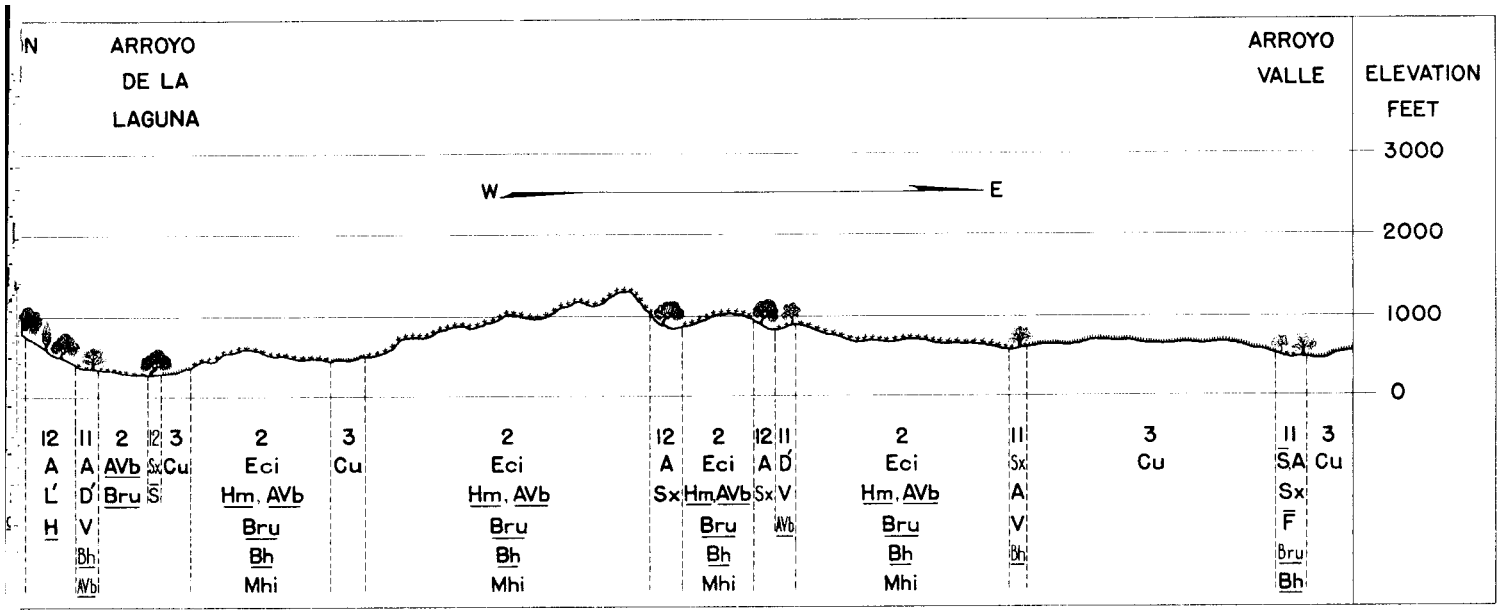



OUTH
UTTE
N
ELEVATION
FEET
3,000
2,000
1,000
0
Gr
Qd
Qw
D́
W
Rci
Pa
Rd
Cu

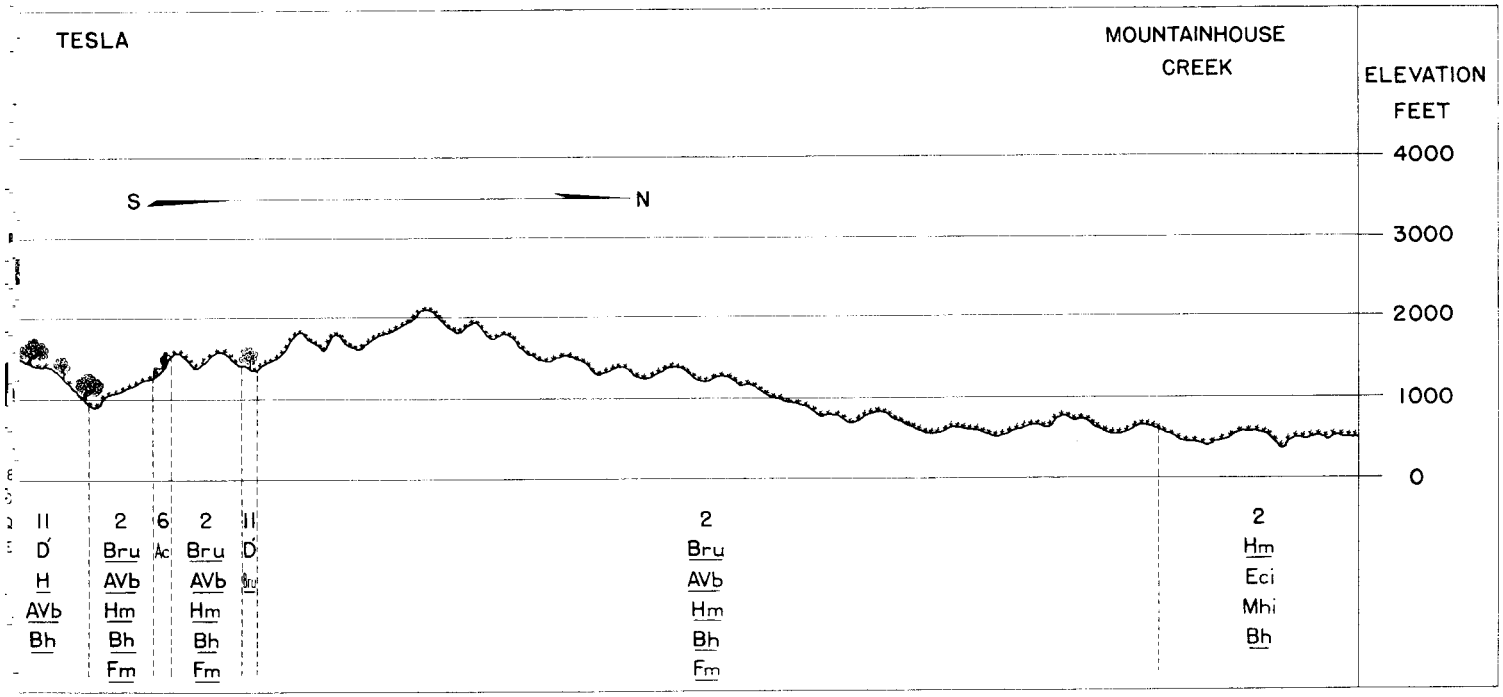

MOUNT
DIABLO
PEACOCK
CREEK
S
N
ELEVATION
FEET
4000
3000
2000
1000
0
D́
Dp
A
AVb
Bru
Bh
Qw
Qc
Cb
Pa
Jc
Sli
H
Br
Eci
Mhi
V
Fm


ELEVATION
FEET
3000
2000
1000
0
WALPERT
RIDGE
STONY
BROOK
CANYON
SUNOL
RIDGE
PLEASANTO
RIDGE


ELEVATION
FEET
4000
3000
2000
1000
0
DEVILS
PIT
CEDAR
MOUNTAIN
ARROYO
MOCHO
CRANE
RIDGE
CORRAL
HOLLOW

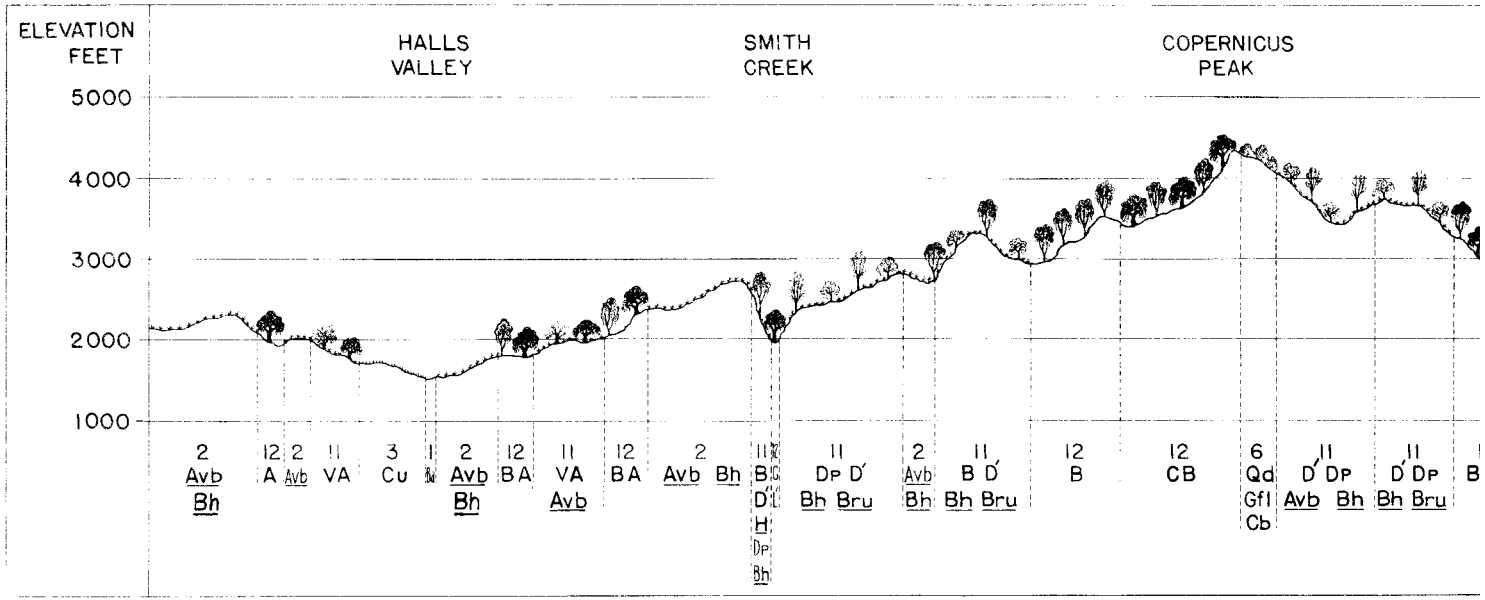


81C Pleasanton

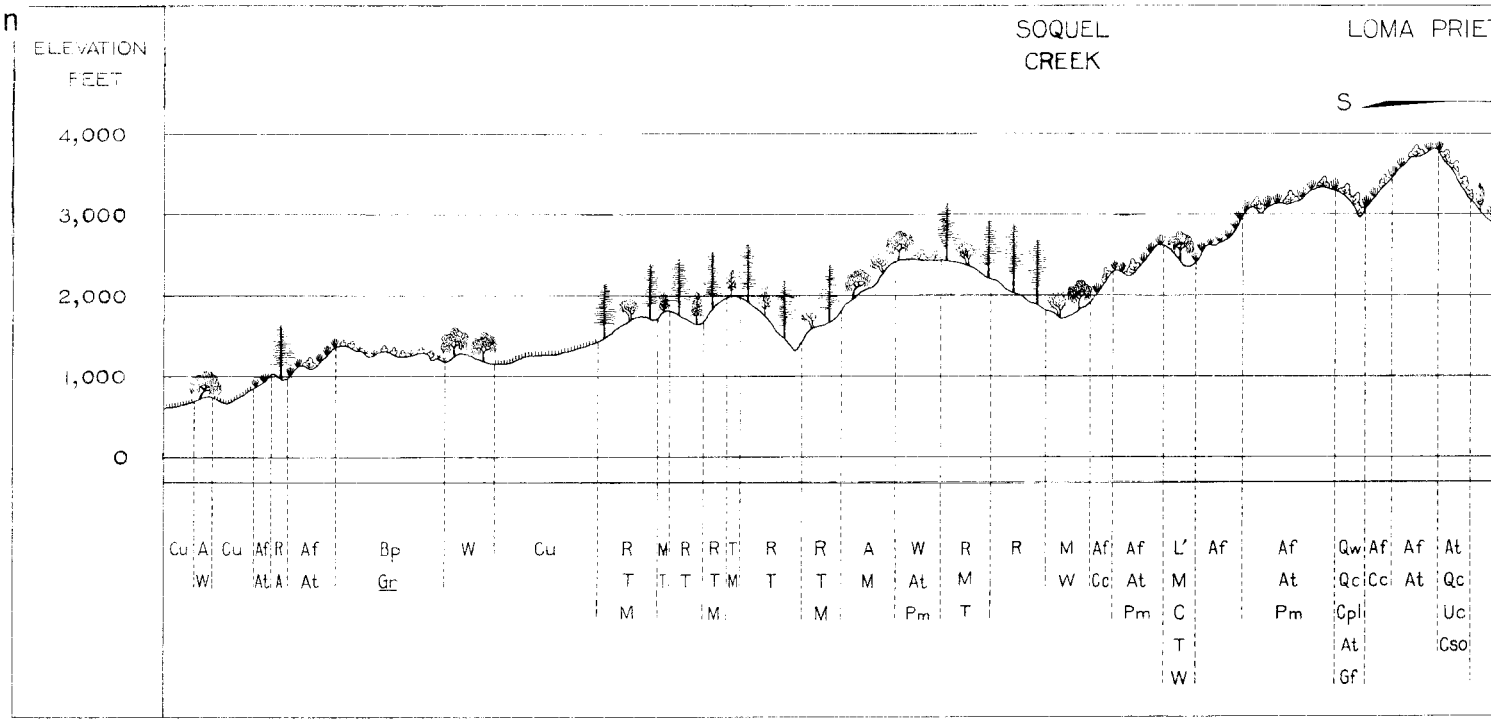


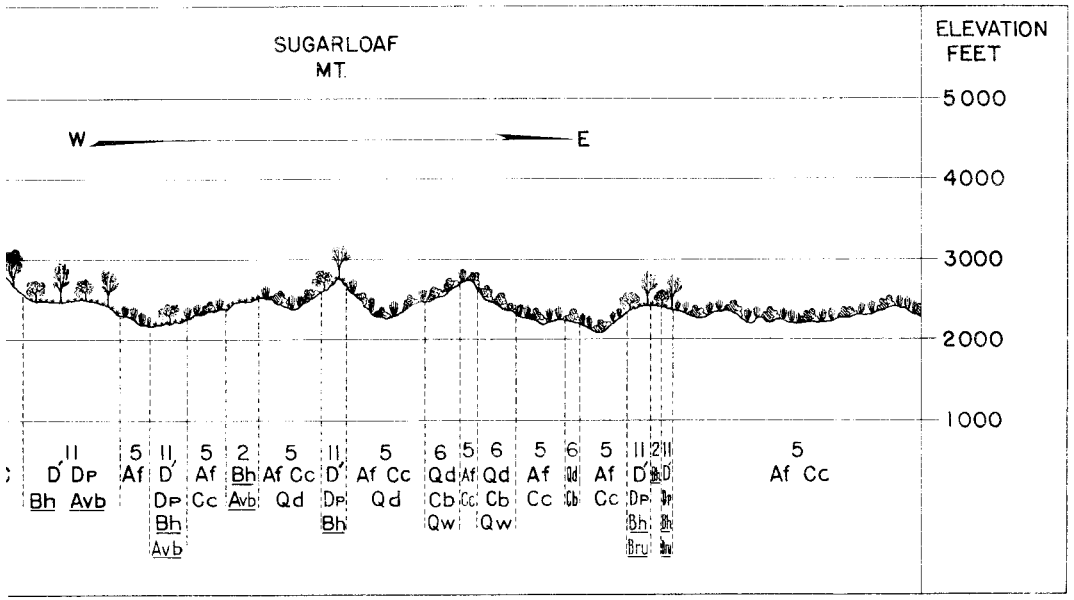
81D Tesla

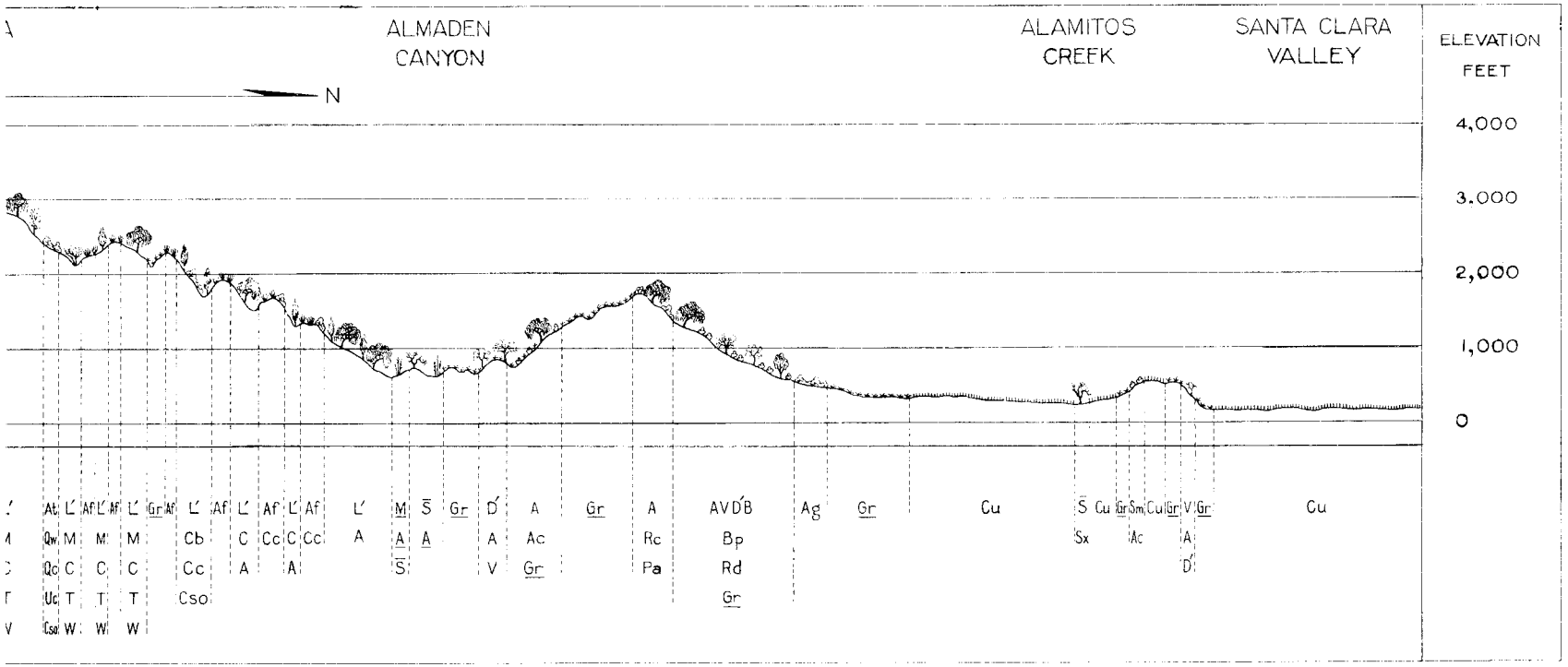
85A Mt. Hamilton

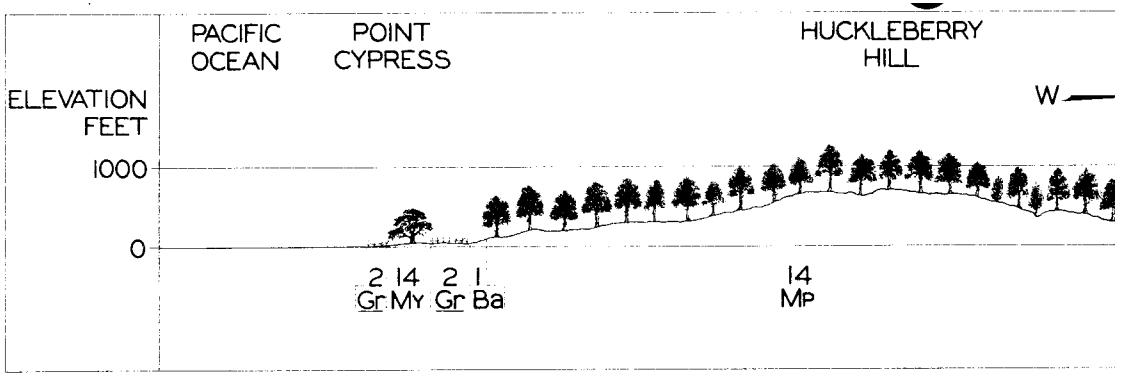


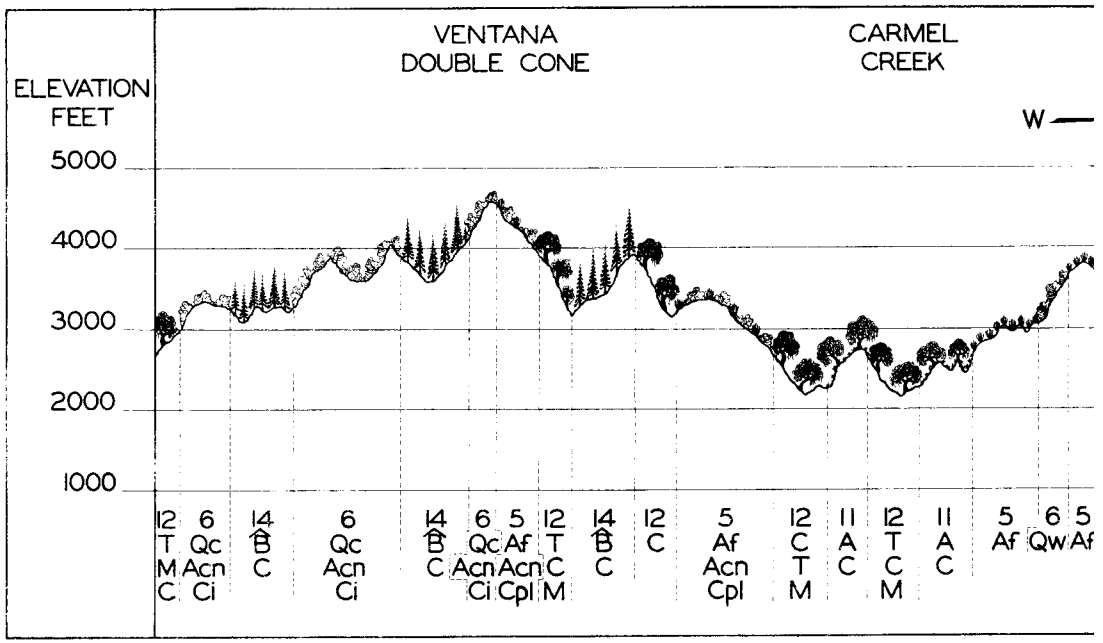
85C New Almaden

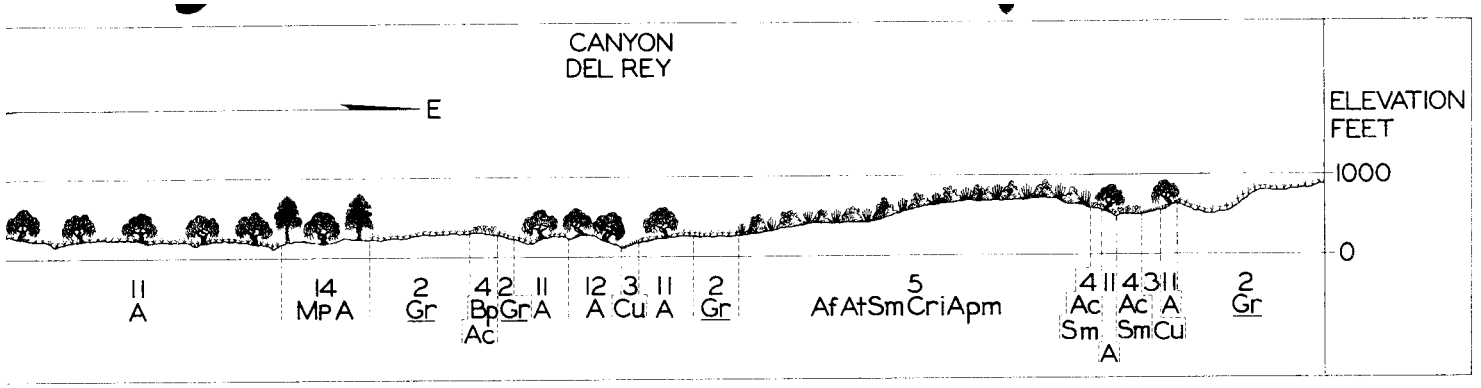



SUGARLOAF
MT.
W
E
ELEVATION
FEET
5000
4000
3000
2000
1000

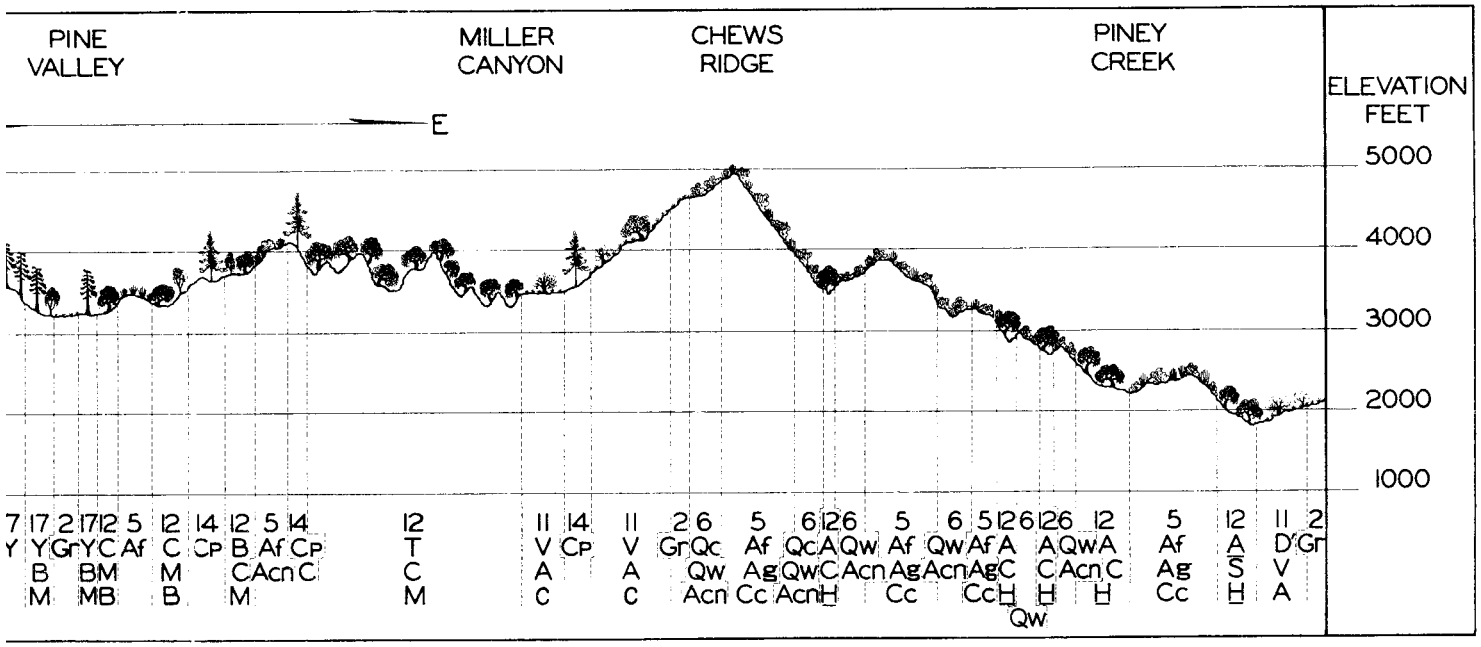

ALMADEN
CANYON
ALAMITOS
CREEK
SANTA CLARA
VALLEY
N
ELEVATION
FEET
4,000
3,000
2,000
1,000
0


PACIFIC OCEAN
POINT CYPRESS
HUCKLEBERRY HILL
W
ELEVATION FEET
1000
0
2 Gr
14 My
2 Gr
1 Ba
14 Mp


VENTANA DOUBLE CONE
CARMEL CREEK
W
ELEVATION FEET
5000
4000
3000
2000
1000
12 TM C
6 Qc Acn Ci
14 B̂ C
6 Qc Acn Ci
14 B̂ C
6 Qc Acn Ci
5 Af Acn Cpl
12 T C M
14 B̂ C
12 C
5 Af Acn Cpl
12 C T M
11 A C
12 T C M
11 A C
5 Af
6 Qw
5 Af

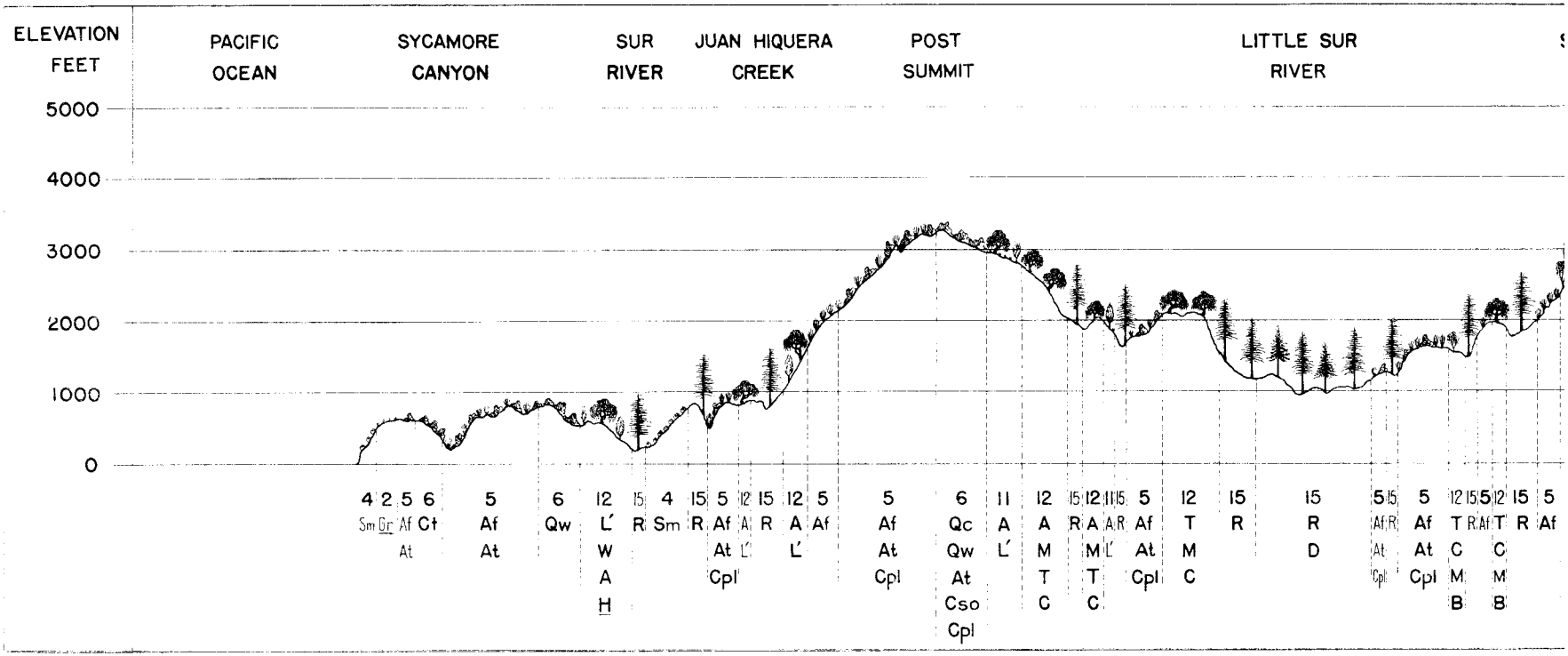


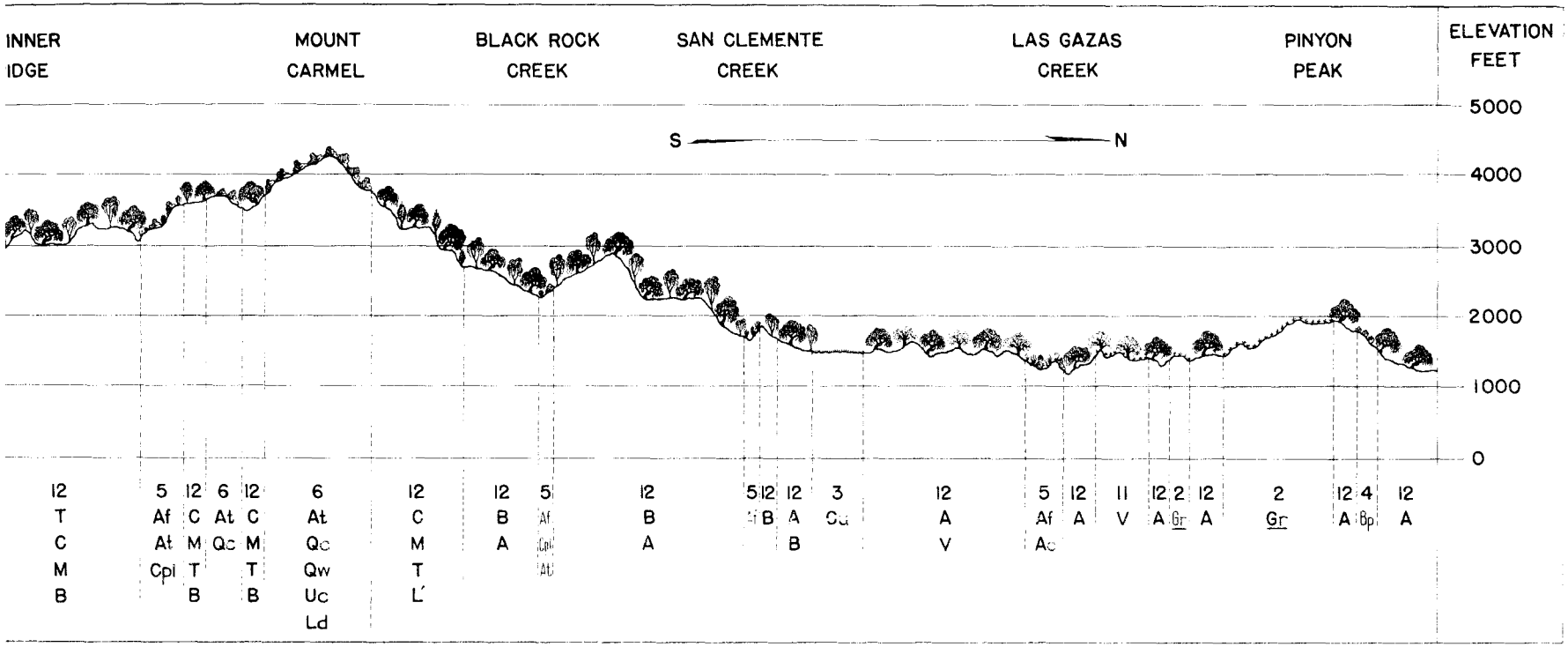
105C Monterey

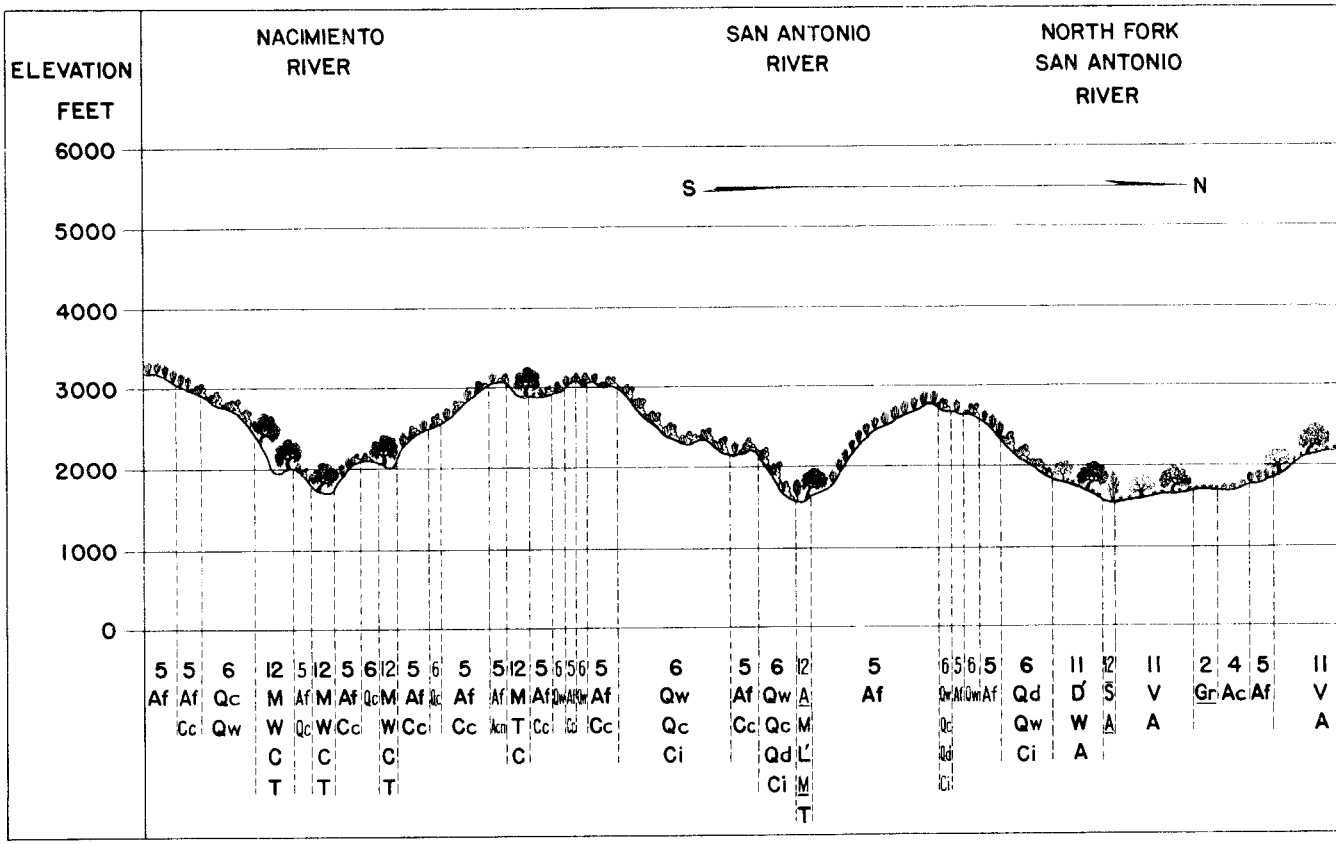


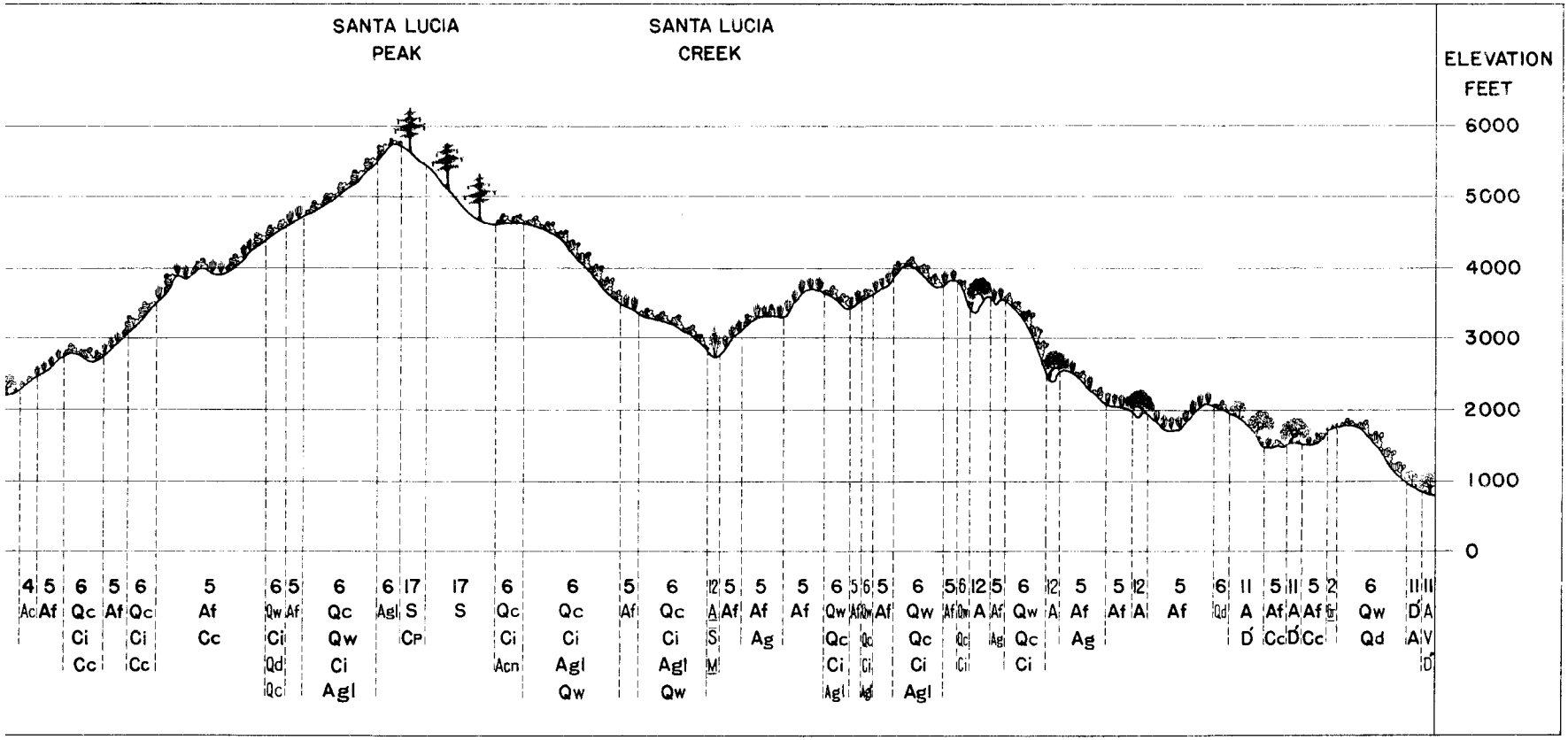
106A Jamesburg

106B Point Sur

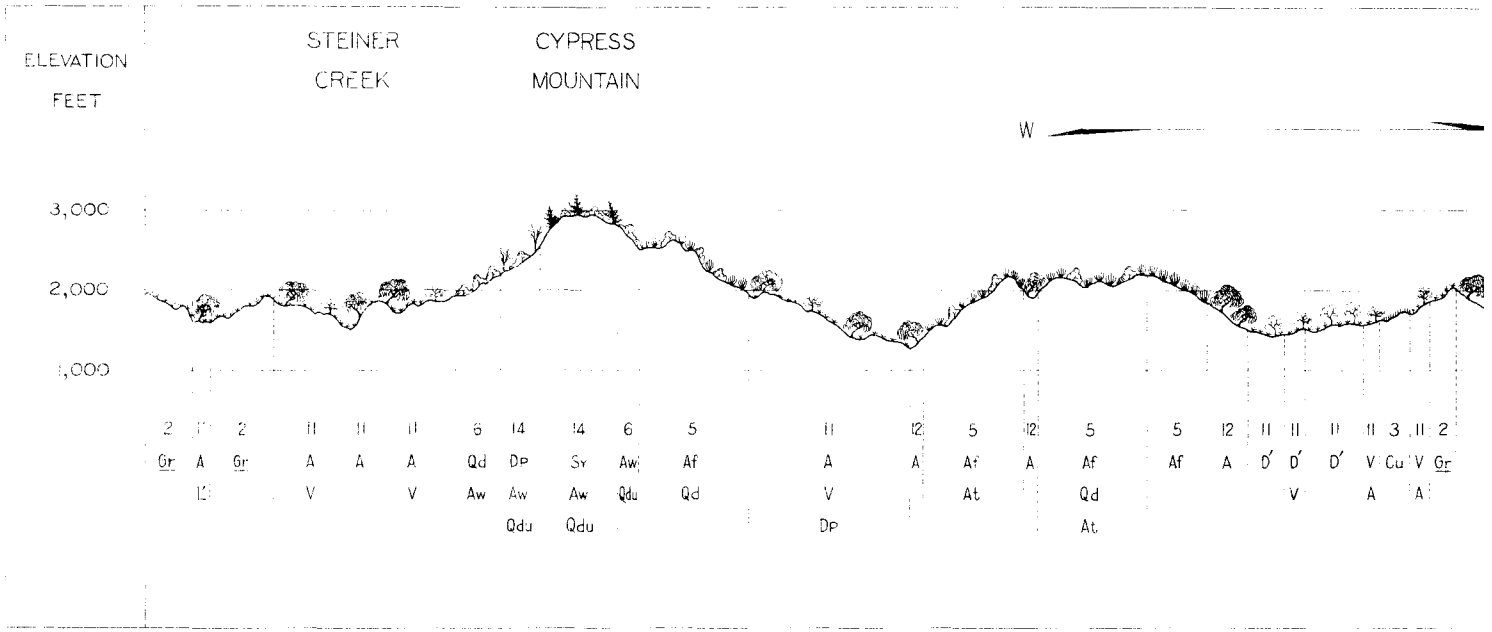



INNER IDGE
MOUNT CARMEL
BLACK ROCK CREEK
SAN CLEMENTE CREEK
LAS GAZAS CREEK
PINYON PEAK
ELEVATION FEET
5000
4000
3000
2000
1000
0
S
N
12 T C M B
5 Af At Cpi
12 C M T B
6 At Qc
12 C M T B
6 At Qc Qw Uc Ld
12 C M T L'
12 B A
5 Af
12 B
5 Af
12 B A
12 B A
5 Af Ac
12 B A B
12 A V
3
12 A V
5 Af Ac
12 A
11 V
12 A
2 Gr
12 A
2 Gr
12 A
2 Gr
12 A
4 Bp
12 A

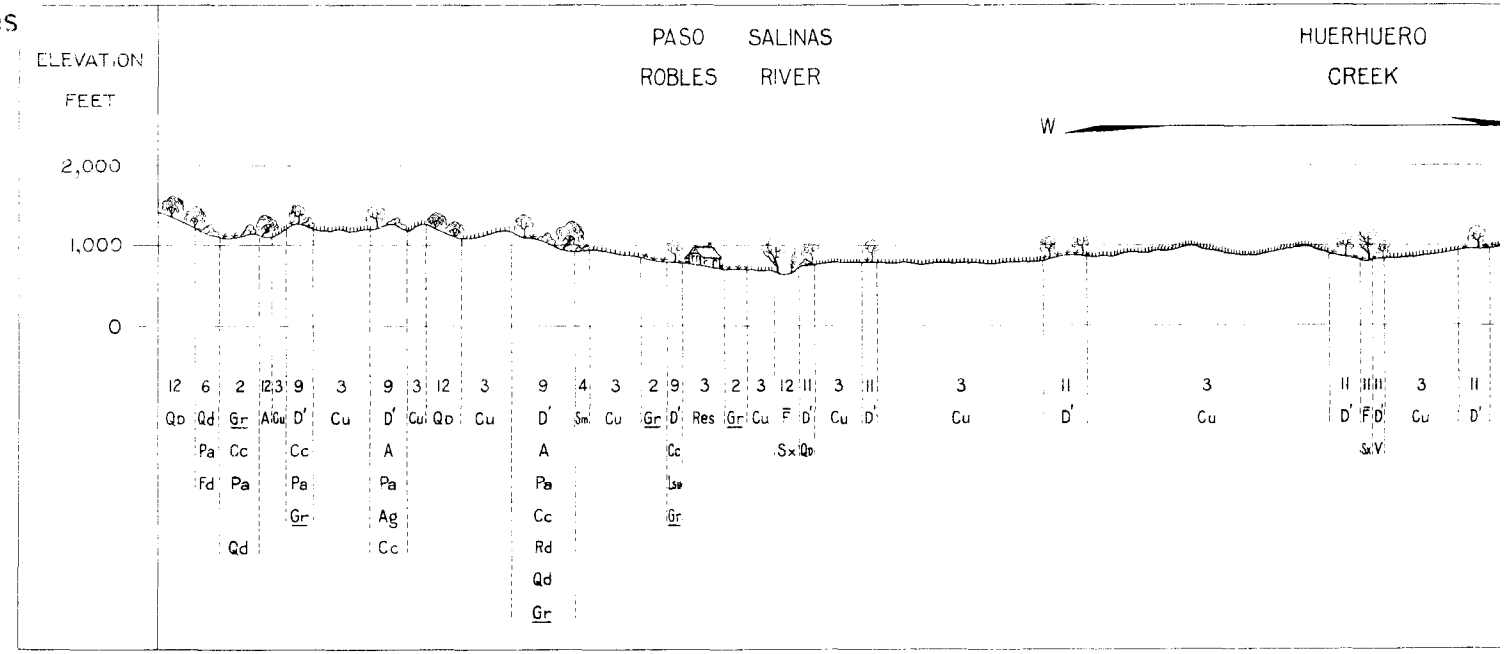

ELEVATION
FEET
6000
5000
4000
3000
2000
1000
0
NACIMIENTO
RIVER
SAN ANTONIO
RIVER
NORTH FORK
SAN ANTONIO
RIVER
S
N

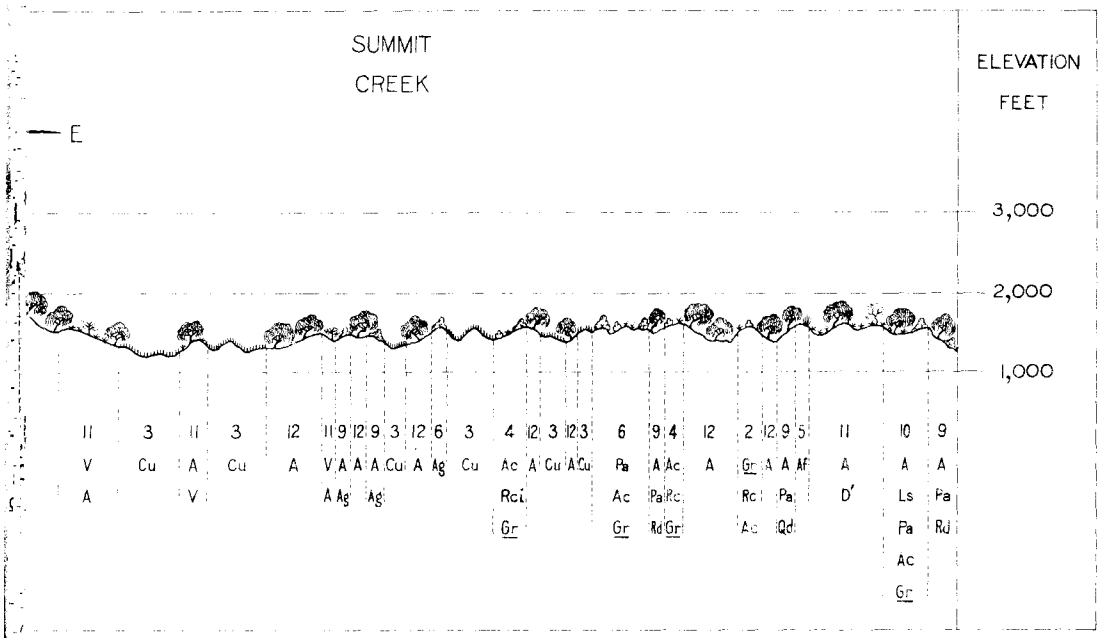

SANTA LUCIA PEAK
SANTA LUCIA CREEK
ELEVATION FEET
6000
5000
4000
3000
2000
1000
0

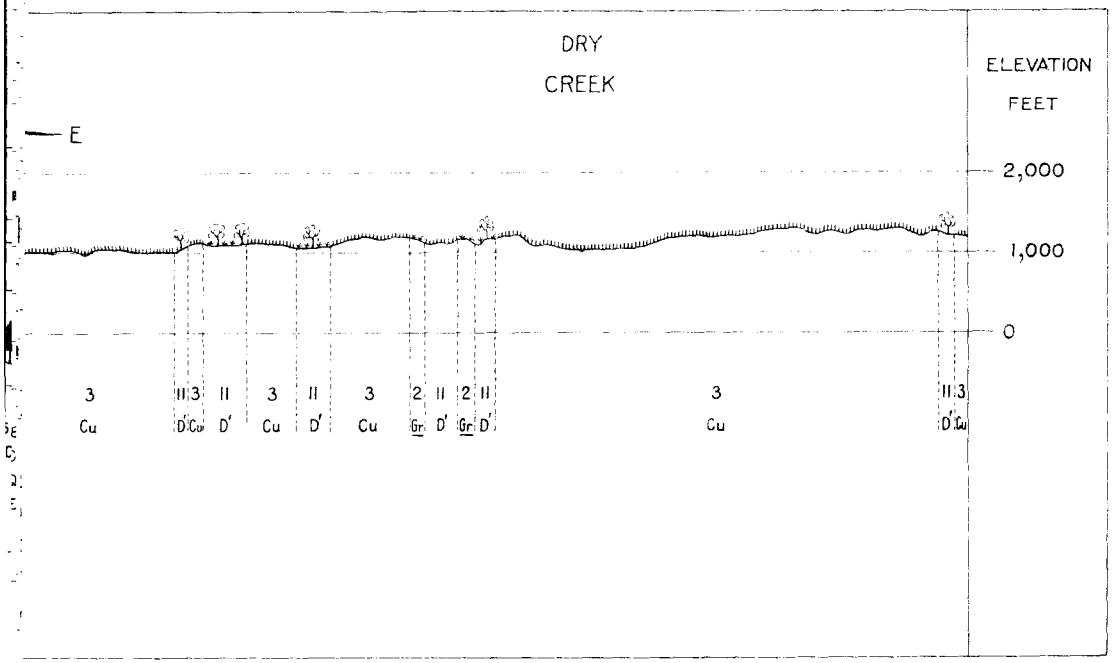
130C Adelaida

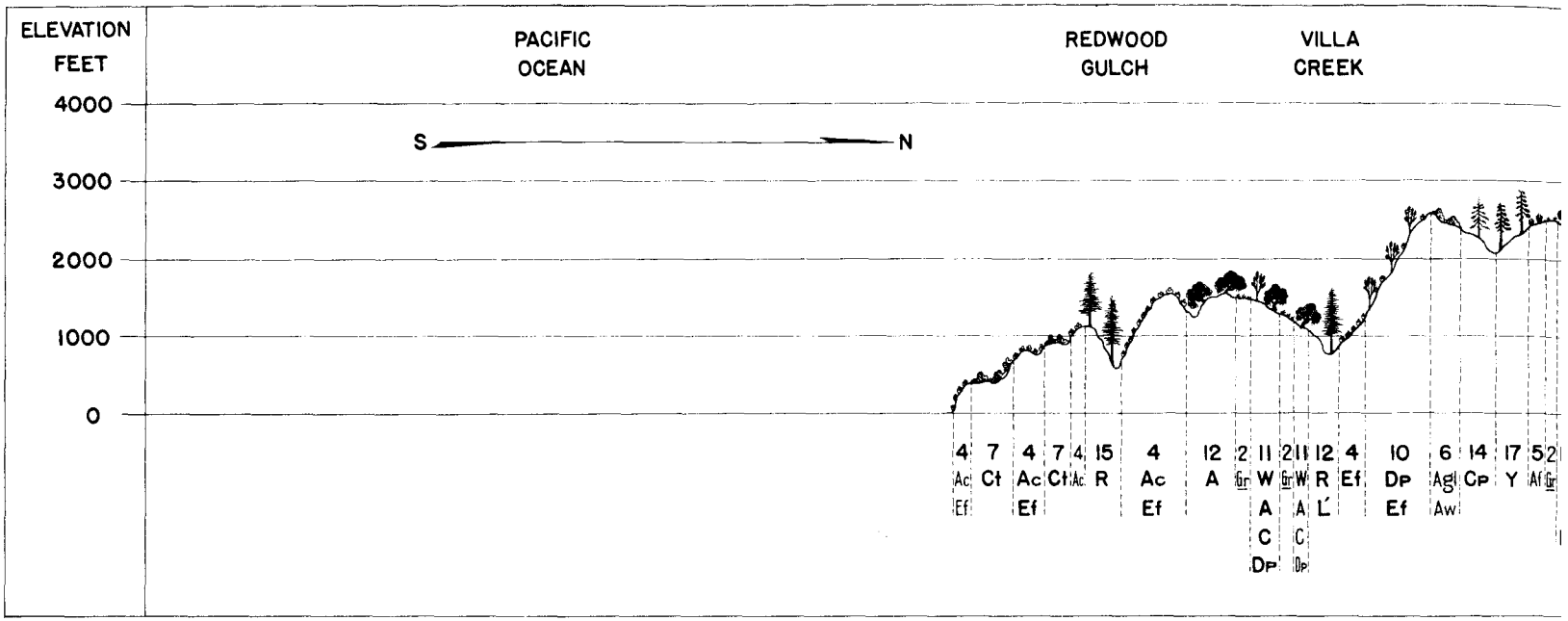


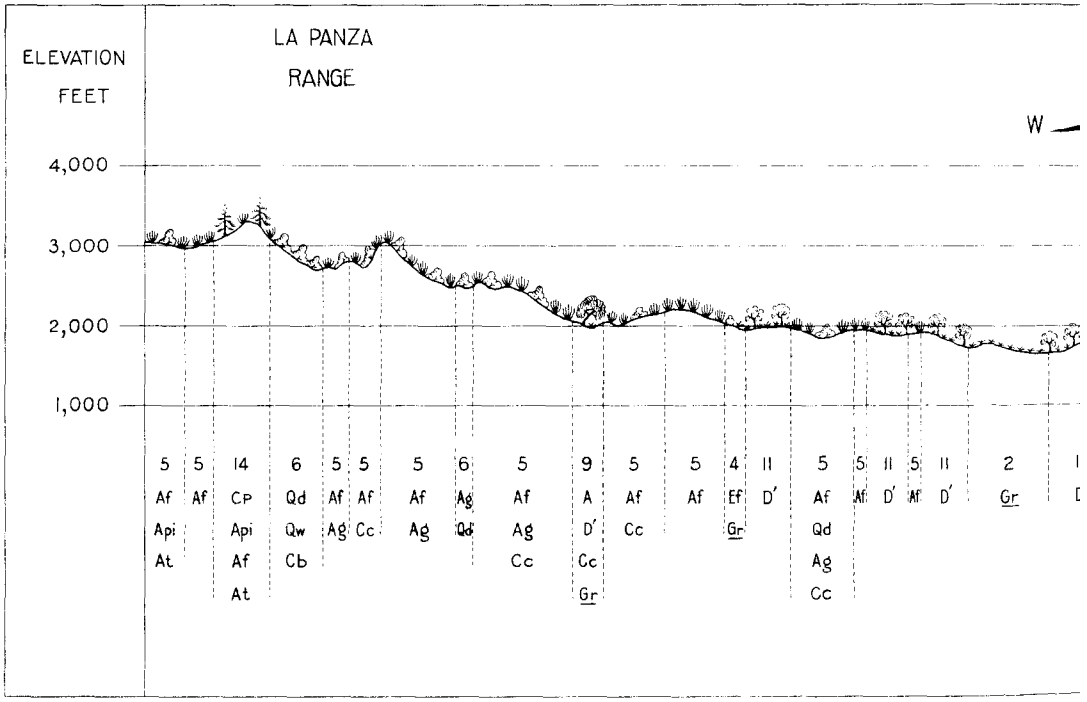
130D Paso Robles

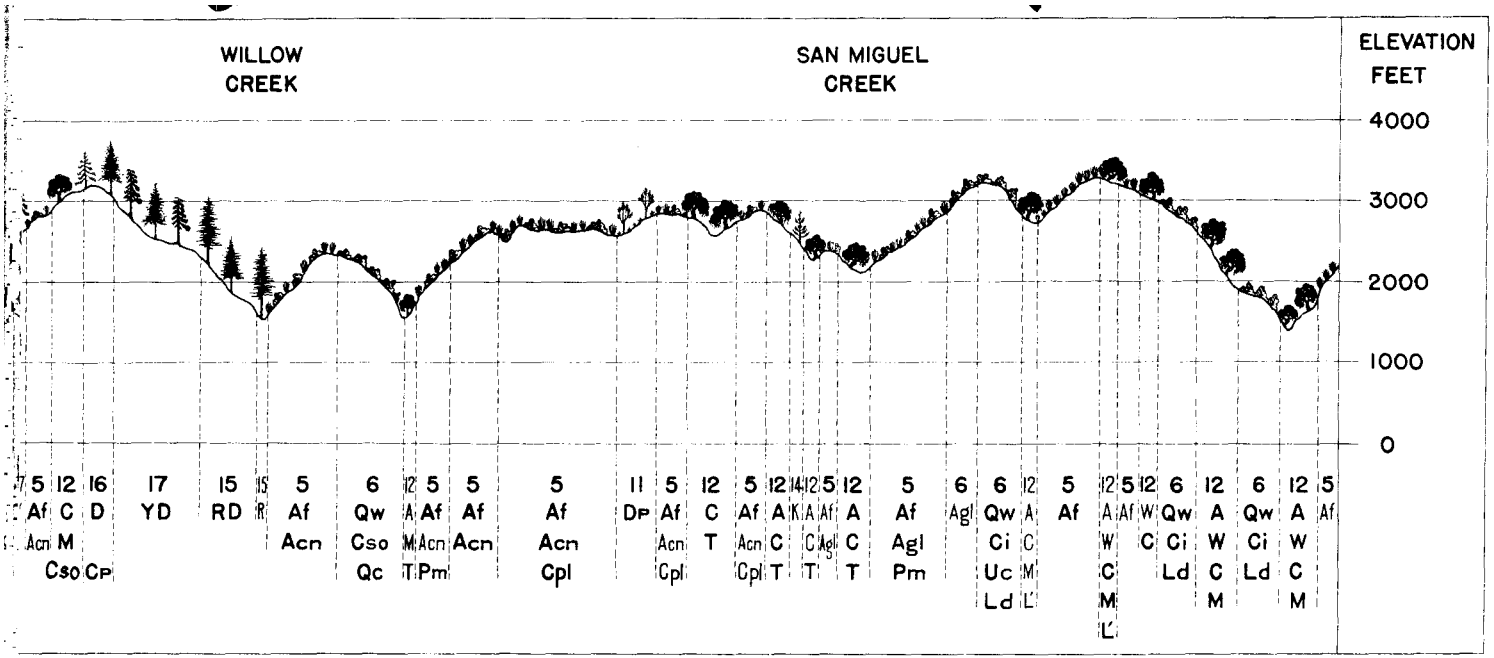



SUMMIT
CREEK
E
ELEVATION
FEET
3,000
2,000
1,000
II V A
3 Cu
II A V
3 Cu
12 A
II 9 V A Ag
12 A Ag
9 A Ag
3 Cu
12 A
6 Ag
3 Cu
4 Ac Rci Gr
12 A
3 Cu
12 3 A Cu
6 Pa Ac Gr
9 A Pa Rd
4 Ac Rc Gr
12 A
2 Gr Rc Ac
12 A A Pa Qd
5 Af
II A D'
10 A Ls Pa Ac Gr
9 A Pa Rd

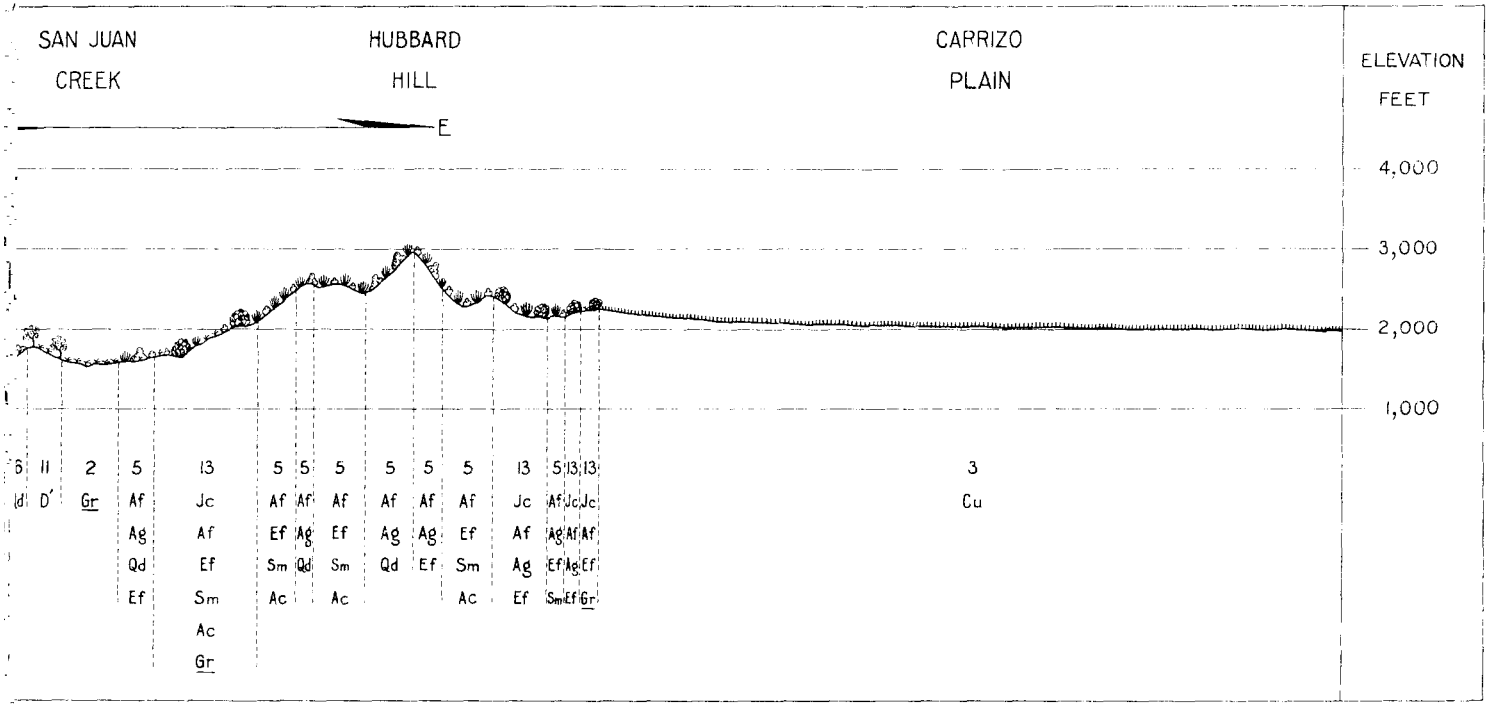

DRY
CREEK
E
ELEVATION
FEET
2,000
1,000
0
3 Cu
II 3 D' Cu
II D'
3 Cu
II D'
3 Cu
2 Gr
II D'
2 Gr
II D'
3 Cu
II 3 D' Cu


ELEVATION
FEET
4000
3000
2000
1000
0
PACIFIC
OCEAN
S
N
REDWOOD
GULCH
VILLA
CREEK
4 Ac Ef
7 Ct
4 Ac Ef
7 Ct
4 Ac
15 R
4 Ac Ef
12 A
2 Gr
11 W A C Dp'
2 Gr
11 W A C Dp
12 R L'
4 Ef
10 Dp Ef
6 Ag Aw
14 Cp
17 Y
5 Af
2 Gr


ELEVATION
FEET
LA PANZA
RANGE
W
4,000
3,000
2,000
1,000
5 Af Api At
5 Af
14 Cp Api Af At
6 Qd Qw Cb
5 Af Ag
5 Af Cc
5 Af Ag
6 Ag Qd
5 Af Ag Cc
9 A D' Cc Gr
5 Af Cc
5 Af
4 Ef Gr
11 D'
5 Af Qd Ag Cc
5 Af
11 D'
5 Af
11 D'
2 Gr

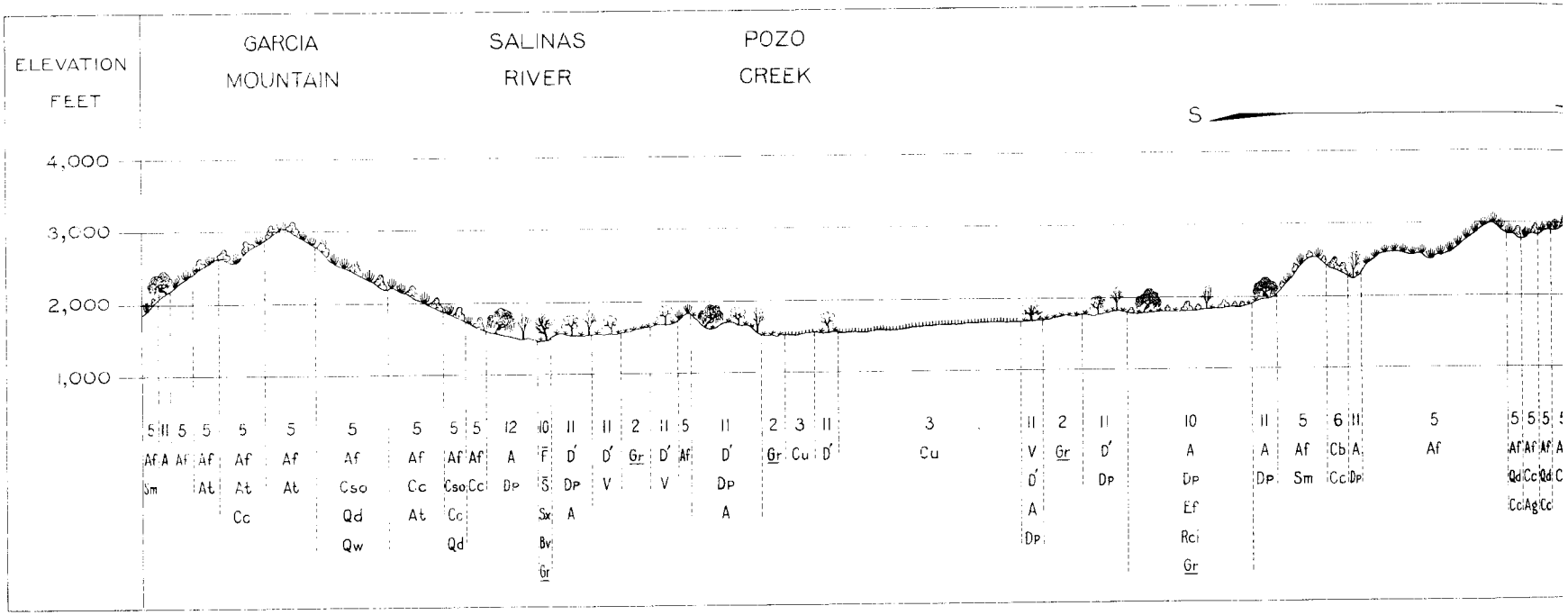


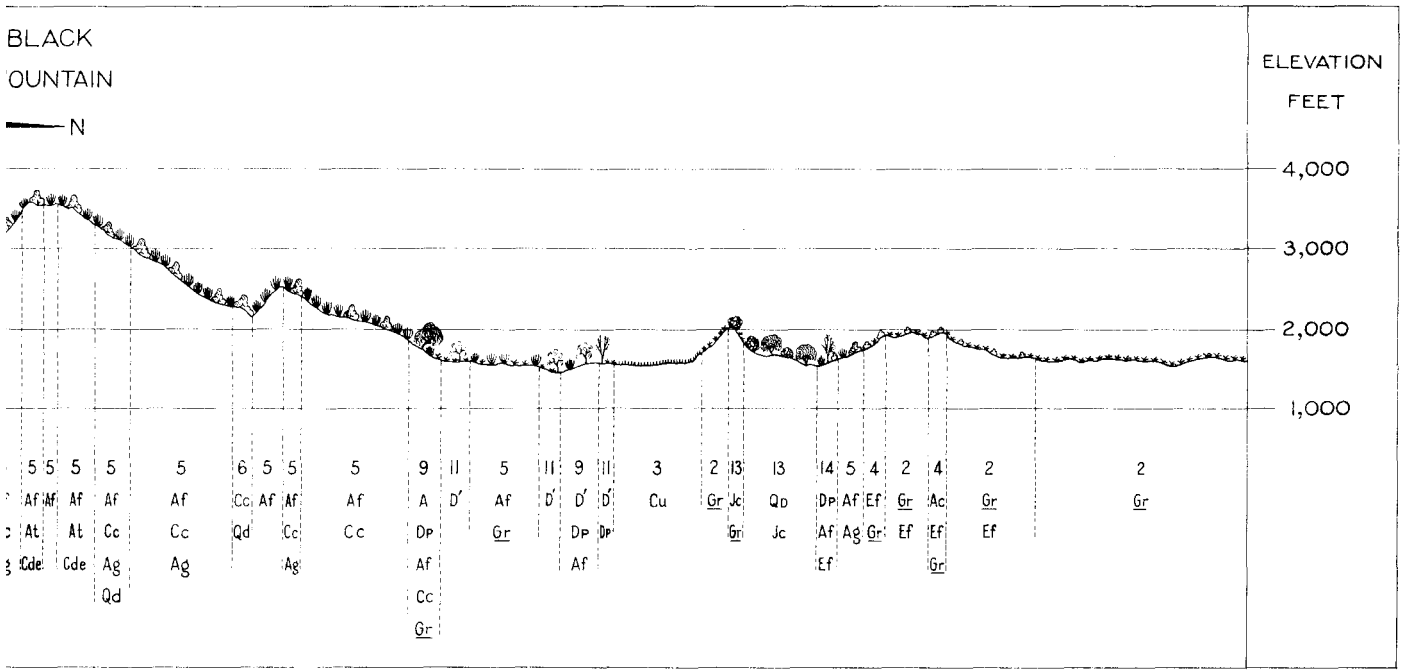
131B Cape San Martin

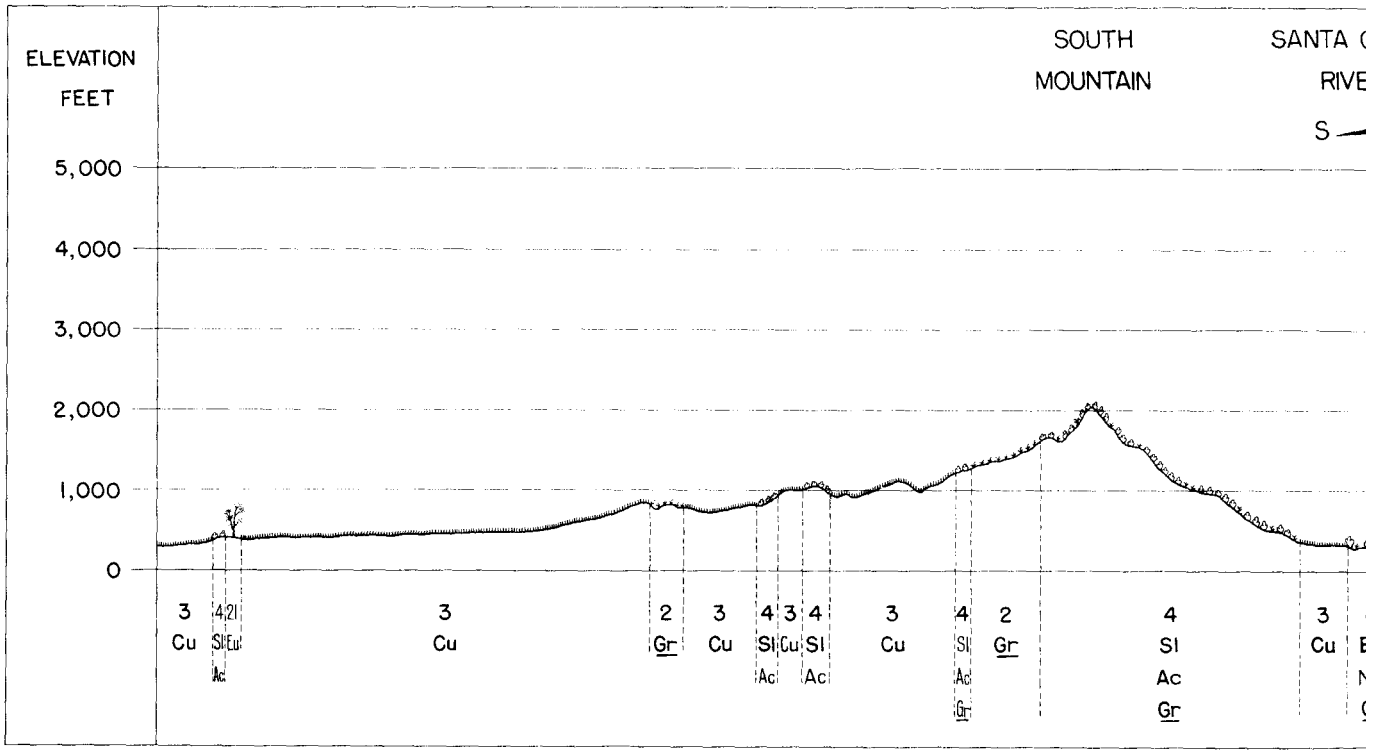


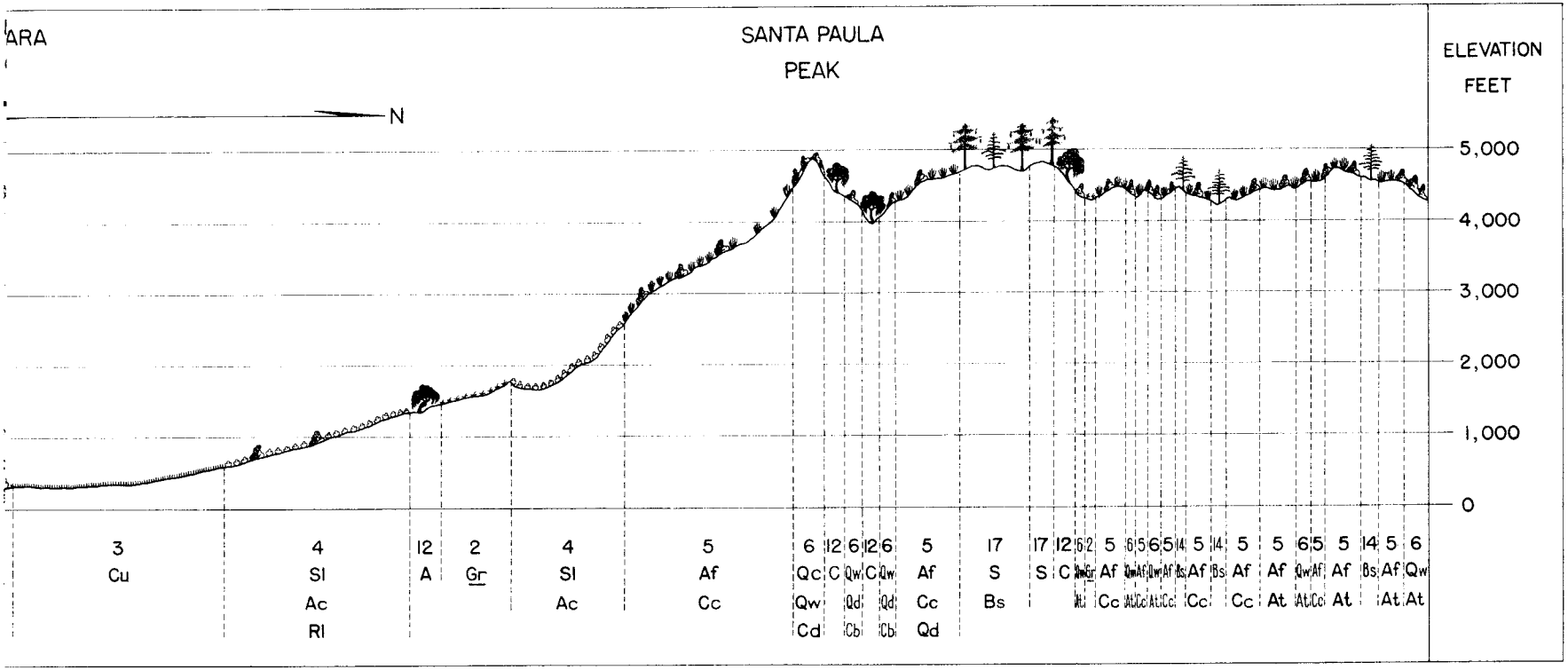
133A La Panza

133B Pozo

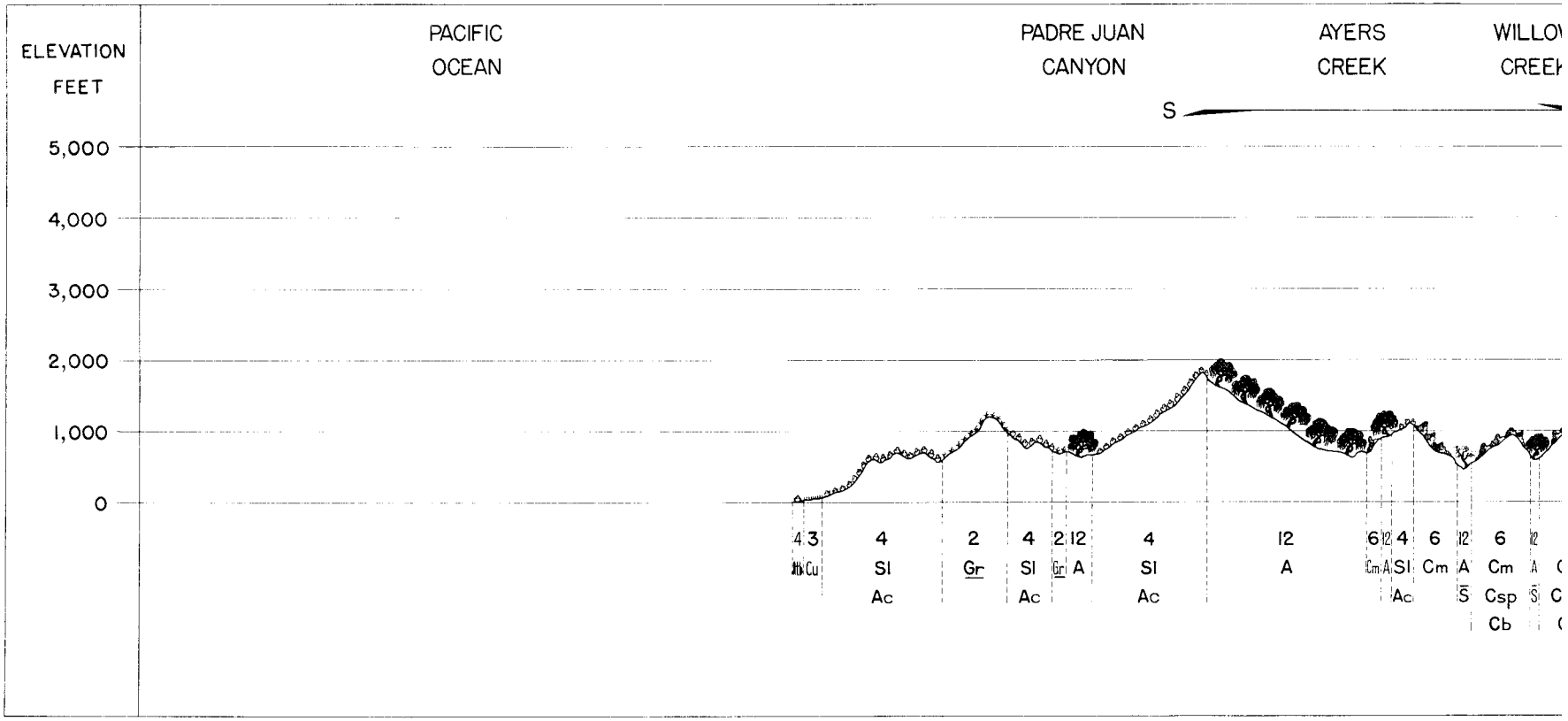

ELEVATION
FEET
GARCIA
MOUNTAIN
SALINAS
RIVER
POZO
CREEK
S
4,000
3,000
2,000
1,000

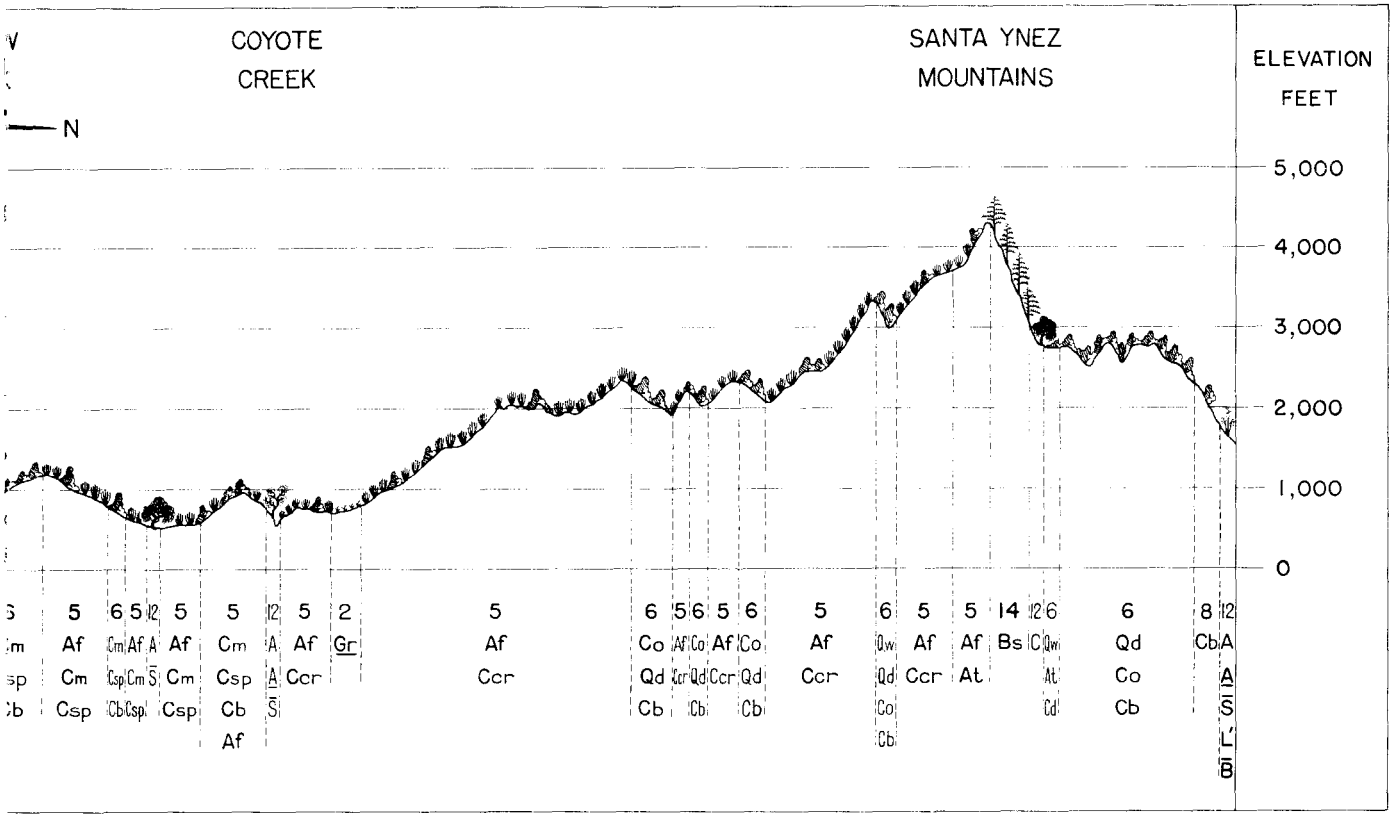

BLACK
OUNTAIN
N
ELEVATION
FEET
4,000
3,000
2,000
1,000
5 Af At Cde
5 Af At Cde
5 Af At Cde
5 Af Cc Ag Qd
5 Af Cc Ag
6 Cc Qd
5 Af
5 Af Cc Ag
5 Af Cc
9 A Dp Af Cc Gr
11 D'
5 Af Gr
11 D'
9 D' Dp Af
11 D' Dp
3 Cu
2 Gr
13 Jc Gr
13 Qd Jc
14 Dp Af Ef
5 Af Ag
4 Ef Gr
2 Gr Ef
4 Ac Ef Gr
2 Gr Ef
2 Gr

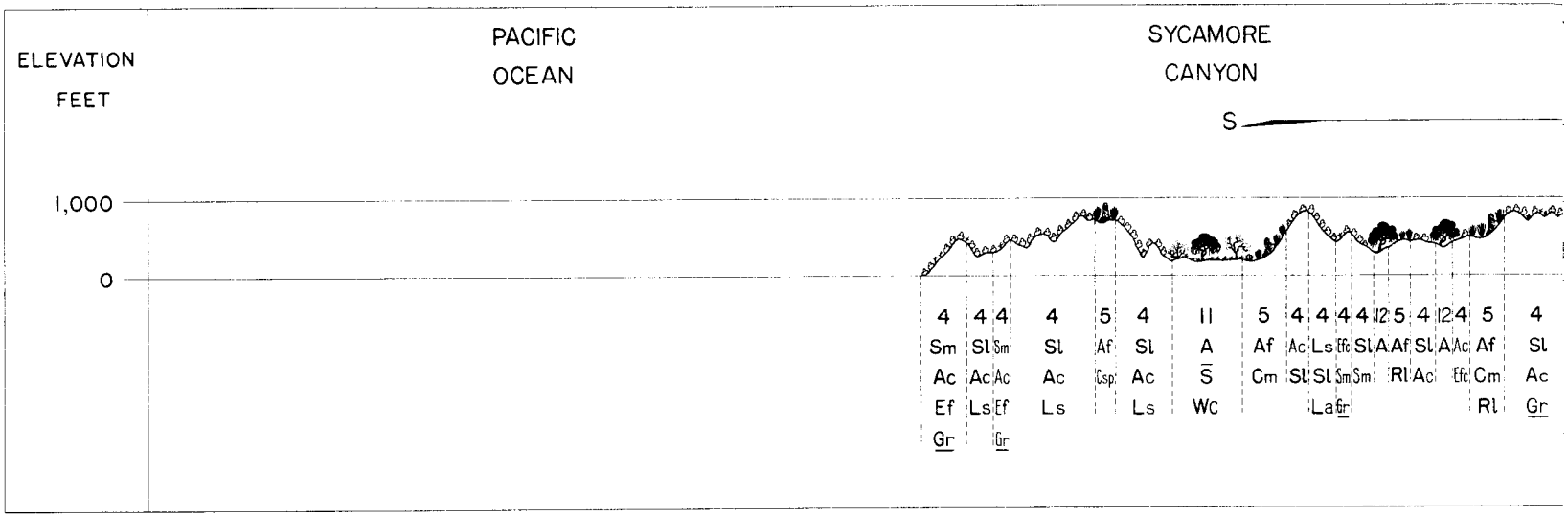

ELEVATION
FEET
5,000
4,000
3,000
2,000
1,000
0
SOUTH
MOUNTAIN
SANTA (
RIVE
S
3 Cu
4 Sl Ac
2 Cu
3 Cu
2 Gr
3 Cu
4 Sl Ac
3 Cu
4 Sl Ac
3 Cu
4 Sl Ac Gr
2 Gr
4 Sl Ac Gr
3 Cu

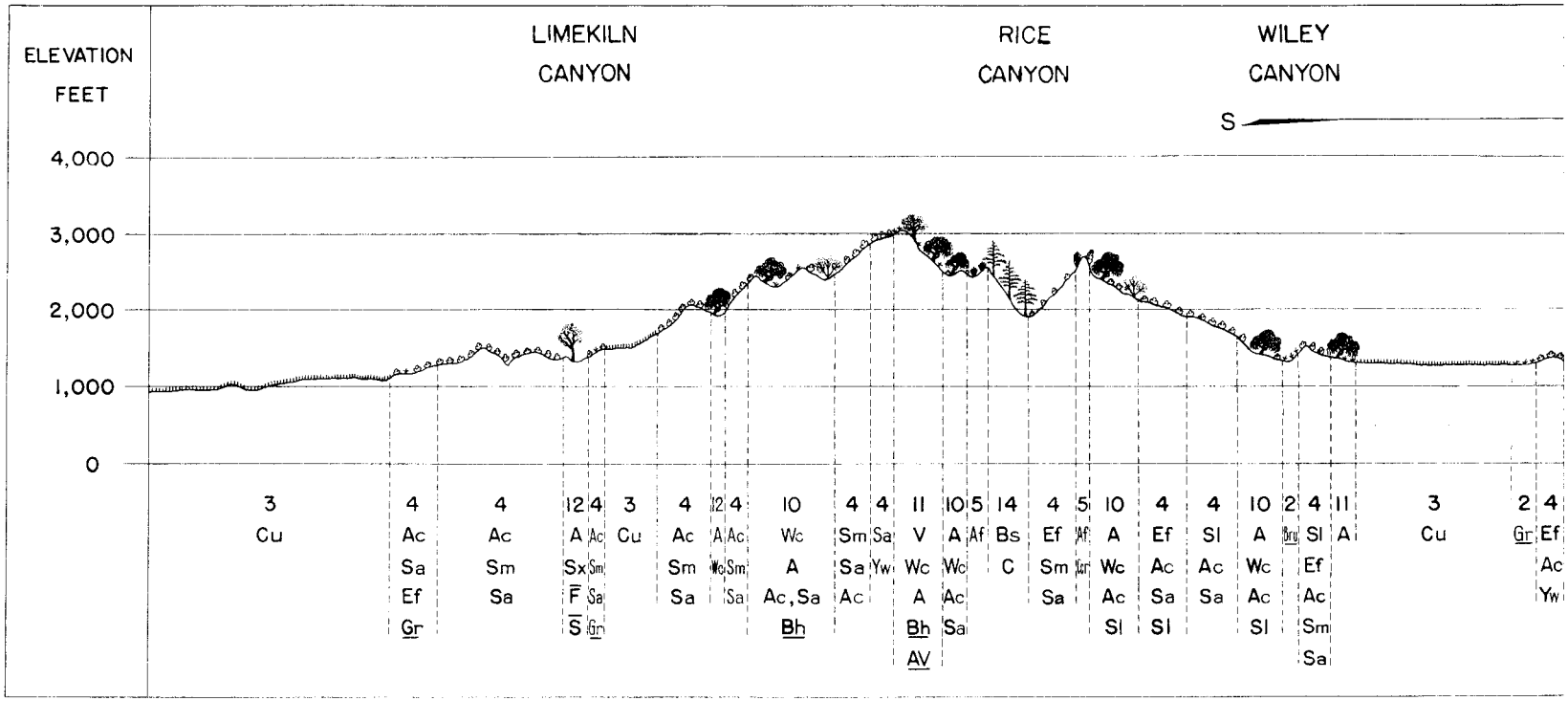

ARA
SANTA PAULA
PEAK
N
ELEVATION
FEET
5,000
4,000
3,000
2,000
1,000
0
3 Cu
4 Sl Ac Rl
12 A
2 Gr
4 Sl Ac
5 Af Cc
6 Qc Qw Cd
12 C Qw Qd Cb
6 Qw Qd Cb
5 Af Cc Qd
17 S Bs
17 S
12 C
6 Gr
2
5 Af Cc
6 Af Cc
5 Qw Af Cc
6 Af Cc
5 Qw Af Cc
4 Bs
5 Af Cc
4 Bs
5 Af Cc
5 Af At
6 Qw Af Cc
5 Af At
4 Bs At
5 Af At
6 Qw At

160B Ventura

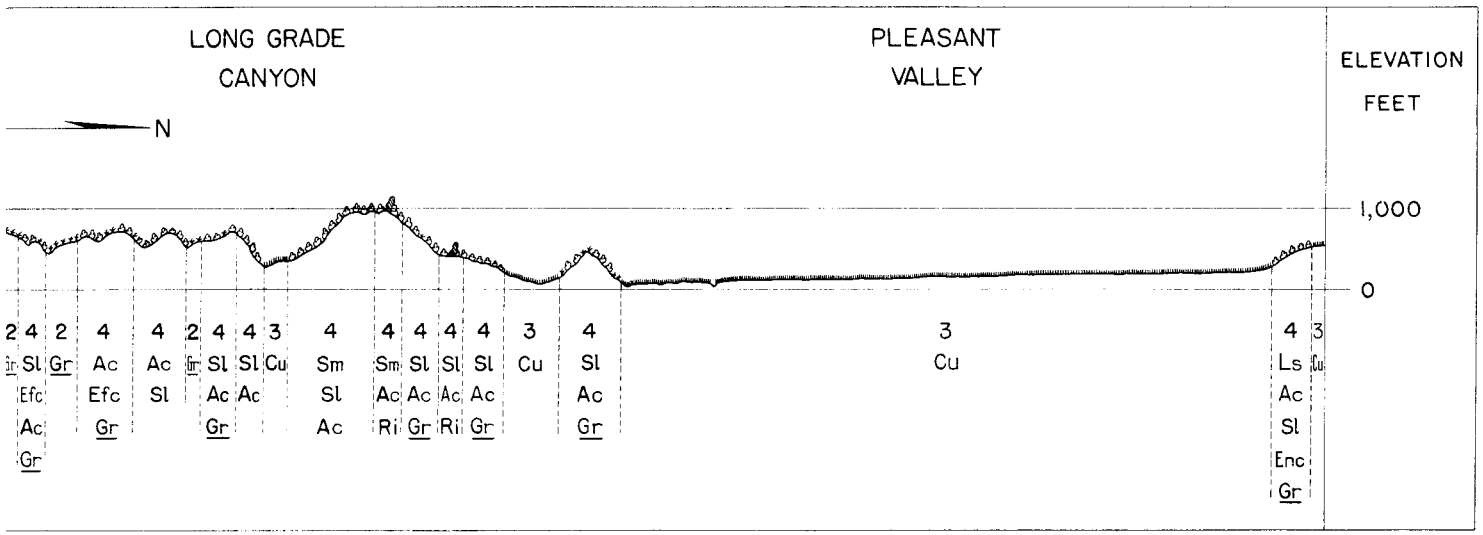



COYOTE
CREEK
SANTA YNEZ
MOUNTAINS
N
ELEVATION
FEET
5,000
4,000
3,000
2,000
1,000
0
5 Af Cm Csp
6 Cm Csp Cb
5 Af Cm Csp
12 A S
5 Af Cm Csp
5 Cm Csp Cb Af
12 A S
5 Af Ccr
2 Gr
5 Af Ccr
6 Co Qd Cb
5 Af Ccr
6 Co Qd Cb
5 Af Ccr
6 Co Qd Cb
5 Af Ccr
6 Qw Qd Co Cb
5 Af Ccr
5 Af At
14 Bs
12 C
6 Qw At Cd
6 Qd Co Cb
8 Cb
12 A S L B

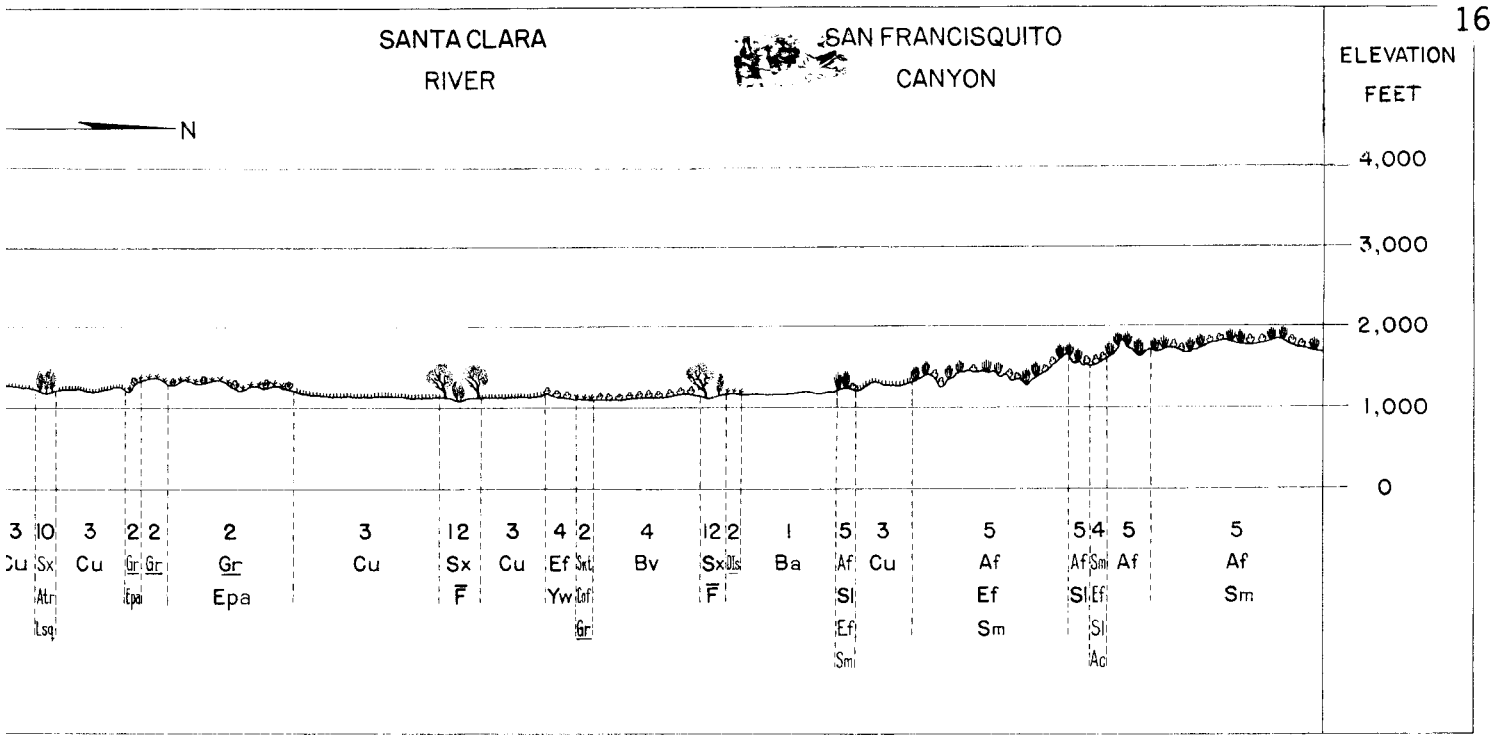

ELEVATION
FEET
PACIFIC
OCEAN
SYCAMORE
CANYON
S
1,000
0
4 Sm Ac Ef Gr
4 Sl Ac Ls Ls
4 Sm Ac Ef Gr
4 Sl Ac Ls
5 Af Csp
4 Sl Ac Ls
11 A S Wc
5 Af Cm
4 Ac Sl
4 Ls Sl La
4 Ffc Sm Gr
4 Sl Sm
12 5 A Af Rl
4 Sl Ac
12 4 A Ac Ffc
5 Af Cm Rl
4 Sl Ac Gr


ELEVATION
FEET
LIMEKILN
CANYON
RICE
CANYON
WILEY
CANYON
S
4,000
3,000
2,000
1,000
0
3 Cu
4 Ac Sa Ef Gr
4 Ac Sm Sa
12 A Sx F S
4 Ac Sm Sa Gr
3 Cu
4 Ac Sm Sa
12 A Wc
4 Ac Sm Sa
10 Wc A Ac, Sa Bh
4 Sm Sa Ac
4 Sa Yw
11 V Wc A Bh AV
10 A Wc Ac Sa
5 Af
14 Bs C
4 Ef Sm Sa
5 Af Gr
10 A Wc Ac Sl
4 Ef Ac Sa Sl
4 Sl Ac Sa
10 A Wc Ac Sl
2 Gru
4 Sl Ef Ac Sm Sa
11 A
3 Cu
2 Gr
4 Ef Ac Yw

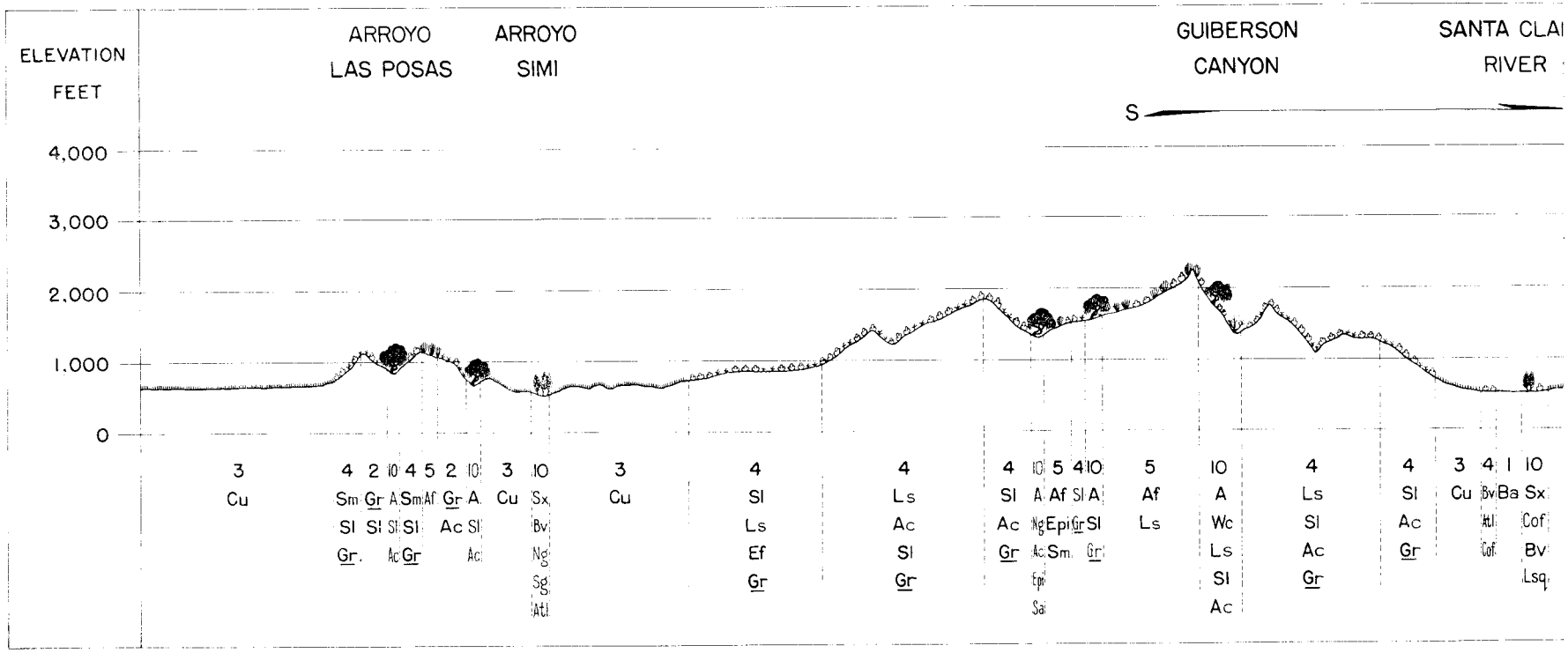
160D Hueneme

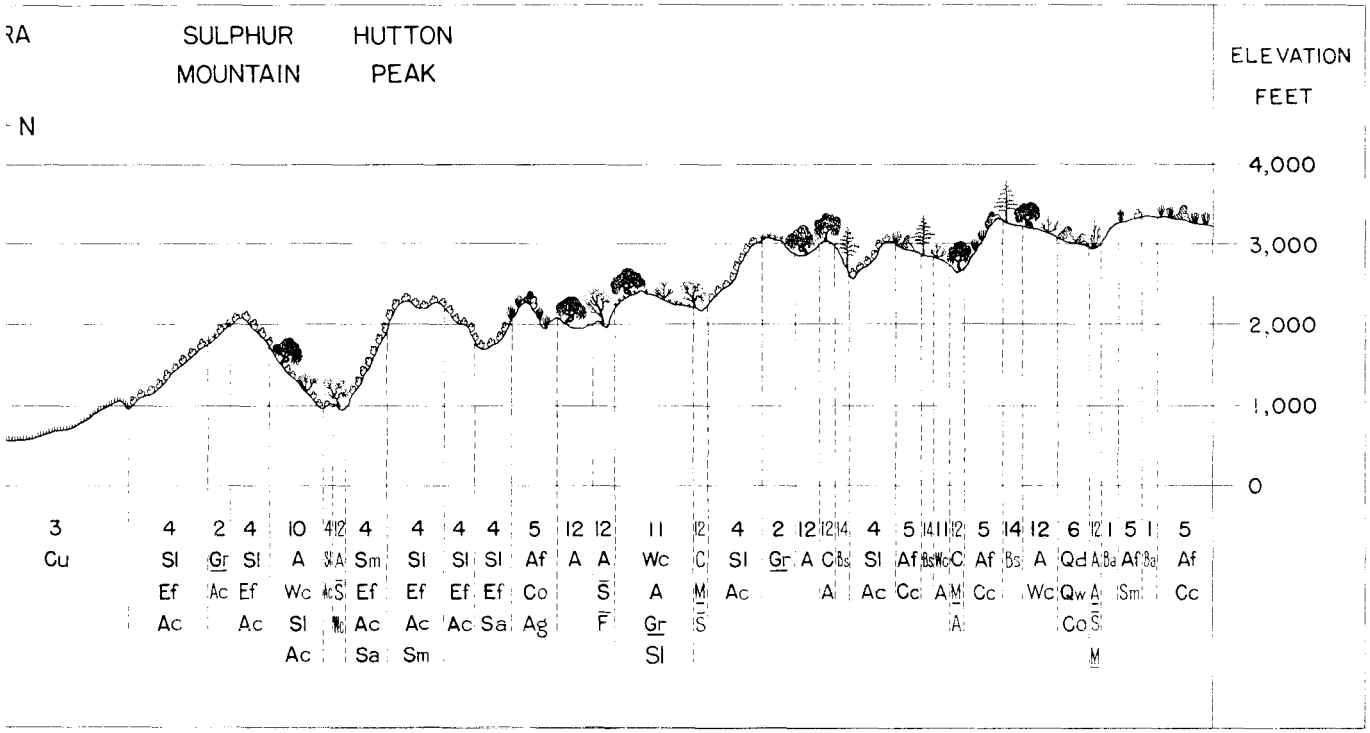


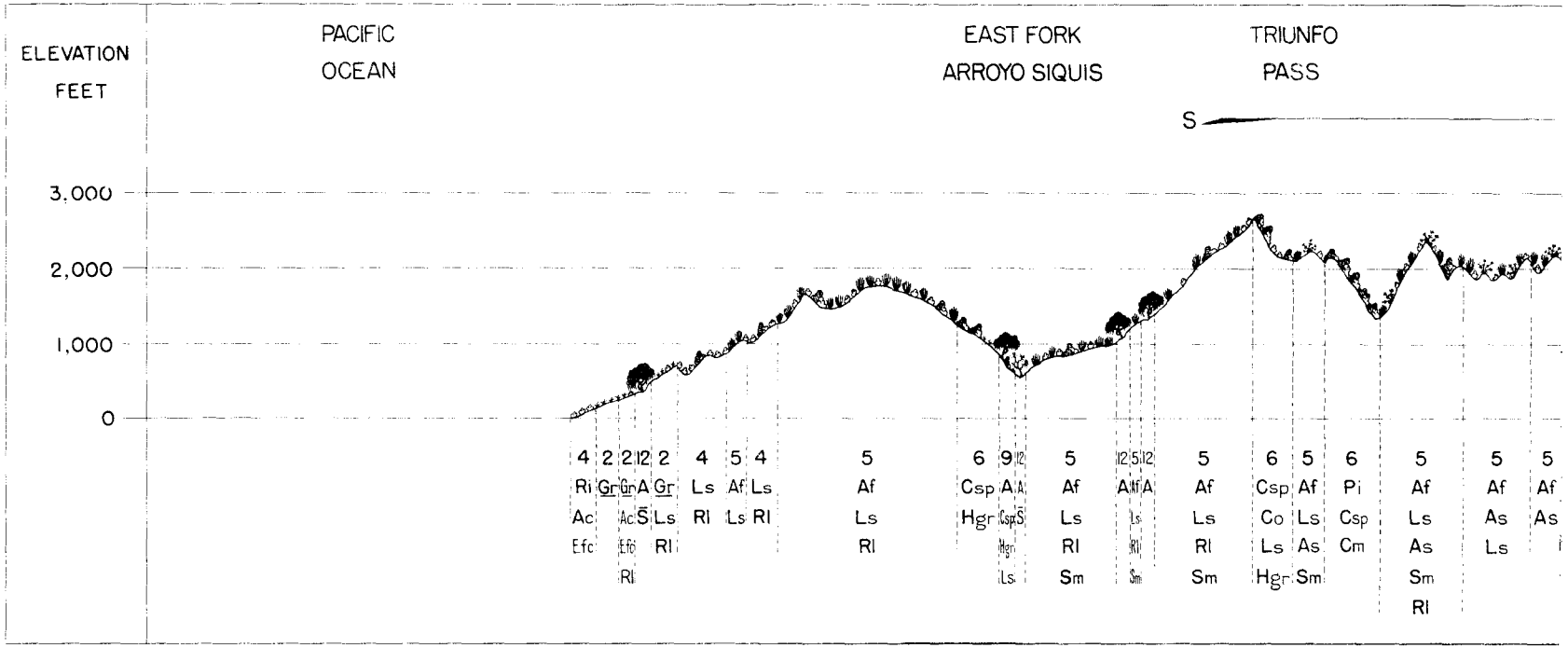
161A Santa Susana

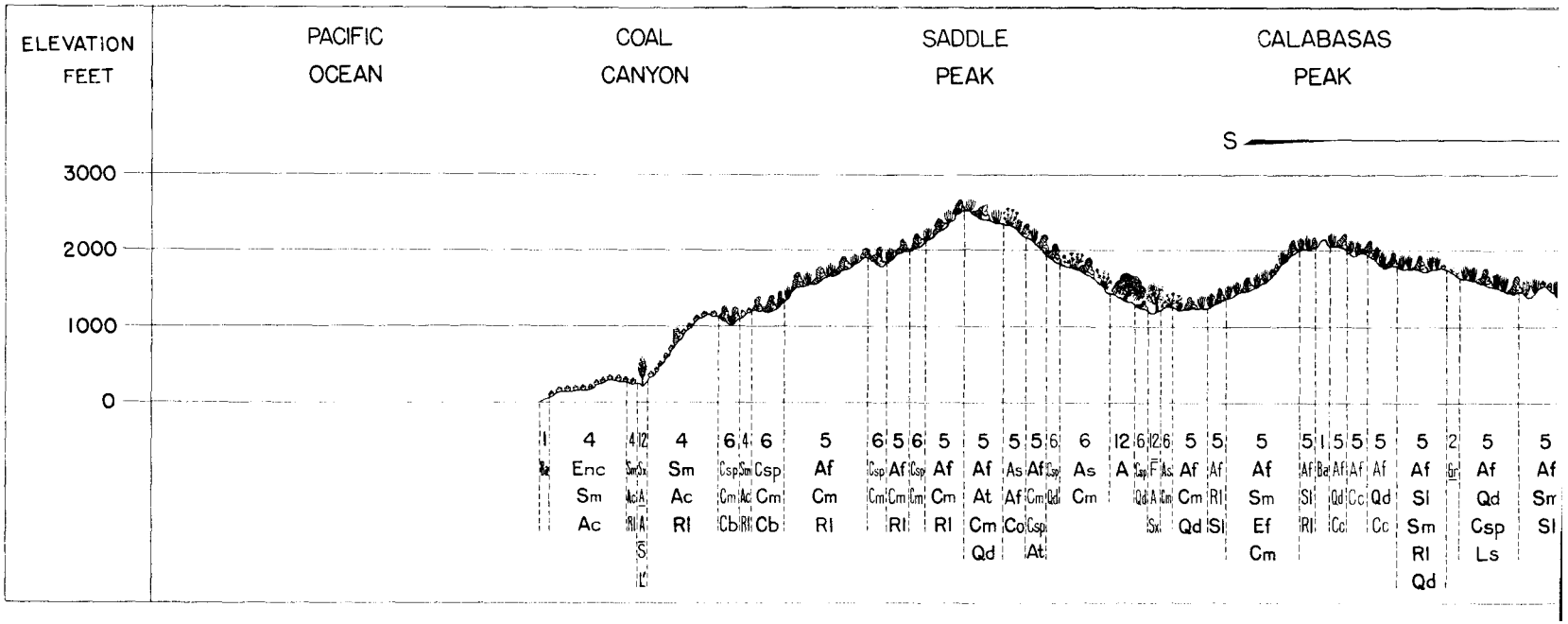


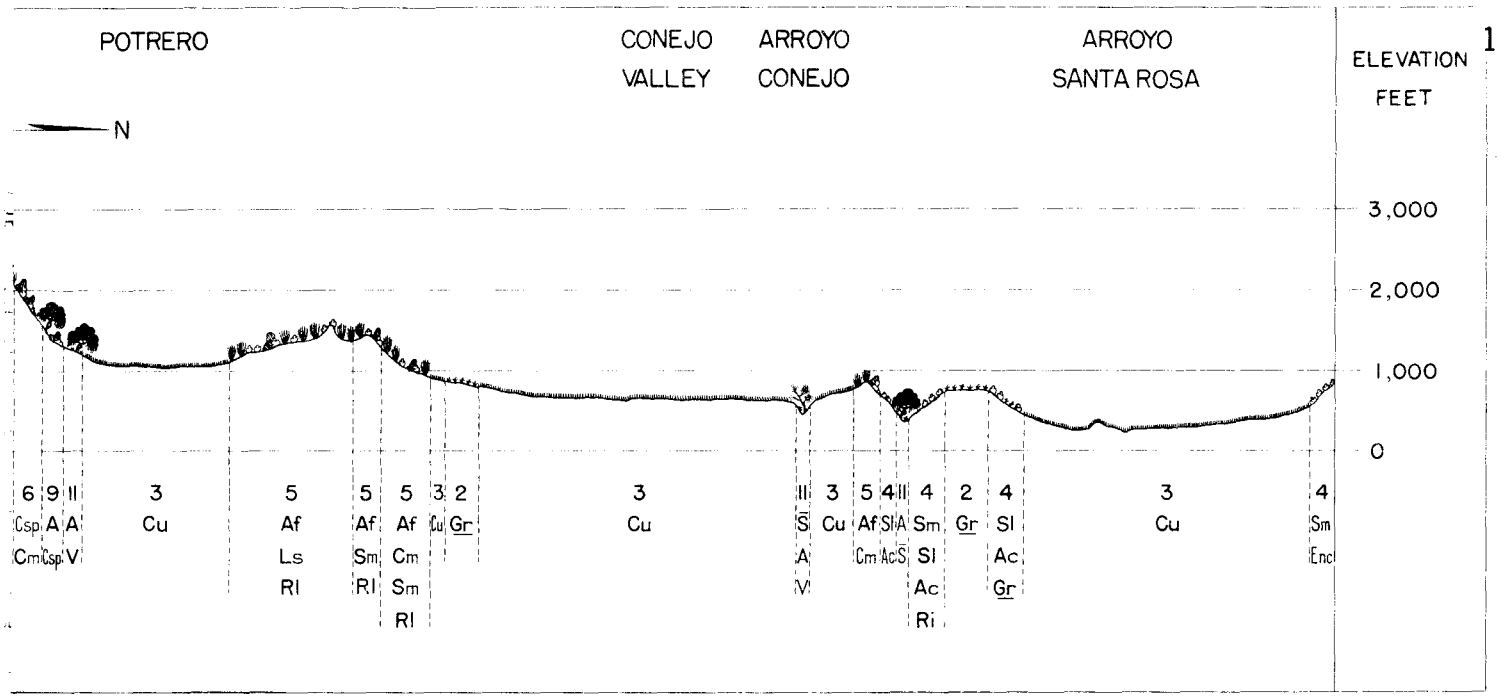
161B Piru


ELEVATION
FEET
4,000
3,000
2,000
1,000
0
ARROYO
LAS POSAS
ARROYO
SIMI
GUIBERSON
CANYON
SANTA CLA
RIVER
S
3 Cu
4 Sm Sl Gr.
2 Gr Sl
10 A Sl Ac
4 Sm Sl Gr
5 Af
2 Gr Ac
10 A Sl Ac
3 Cu
10 Sx Bv Ng Sg Atl
3 Cu
4 Sl Ls Ef Gr
4 Ls Ac Sl Gr
4 Sl Ac Gr
10 A Ng Ac Epi Sal
5 Af Epi Sm
4 Sl Gr
10 A Sl Gr
5 Af Ls
10 A Wc Ls Sl Ac
4 Ls Sl Ac Gr
4 Sl Ac Gr
3 Cu
4 Bv Atl Cof
1 Ba
10 Sx Cof Bv Lsq

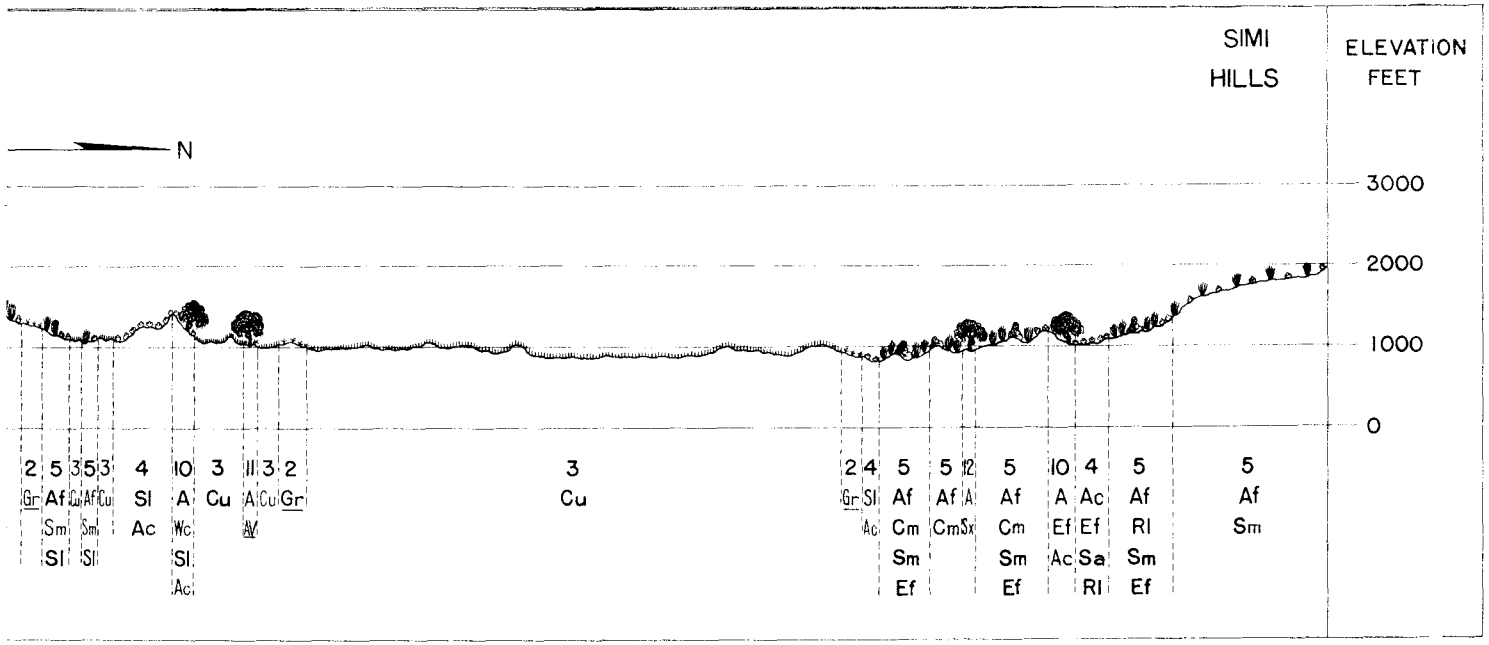

RA
SULPHUR MOUNTAIN
HUTTON PEAK
N
ELEVATION FEET
4,000
3,000
2,000
1,000
0
3 Cu
4 Sl Ef Ac
2 Gr Ac
4 Sl Ef Ac
10 A Wc Sl Ac
4 12 S A Sa
4 Sm Ef Ac Sa
4 Sl Ef Ac Sm
4 Sl Ef Ac
4 Sl Ef Sa
5 Af Co Ag
12 A
12 A S F
11 Wc A Gr Sl
12 C M S
4 Sl Ac
2 Gr
12 A
12 Cbs A
14
4 Sl Ac
5 Af Cc
14 Bs Wc A
11
12 C M A
5 Af Cc
14 Bs
12 A Wc
6 Qd Qw Co
12 A Ba S M
1 Af Sm
1 Ba
5 Af Cc


ELEVATION
FEET
PACIFIC
OCEAN
EAST FORK
ARROYO SIQUIS
TRIUNFO
PASS
S
3,000
2,000
1,000
0


ELEVATION
FEET
PACIFIC
OCEAN
COAL
CANYON
SADDLE
PEAK
CALABASAS
PEAK
S
3000
2000
1000
0

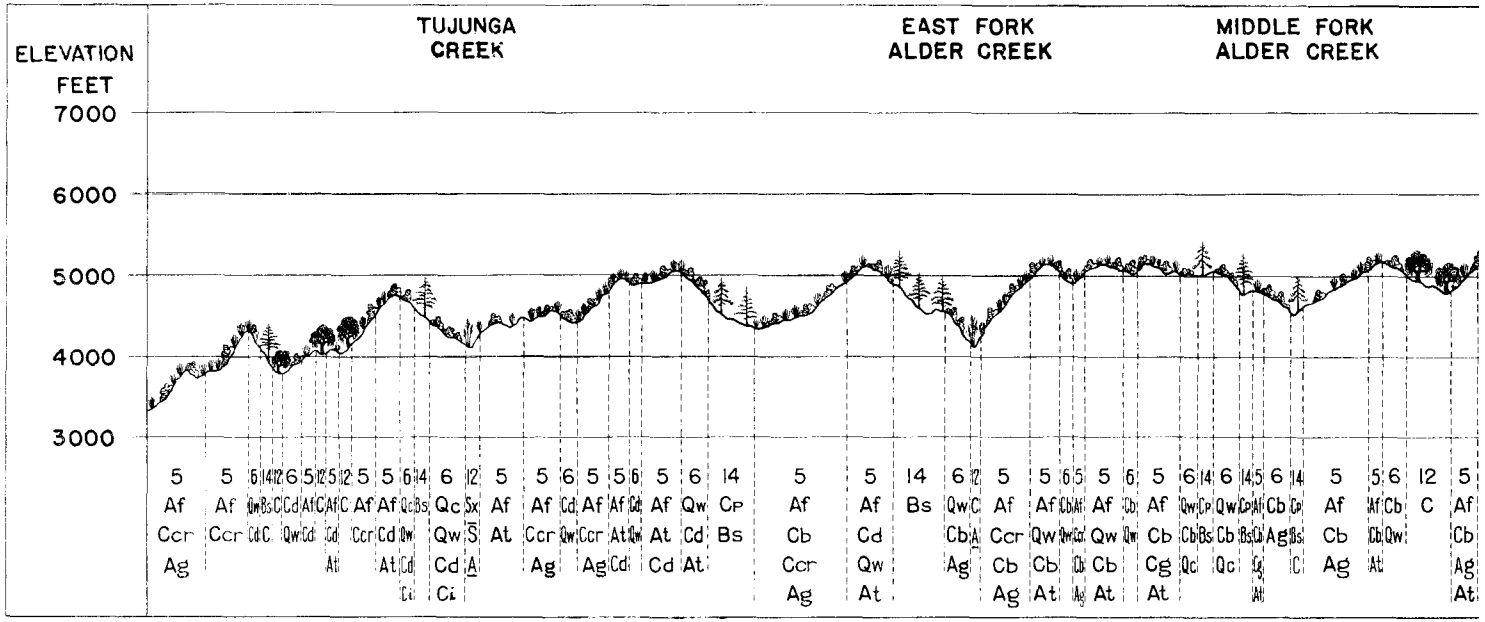


161C Triunfo Pass

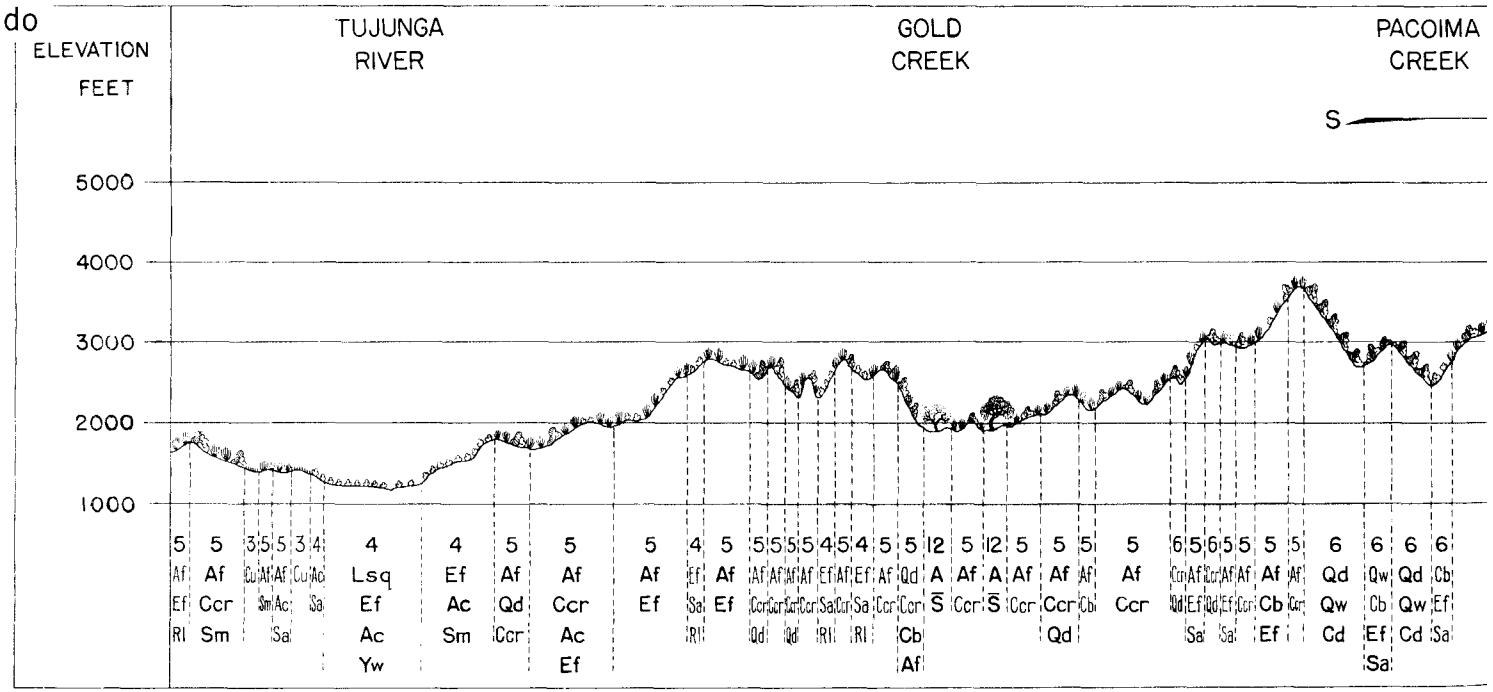


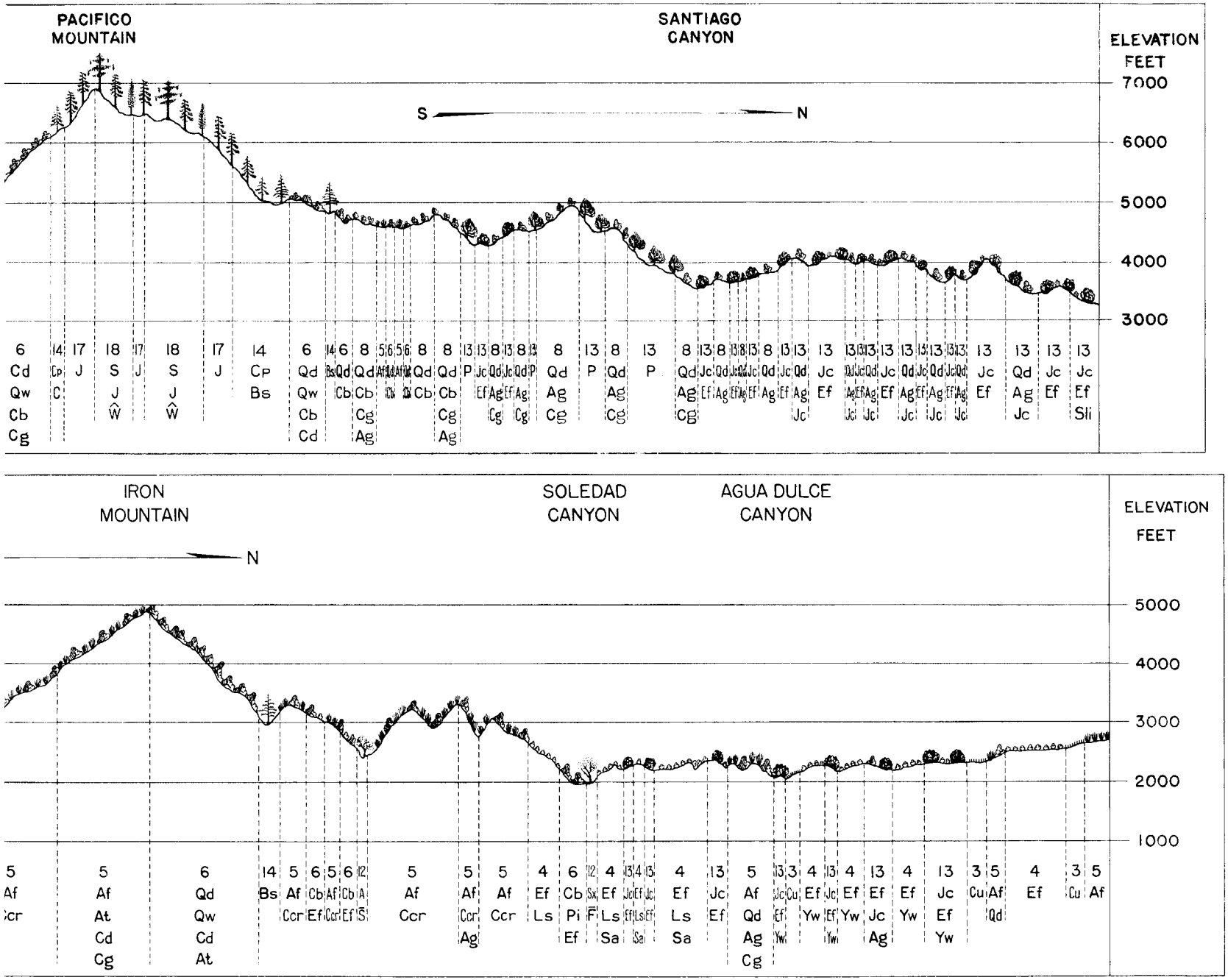
161D Calabasas

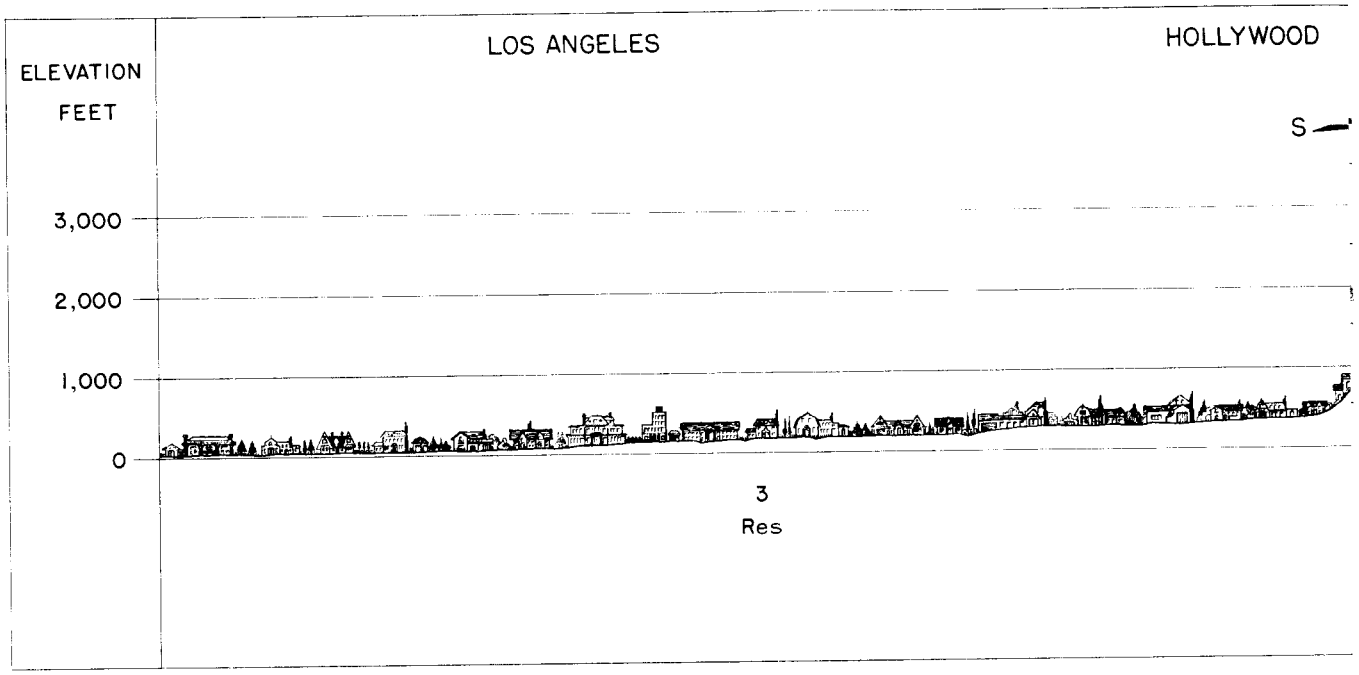
162A Tujunga



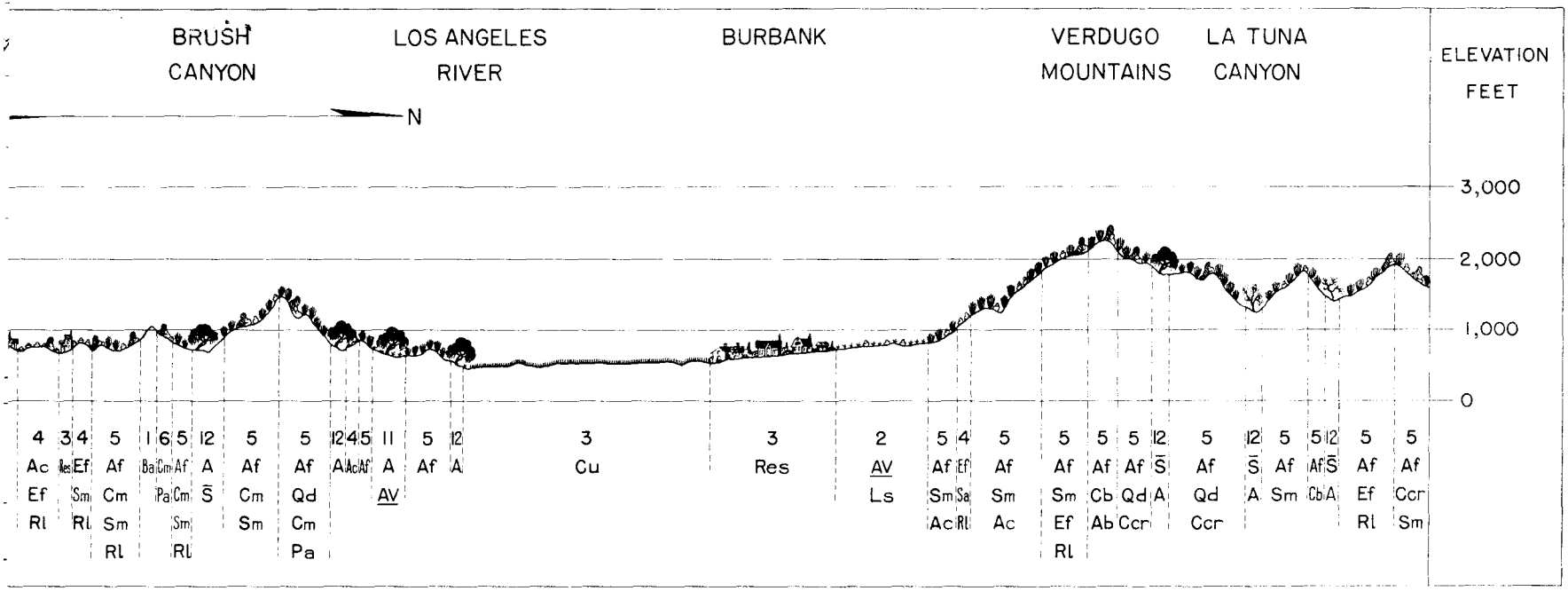
162B San Fernando



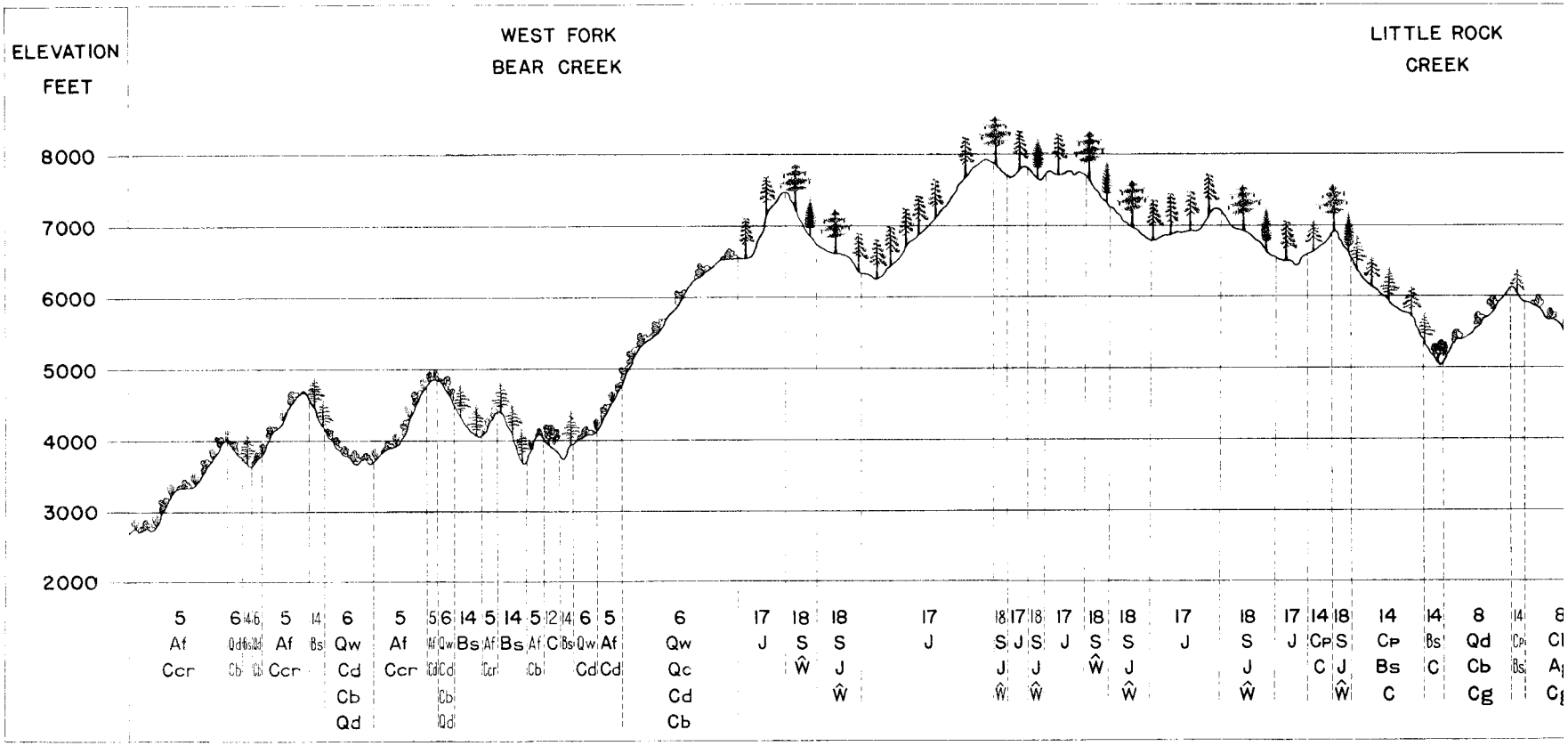

PACIFICO MOUNTAIN
SANTIAGO CANYON
ELEVATION FEET
7000
6000
5000
4000
3000
S
N
IRON MOUNTAIN
SOLEDAD CANYON
AGUA DULCE CANYON
ELEVATION FEET
5000
4000
3000
2000
1000
N

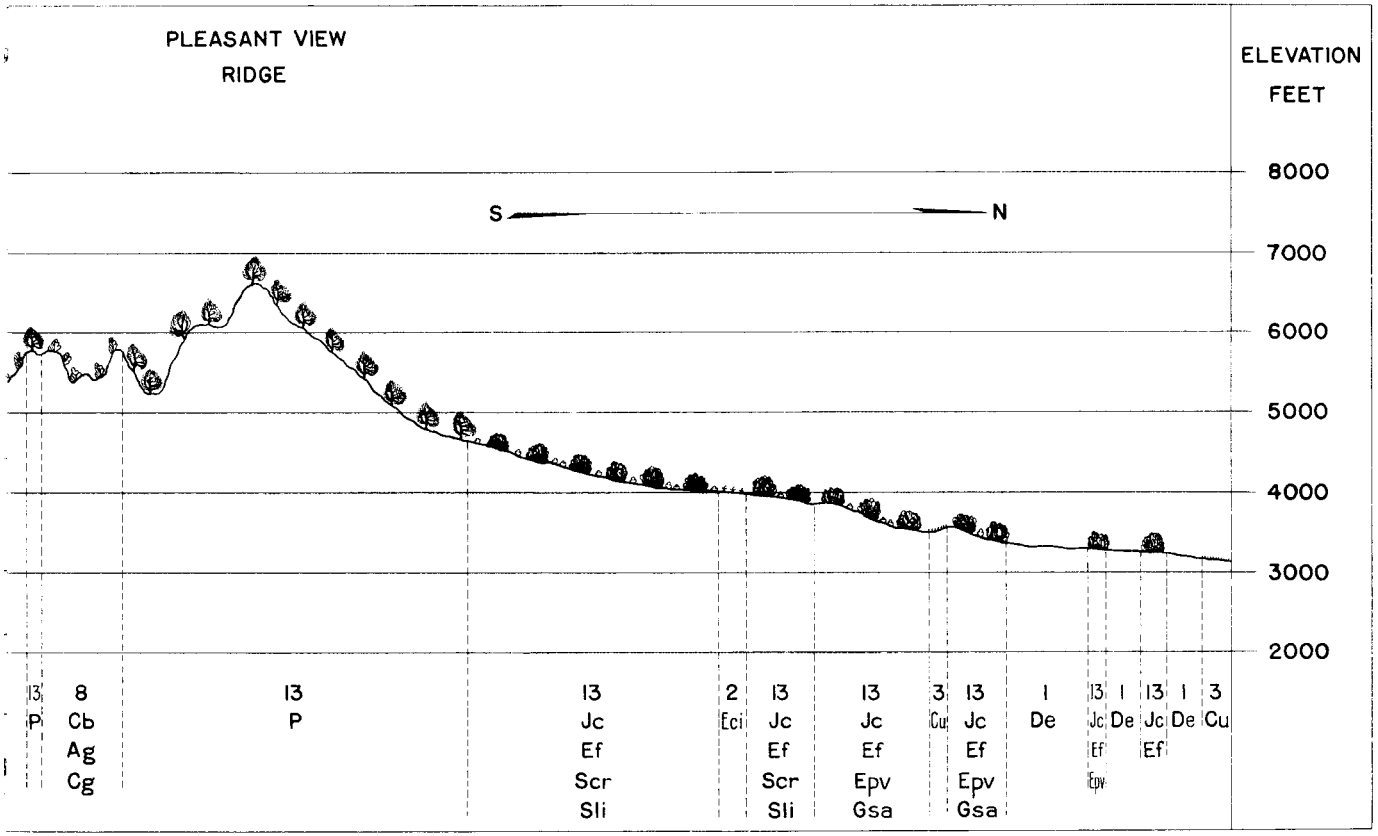

LOS ANGELES
HOLLYWOOD
ELEVATION
FEET
S
3,000
2,000
1,000
0
3
Res

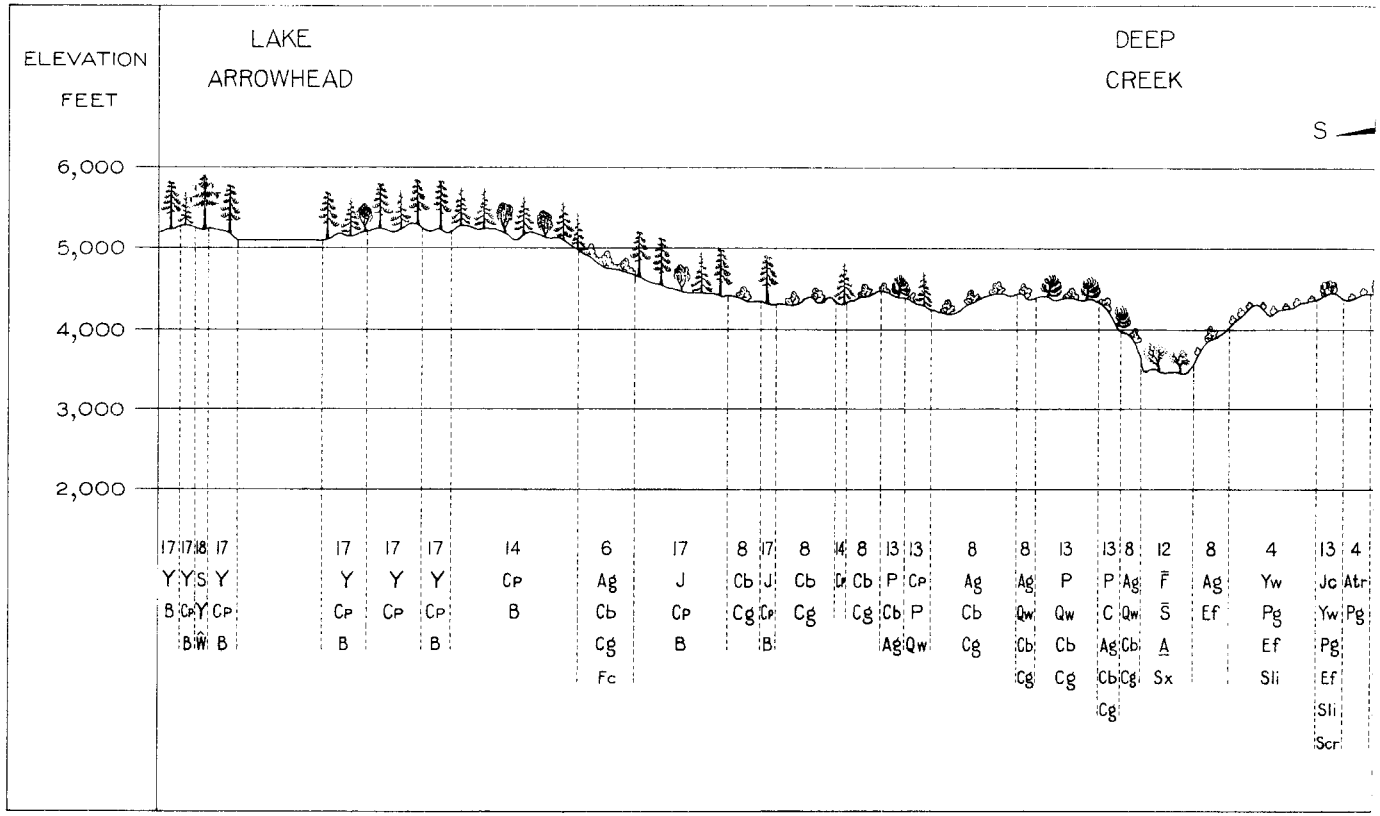
162C Santa Monica



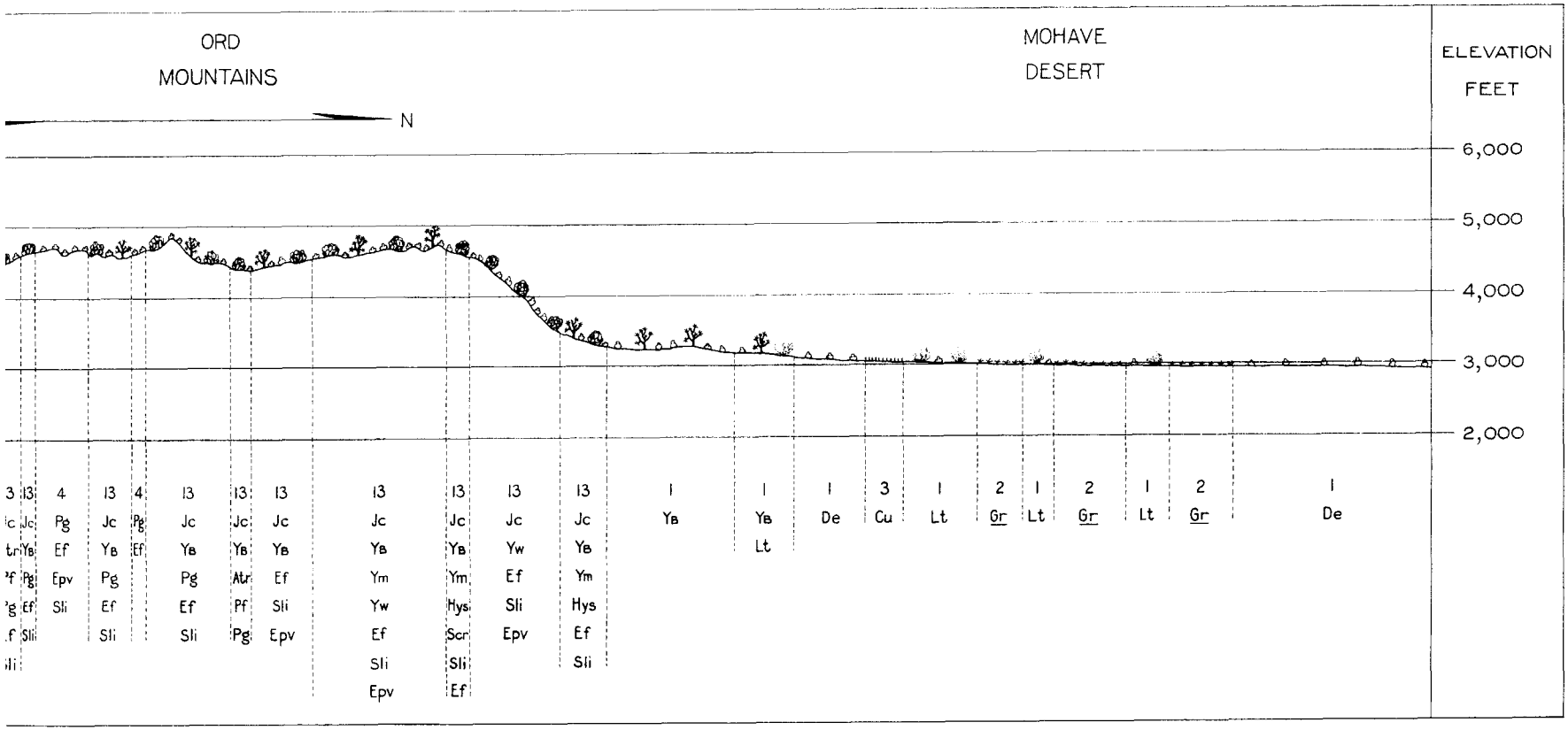
163B Rock Creek



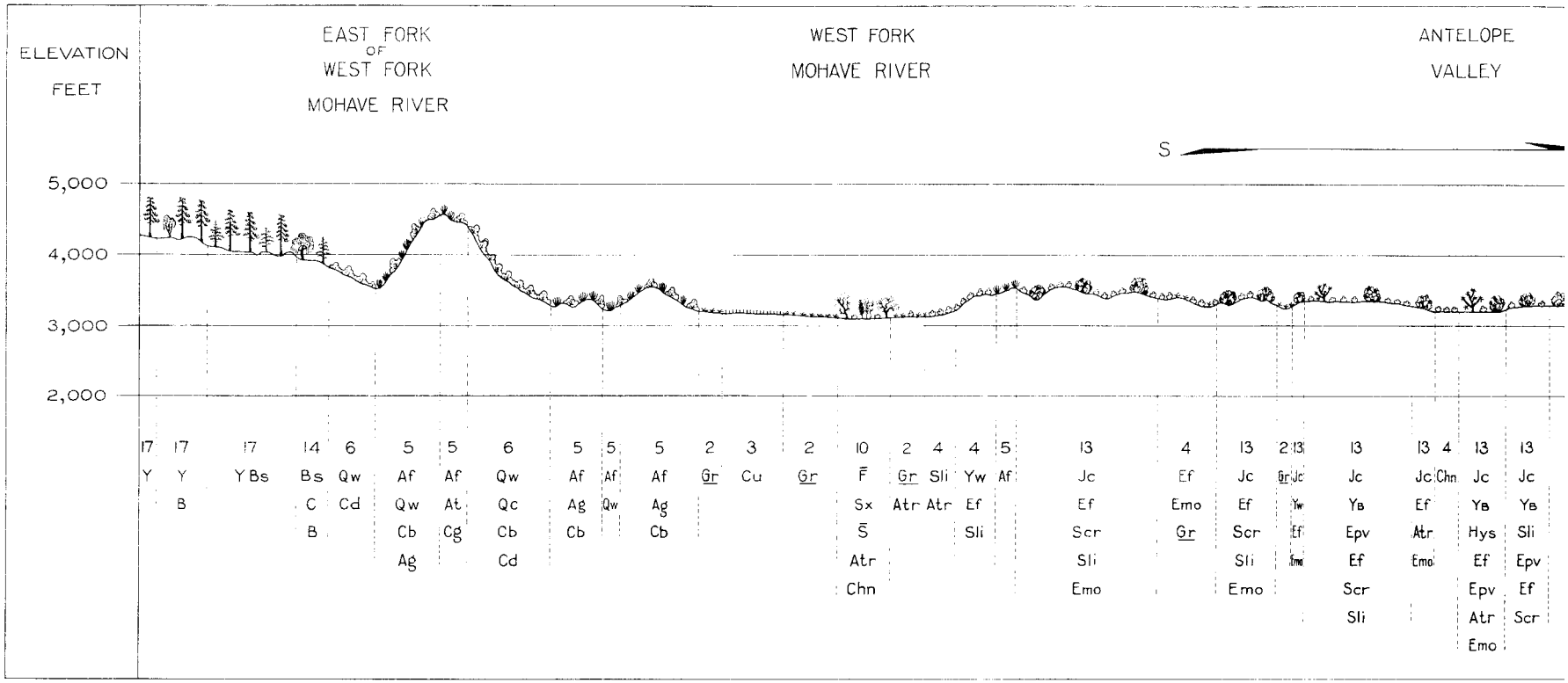

PLEASANT VIEW
RIDGE
ELEVATION
FEET
S
N
8000
7000
6000
5000
4000
3000
2000
13 P
8 Cb Ag Cg
13 P
13 Jc Ef Scr Sli
2 Eci
13 Jc Ef Scr Sli
13 Jc Ef Epv Gsa
3 Cu
13 Jc Ef Epv Gsa
1 De
13 Jc Ef Epv
1 De
13 Jc Ef
1 De
3 Cu

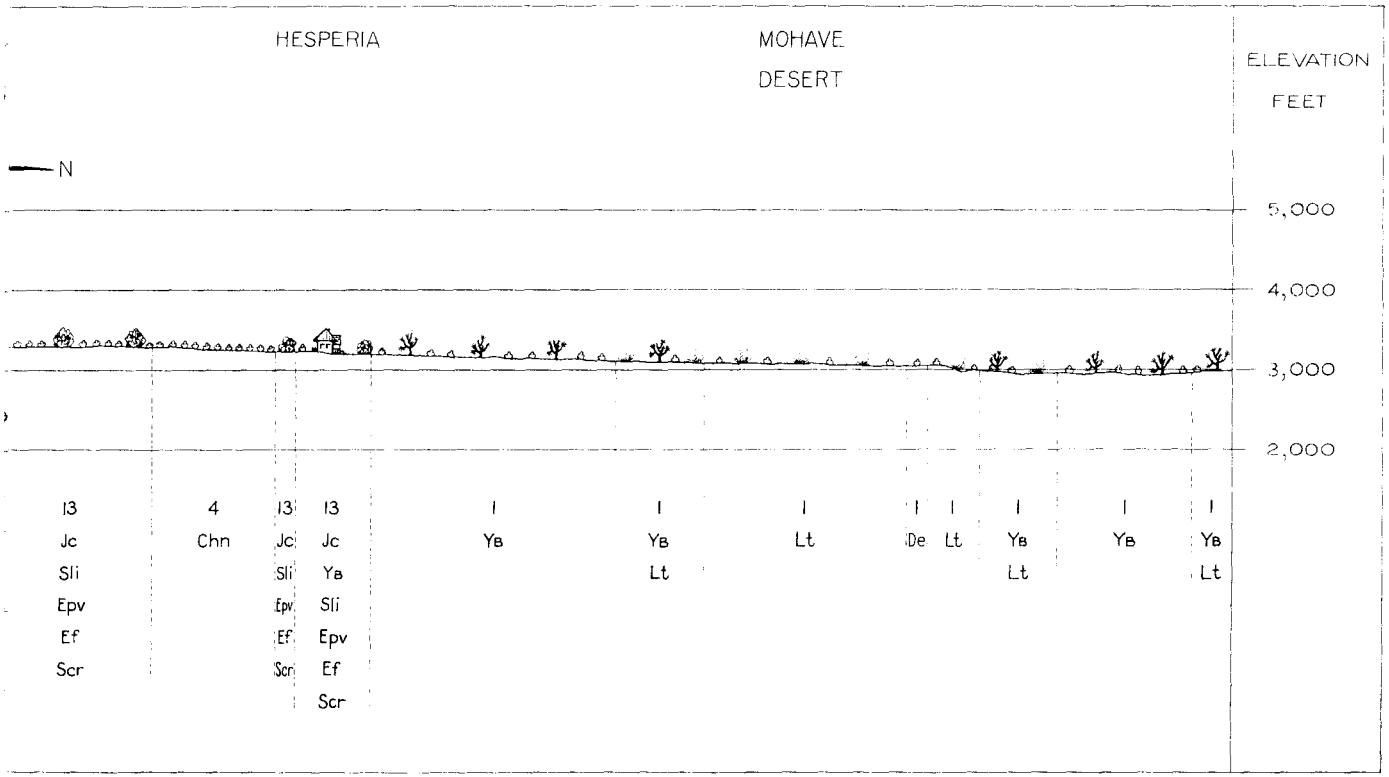

ELEVATION
FEET
LAKE
ARROWHEAD
DEEP
CREEK
S
6,000
5,000
4,000
3,000
2,000

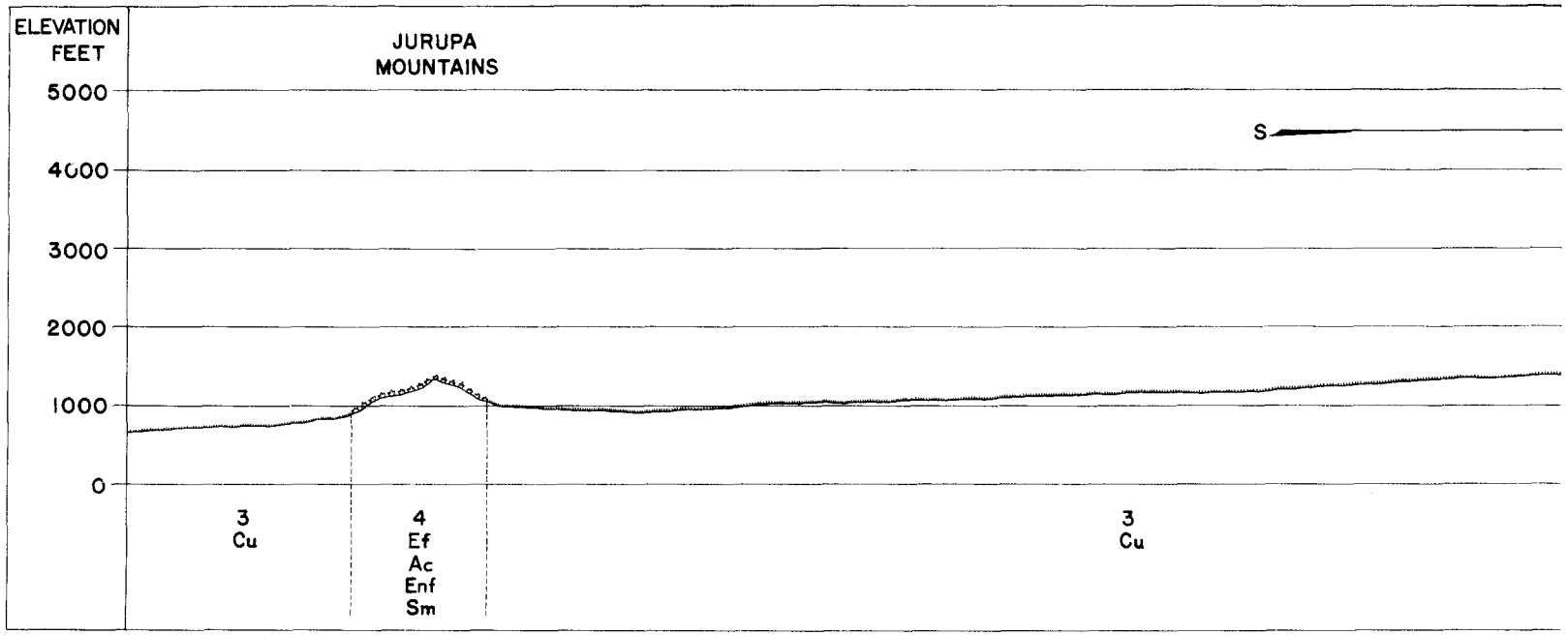
164A Deep Creek

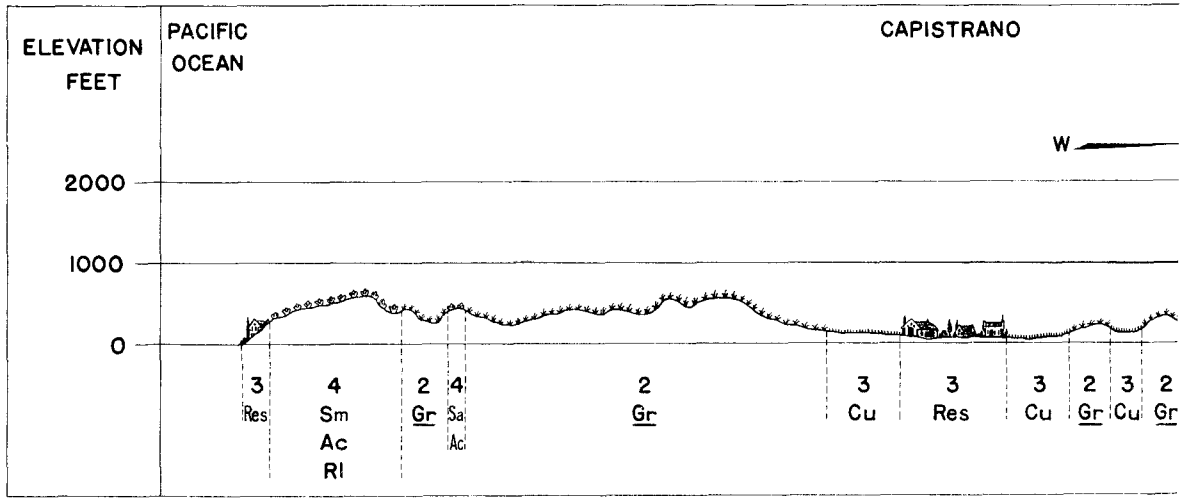


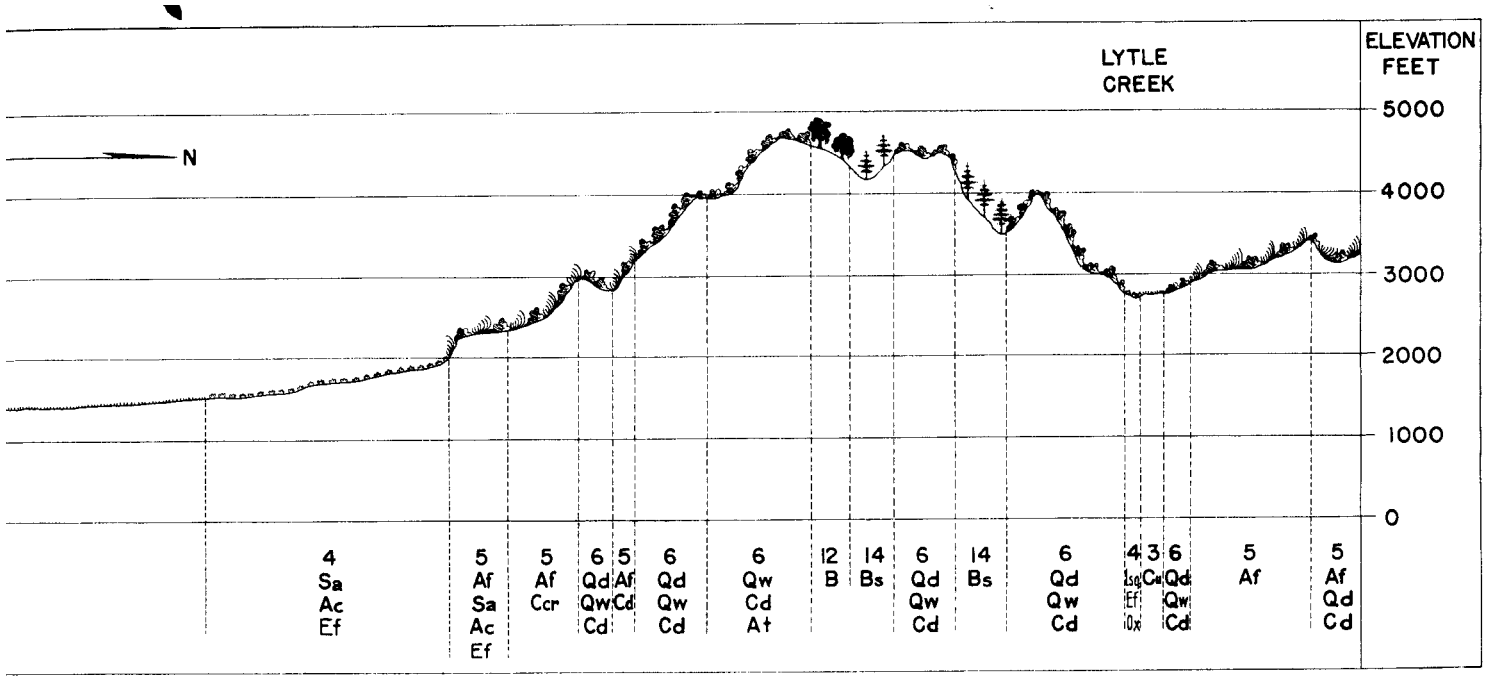
164B Hesperia



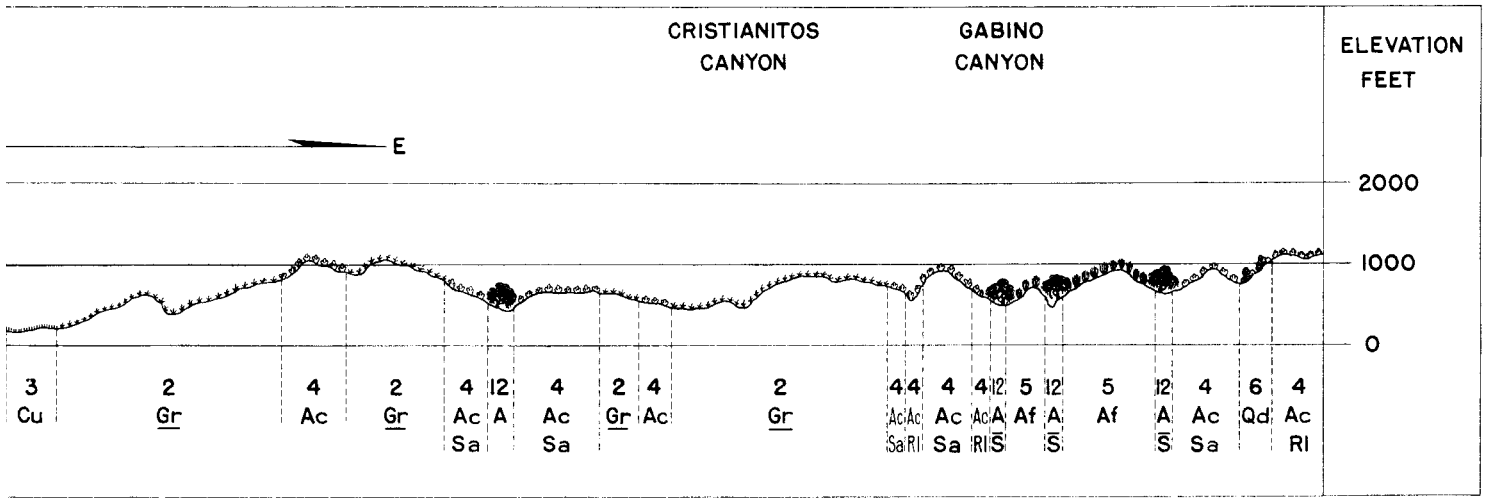

HESPERIA
MOHAVE
DESERT
ELEVATION
FEET
N
5,000
4,000
3,000
2,000
13 Jc Sli Epv Ef Scr
4 Chn
13 Jc Sli Epv Ef Scr
13 Jc Ya Sli Epv Ef Scr
1 Ya
1 Ya Lt
1 Lt
1 De
1 Lt
1 Ya Lt
1 Ya
1 Ya Lt


ELEVATION
FEET
JURUPA
MOUNTAINS
5000
4000
3000
2000
1000
0
S
3
Cu
4
Ef
Ac
Enf
Sm
3
Cu


ELEVATION
FEET
PACIFIC
OCEAN
CAPISTRANO
W
2000
1000
0
3
Res
4
Sm
Ac
Rl
2
Gr
4
Sa
Ac
2
Gr
3
Cu
3
Res
3
Cu
2
Gr
3
Cu
2
Gr

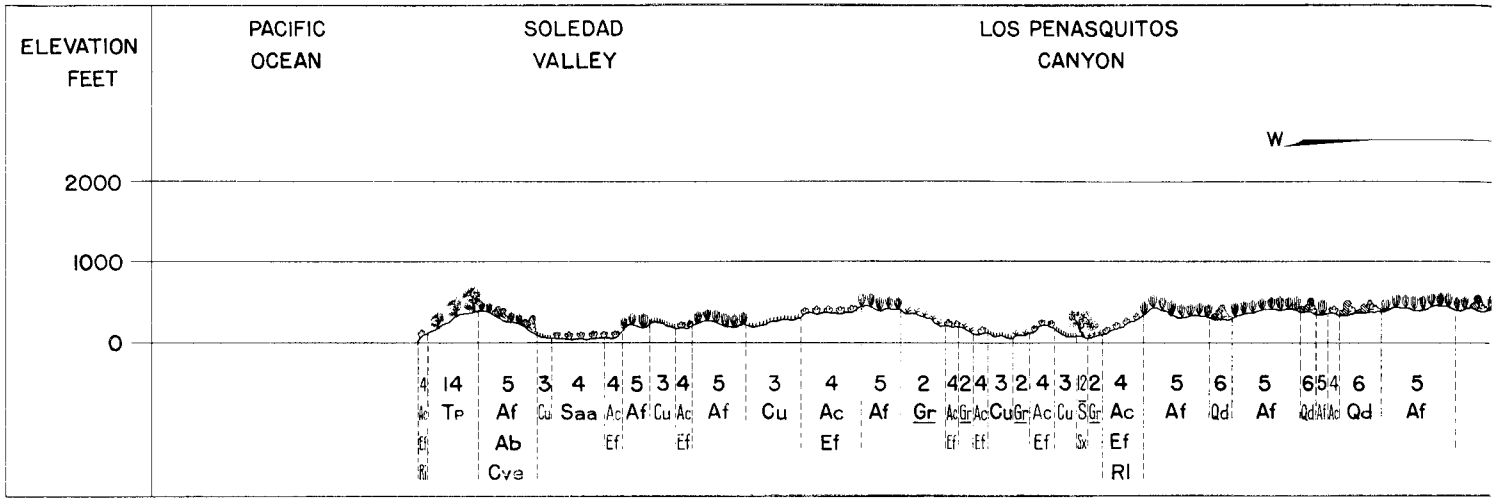


164C
San Bernardino

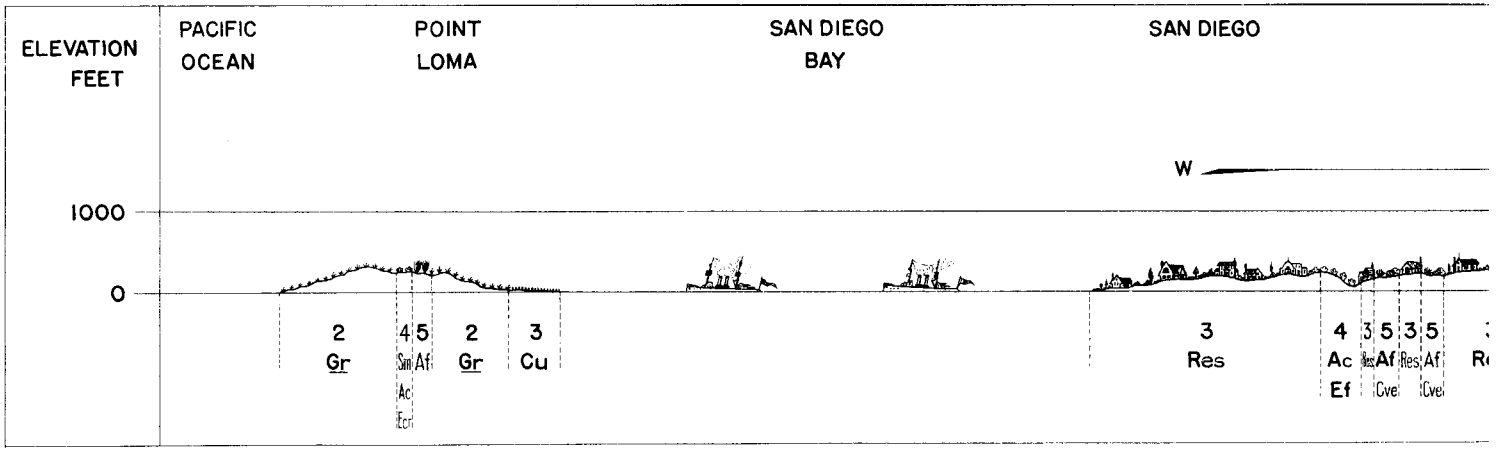


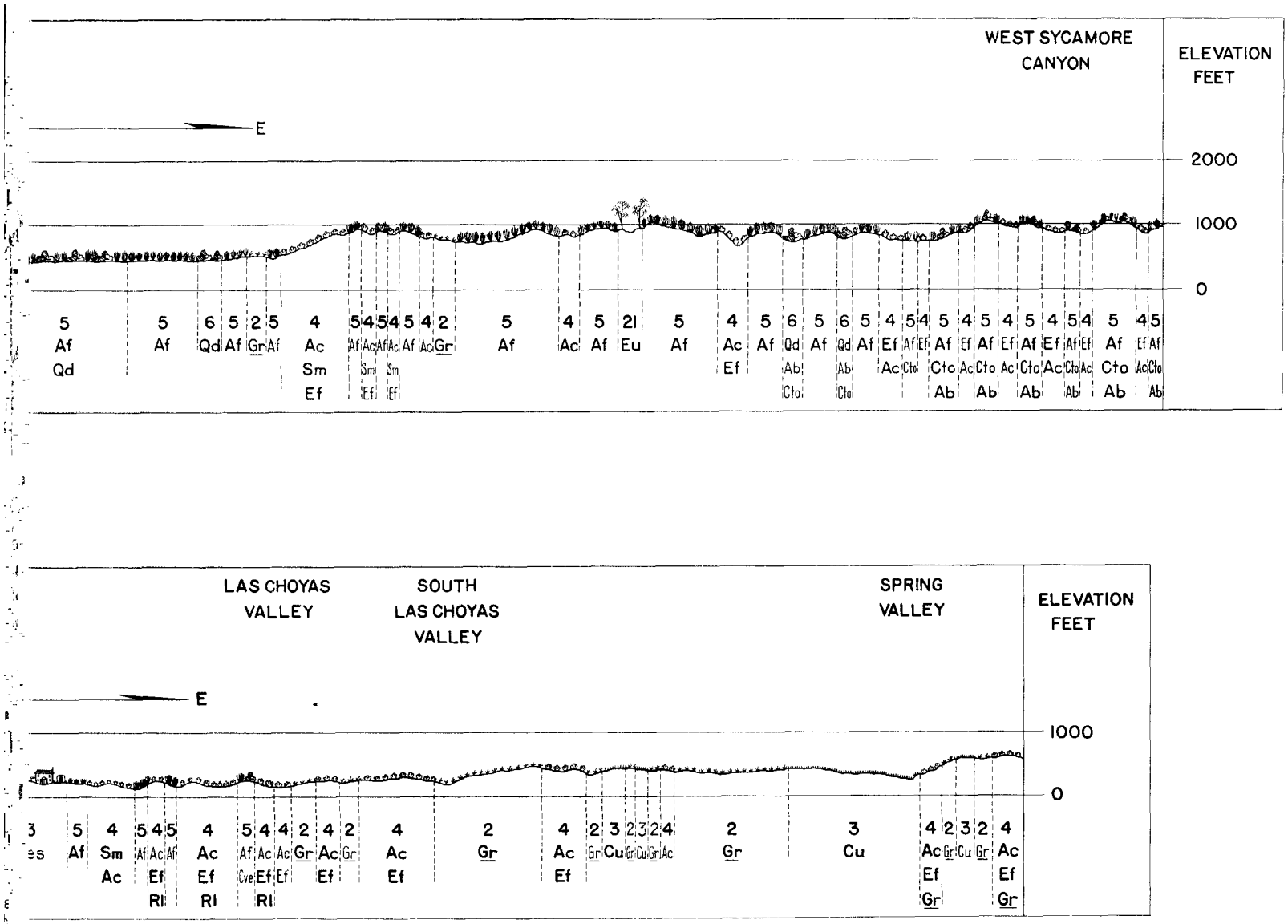
179A Capistrano

192A La Jolla



192D San Diego




WEST SYCAMORE CANYON
ELEVATION FEET
E
2000
1000
0
LAS CHOYAS VALLEY
SOUTH LAS CHOYAS VALLEY
SPRING VALLEY
ELEVATION FEET
E
1000
0

Critchfield, William B.

1971. Profiles of California vegetation. Berkeley, Calif., Pacific SW. Forest & Range Exp. Sta., 54 p., illus. (USDA Forest Serv. Res. Paper PSW-76)

This publication brings together 57 elevational profiles illustrating the dominant vegetation of much of the Sierra Nevada, southern Coast Ranges, and montane southern California as it existed in the 1930's. The profiles were drawn by Michael N. Dobrotin for the U.S. Forest Service's Vegetation Type Map survey, which mapped nearly half of the State's vegetation. Besides providing a historical record, the profiles illustrate the influence of such ecological factors as elevation, exposure, and slope on the composition of the dominant vegetation.

Oxford: 187(794).
Retrieval Terms: vegetation types; California; Sierra Nevada; southern California.

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The Forest Service of the U.S. Department of Agriculture

. . . Conducts forest and range research at more than 75 locations from Puerto Rico to Alaska and Hawaii.

. . . Participates with all State forestry agencies in cooperative programs to protect and improve the Nation's 395 million acres of State, local, and private forest lands.

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The Pacific Southwest Forest and Range Experiment Station

represents the research branch of the Forest Service in California and Hawaii.

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