

REPORT ON
RANGELAND COVER TYPE DESCRIPTIONS
FOR
CALIFORNIA HARDWOOD RANGELANDS

Prepared By:

Barbara H. Allen, Principal Investigator

Rand R. Evett, Barbara A. Holzman, and Ayan J. Martin
Graduate Research Assistants

Department of Forestry and Resource Management
145 Mulford Hall
University of California
Berkeley, CA 94720

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Opinions or conclusions expressed in this report are those of the author and do not necessarily reflect the views of the California Department of Forestry and Fire Protection. Editorial comments may be addressed to the FRRAP staff chief or to the author.

STATE OF CALIFORNIA

George Deukmejian, Governor
Gordon K. Van Vleck, Secretary for Resources
Robert E. Paulus, Acting Director, Department of Forestry and
Fire Protection

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EXECUTIVE SUMMARY

This hardwood rangeland classification system for California provides private landowners, land managers, and researchers a unifying framework from which known ecological and management information can be retrieved. Standardization of type names facilitates the exchange of information on hardwood rangelands between and among agencies, landowners, and universities. The dichotomous keys to the type descriptions ensure that the system is field oriented, and user-friendly.

The classification system consists of 57 subseries arranged hierarchically within 7 Series. The oak series are defined by the dominant oak species present on the site. A Mixed Oak Series is also defined from sites which contain 3 or more species of oak at constancies of greater than 30 percent. This system does not include subseries descriptions for Engelmann or garry oak types.

The classification system was developed from approximately 4300 plots collected as part of the Vegetation Type Map (VTM) survey conducted during 1919-1940's by the USDA Forest Service Pacific Southwest Station, and approximately 500 plots collected as part of the Forest Inventory conducted by the USDA Forest Service Pacific Northwest Station in the 1970's and 1980's. The base information on species composition, percent cover by species, tree stand structure and environment was collected on 1/5 acre plots. Species cover was determined from two line transects on each plot.

The classification structure was developed using TWINSPLAN, a polythetic, divisive classification program developed by Hill (1979). Further analyses were done using DECORANA, and frequencies, regression, and analysis of variance. The information contained in the final type descriptions was developed from VTM data only.

The classification is designed to be user friendly. At a site, the user will use the appropriate key to determine the type, and read the type description to determine if the information provided in the description matches what the user is observing.

The keys and type descriptions have been field tested and verified at several locations in the State, such as Hopland Field Station, Sierra Field Station, Hastings Reserve, and the San Joaquin Experiment Station. The tests were conducted by individuals familiar with hardwood rangeland ecosystems and those who were not. Ongoing use of the keys and descriptions in other parts of the State will provide information for further refinement of keys and descriptions. Additional information on potential productivity and response to management will be incorporated into the descriptions by users as they identify the types that they are working in by the classification subseries names.

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INTRODUCTION

Hardwood rangelands occupy approximately 3 million hectares in California. They occur in 52 of the state's 58 counties, and span fully eight degrees of latitude west of the Sierra Nevada (Mayer et al. 1986). As might be expected in a state as ecologically diverse as California, hardwood rangelands support at least a dozen major tree species and many shrub and herbaceous species which occur in a myriad of combinations.

Since 1980, a number of trends have increasingly focused public attention on hardwood rangelands. These include:

- * continuing population growth which has resulted in conversion of wildlands to urban or semi-urban uses or agriculture,
- * increasing fuelwood use by households and industry,
- * loss of wildlife habitat in hardwood rangelands,
- * increasing oak cutting by ranchers to compensate for declining beef prices,
- * recognition of recruitment problems in riparian, valley oak, Engelmann oak, and blue oak ecosystems,
- * recognition of potential environmental impacts associated with the unregulated removal of hardwood trees, and
- * increasing allocation of research effort to study of the hardwood rangeland type.

Given the extent, diversity and increasing importance of California's hardwood rangelands, a classification system was developed to identify and array opportunities for sound land management. The system is ecologically based, developed from over 5000 plots collected during the Vegetation Type Map program beginning in the 1920's, the Soil Vegetation Survey program of the 1940's, and the USDA Forest Service Pacific Northwest Station's Forest Inventory program beginning in the 1970's.

The proposed system is field-user oriented, but is linked to existing statewide systems used on public rangelands. The identification and description of hardwood rangeland cover types provides land owners and managers with a unifying framework from which known ecological and management information will eventually be accessed. In addition, the cover type framework provides logical units for aggregating information developed through other ecological site description efforts (such as the Forest Service), research, and landowner experience. Also, the cover type classification provides standardized names to facilitate the exchange of information between agencies, landowners and

universities. The classification system, with keys for field use, provides landowners and agencies with a tool to improve predictions about site capabilities. Secondary benefits from use of this system are in mapping and policy analysis.

Objectives of the classification project are:

1. Develop rangeland cover type descriptions for California's hardwood rangelands, which would allow landowners, advisory agencies, and resource managers to classify and map hardwood rangelands.
2. Examine and incorporate current ecological and management information in rangeland cover type descriptions, as available.
3. Provide dichotomous key, in field handbook format, for field identification of cover types by local landowners, researchers, and resource managers.
4. Develop hierarchical links, based on cover types, that will serve as a unifying framework and allow application, in general format, to hardwood rangelands throughout the state.
5. Provide a plan for a statewide hardwood rangeland data base, by providing methodology for further evaluation, testing and refinement of the cover type classification.

The project includes 5 tasks. Task 1 required a review of existing classification systems meeting objective 4. Accomplishment of tasks 2 and 3, selecting classification criteria and developing the classification system, meets objectives 1, 2, and 3. Task 4, which required field testing and review of the system, provides sound feedback on the utility of the proposed system. Finally task 5, publication of results and recommendations for updating the system, meets objective 5. In the following section, each task will be stated as given in the original contract, and the methodology and results of task accomplishment are discussed.

PROJECT METHODS AND ACCOMPLISHMENTS BY TASK

TASK 1: Existing classification systems, data bases, and ecological literature for California forest and rangelands will be reviewed and arrayed.

Twenty-five existing classification systems for hardwood rangelands were reviewed and compared for the attributes each system used to distinguish types as well as attributes authors used in their type descriptions (appendix 1). Existing systems are diverse, some apply only to local geographic areas within California (Howitt 1964), others are statewide systems (Barbour

and Major 1977), while still others are global in scope (UNESCO 1973). Some systems are strictly descriptive, others include quantitative data, i.e. forage quality. Most of the existing systems are based on existing vegetation, but a few are based on potential vegetation. At one extreme, Passof et al. (1985) distinguished 32 types based on dominant species cover, geographic location, and slope. Plumb and McDonald (1981), on the other hand, described only 3 types for a statewide system, and based their classification on present vegetation dominant species, geographic location, and elevation range. They also included information on frost free period, mean annual precipitation and mean temperature.

Some systems, such as Weislander (1935) and Jensen (1947) were developed as part of statewide mapping projects and are not included in appendix 1. Other data bases, such as Wildlife Habitat Relationships (Timossi 1989) may provide useful supporting information to expand the currently proposed type descriptions.

TASK 2: Select the classification criteria.

The classification criteria used to distinguish hardwood rangeland types were developed after (1) a review of the literature on existing classification systems; (2) an examination of attributes available in the existing data sets; and (3) a full day meeting of hardwood rangeland experts, who reviewed existing systems and the available data bases.

During the meeting, primary discussion revolved around 1) the spatial and compositional level of resolution that would be possible in the classification system given the level of detail in the data sets, and 2) the lack of successional and productivity information available to be incorporated in classification descriptions. During the discussion of existing classification systems, advantages of the Passof et al. (1985) system were clearly identified. These included: 1) the system uses a few easily recognizable variables; 2) it is easily tied to management objectives; and 3) common sites are easily agreed upon. The disadvantages centered on the system's broadness and lack of predictive information from which a manager could predict management outcomes.

Meeting participants concluded that an ideal system would 1) consist of a few variables and be easy to use, 2) adequately predict the effects of management activities, and 3) be ecologically based.

The environmental/vegetative attributes finally selected for classifying the cover types are listed in appendix 3. The primary classification variable was percent cover or basal area (as an index to cover) of the dominant plant species. Secondly, environmental variables were used to refine initial

types based on species cover. Thus, significant differences in kinds/proportions of plant species, elevation, geographic location, slopes, and aspects were the main variables used to distinguish cover types.

Even though, many variables were used to distinguish the classification units, the final product is simple to use because each type can be identified through the use of accompanying dichotomous keys. Use of each key requires that the field user know about a dozen plant species. The system is ecologically based, incorporating all known plant species and attributes of the environment in which they live. Finally, the framework will allow for the collection, storage and retrieval of research and anecdotal information on community response to management activities.

Task 3: The Classification System

Introduction

Classification systems of vegetation, soil, habitats, and ecosystems are used by resource managers to group information by some unit. The units are labeled and described so that managers can use them to measure land area, plan treatments, conduct inventories, and aggregate information. Classification units can be broad or site specific, oriented to a single resource or to multiple resources, used widely or locally, or be based on multiple factors or on a single factor (Allen 1987).

All classifications are artificial, but should describe or distinguish natural units. Units are typically identified and described to meet a specific need and are distinguished from each other by specific criteria. Natural classification units, such as habitat types or ecological types, as a subset of artificial classification, are generally based on natural relationships and serving a larger number of purposes (Pfister and Arno 1980).

Cover types are groupings of similar vegetation that are either stable or transitory in nature. Some cover types have occupied an area for long periods, while others are temporary occupants of disturbed sites, and through succession gradually give way to more stable cover and ultimately to a potential natural community.

An ecological type is defined as "a kind of land with a specific potential natural community and specific physical site characteristics, differing from other kinds of land in its ability to produce vegetation and to respond to management" (RISC 1983). Ecological sites are site specific units based on late seral, stable vegetation and identified by the application of the following criteria: significant differences in kinds and proportions of plant species in the potential natural community, significant differences in production, and significant

differences in soil properties, slope, and topographic position reflecting different use potentials (RISC 1983). The creation of an ecological site classification system requires sophisticated and lengthy field data collection and analysis techniques, and is beyond the scope of this project.

However, the identification and description of hardwood rangeland cover types will provide land owners and managers with a unifying framework from which known ecological and management information can be assessed. In addition, the cover type framework will provide the logical units for aggregating information developed through ecological site description efforts, research, and land owner experience. Also, the cover type classification will provide standardized names to facilitate the exchange of information between agencies, land owners, and universities. The classification system, with keys for field use, will also provide land owners and agencies with a tool to improve predictions about site capabilities.

Previous classification efforts have developed broad level descriptions of hardwood rangelands as part of efforts to classify California vegetation (Weislander 1935, Jensen 1947, Munz and Keck 1968, Cheatham and Haller 1975, Barbour and Major 1977, Eyre 1980, and Paysen et al. 1980 to name a few). Such cover type descriptions are broad, have varying amounts of ecological information, and provide reasonable potential for establishing a hierarchical framework. For example, Eyre (1980) describes 4 hardwood cover types: California Black Oak (SAF 246), Canyon Live Oak (SAF 249), Blue Oak-Foothill Pine (SAF 250), and California Coast Live Oak (SAF 255). Griffin, in Barbour and Major (1977), provides additional information on oak woodlands in his description of 7 types: foothill woodland, valley oak, blue oak, north slope, interior live oak, Engelmann oak, and coast live oak.

However, none of the existing classification systems covering hardwood rangeland types provide a statewide, ecologically based, unifying framework with keys to identify types. The attached classification of California hardwood rangelands provides that framework.

Methods

The development of the classification system was accomplished through a series of steps. Although three data bases were used (table 1), the classification structure relies most heavily on original field plots from the Vegetation Type Map project taken during the 1920's and 30's.

Initially, the USFS Pacific Northwest Station's Forest Inventory (FI) plots were examined to identify major hardwood rangeland types throughout the state. The forest inventory plots were collected throughout California by Charles Bolsinger of PNW, and

Table 1. NUMBER OF PLOTS BY DATA BASE WITHIN EACH COUNTY

COUNTY	DATA BASE			COUNTY	DATA BASE		
	FOREST	SOIL-	VTM		FOREST	SOIL-	VTM
	INVENTORY	VEG			INVENTORY	VEG	
Alameda	2	-	38	Orange	-	-	9
Alpine	-	-	-	Placer	15	-	69
Amador	10	-	83	Plumas	8	2	20
Butte	26	9	30	Riverside	1	-	7
Calaveras	22	10	314	Sacramento	-	-	7
Colusa	-	-	-	San Benito	4	-	155
Contra Costa	2	-	57	San Bernadino	1	-	69
Del Norte	15	3	-	San Diego	6	-	29
El Dorado	25	-	269	San Francisco	8	-	-
Fresno	10	11	56	San Joaquin	1	-	9
Glenn	-	3	-	San Luis Obispo	6	-	487
Humboldt	136	10	-	San Mateo	6	-	57
Imperial	-	-	-	Santa Barbara	-	-	143
Inyo	-	-	-	Santa Clara	6	-	343
Kern	14	-	68	Santa Cruz	11	-	109
Kings	-	-	6	Shasta	71	21	242
Lake	7	3	-	Sierra	3	-	21
Lassen	6	-	-	Siskiyou	28	-	2
Los Angeles	-	-	20	Solano	-	-	23
Madera	5	-	40	Sonoma	33	2	13
Marin	1	-	16	Stanislaus	1	-	42
Mariposa	9	-	297	Sutter	-	-	-
Mendocino	133	3	16	Tehama	18	21	-
Merced	-	-	19	Trinity	33	1	-
Modoc	1	-	-	Tulare	9	1	24
Mono	2	-	-	Tuolumne	13	1	468
Monterey	5	-	360	Ventura	-	-	34
Napa	9	-	50	Yolo	1	-	-
Nevada	11	-	89	Yuba	-	-	-

his field crews. The plot records contain detailed information of species composition, as well as information on tree growth, and environmental conditions, such as elevation, slope, aspect, etc. The plot data for the state was received on floppy disks and subsequently reduced to approximately 750 plots containing *Quercus* species.

The distribution of FI plots is displayed in figure 1. Most of the oak plots are distributed in the northwest portion of the state, although a fair number are found in the northern Sierra Nevada.

The second data set, which was initially evaluated, was supplied by the Soil Vegetation Survey (SVS). This set contained approximately 125 records containing information on species composition and environmental variables. This set was recoded to standardize codes between the FI plots and the SVS plots. Then both data sets were combined for joint analyses. The distribution of SVS plots is displayed in figure 1.

Finally, field plot records from the Vegetation Type Map (VTM) project of the 1920's and 1930's were used as the basis for classification of hardwood rangeland cover types. The plots were collected as part of the statewide effort to map vegetation (Jensen 1947). The plot records contain information on plant species cover of the understory, tree stand structure (number per diameter class), elevation, slope, aspect, parent material and other environmental variables. Table 2 compares the variables contained in the three data sets.

All plant species were coded using national standard codes based on the first two letters of the genus and first two letters of the species (Powell 1987). A number is given after the four letters to distinguish between species having the same letter code. All plant species by scientific and common name, and their code are listed in Appendix 2.

Figure 1. Number of Plots by Data Base within each County

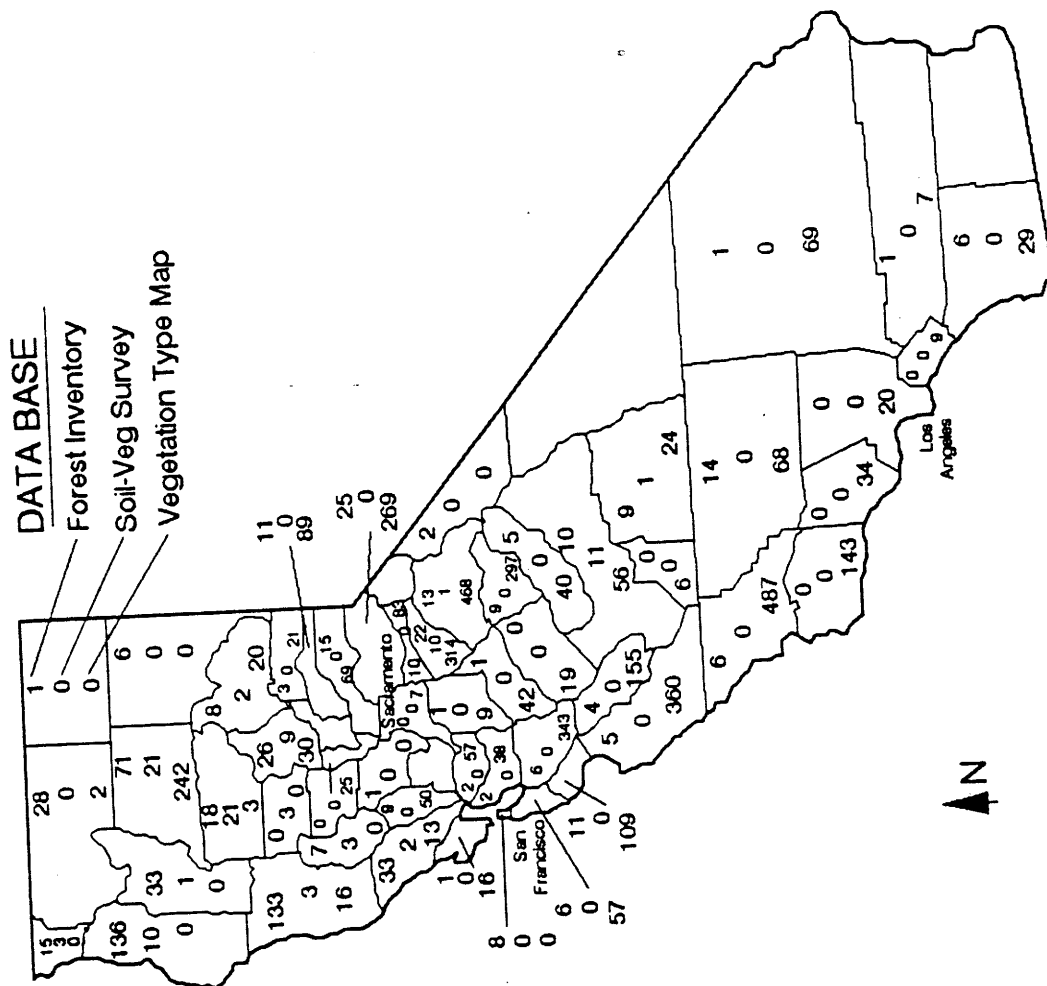


Table 2. Data Elements contained within a specific data base.
(X = has information, - = no data, s = spotty)

Variable	Forest Inventory (PNW)	Soil/Veg Survey (SVS)	Vegetation Type Map (VTM)
Quad X	X	X	
Plot X	X	X	
County	X	X	X
Township	X	X	X
Range	X	X	X
Section	X	X	X
Plot Date	-	-	X
Elevation	X	X	X
Aspect	X	X	X
Slope	X	X	X
Precipitation	-	X	-
Topography	X	X	-
Soil Series	-	X	-
Parent Material	-	X	X
Permeability	X	X	X
Drainage	-	X	-
Surface stoniness	-	X	-
Exposed bedrock	-	X	-
Plant species code	X	X	X
% species cover	X	X	X
Layer	-	X	X
DBH class	X	-	X
Year since burn	-	-	s
Site index	-	-	s
Species Ht	X	-	s
Number of plots (# includes LIDE2)	725 Yes	127 Yes	4300+ No

Approximately 4300 plots from the VTM data set contained *Quercus* species. The plots are widely distributed in oak types throughout the state (figure 1), although few plots exist in Engelmann oak or garry oak types. Again the first step was to standardize the coding of the VTM plots to match the FI and SVS plots, and convert the plots from paper records to the computer. Plant species on VTM plots were also recorded using an old and currently unused system, and thus had to be carefully recoded to current national standard plant species codes. This process took approximately 7 months to search the 8000+ paper VTM records, pull out plots with oaks (approximately 4300), find the species name and convert old codes to new, and computerize and clean the data base. The original VTM plots are on file at the Jepson Herbarium, University of California, Berkeley.

Once the data bases were established on RBASE (1985), analyses could begin. Later the data base was converted to DBASE IV (1988) to facilitate manipulation of the huge number of plot records. A computer programmer worked part-time on the project and wrote specific PASCAL programs to facilitate downloading of plot records to use in different analyses packages.

The FI/SVS and VTM data sets were analyzed separately and then compared visually. Initially both data sets were treated the same as described below. In later analyses, however, we concentrated on the VTM data set.

The analysis strategy was to first look for patterns in plant species distribution to be able to identify plant communities. TWINSpan (Hill 1979), Two-Way Indicator Species Analysis, was the analytical tool used in this first step. Because of the large number of plots in the VTM data set, the plots were initially divided into 4 large geographical regions; the central-south coast range, the lower elevation central and southern Sierra Nevada, the higher elevation central and northern Sierra Nevada, and the northern Sierra, Klamath mountains, and north coast range. TWINSpan was used to examine each of these geographic regions and the FI/SVS data sets independently.

Results indicated patterns in plant communities at the Series level, that is based on dominance of individual oak species. The FI/SVS data set consisted of primarily tanoak, some garry oak, and conifer types and thus was not analyzed further, until the VTM set was analyzed in detail. The VTM data sets (4 geographical regions) were then re-analyzed using TWINSpan, combining plots that contained similar oak species dominance regardless of their original geographical region.

At this stage, DECORANA (detrended correspondence analysis, Hill 1979) was used to array plots from the vegetation types distinguished in TWINSpan to examine relationships between types, through environmental gradients. Simultaneously, regression and discriminant analyses in SPSSPC+ (Norusis 1986) were used to

evaluate the environmental characteristics of the types that could be used to explain the community distribution. Major oak series were distinguished including coast live oak, interior live oak, blue oak, black oak, valley oak, scrub oak, and a mixed oak series that contained 3 or more oak species.

A period of continuous feedback analysis began as each oak series was then reanalyzed independently using TWINSpan, DECORANA, regression and discriminant analysis techniques and plots were juggled between types making individual types more homogeneous. Oneway ANOVA (Norusis 1986) was used to compare mean differences in species basal area or cover, and other environmental attributes between types. Finally, several individual counties were analyzed separately to see if the same patterns in community types would hold true.

Plant species coding problems became apparent throughout the analyses as unusual "types" appeared. Often, the species codes were traced back to the original VTM plot cards, and errors in identification were corrected. The "unusual type" plots were then correctly classified. However, other errors in the data set originated from original data collection and coding problems, our conversion of old codes to new plant species codes, and data entry errors. Field testing, re-analysis, the large number of plots, and common sense have minimized any impact on the classification system from coding errors.

Plant community type keys were constructed for each oak series. The primary objective of key construction was to develop an accurate, easy-to-use key to aid field users in the correct identification of cover types. Thus, a few characteristic species and environmental attributes were used in the keys for each series. A key to the series was also constructed.

Descriptions were written for each rangeland cover type or subseries. The term subseries is used to describe the appropriate hierarchical level of the described hardwood types. Since site specific response to management has not been used as a criteria in classification, nor was a complete species list (including all herbaceous species) available, the cover types described in this report cannot be called ecological types. However, the types described in this report incorporate more ecological information than any other system to date, and are thus at a finer level of resolution than Series. Subseries, though unused before, is the appropriate classification level.

Each description contains the type name, number of plots used to describe the type, location information, environmental setting, and plant species. Additionally, a stand table is given for the tree species. Since the descriptions are founded on old plot data, the original units are used, without conversion to metric.

Keys and descriptions were then field tested as described in Task 4. Difficulties in use of the keys, format problems in the description, and errors in plant species coding were evaluated, discussed, and corrected as appropriate. This process often resulted in additional analyses of several subseries types within an oak series. The analyses may have included TWINSPAN and DECORANA analyses, and combining or splitting of types.

DISCUSSION

The keys and descriptions for hardwood rangeland cover types follows an overview of each oak Series. The document does not contain garry oak, Engelmann oak, or tanoak plant community types. In addition, users may find themselves in oak cover types that are not described within the classification system. This may be because the data set used to develop the classification did not contain examples of the type. Specific examples are described in the overview of types.

Field checking and discussion with oak woodland experts indicate that the classification should apply to at least 80% of the oak woodland series that exist. New types will be added to the system as appropriate, as documented by field work and analysis. Information on tree and understory productivity, wildlife habitat, and potential responses to management treatments for existing types will be added as information becomes available from the literature and research.

Users must know approximately a dozen plant species to use the keys to the hardwood rangeland subseries. Since keys are only a tool in identifying the type, users must also read the type description to verify that he/she has correctly identified the type. If the description does not fit with what the user is seeing on the ground, he/she should go back through the key and check alternative routes.

The rangeland cover types have all been given a name (and number). The name is composed of the dominant species of the tree, shrub, or herbaceous layer. The species having the greatest constancy (presence) across all plots representing the type is used in the name. A slash (/) is used to separate species of different life forms, and a dash (-) is used to separate species of the same life form.

Scientific species names, common names, and codes come from Munz and Keck 1968, and Powell 1987. Appendix 2 lists the plant species and codes used in this report. Notations on elevation and soils are given in feet. Basal area is given in square feet per acre. Appendix 3 displays the codes for environmental variables.

Constancy is expressed in percent as the number of plots in a type which contain a specific number of species divided by the total number of plots used to describe the type.

Task 4: Peer review and field trials of the classification system.

The classification system was reviewed by a number of hardwood experts as well as individuals unfamiliar with hardwood rangeland ecosystems in several areas in the state. The review consisted of a discussion of the classification structure, instructions on how to use the system and keys, and field review and evaluation of the keys and type descriptions.

After field review, the classification was refined as appropriate by re-working the keys and carrying out additional analysis if necessary. The process of field review took place from January through May, 1989.

The keys and descriptions were reviewed and tested by the following individuals/groups and areas:

Robert Schmidt (UC Ext.)
Robert Tim (Director)
Pam Muick (UCB)
UCB Forest ecology class
UCB Rangeland assessment class

Hopland Field Station

Mike Connors (Director)
Doug McCreary (UC Ext.)
Mel George (UC Davis)
Ted Adams (UC Ext.)
Randy Godden (USFS)
Jerry Reioux (SCS)

Sierra Field Station

Ken Fulgham (Humboldt)
HSU Rangeland assessment class
UCB Rangeland assessment class

Sierra Field Station

James Griffin (Ecologist)
Mark Borchert (USFS)
David Diaz (USFS)

Hastings Reservation (UCNRS)

William Frost (Director)
Neil McDougald (UC Ext.)

San Joaquin Experimental Range

James Bartolome (UCB)
Rick Standiford (UC Ext.)

San Luis Obispo county/Bay area

Task 5: Publication of the Descriptions/Recommendations for Updating the Classification System

The written report includes an introduction to classification, accomplishments by task, methods, the classification system itself, dichotomous keys to the types, and interpretive materials. According to the contract manager, this entire report will be available through CDF FRRAP as part of the Integrated Hardwood Program publication series. In addition, the keys and type descriptions be available to users throughout the state in a separate document, too.

I intend to publish sections of the keys and type descriptions in refereed journals, with as much management response information attached to the descriptions as possible. In addition, these articles will fully integrate existing research information on a particular series, which can serve as a model for updating the type descriptions.

I suggest that initially the type descriptions should be updated annually as oak research continues. For example, information that I collect as part of ongoing research on vegetation change in oak woodlands will provide important information on specific subseries. If other researchers conducting projects with Integrated Hardwood Program monies are required to label their research sites with the classification system labels, their results will be able to be incorporated into the subseries description.

Right now data on tree productivity, understory productivity, and wildlife species are available for certain types, but the researchers did not have this classification system available to label their sites when they conducted their research. For example, Rick Standiford and Norm Pillsbury may have tree productivity data for specific subseries. Similarly, Mike Morrison has large amounts of wildlife information that could be tied to these subseries. Mel George's understory productivity data base is another potential source of important information that could be tied to the current type descriptions. I suggest that these researchers and data sets be canvassed for incorporating important management information into the classification system subseries descriptions.

OVERVIEW OF THE OAK WOODLAND SERIES

The hardwood rangeland of California is divided into 57 subseries arranged hierarchically within 7 Series. The Oak Series are defined by the dominant oak species present on the site. A Mixed Oak Series is also defined by sites which contain 3 or more species of oak at constancies of 30 percent or more. Sometimes in order to facilitate user friendliness, a subseries is listed in two Series and can be keyed from either Series' key. The seven Series and their associated subseries are listed below:

QUAG SERIES (common name and code name)

Coast Live Oak-California Bay/Toyon-Scrub Oak
QUAG-UMCA1/HEAR2-QUDU2
Coast Live Oak/Blackberry/Bracken Fern
QUAG/RUVI2/PTAQ
Coast Live Oak-Maple/Coffeeberry-Ocean Spray
QUAG-ACMA/RHCA2-HODI
Coast Live Oak-Madrone/Hazelnut-Blackberry
QUAG-ARME3/COCO5-RUVI2
Coast Live Oak
QUAG
Coast Live Oak/Grass
QUAG/GRASS
Coast Live Oak/Toyon-Poison Oak
QUAG/HEAR2-RHDI
Coast Live Oak/Poison Oak/Grass
QUAG/RHDI/GRASS
Coast Live Oak/Poison Oak
QUAG/RHDI
Coast Live Oak/Coffeeberry-Toyon
QUAG/RHCA2-HEAR2
Coast Live Oak/Toyon/Grass
QUAG/HEAR2/GRASS
Coast Live Oak/Chamise-Black Sage
QUAG/ADFA-SAME4
Coast Live Oak/Coast Sagebrush/Grass
QUAG/ARCA7/GRASS
Coast Live Oak/Ocean Spray-Snowberry
QUAG/HODI-SYRI
Blue Oak-Coast Live Oak/Grass
QUDO-QUAG/GRASS

QUDO SERIES (common name and code name)

Blue Oak/Grass
QUDO/GRASS
Blue Oak-Understory Blue Oak/Grass
QUDO-UQUDO/GRASS
Blue Oak-Foothill Pine/Grass
QUDO-PISA2/GRASS
Blue Oak-Foothill Pine/Wedgeleaf Ceanothus-Mt. Mahogany
QUDO-PISA2/CECU2-CEBE2
Blue Oak-Foothill Pine/Whiteleaf Manzanita/Grass
QUDO-PISA2/ARVI3/GRASS
Blue Oak-Valley Oak-Coast Live Oak/Grass
QUDO-QULO-QUAG/GRASS
Blue Oak/Haplopappus
QUDO/HALI
Blue Oak-Valley Oak/Grass
QUDO-QULO/GRASS

Blue Oak-Coast Live Oak/Grass
QUDO-QUAG/GRASS
Blue Oak-Interior Live Oak/Grass
QUDO-QUWI/GRASS
Blue Oak/Wedgeleaf Ceanothus/Grass
QUDO/CECU2/GRASS
Interior Live Oak-Blue Oak-Foothill Pine
QUWI-QUDO-PISA2

QULO SERIES (common name and code name)

Valley Oak/Grass
QULO/GRASS
Valley Oak-Coast Live Oak/Grass
QULO-QUAG/GRASS
Coast Live Oak-Valley Oak/Poison Oak
QUAG-QULO/RHDI
Blue Oak-Valley Oak/Grass
QUDO-QULO/GRASS
Mixed Oak-Valley Oak/Poison Oak-Coffeeberry
MO-QULO/RHDI-RHCA2
Black Oak-Valley Oak/Grass
QUKE-QULO/GRASS

QUWI SERIES (common name and code name)

Interior Live Oak/Toyon
QUWI/HEAR2
Interior Live Oak/Whiteleaf Manzanita
QUWI/ARVI3
Interior Live Oak-Foothill Pine/Manzanita
QUWI-PISA2/ARMA3
Interior Live Oak-Blue Oak-Foothill Pine
QUWI-QUDO-PISA2
Interior Live Oak/Yerba Santa/Grass
QUWI/ERCA6/GRASS
Interior Live Oak-Madrone/Poison Oak
QUWI-ARME3/RHDI

QUKE SERIES (common name and code name)

Black Oak/Poison Oak
QUKE/RHDI
Black Oak/Greenleaf Manzanita
QUKE/ARPA9
Black Oak/Deerbrush
QUKE/CEIN3
Black Oak/Grass
QUKE/GRASS
Black Oak/Poison Oak-Calif. Storax/Grass-nut

QUKE/RHDI-STOFC/BRLA2
 Black Oak/Deerbrush-Poison Oak/Bracken Fern
 QUKE/CEIN3-RHDI/PTAQ
 Black Oak-Canyon Live Oak/Poison Oak
 QUKE-QUCH2/RHDI
 Black Oak-Coast Live Oak-Beach Pine/Ocean Spray
 QUKE-QUAG-PICO1/HODI
 Black Oak-Madrone-Coast Live Oak
 QUKE-ARME3-QUAG
 Mixed Oak-Coast Live Oak/Poison Oak
 MO-QUAG/RHDI
 Black Oak/Poison Oak/Grass
 QUKE/RHDI/GRASS
 Canyon Live Oak-Black Oak
 QUCH2-QUKE
 Black Oak-Valley Oak/Grass
 QUKE-QULO/GRASS

QUDU2 SERIES (common name and code name)

Scrub Oak-Blue Oak/Grass
 QUDU2-QUDO/GRASS
 Scrub Oak/Grass
 QUDU2/GRASS
 Scrub Oak
 QUDU2

MIXED OAK SERIES (3 or more Quercus sp. @ >30% constancy)

Mixed Oak-Interior Live Oak-Foothill Pine
 MO-QUWI-PISA2
 Interior Live Oak/Toyon
 QUWI/HEAR2
 Mixed Oak-Black Oak/Grass
 MO-QUKE/GRASS
 Black Oak-Valley Oak/Grass
 QUKE-QULO/GRASS
 Mixed Oak-Foothill Pine/Grass
 MO-PISA2/GRASS
 Mixed Oak-California Buckeye/Grass
 MO-AECA2/GRASS
 Mixed Oak-Coast Live Oak/Poison Oak
 MO-QUAG/RHDI
 Mixed Oak/Poison Oak-Baccharis
 MO/RHDI-BAPI
 Mixed Oak/Grass
 MO/GRASS
 Mixed Oak-Valley Oak/Poison Oak-Coffeeberry
 MO-QULO/RHDI-RHCA2
 Blue Oak-Valley Oak-Coast Live Oak/Grass
 QUDO-QULO-QUAG/GRASS

The overview consists of a comparison of the subseries contained within each Series. Graphs provide the user with a visual comparison of the basal area of the dominant tree species between subseries within a Series. Other graphs compare the major understory species between types. Arbitrarily, 50 percent constancy of a specific species was used as the cutoff point in including it on any particular graph. The only exception is for the graphs in the Mixed Oak Series, where the 30 percent constancy rule, which defines the type, was employed. Users should note the differences of scale in the y axis, mean basal area, between the different Series.

As much as possible, interpretation of relationships between types within a Series is given. Environmental gradients are discussed, and commonly the types are graphically displayed along an elevational gradient. Subseries whose ranges are strictly Sierra Nevada or Coast ranges are commonly separated within the Series. Some literature is cited comparing the subseries within this classification system to other types and systems.

THE CALIFORNIA COAST LIVE OAK SERIES

The latitudinal range of coast live oak in California extends from Sonoma County in the north to San Diego County in the south. It is the most coastal of California *Quercus*, seldom extending more than 60 miles inland from the Pacific Ocean (Griffin and Critchfield, 1972). Bolsinger (1988) estimates that the total area of this series in California is 828,000 acres, 79% of which is in private ownership. Coast live oak stands, on average, contain the greatest basal area of oaks of any of the hardwood rangeland subseries (figure 2). Note that mean basal area per acre in figure 2 is scaled to 300 ft²/acre, unlike the 60 ft²/acre for blue oak, or 120 ft²/acre scale for valley oak.

The Coast Live Oak Series can be divided into at least 15 subseries which can be further divided into mesic and xeric subseries, as they are in the key. There are seven mesic subseries, three of which occur below an average elevation of 910 feet and four above an average elevation of 1250 feet. Five of the seven occupy aspects that predominately face north to northeast but there are no consistent trends in slope angle representation. Species that characterize the mesic subseries include: in the herb layer, bracken fern; in the shrub layer, coffeeberry, blackberry, creambush (ocean spray), snowberry, and hazel; and in the tree layers, big-leaf maple, California bay, madrone, and scrub oak (Campbell 1984, Bolsinger 1988).

The low-elevation (below 910 feet) mesic subseries types are: Coast Live Oak/Blackberry/Bracken Fern, Coast Live Oak-Madrone/Hazel-Blackberry and Coast Live Oak/Poison Oak (figure 3). Ecological and management information on these subseries is

Coast Live Oak Subseries

Comparison of QUAG Basal Area and
Elevation by Type

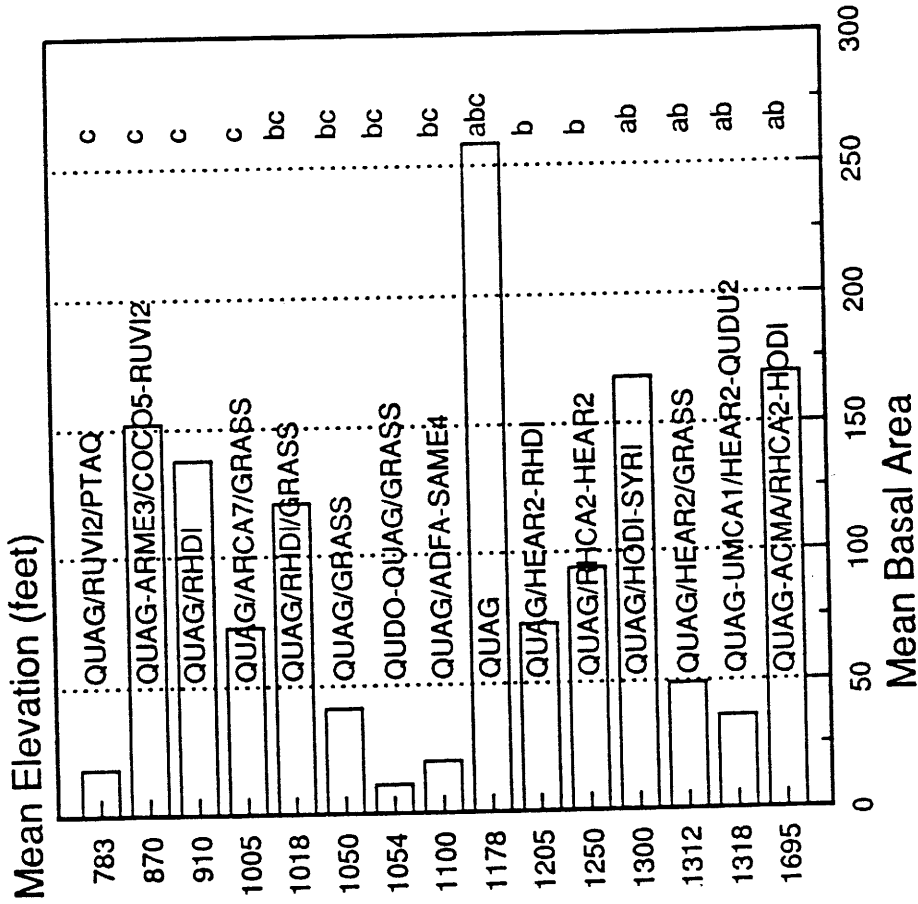


Figure 2. Different letters indicate significant differences in elevation between subseries.

Coast Live Oak Subseries

Low Elevation Mesic Types

Major Tree Species

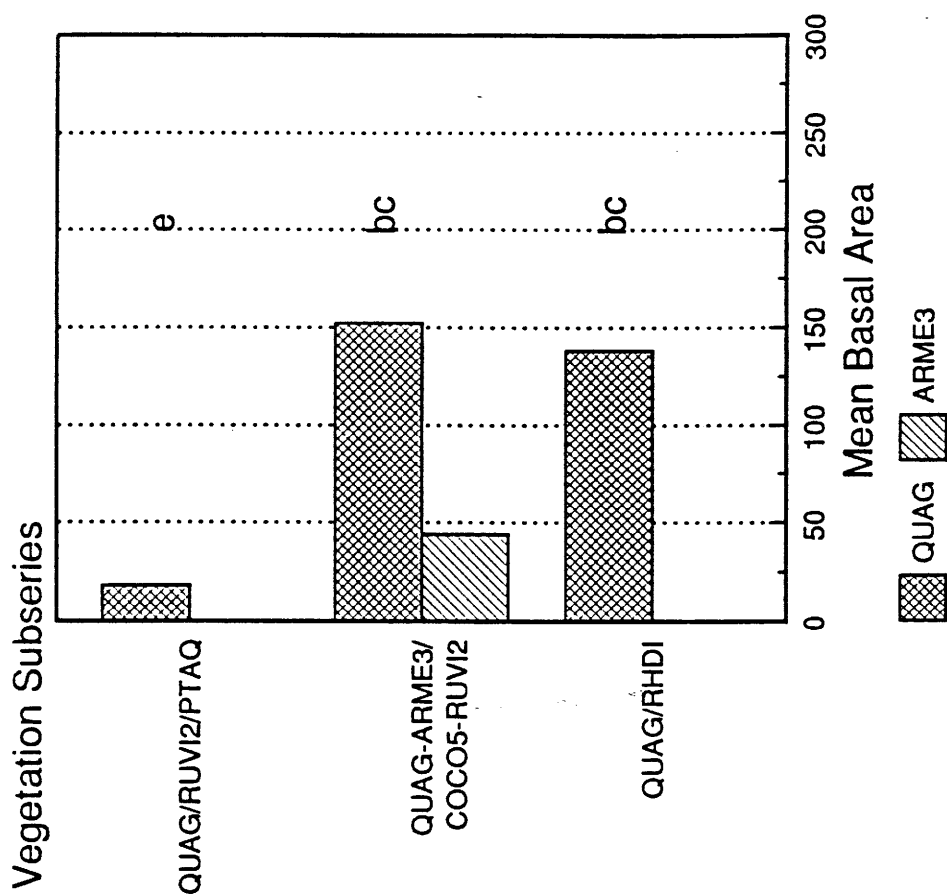


Figure 3. Different letters indicate significant differences in mean basal area by species between subseries.

scarce but at least one type has been mentioned in the literature. The *Q. agrifolia*-dominated "oak woodland" described by McBride (1974) in a successional study in the Berkeley Hills is very similar to the the Coast Live Oak/Blackberry/Bracken Fern subseries. He suggests that in this locale coast live oak woodland is the last sere before a California bay community.

Upper elevation (above 1250 feet) subseries include: Coast Live Oak/Oceanspray-Snowberry, Coast Live Oak/Coffeeberry-Toyon, Coast Live Oak-California Bay/Toyon-Scrub Oak, and Coast Live Oak-Maple/Coffeeberry-Ocean Spray (figure 4). Campbell (1980) describes a *Quercus agrifolia*-*Toxicodendron diversilobum* subcommunity in Santa Barbara County that falls clearly into the Coast Live Oak/Coffeeberry-Toyon subseries both in species composition and environmental setting.

Xeric coast live oak subseries tend to be concentrated in the middle elevations between 1000 and 1200 feet (figures 5 and 6). Species typical of this group include: in the herb layer, grasses and forbs; in the shrub layer, toyon, chamise, coast sagebrush, black sage, and in the tree layer blue oak. Of these eight types only the Coast Live Oak/Poison Oak/Grass and Coast Live Oak/Toyon-Poison Oak types are prevalent on north-facing aspects. The remaining six types occur on a variety of aspects and, in general, on a variety of slope angles. These subseries include: Coast Live Oak/Coast Sagebrush/Grass, Coast Live Oak/Poison Oak/Grass, Coast Live Oak/Grass, Coast Live Oak, Coast Live Oak-Blue Oak/Grass, Coast Live Oak/Toyon/Grass.

Wells (1962) provides some of the most detailed information on plant communities in the xeric coast live oak subseries. He cataloged the plant communities on fifteen different geologic substrata in the San Luis Obispo Quadrangle. In eight of these communities coast live oak had a frequency of at least 60%. Of these, the Coast Live Oak/Chamise-Black Sage subseries was represented on at least three different geological substrata, the Coast Live Oak/Toyon/Grass and Coast Live Oak/Coastal Sage/Grass types on two each and the Coast Live Oak type on one substratum. Wells discusses in considerable detail the composition of these coast live oak communities in relationship to the interaction of fire and geologic substratum. He provides some useful information on fire which could be generally applied to several of the subseries.

Coast Live Oak Subseries

Upper Elevation Mesic Types

Major Tree Species

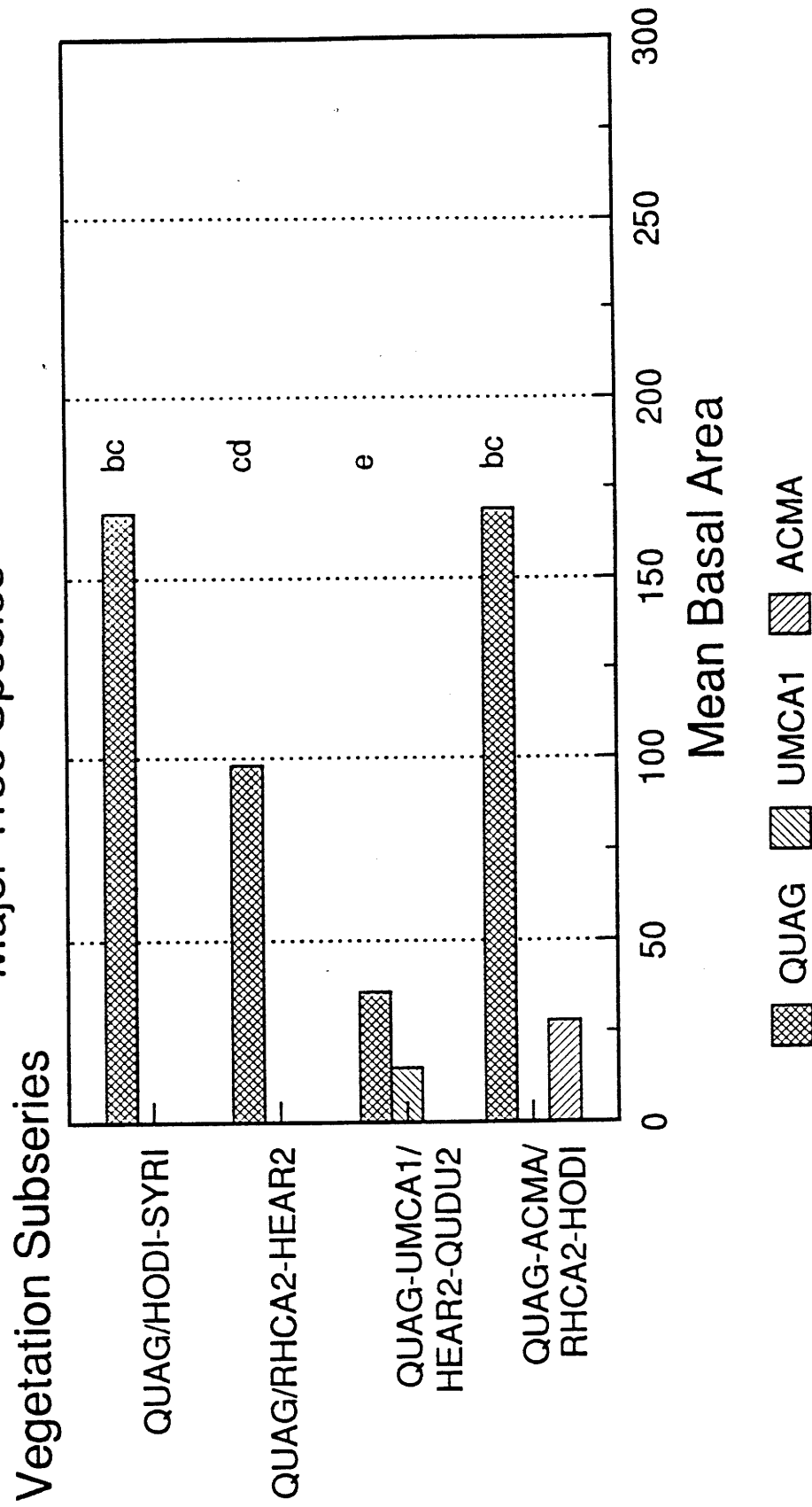


Figure 4. Different letters indicate significant differences in mean basal area by species between subseries (figs 3,4,5,6).

Coast Live Oak Subseries

Middle Elevation Xeric Types

Major Tree Species

Vegetation Subseries

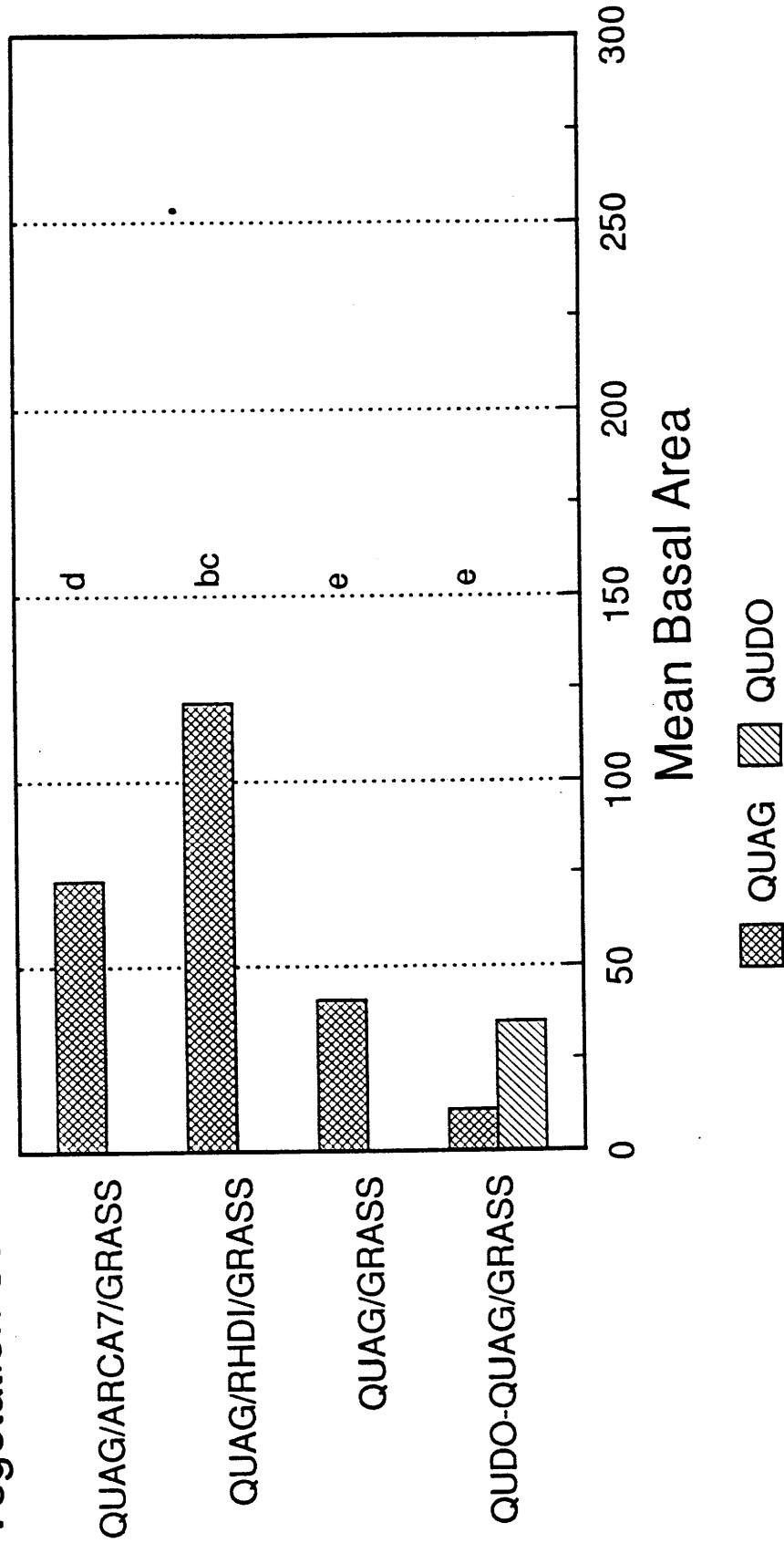


Figure 5. Different letters indicate significant differences ($p < .05$) in mean basal area by species between subseries (figs 3-6).

Coast Live Oak Subseries

Middle Elevation Xeric Types

Major Tree Species

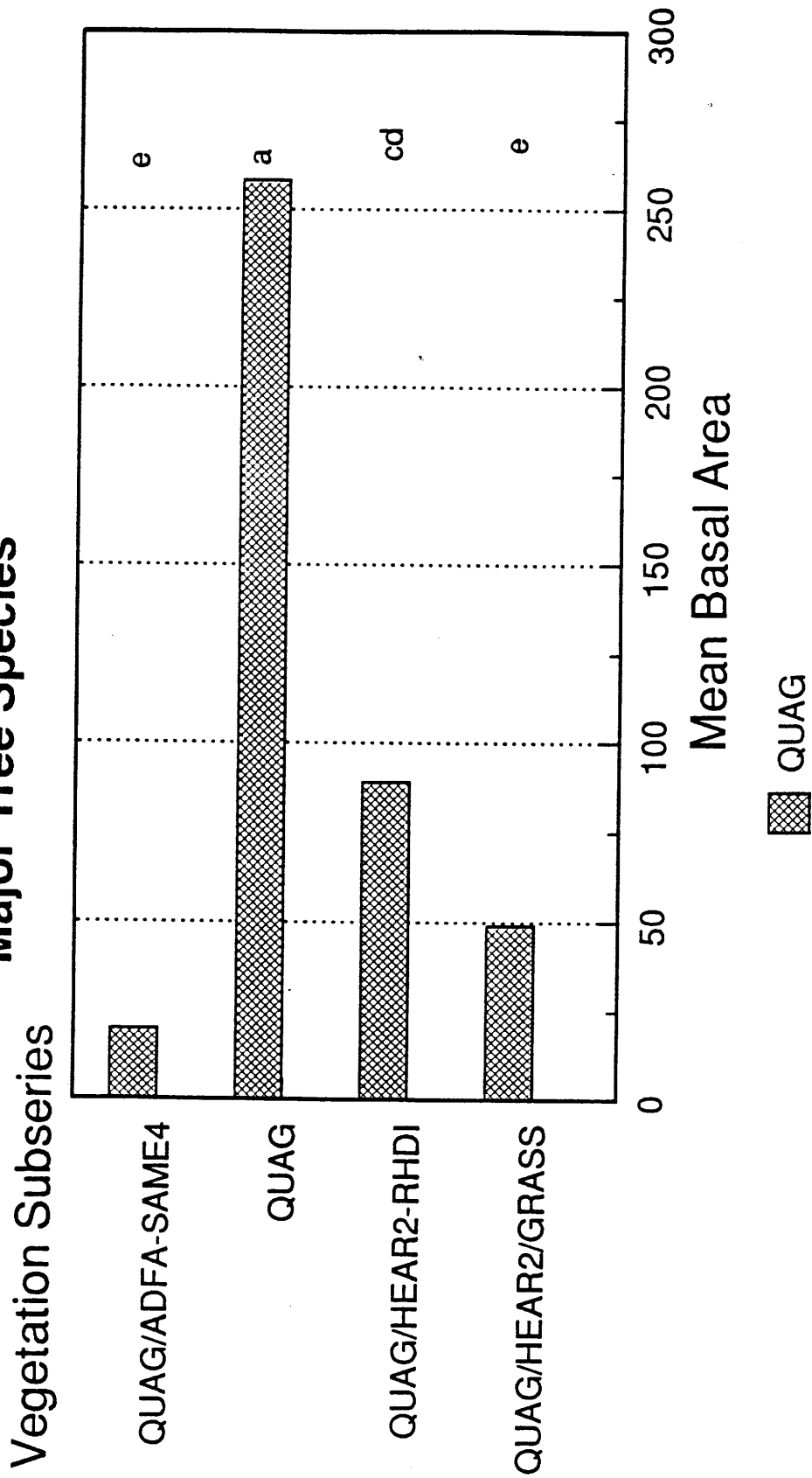


Figure 6. Different letters indicate significant differences ($p < .05$) in mean basal area by species between subseries (figs. 3-6).

THE CALIFORNIA BLUE OAK SERIES

The Blue Oak Series most closely fits the Foothill Woodland described by Griffin (1977). He describes a blue oak phase of the Foothill Woodland dominated by blue oak and foothill pine. Associated oak species include coast live oak in the Coast range, and interior live oak and black oak in the Sierra foothills.

This Series is the most extensive of the hardwood rangeland types in California, covering an estimated 2.9 million acres (Bolsinger 1988). Bolsinger also estimates that 75 percent of the Blue Oak Woodland is in private ownership, 14% in National Forest Systems, and the remaining in other state, county, and miscellaneous federal ownerships.

The Blue Oak or Foothill Woodland is divided into twelve blue oak subseries in this classification system as part of the Blue Oak Series. The types range in mean elevation from 1054 ft. to 2526 ft. (figure 7). Mean basal area of blue oak also varies from an average of 23 ft²/ac to 47 ft²/ac.

Three blue oak subseries are found strictly in the coast ranges, while one type is restricted to the Sierra Nevada foothills (figure 8). The Sierra Nevada type, Blue Oak-Foothill Pine/Whiteleaf Manzanita/Grass, occurs from Shasta county south in the Sierra Nevada foothills. Common understory associates include whiteleaf manzanita, wedgeleaf ceanothus, poison oak, grass, and other species of manzanita (figure 9).

The three coast range blue oak subseries are distinguished from each other primarily by the associated oak species, and are named to reflect the codominance of specific oak species. All three coastal types contain high constancies and cover of grass. In addition, the Blue Oak-Coast Live Oak/Grass type also may contain small amounts of coastal species such as coast sagebrush and honeysuckle. The Blue Oak-Valley Oak-Coast Live Oak/Grass subseries contains the highest basal area of valley oak of all the Blue Oak subseries.

The other eight Blue Oak subseries are found ringing the Central Valley in the foothills of the Sierra Nevada and Coast ranges. As figures 10 and 11 indicate, significant differences exist in mean basal area of blue oak and other associated oak species between the types. The Blue Oak/Grass and Blue Oak-Understory Blue Oak/Grass subseries have the highest blue oak basal areas.

Grass cover varies significantly among the types (figures 12 and 13). Types with low grass cover, such as the Blue Oak-Foothill Pine/Wedgeleaf Ceanothus-Mountain Mahogany type, often contain shrubs in the understory. This latter type and the Blue Oak/Narrowleaf Goldenbush also contain high constancies of narrowleaf goldenbush (*Haplopappus linearifolius*).

Blue Oak Subseries

Comparison of Elevation by Type

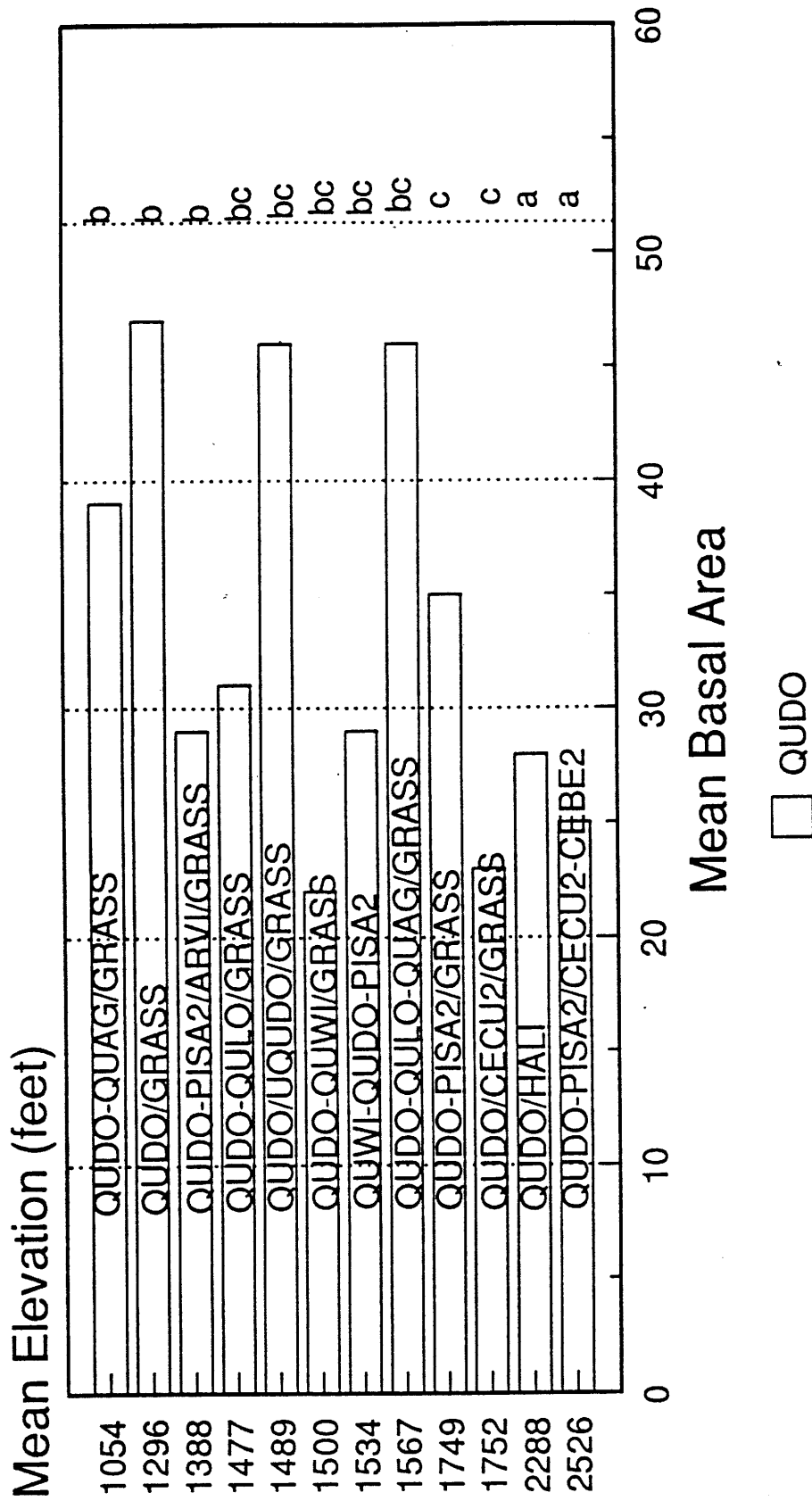


Figure 7. Different letters indicate significant differences ($p < .05$) in elevation between subseries.

Blue Oak

Major Tree Species

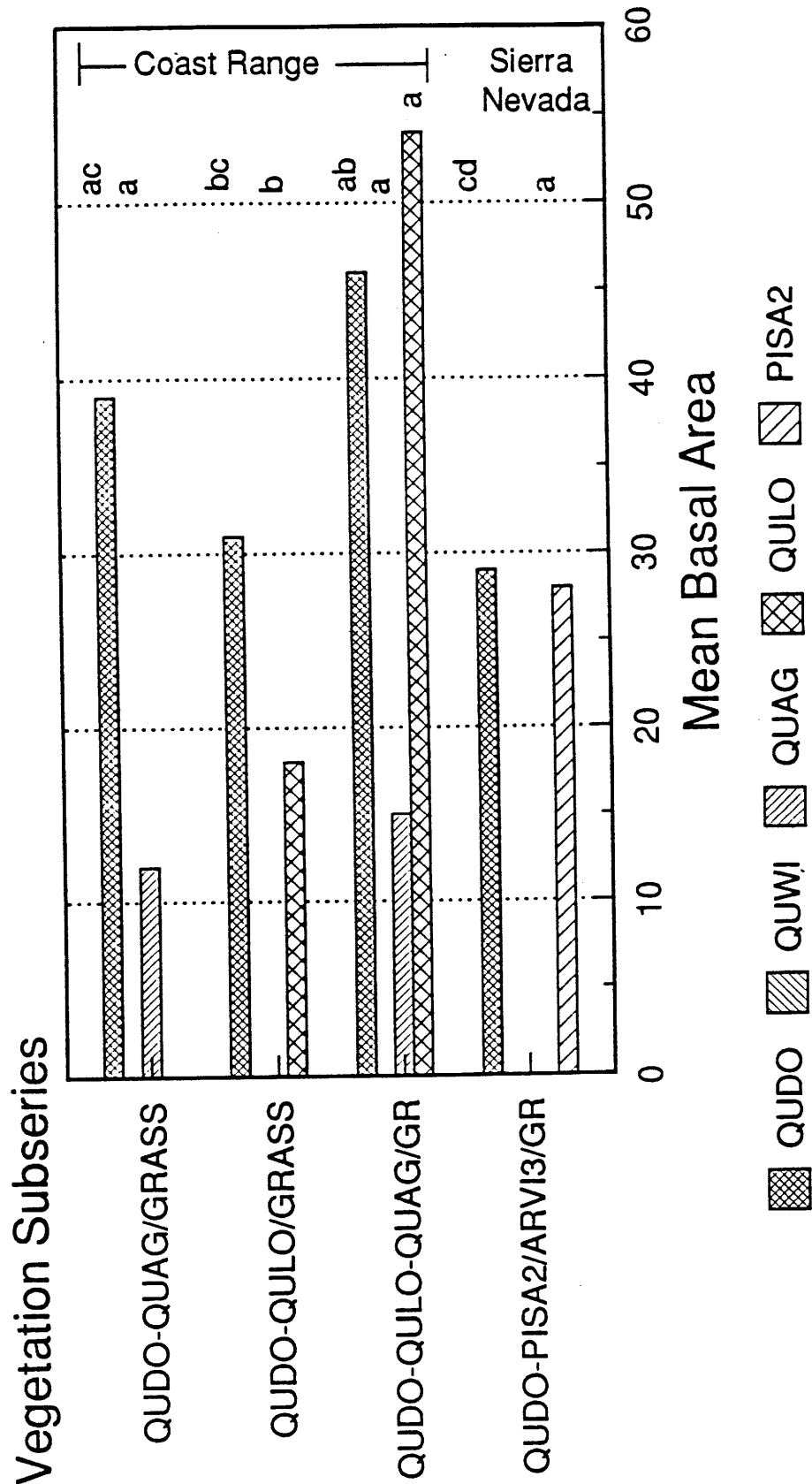


Figure 8. Different letters indicate significant differences ($p < 0.05$) in mean basal area by species between subseries (figs. 8, 10, 11).

Blue Oak

Major Understory Species

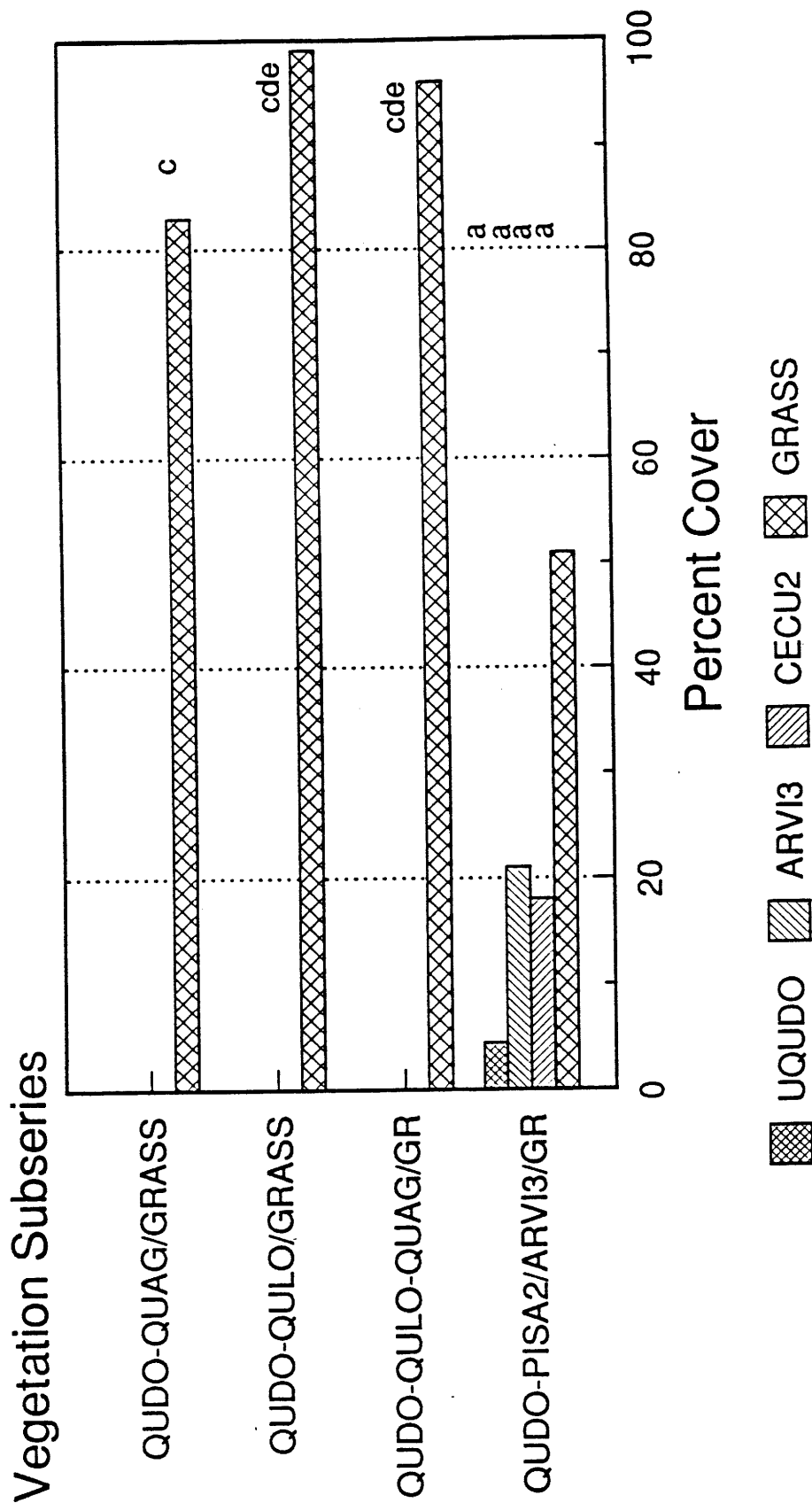


Figure 9. Different letters indicate significant differences ($p < .05$) in percent cover by species between subseries (figs. 9, 12, 13).

Blue Oak

Major Tree Species

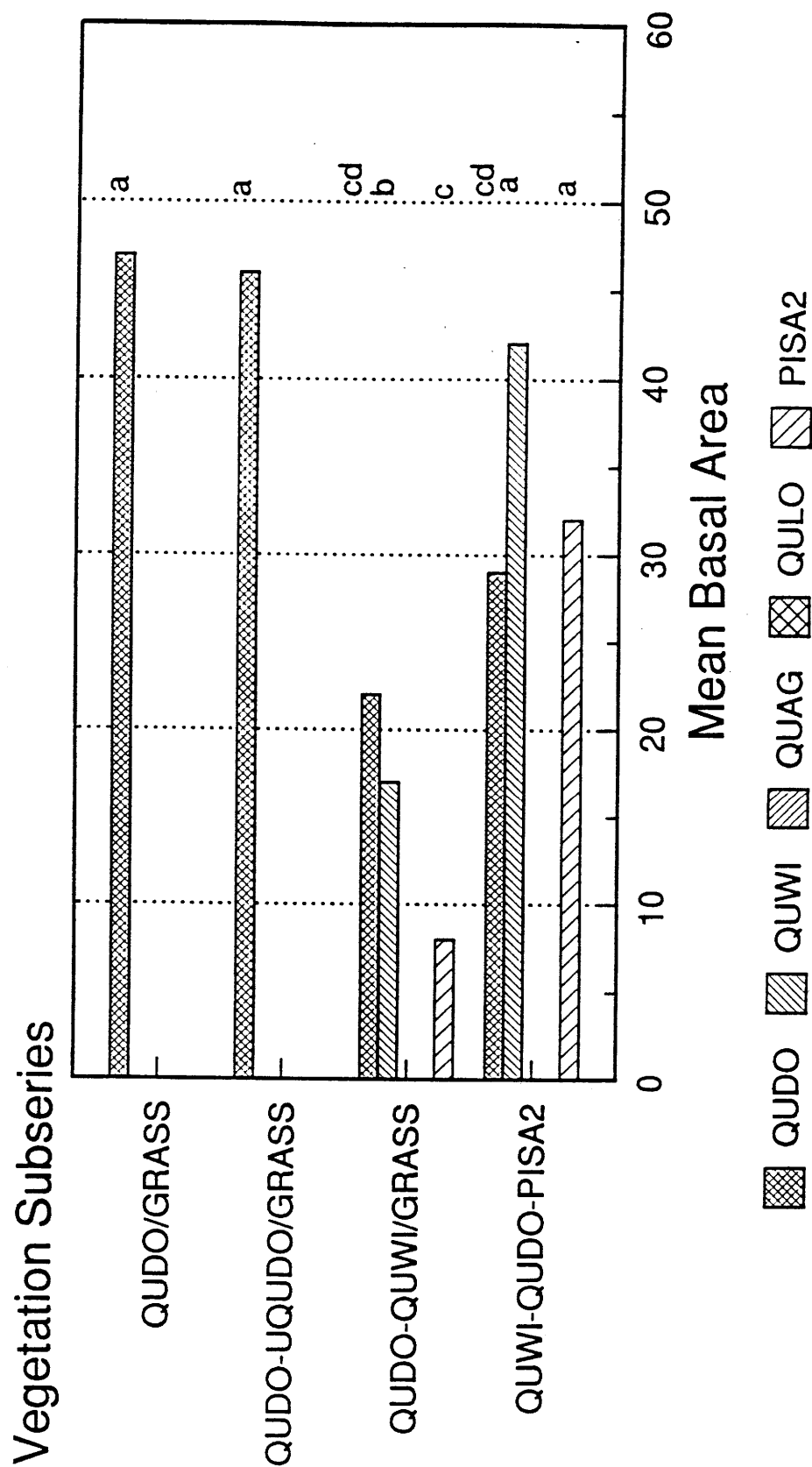


Figure 10. Different letters indicate significant differences ($p < 0.05$) in mean basal area by species between subseries (figs. 8, 10, 11).

Blue Oak

Major Tree Species

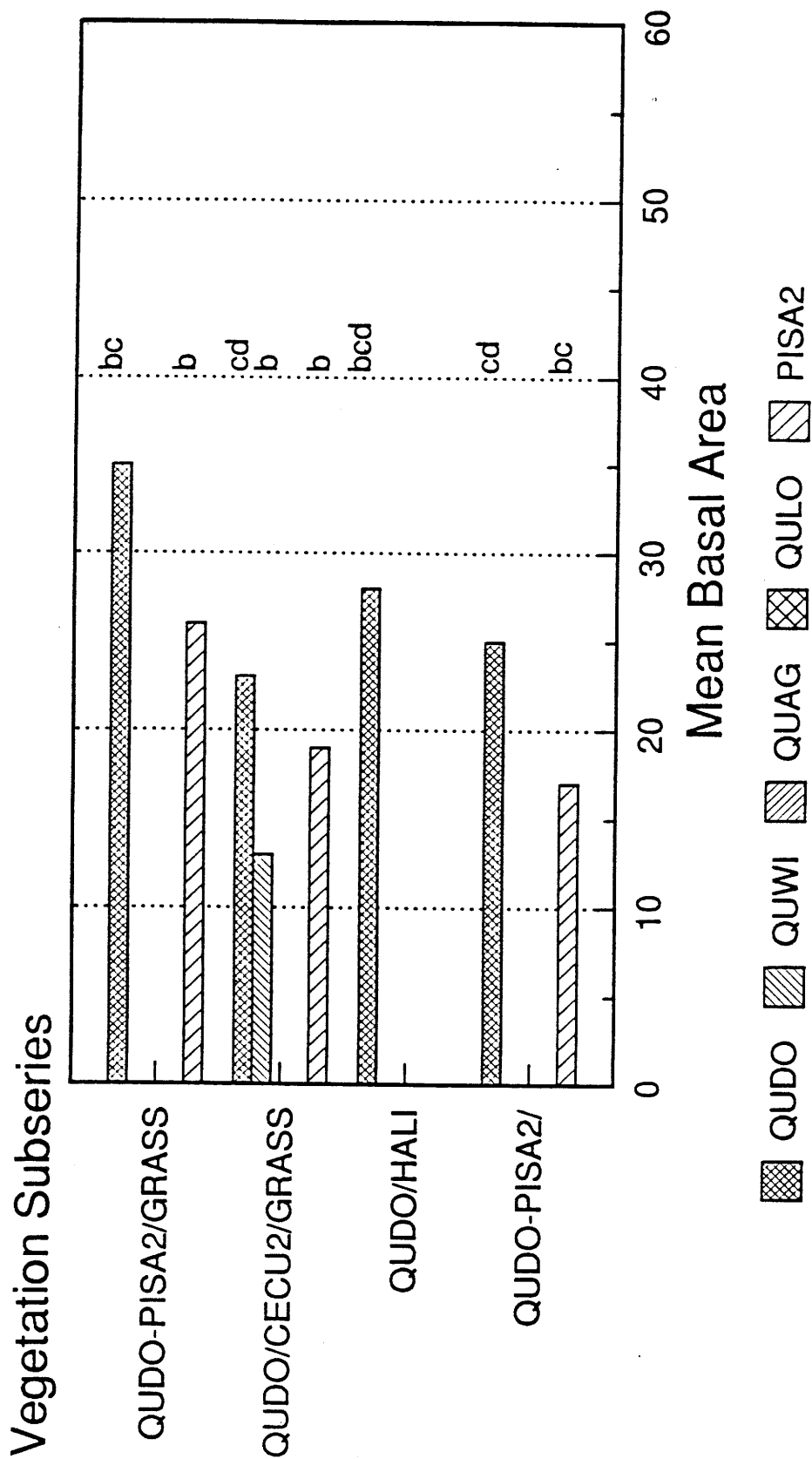


Figure 11. Different letters indicate significant differences ($p < .05$) in mean basal area by species between subseries (figs. 8, 10, 11)

Blue Oak

Major Understory Species

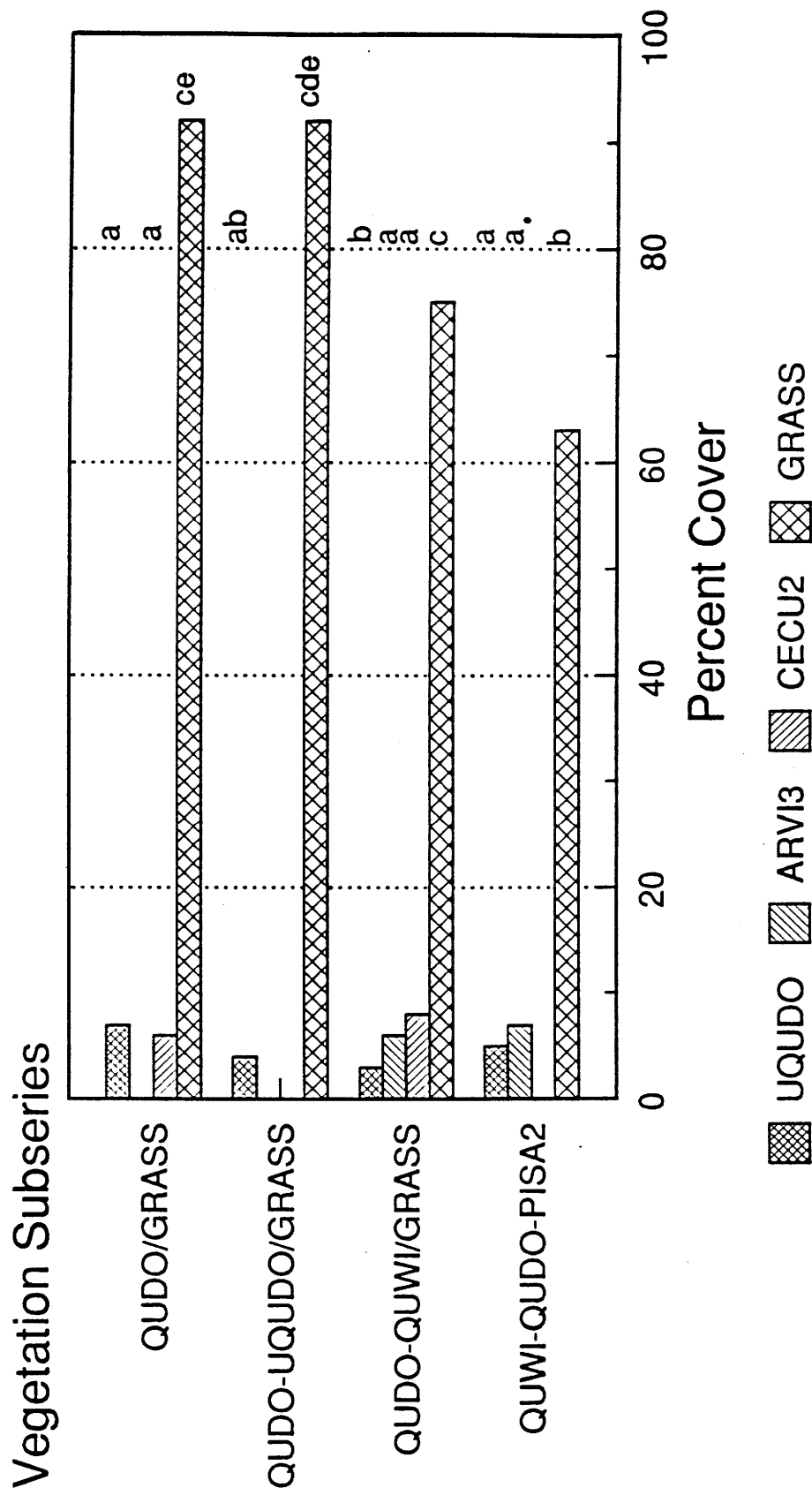


Figure 12. Different letters indicate significant differences in percent cover by species between subseries (figs. 9,12,13).

Blue Oak

Major Understory Species

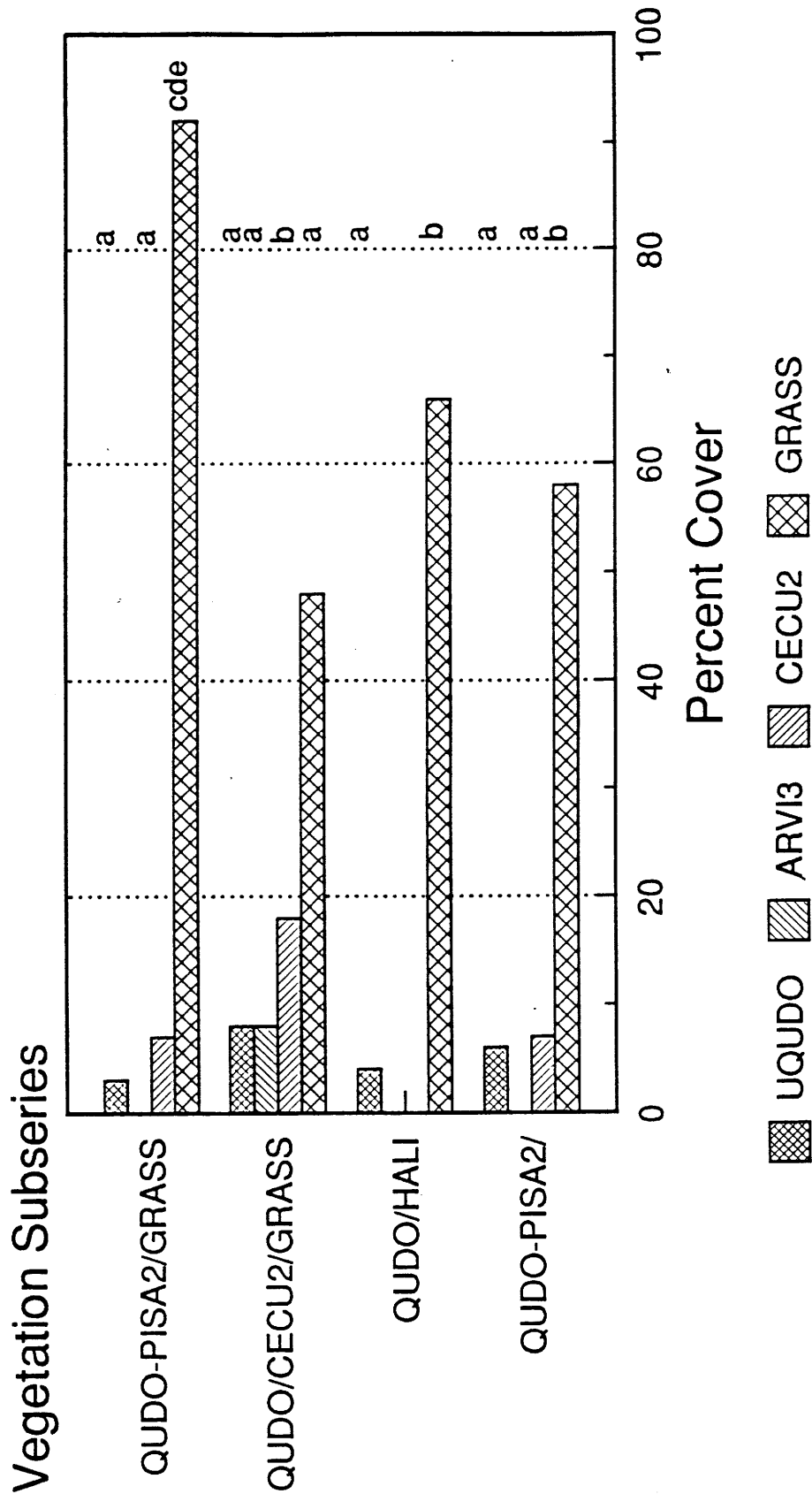


Figure 13. Different letters indicate significant differences ($p < 0.05$) of percent cover by species between subseries (figs. 9,12,13).

THE CALIFORNIA VALLEY OAK SERIES

Valley oak dominated communities cover approximately 2.7% of the area of California (Bolsinger 1988). These communities generally occur on the rich loam soils of valleys and foothills below 2400 ft., and can be found from the foothill woodland of the Central Valley and its borders, to the inner and middle Coast Ranges to San Fernando Valley and Los Angeles County. The northern limit of the type reaches from Lakehead above the Sacramento branch of Shasta Lake west to Laytonville in Mendocino County (Griffin and Critchfield 1972).

The Valley Oak Series is comprised of 6 subseries (figure 14). All are found in the Coast Ranges and into the Central Valley, except for the Blue Oak-Valley Oak/Grass subseries, which is also found in the Sierra Nevada foothills. Two subseries, Black Oak-Valley Oak/Grass and Valley Oak/Grass, occur at significantly higher mean elevations (2375 ft. and 2253 ft., respectively) than their other associates, which range in mean elevation from 1101 ft. to 1576 ft.

The upper elevation subseries can be easily distinguished by the presence of black oak in the Black Oak-Valley Oak/Grass type, and the significantly greater mean basal area of valley oak in the Valley Oak/Grass subseries (figure 15). The Valley Oak/Grass subseries is also the only valley oak type where valley oak is the primary, dominating *Quercus* species. The higher elevation subseries occur on similar parent materials, on slopes generally less than 35%, and on all aspects.

The other 4 valley oak subseries occur at similar elevations, and are arrayed along an elevational gradient in figure 14. The Coast Live Oak-Valley Oak/Poison Oak (1101 ft.) and Mixed Oak-Valley Oak/Poison Oak-Coffeeberry (1455 ft.) subseries have a higher mean basal area of coast live oak than any of the other valley oak subseries ($p < .00$). In addition, the Mixed Oak-Valley Oak/Poison Oak-Coffeeberry type has a higher mean basal area of valley oak and blue oak than the Coast Live Oak-Valley Oak/Poison Oak type (figure 15). It keys to the Mixed Oak Series because of the presence of 3 or more *Quercus* species at constancies of 30 percent or more. Although, the Coast Live Oak-Valley Oak/Poison Oak subseries generally contains less overall basal area than the Mixed Oak-Valley Oak/Poison Oak-Coffeeberry type, it occurs on wetter sites than the Mixed Oak-Valley Oak/Poison Oak-Coffeeberry subseries.

The Valley Oak-Coast Live Oak/Grass subseries also contains coast live oak, but at lower mean basal area (47 ft²/acre) and lower constancy (84 percent) than the other types with coast live oak (the Blue Oak-Valley Oak/Grass subseries being an exception). The Valley Oak-Coast Live Oak/Grass subseries occurs primarily in the

Valley Oak Subseries

Comparison of QULO Basal Area and Elevation by Type

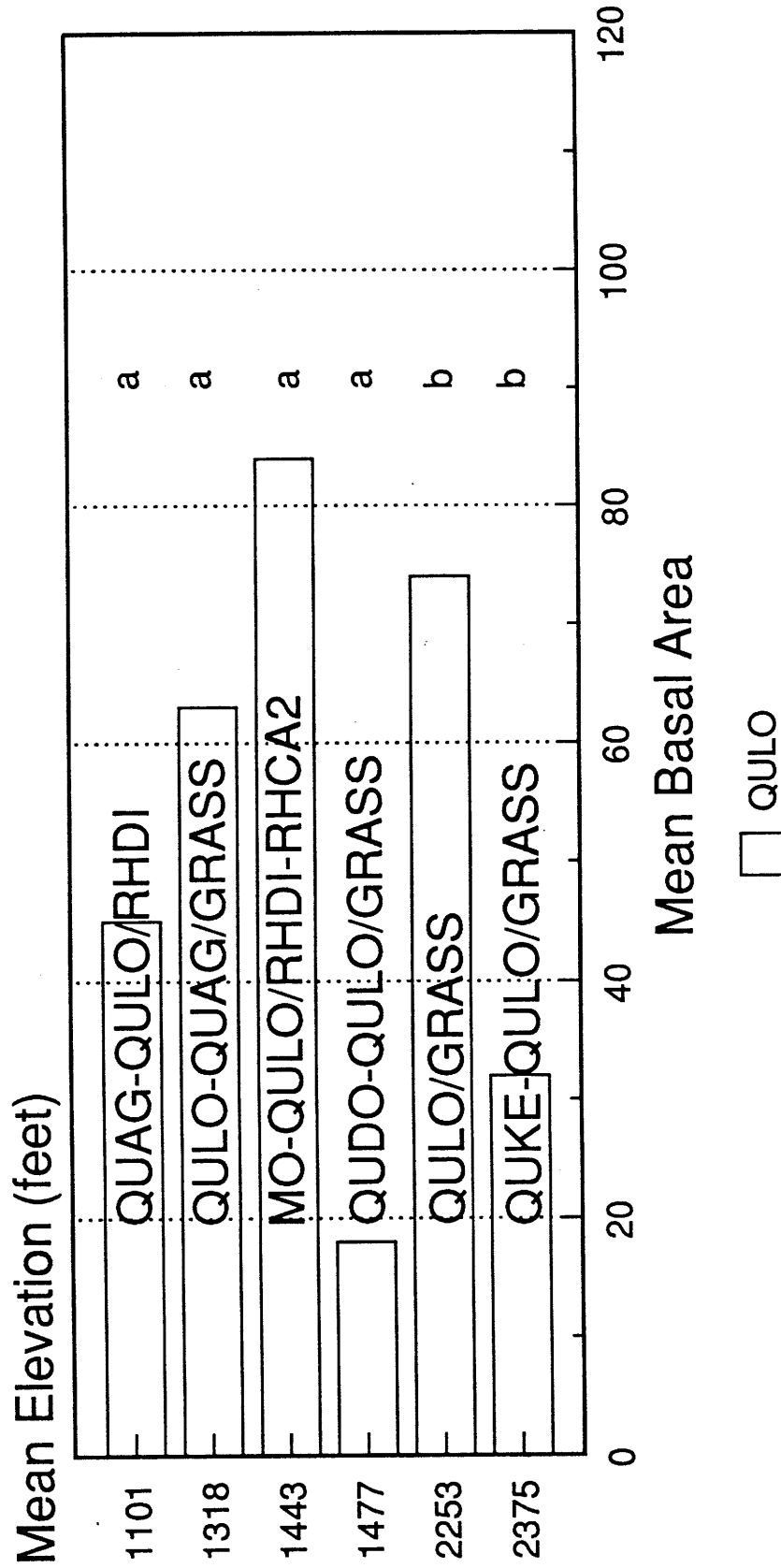


Figure 14. Different letters indicate significant differences in elevation between subseries.

Valley Oak

Major Tree Species

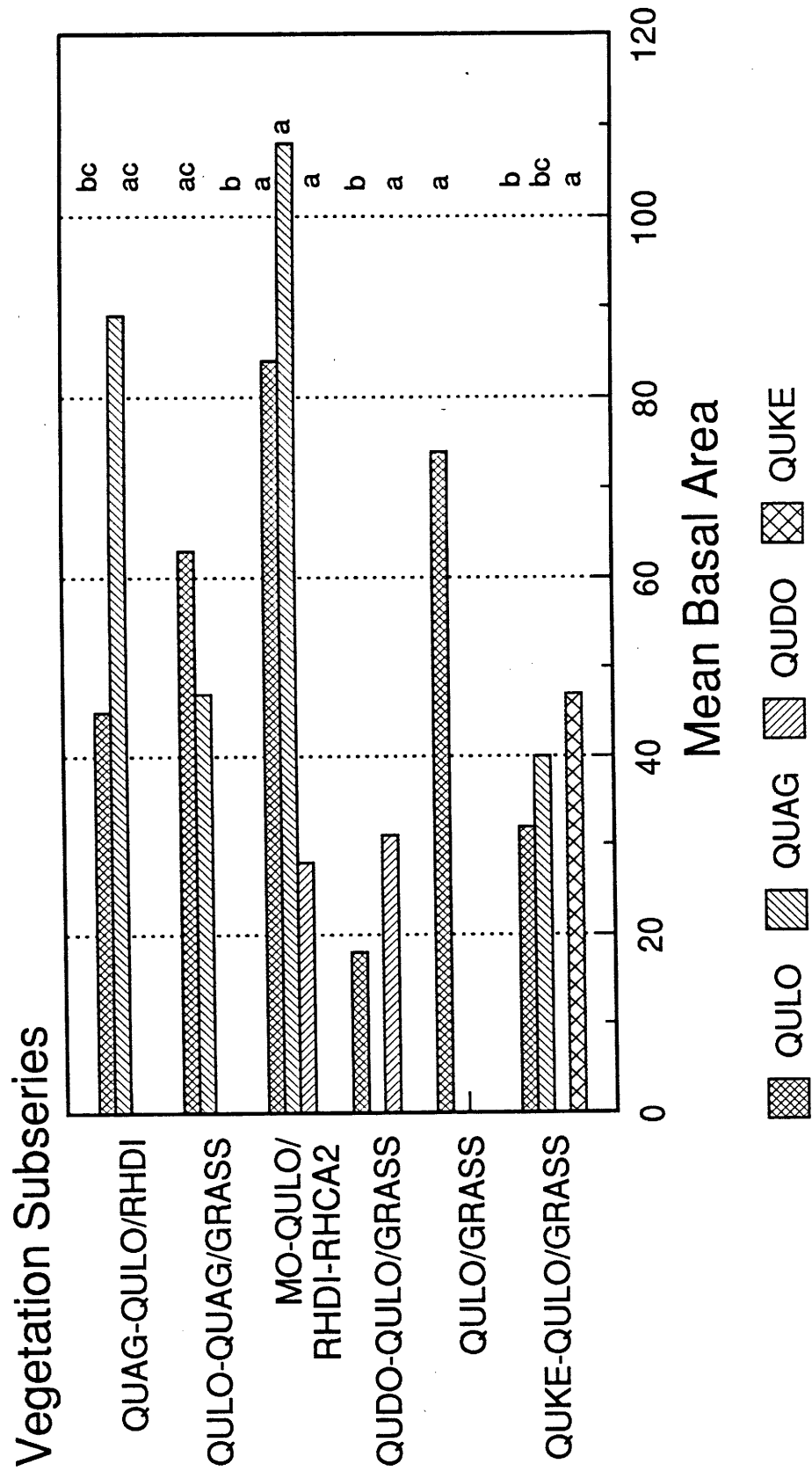


Figure 15. Different letters indicate significant differences in mean basal area by species between subseries.

southern coast ranges along the San Joaquin valley. Like its other valley oak associates, this type has few species in the understory other than grass.

Finally, the Blue Oak-Valley Oak/Grass subseries is distinguished from its other associates by the presence of blue oak. It is the driest of the valley oak types, occurring on all aspects ringing the central valley in the foothills of the Sierra Nevada and coast ranges. This type was recognized by Griffin (1977) as a phase of the foothill woodland containing blue oak.

Grass species occur in all the Valley Oak subseries. However, the Coast Live Oak-Valley Oak/Poison Oak and Mixed Oak-Valley Oak/Coffeeberry types have significantly less cover of grass (76 and 54 percent, respectively) than any of the other Valley Oak types.

This classification system lacks representatives of the valley oak riparian forest communities. As described by McBride (1974) and Griffin (1973), the valley oak community takes on a strikingly different appearance along the large rivers on the eastside of the Central Valley. Only remnants of this once larger riparian woodland dominated by valley oak, cottonwoods (*Populus* spp.), willows (*Salix* spp.), grape (*Vitis* spp.) and interior live oak (Thompson 1961) now exist.

THE CALIFORNIA INTERIOR LIVE OAK SERIES

The Interior Live Oak series is comprised of 6 subseries. Four subseries are found in the Sierra Nevada and foothills, while two types are found in both the Sierra Nevada and Coast ranges. Acreage of the Interior Live Oak Series is estimated at 884,000 acres, with about 82 percent in private ownership (Bolsinger 1988).

The two subseries, Interior Live Oak-Madrone/Poison Oak and Interior Live Oak-Blue Oak-Foothill Pine, which are found in both the Sierra Nevada and Coast Ranges, occur at similar mean elevations 1493 ft. and 1533 ft. respectively. They both contain significantly higher mean basal areas of interior live oak than any other interior live oak subseries (figure 17). In addition the Interior Live Oak-Madrone/Poison Oak has significantly higher mean basal area of interior live oak than the Interior Live Oak-Blue Oak-Foothill Pine subseries (figure 17).

The Interior Live Oak-Madrone/Poison Oak type can also be distinguished from all its other interior live oak associates by the presence of madrone and the absence of grass (figures 17 and 18). The Interior Live Oak-Blue Oak-Foothill Pine type contains significantly higher mean basal area of blue oak and higher cover of grass than any other interior live oak associate.

Interior Live Oak Subseries

Comparison of QUWI Basal Area and

Elevation by Type

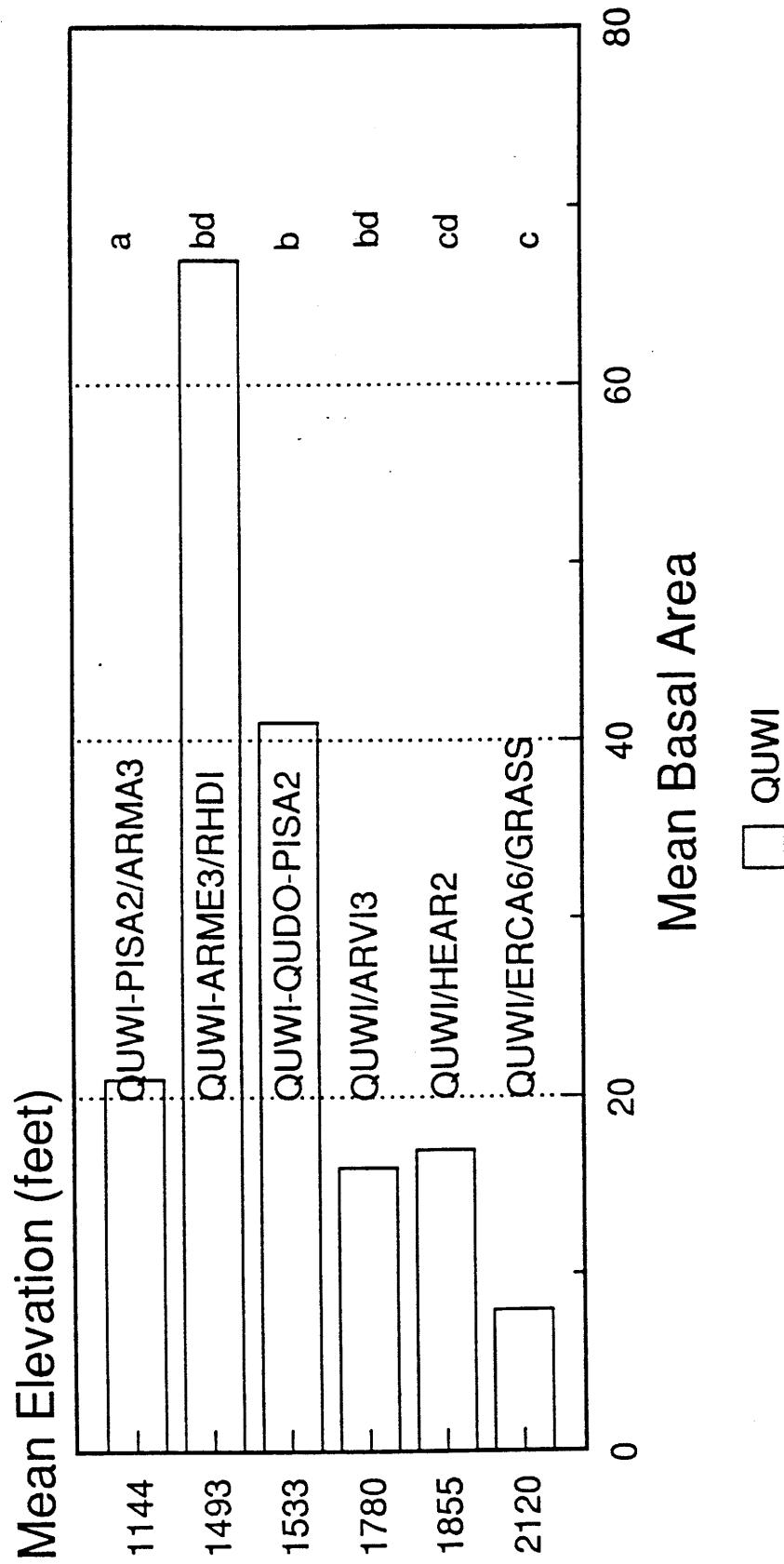


Figure 16. Different letters indicate significant differences in elevation between subseries.

Interior Live Oak

Major Tree Species

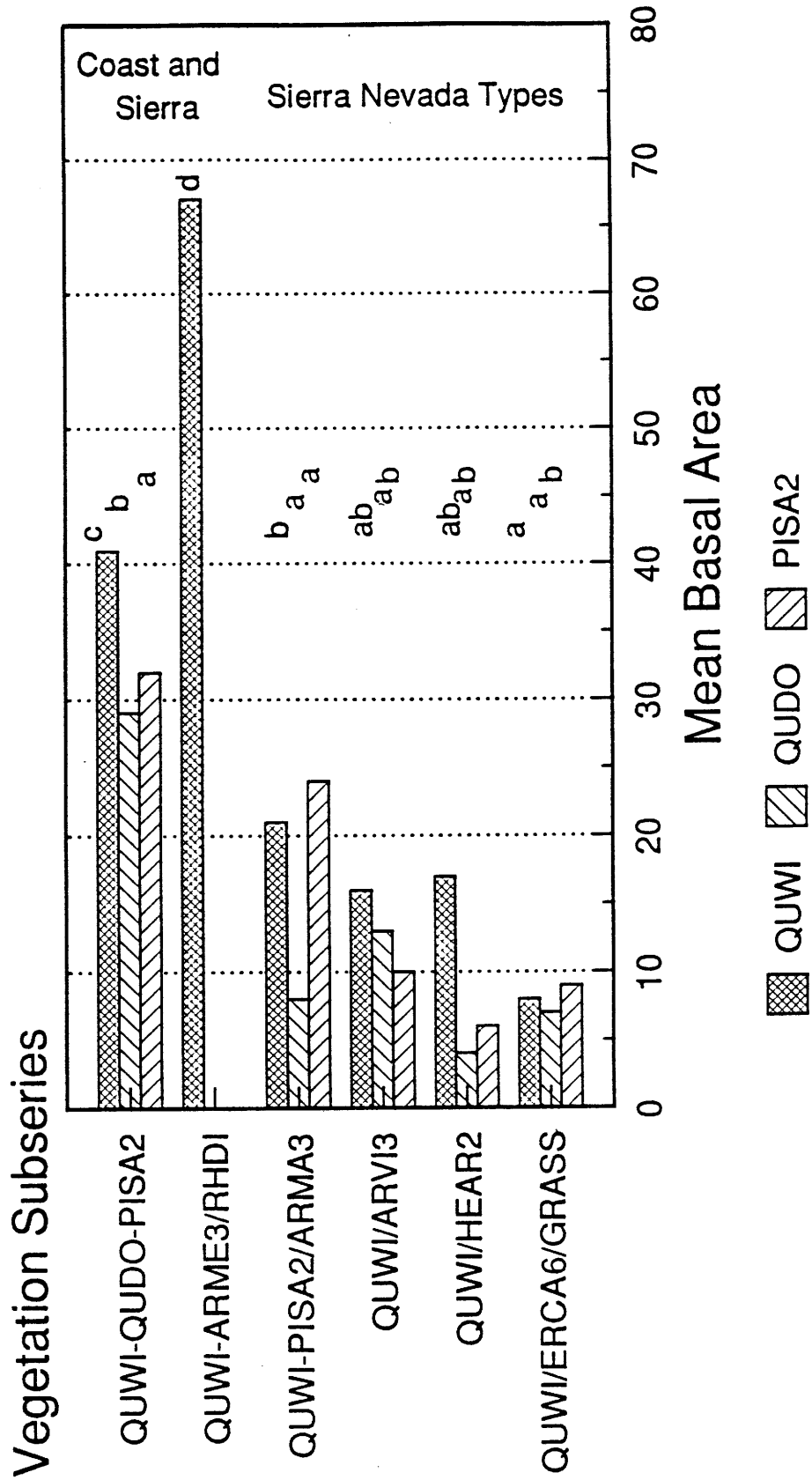


Figure 17. Different letters indicate significant differences in mean basal area by species between subspecies.

Interior Live Oak

Major Understory Species

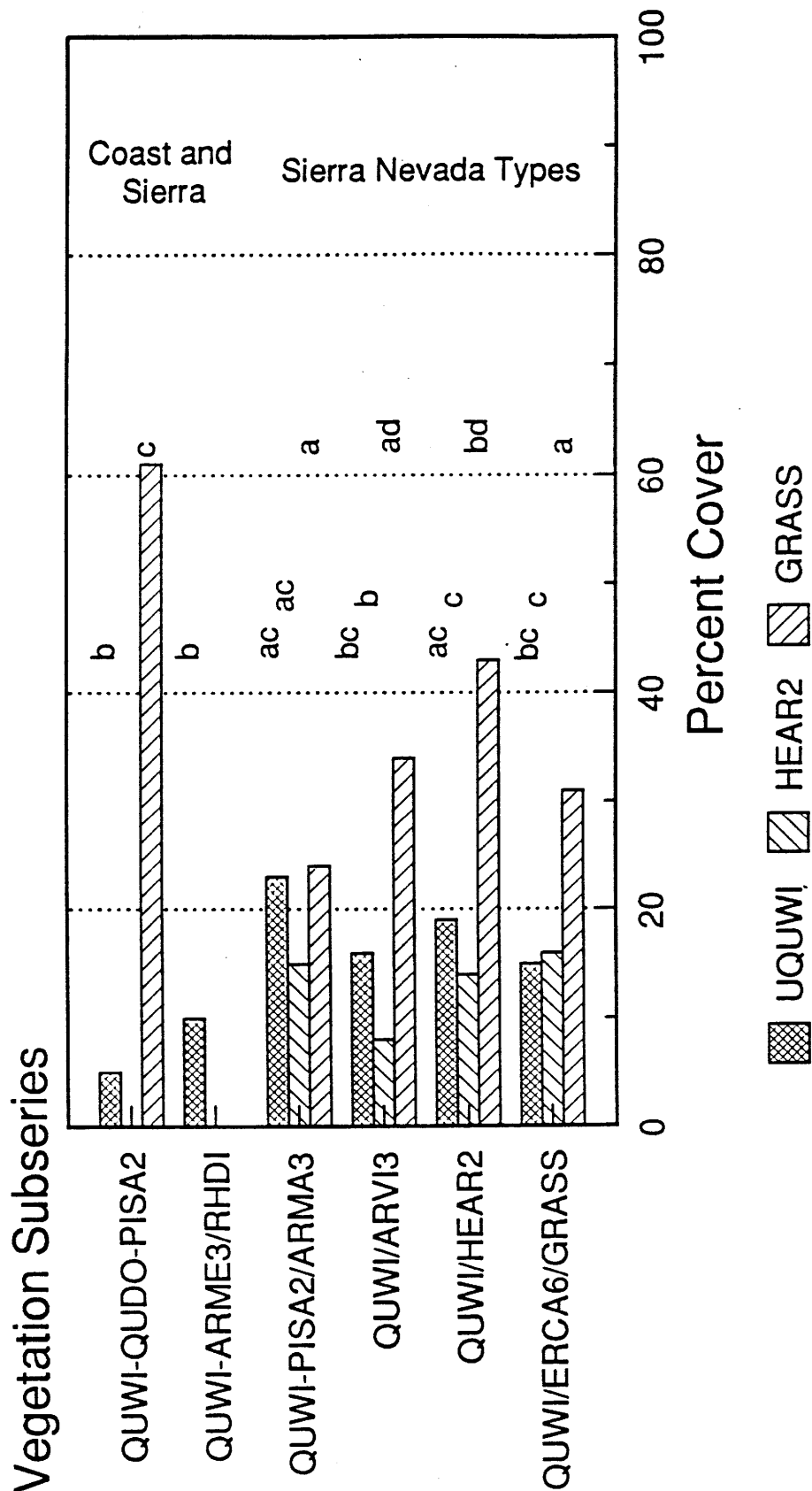


Figure 18. Different letters indicate significant differences in percent cover by species between subseries.

The two Sierran/Coast Range subseries ring the Central Valley. The Interior Live Oak-Blue Oak-Foothill Pine type is found from Butte to Kern to San Benito counties. The interior Live Oak-Madrone/Poison Oak subseries is found from Shasta to El Dorado and Calaveras counties, and Mendocino to Santa Cruz County.

The Sierra Nevada interior live oak types contain both the highest elevation type, Interior Live Oak/Yerba Santa/Grass at a mean elevation of 2120 ft., and the lowest elevation type, Interior Live Oak-Foothill Pine/Manzanita, at 1144 ft. (figure 16). The other two Sierra Nevada types occur at mean elevations of 1780 ft. and 1855 ft. for the Interior Live Oak/Whiteleaf Manzanita and Interior Live Oak/Toyon subseries, respectively.

Mean basal areas of interior live oak is significantly different between the Sierra Nevada interior live oak subseries (figure 17). The Interior Live Oak-Foothill Pine/Manzanita subseries contains a significantly higher mean basal area of foothill pine than its other Sierra Nevada associates as well as more interior live oak than the Interior Live Oak/Yerba Santa/Grass subseries. It occupies sites on granitic, andesitic, serpentine, and hard sedimentary parent materials.

The highest elevation subseries, Interior Live Oak/Yerba Santa/Grass, has a low mean basal area of interior live oak (figure 17) and lowest constancy of interior live oak of all the types, although understory interior live oak is common (figure 18). This type is found from Nevada to Madera counties, on all aspects on granitic, igneous, or metamorphic parent materials. Yerba santa is the dominant species, in terms of constancy and cover, distinguishing it again from its other associates.

The Interior Live Oak/Whiteleaf Manzanita subseries contains significantly more whiteleaf manzanita and significantly less toyon (figure 18) than its other Sierran associates. Finally, the Sierran subseries, Interior Live Oak/Toyon, can be distinguished from the other Sierran types because of its combination of species containing less blue oak and foothill pine basal area, more toyon, and half as much whiteleaf manzanita as its other interior live oak Sierran associates.

Interior live oak is a prominent species in the Mixed Oak Series, occurring in both Sierra Nevada Mixed Oak subseries and several of the coast range Mixed Oak subseries. It is also a common associate in the Blue Oak Series, but rarely occurs in association with subseries in the Coastal Live Oak, Valley Oak or Black Oak Series.

Field testing of the interior live oak keys and descriptions resulted in the "discovery" of at least one type that is not described in the classification system. This "type" occurred in a riparian zone in the Sierra foothills, and was dominated by interior live oak, California bay, and coffeeberry. The "type"

was confined to the riparian zone and abruptly changed to the Interior Live Oak/Toyon subseries on the east facing slope, and the Interior Live Oak-Blue Oak-Foothill Pine type on the southwest facing slopes. As more samples are taken in this "type", it may be added to the keys and descriptions.

THE BLACK OAK SERIES

The Black Oak Series is comprised of 13 subseries (figure 19). Four subseries are confined to the Coast ranges, while four are confined to the Sierra. Four subseries are found in both the Coast ranges and the Sierra, and one is found in both the Coast ranges and the Transverse Range.

Types that occur only in the Coast range are generally lower in elevation than other types. The Black Oak-Madrone-Coast Live Oak type with a mean elevation of 1293 ft, and the Mixed Oak-Coast Live Oak/Poison Oak type, with a mean elevation of 1465 ft, are significantly lower than all Sierran types except the Black Oak/Poison Oak-California Storax/Grass-nut type. The Coast Range types, Black Oak-Coast Live Oak-Beach Pine/Ocean Spray and Black Oak-Valley Oak/Grass, occur at 1691 ft. and 2375 ft. respectively.

The four types found in both the Coast and Sierra Nevada ranges are generally middle elevation types within the Black Oak series (figure 19). The Black Oak/Poison Oak type occurs at a mean elevation of 2486 ft., the Black Oak/Poison Oak/Grass type at 2746 ft., the Black Oak-Canyon Live Oak/Deerbrush/Grass type at 2963 ft., and the Canyon Live Oak-Black Oak type at 3231 ft., all significantly higher than the strictly Coast range types with the exception of the Black Oak-Valley Oak/Grass type.

The four types that are found strictly in the Sierra have a wide range of mean elevations. The Black Oak/Poison Oak-California Storax/Grass-nut type averages 1484 ft, significantly lower than all other Sierra types. Mid-elevation types include Black Oak/Deerbrush-Poison Oak/Bracken Fern at 2527 ft mean elevation and Black Oak/Deerbrush at 3435 ft. The highest type is Black Oak/Greenleaf Manzanita, significantly higher than all other black oak types at 5647 ft mean elevation.

Mean basal area of black oak for the four Coast Range subseries ranges from 38 ft²/acre in the Mixed Oak-Coast Live Oak/Poison Oak type to 53 ft²/acre in the Black Oak-Coast Live Oak-Beach Pine/Ocean Spray type, with no significant differences (figure 20). The Black Oak-Madrone-Coast Live Oak type is distinguished from its coastal associates by the presence of significantly more basal area of madrone and significantly less coast live oak, except for the higher elevation Black Oak-Valley Oak/Grass type. The Black Oak-Valley Oak/Grass type contains valley oak with a mean basal area of 32 ft²/acre, significantly more than any other

Black Oak Subseries

Comparison of QUKE Mean Basal Area and Elevation by Subseries

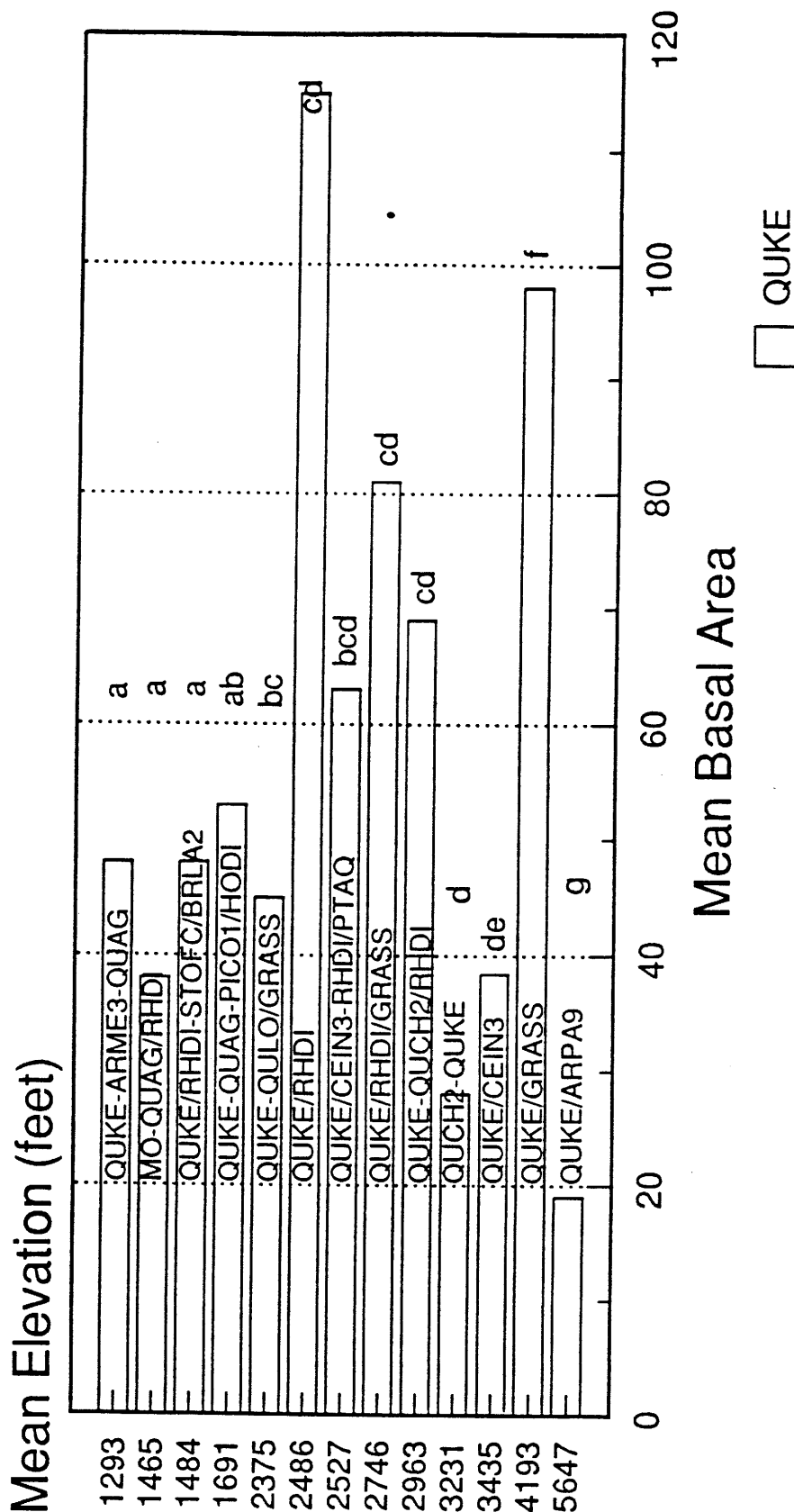


Figure 19. Different letters indicate significant differences ($p < .05$) in elevation between subseries.

Black Oak Subseries

Coast Range Types Major Tree Species

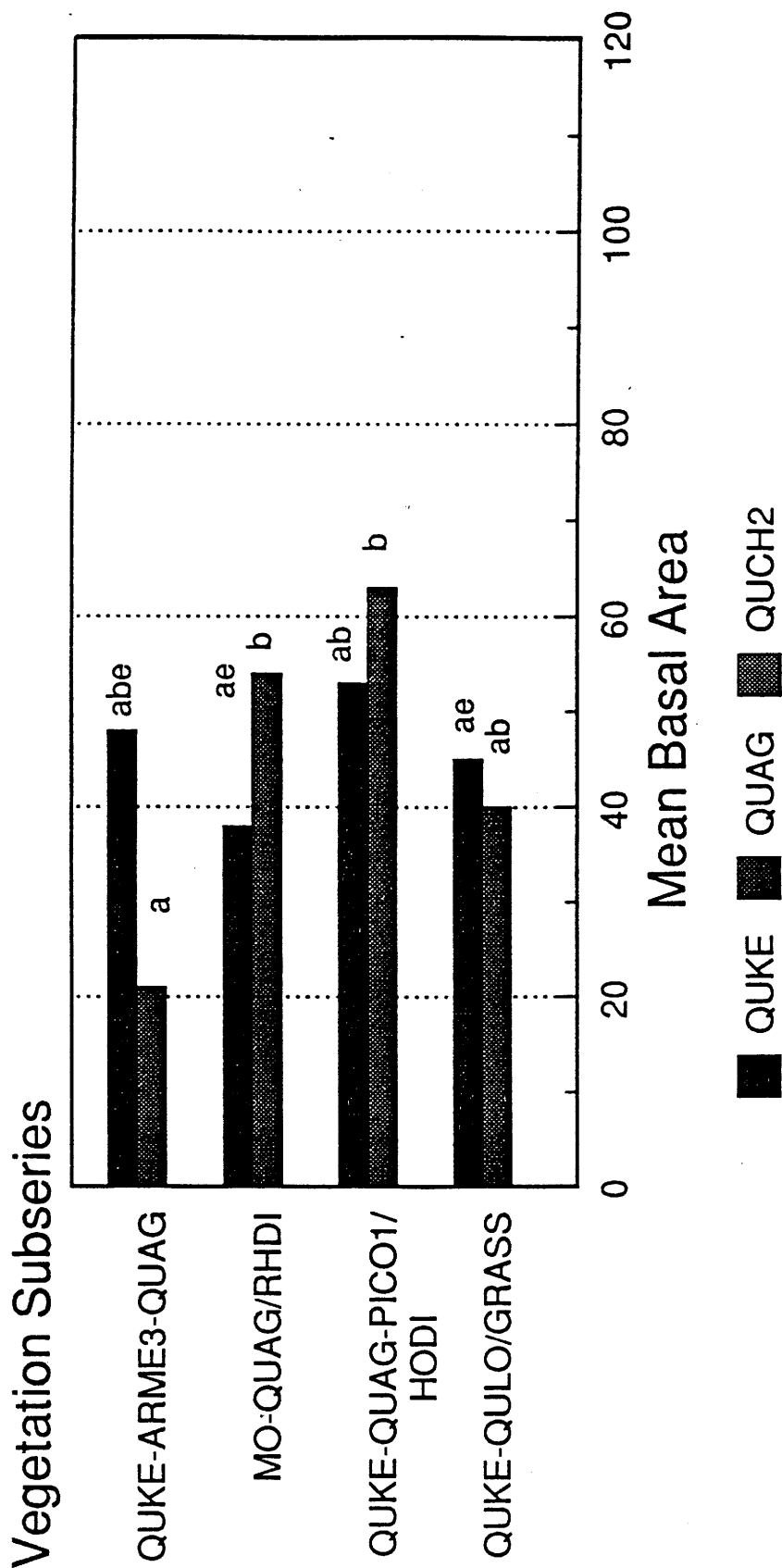


Figure 20. Different letters indicate significant differences ($p < 0.05$) in mean basal area by species between subseries (figs 20,21,22).

black oak type. The Mixed Oak-Coast Live Oak/Poison Oak type is distinguished from the Black Oak-Coast Live Oak-Beach Pine/Ocean Spray type by the absence of ocean spray and beach pine, and significantly less grass than the Black Oak-Valley Oak/Grass type.

Figure 21 displays mean basal areas of major tree species for subseries which occur in both the Coast and Sierra Nevada ranges, and Coast and Transverse ranges. Mean basal area of black oak is 115 ft²/acre for the Black Oak/Poison Oak type, significantly higher than any other black oak subseries (figures 20-22). The Black Oak/Poison Oak type can be further distinguished from the Black Oak/Poison Oak/Grass subseries by the absence of grass. The Black Oak-Canyon Live Oak/Poison Oak type and the Canyon Live Oak-Black Oak type can be distinguished from other black oak types by the presence of canyon live oak as a codominant species. The Black Oak-Canyon Live Oak/Poison Oak type has a significantly higher mean basal area of black oak and significantly less cover of understory canyon live oak than the Canyon Live Oak-Black Oak type.

The Black Oak/Grass type, is found in both the Coast Range and the Transverse Range. Black oak mean basal area is 97 ft²/acre, significantly higher than all types occurring strictly in the Coast Range (figure 20 and 21). In the Sierra Nevada types, black oak mean basal area ranges from 19 ft²/acre for the Black Oak/Greenleaf Manzanita type to 63 ft²/acre for the Black Oak/Deerbrush-Poison Oak/Bracken Fern type, with only these two types being significantly different from each other (figure 22). The Black Oak/Poison Oak-California Storax/Grass-nut type has significantly more cover of poison oak than all other black oak types. The Black Oak/Deerbrush-Poison Oak/Bracken Fern type and the Black Oak/Deerbrush types are distinguished from each other by significantly higher mean cover of deerbrush in the latter, and the presence of bracken fern in the former.

THE CALIFORNIA SCRUB OAK SERIES

The Scrub Oak Series is comprised of cover types that have scrub oak as a dominant or codominant species in the overstory (figure 23). This series has 3 subseries, all found at a mean elevation of about 1400 ft on northerly facing slopes in the central coastal ranges, in San Benito, Monterey, and San Luis Obispo counties. Parent material of the soils of these sites is mostly shale, with some sandstone.

The Scrub Oak-Blue Oak/Grass subseries has both scrub oak and blue oak in the overstory, distinguishing this type from the other two types which have no blue oak. Scrub oak and blue oak are usually codominant; mean basal area of scrub oak is 34 sq. ft/acre, compared with 21 sq. ft/acre for blue oak. Scrub oak occurs in the understory with 64% constancy, but averages only 5%

Black Oak Subseries

**** Coast/Transverse Range Type & Coast/Sierra Types
Major Tree Species**

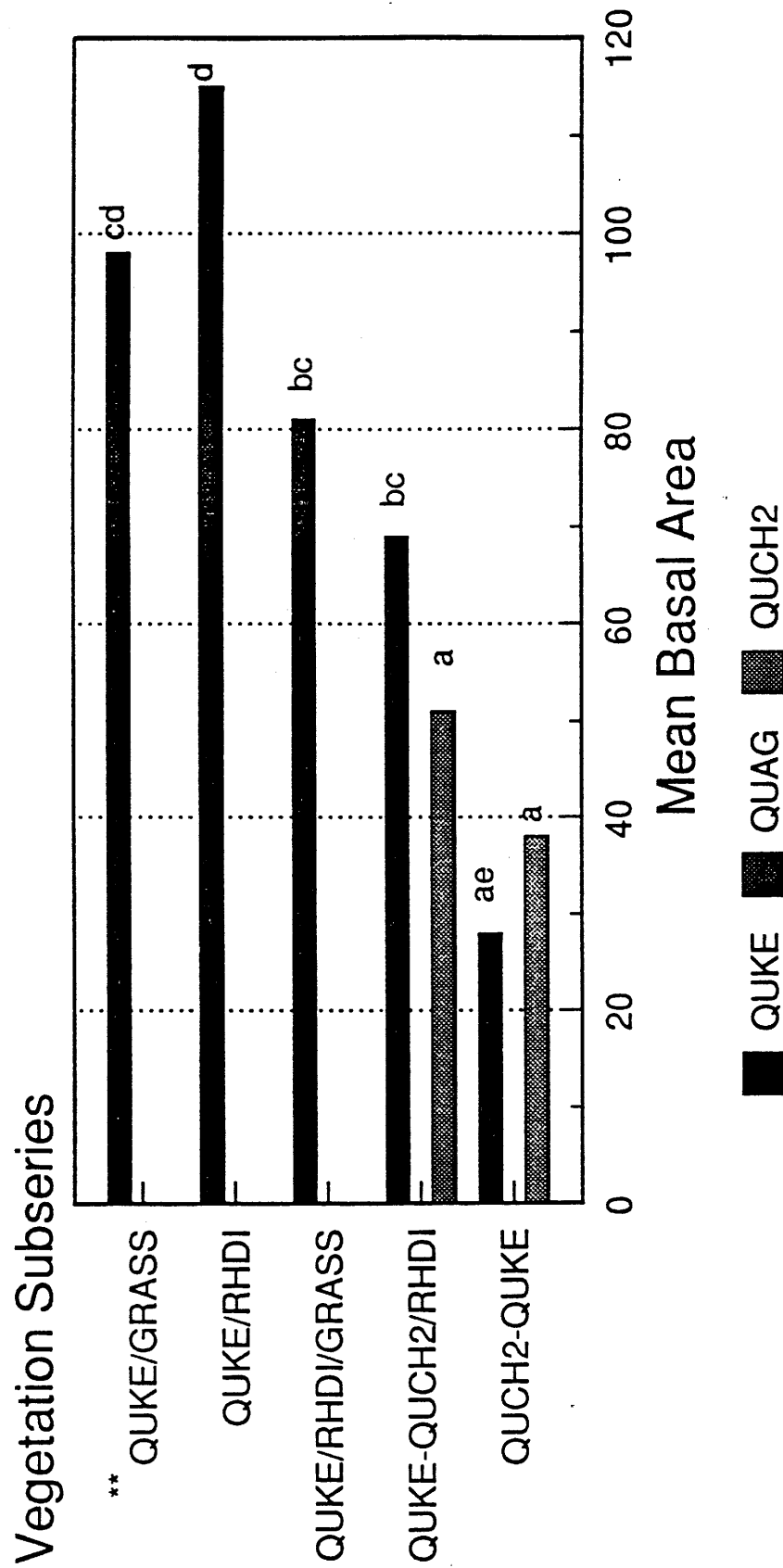


Figure 21. Different letters indicate significant differences ($p < .05$) in mean basal area by species by subseries (figs 20,21,22).

Black Oak Subseries

Sierra Nevada Types

Major Tree Species

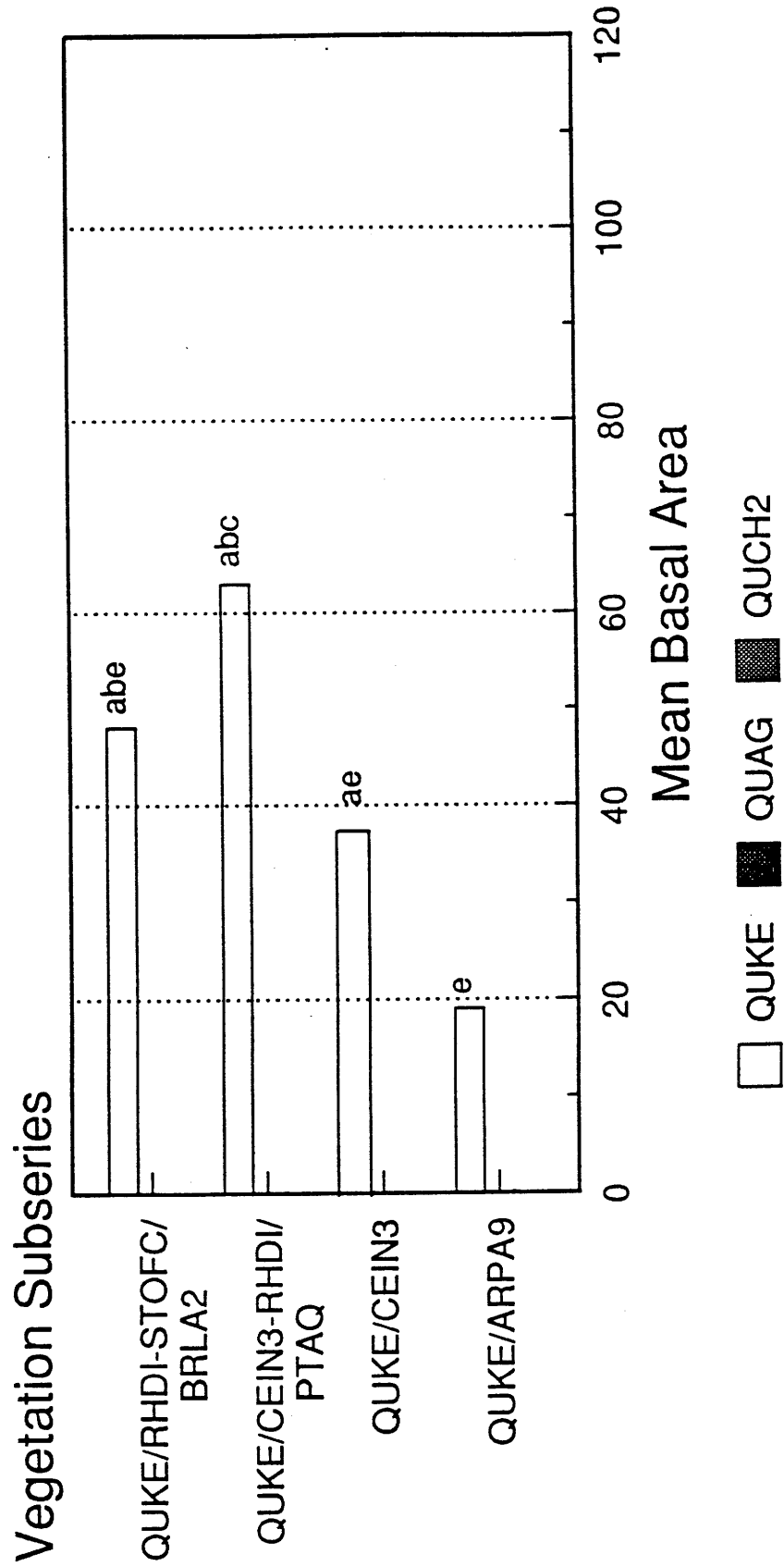


Figure 22. Different letters indicate significant differences ($p < .05$) in mean basal areas by species between subseries (figs 20,21,22).

Scrub Oak Subseries

Comparison of QUDU2 Basal Area by Type

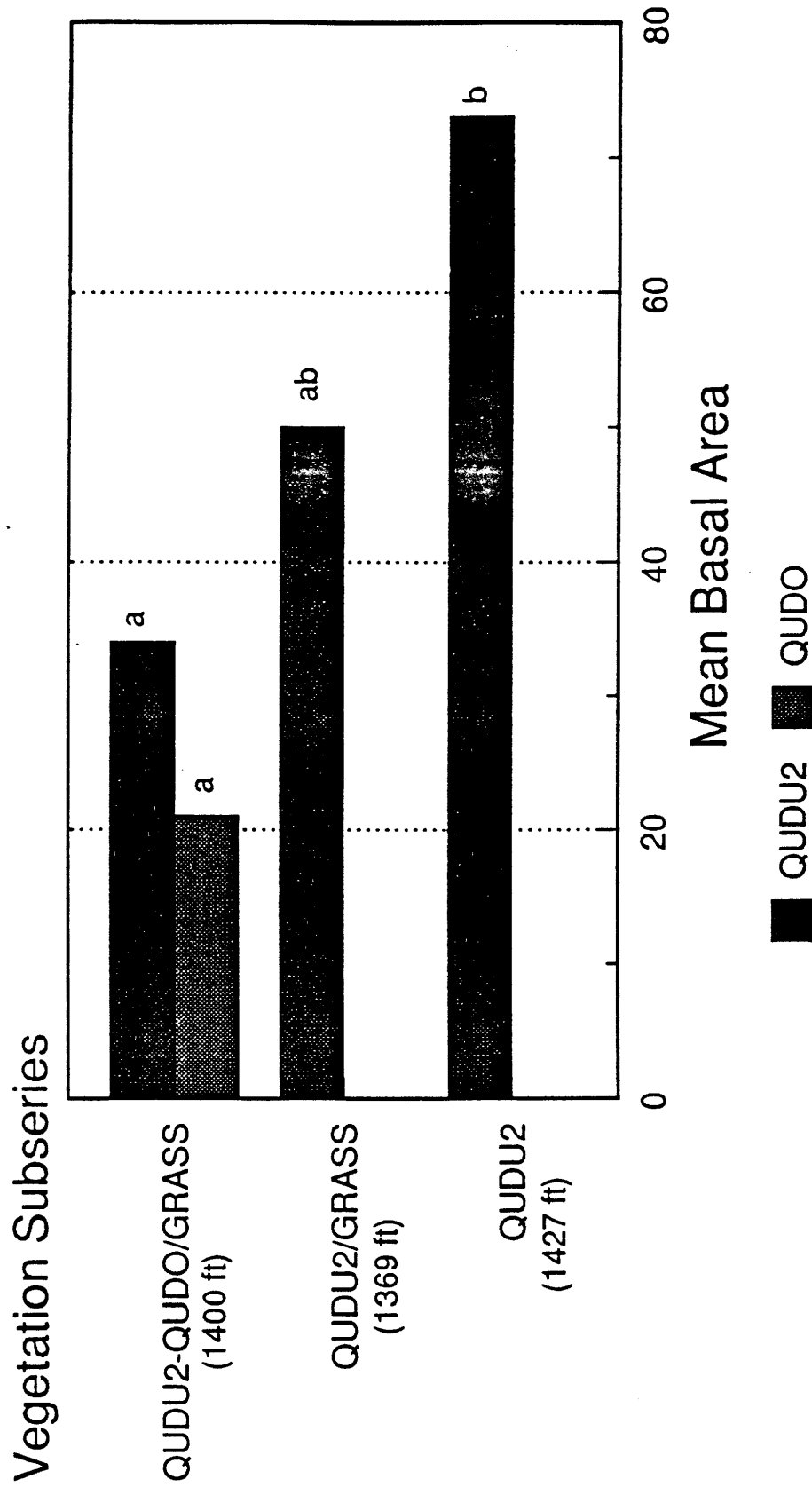


Figure 23. Different letters indicate significant differences ($p < .05$) in mean basal area by subseries.

cover. Grass averages 85% cover with 100% constancy. This type is more likely to be found on clay loam soils than the other types.

The Scrub Oak/Grass subseries has scrub oak as the only dominant overstory species, averaging 50 sq. ft/acre of basal area. Scrub oak is usually present in the understory as well, averaging 9% with 87% constancy. Grass is the only other major component of the understory, averaging 78% with 100% constancy.

The Scrub Oak subseries has scrub oak as the only major species present. Mean basal area of scrub oak (73 sq. ft/acre) is significantly higher ($p < .02$) in this type than in the Scrub Oak-Blue Oak/Grass type. Understory scrub oak cover, averaging 21% with 91% constancy, is also significantly higher ($p < .06$) in this type than in the Scrub Oak-Blue Oak/Grass type. Grass occurs with only a 45% constancy, and averages 10% cover, significantly less ($p < .00$) than the other two types. Litter is common, with 91% constancy and 60% mean cover, while it is rare in the other types. Toyon and/or hollyleaf cherry can be found more than one third of the time in the understory. Most of the soils for this type have a gravelly or rocky component.

THE CALIFORNIA MIXED OAK SERIES

The Mixed Oak series is comprised of cover types that contain 3 or more species of *Quercus* with constancies of 30 percent or more. This series is comprised of 11 subseries; nine types are found in the coastal ranges and 2 types are found in the Sierra Nevada.

The two Sierra Nevada types, Mixed Oak-Interior Live Oak-Foothill Pine and Interior Live Oak/Toyon, exist at similar elevations (1900 ft) from Placer county in the northern Sierra to Madera county in the south. Both types are dominated by interior live oak, but also contain black oak, and/or blue oak, and/or valley oak (figure 24). The Mixed Oak-Interior Live Oak-Foothill Pine type has a significantly higher mean basal area of foothill pine ($p < .06$) and blue oak, and no understory interior live oak. Overall mean basal area is higher for this type. In addition, this type contains significantly more grass cover averaging 78 percent, compared to an average of 42 percent cover for the Interior Live Oak/Toyon type (figure 25).

There are 3 coast range lower elevation mixed oak subseries (figure 26). The Mixed Oak-California Buckeye/Grass type tends to occur on the driest sites of the 3 lower elevation subseries at an average of 872 ft elevation. The Mixed Oak/Grass type occurs in the middle of the moisture gradient at an average of 1019 ft elevation, while the Mixed Oak/Poison Oak-Baccharis type tends to occur on the moister end at an average of 950 feet. The Mixed Oak-California Buckeye/Grass type is generally found in the

Mixed Oak Subseries

Major Tree Species

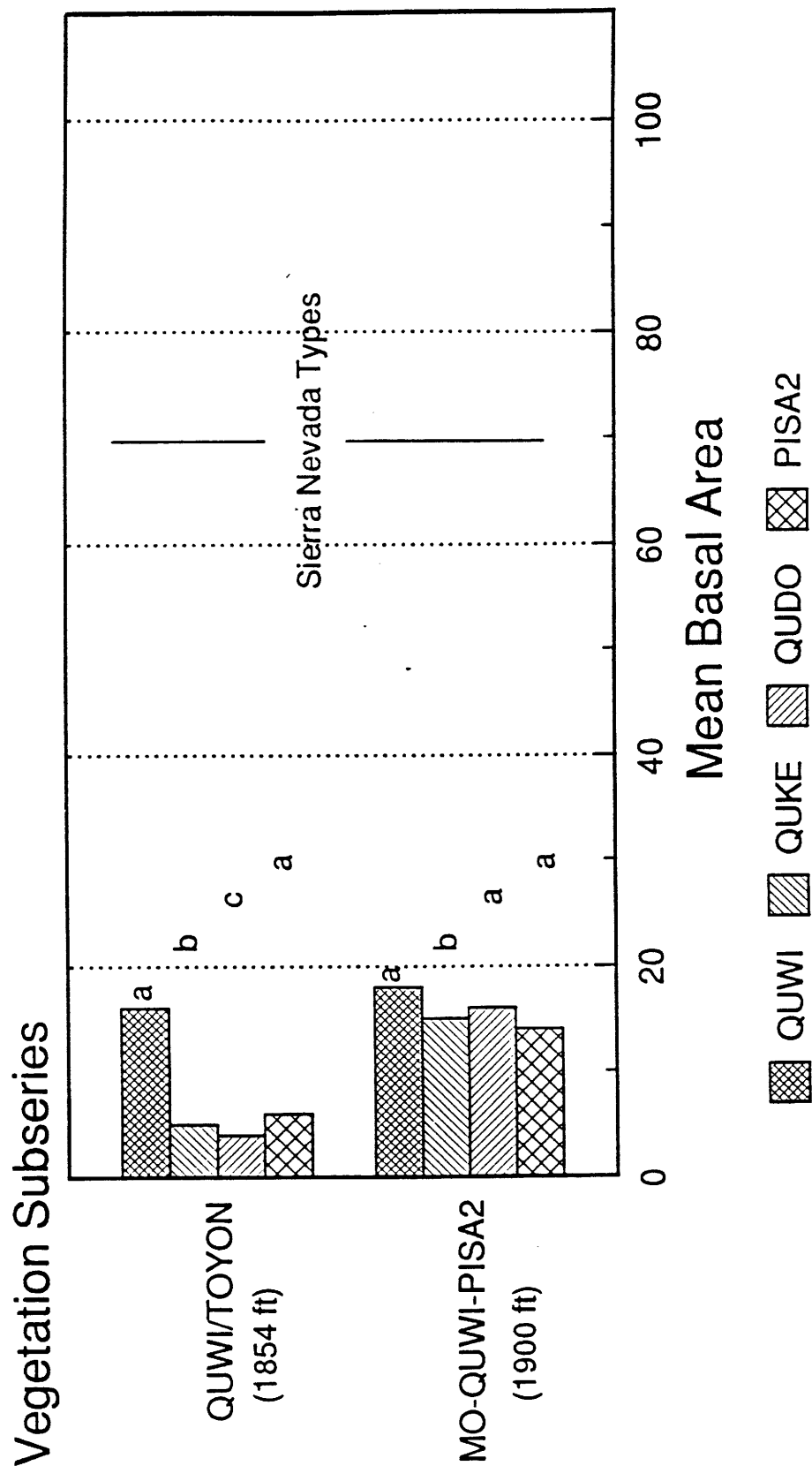


Figure 24. Different letters indicate significant differences ($p < .05$) in mean basal area by species between subseries (figs 24,26,28,30).

Mixed Oak Subseries

Major Understory Species

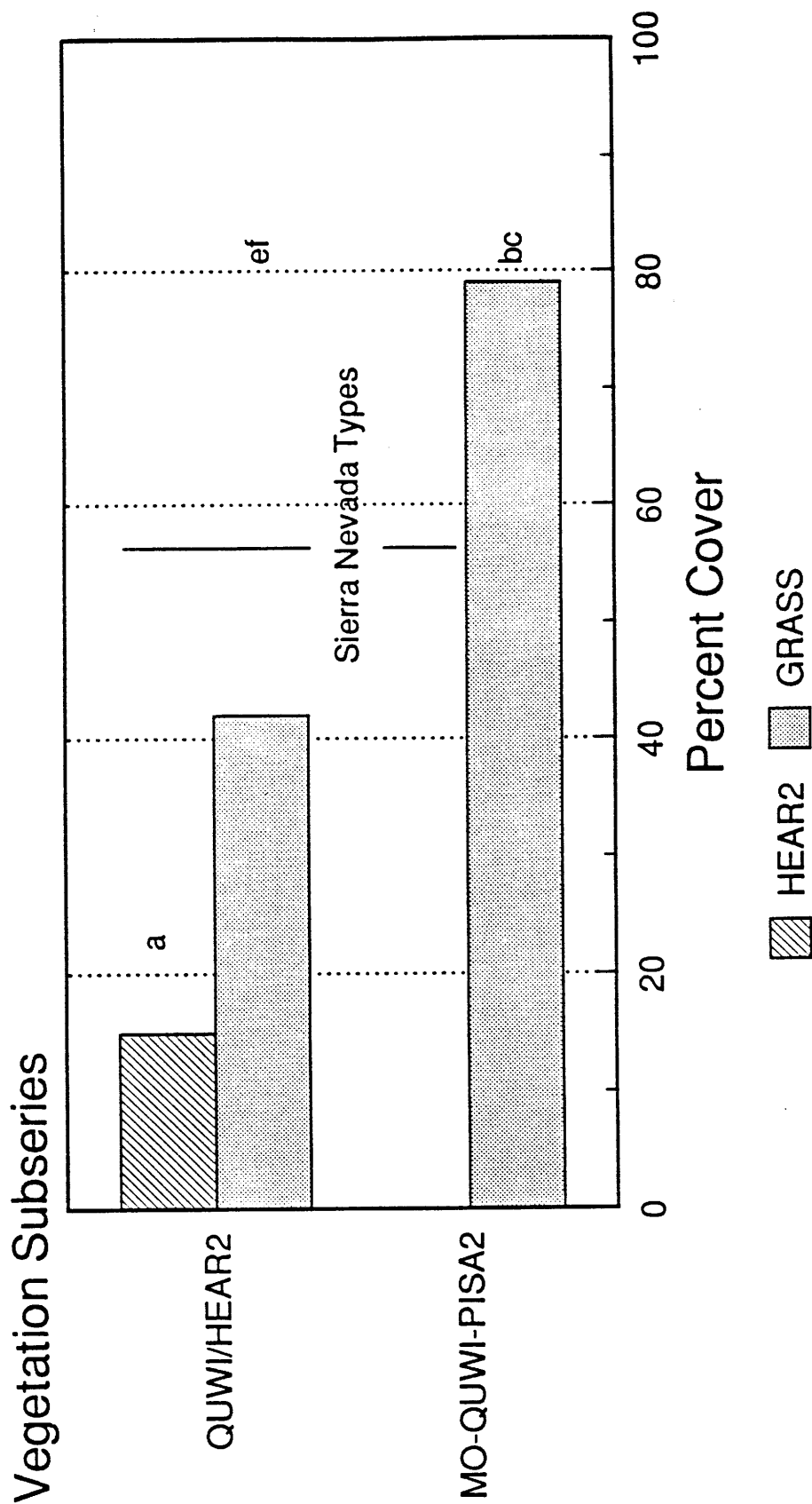


Figure 25. Different letters indicate significant differences ($p < .05$) in percent cover by species between subseries (figs 25,27,29).

Mixed Oak Subseries

Coastal Low Elevation Types

Major Tree Species

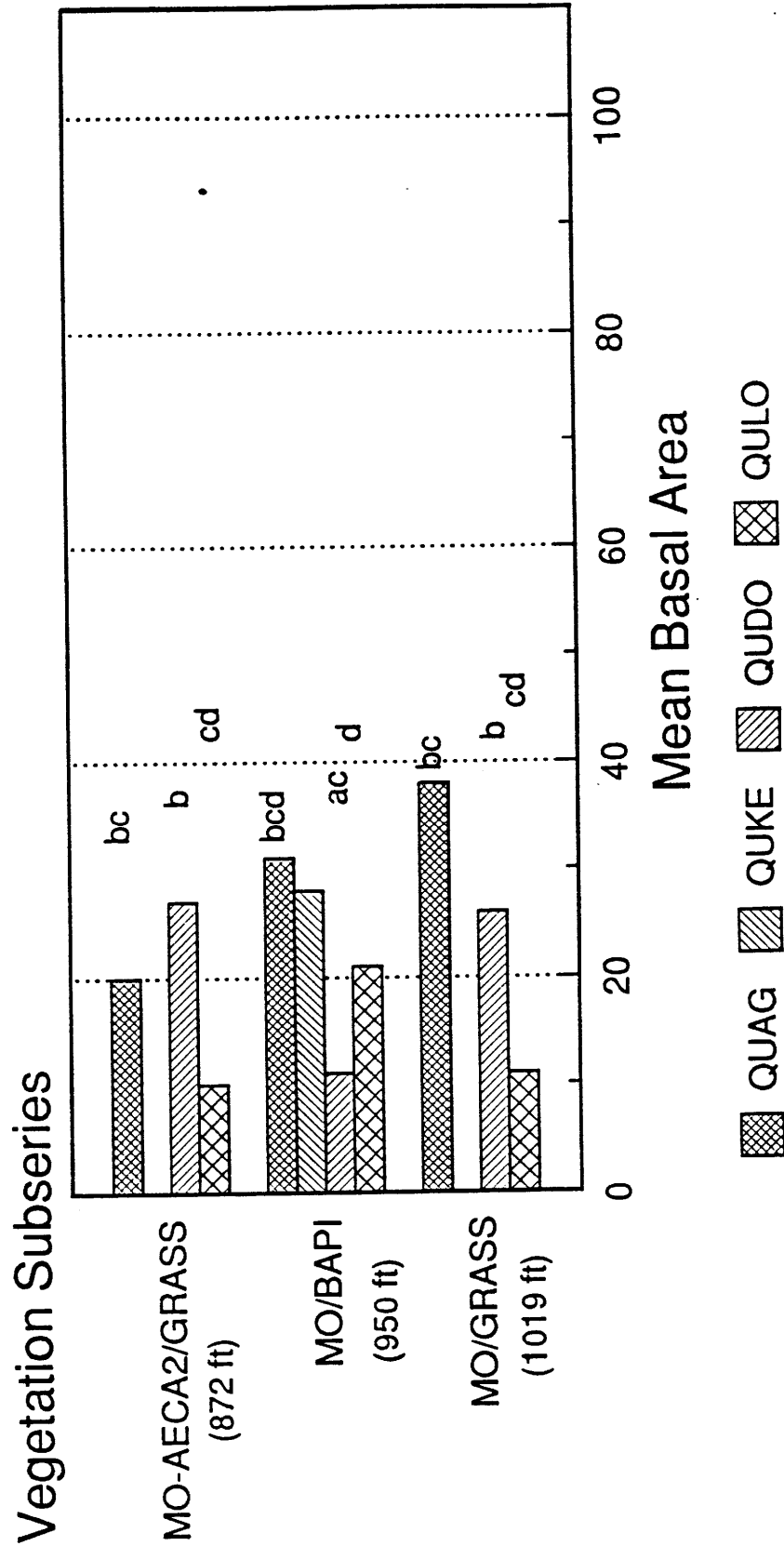


Figure 26. Different letters indicate significant differences ($p < .05$) in mean basal area by species between subseries (figs 24,26,28,30).

central coast from Napa to San Benito counties. Compared to its other two lower elevation mixed oak associates, it tends to be found on the central valley side of the coastal ranges on sandy and gravelly loams. The Mixed Oak/Grass and Mixed Oak/Poison Oak-Baccharis types tend to have a wider geographic range occurring from Napa to Santa Barbara counties.

The Mixed Oak/Poison Oak-Baccharis subseries has significantly less mean basal area of blue oak, and more valley oak than its other two associates. It also has significantly more cover of coffeeberry and poison oak than the other two subseries (figure 27). The Mixed Oak-California Buckeye/Grass type is distinguished from its low elevation associates by its high constancy (though low overall mean basal area) of California buckeye. The Mixed Oak-California Buckeye/Grass type also has significantly more grass cover than its associates; the Mixed Oak/Grass type has a higher mean grass cover than the Mixed Oak/Poison Oak-Baccharis type (figure 27).

The coast range middle elevation subseries include the Mixed Oak-Foothill Pine/Grass, Mixed Oak-Valley Oak/Poison Oak-Coffeeberry, Mixed Oak-Coast Live Oak/Poison Oak, and Mixed Oak-Black Oak/Grass types (figure 28). Each subseries is named for the dominant oak species in oak species mixture. The Mixed Oak-Foothill Pine/Grass type tends to be the driest of the four middle elevation types. It occurs primarily in the coastal ranges from Contra Costa to Santa Barbara and Kern counties, at a mean elevation of 1526 ft. Slopes are commonly less than 35 percent and this type is located primarily on sandstone and shale parent materials on northwest to east aspects.

The Mixed Oak-Valley Oak/Poison Oak-Coffeeberry type is distinguished from its associates primarily by its significantly higher mean basal area of valley oak (84 ft²/acre), and coast live oak (108 ft²/acre), (figure 28). Valley oak is present 100 percent constancy of the time and coast live oak has a constancy of 99 percent in this type. There is also a noticeable absence of black oak in this type. The type may be found from Marin and Contra Costa counties to San Luis Obispo county at mean elevations of 1443 ft.. The Mixed Oak-Valley Oak/Poison Oak-Coffeeberry subseries is found on a wide range of slopes (flat to very steep), and aspects (including 40 percent on south to west aspects). Parent material is primarily shale, but this type is also found on granitic, serpentine, and sandstones, among others.

The Mixed Oak-Coast Live Oak/Poison Oak type is distinguished from the Mixed Oak-Black Oak/Grass type by the absence of blue oak in the type, and its significantly higher mean basal area of coast live oak (figure 28). Additionally, the Mixed Oak-Coast Live Oak/Poison Oak type has significantly less grass cover than the Mixed Oak-Black Oak/Grass type (figure 29).

Mixed Oak Subseries

Coastal Low Elevation Types

Major Understory Species

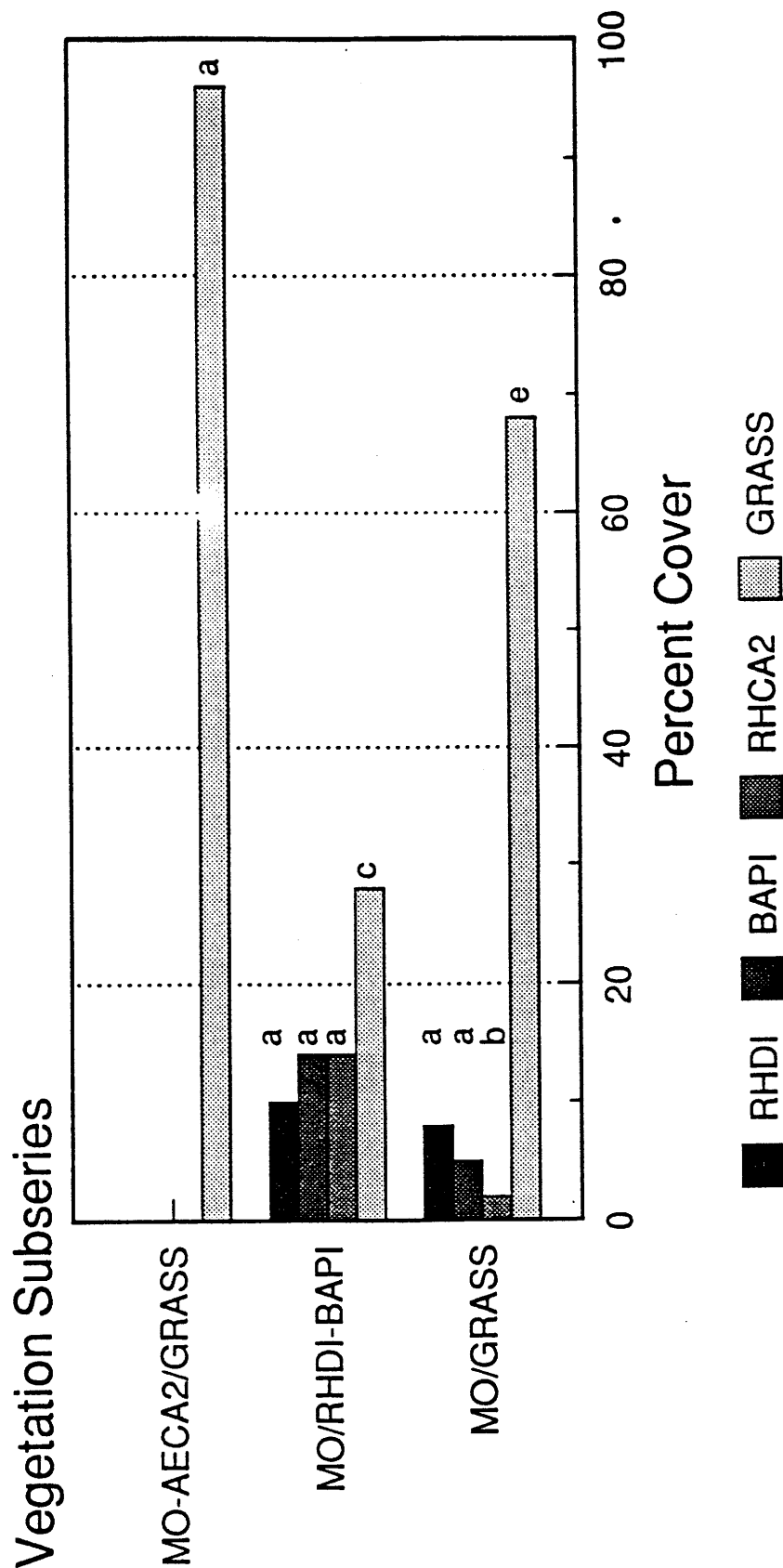


Figure 27. Different letters indicate significant differences ($p < 0.05$) in percent cover by species between subseries (figs 27,29).

Mixed Oak Subseries

Coastal Middle Elevation

Major Tree Species

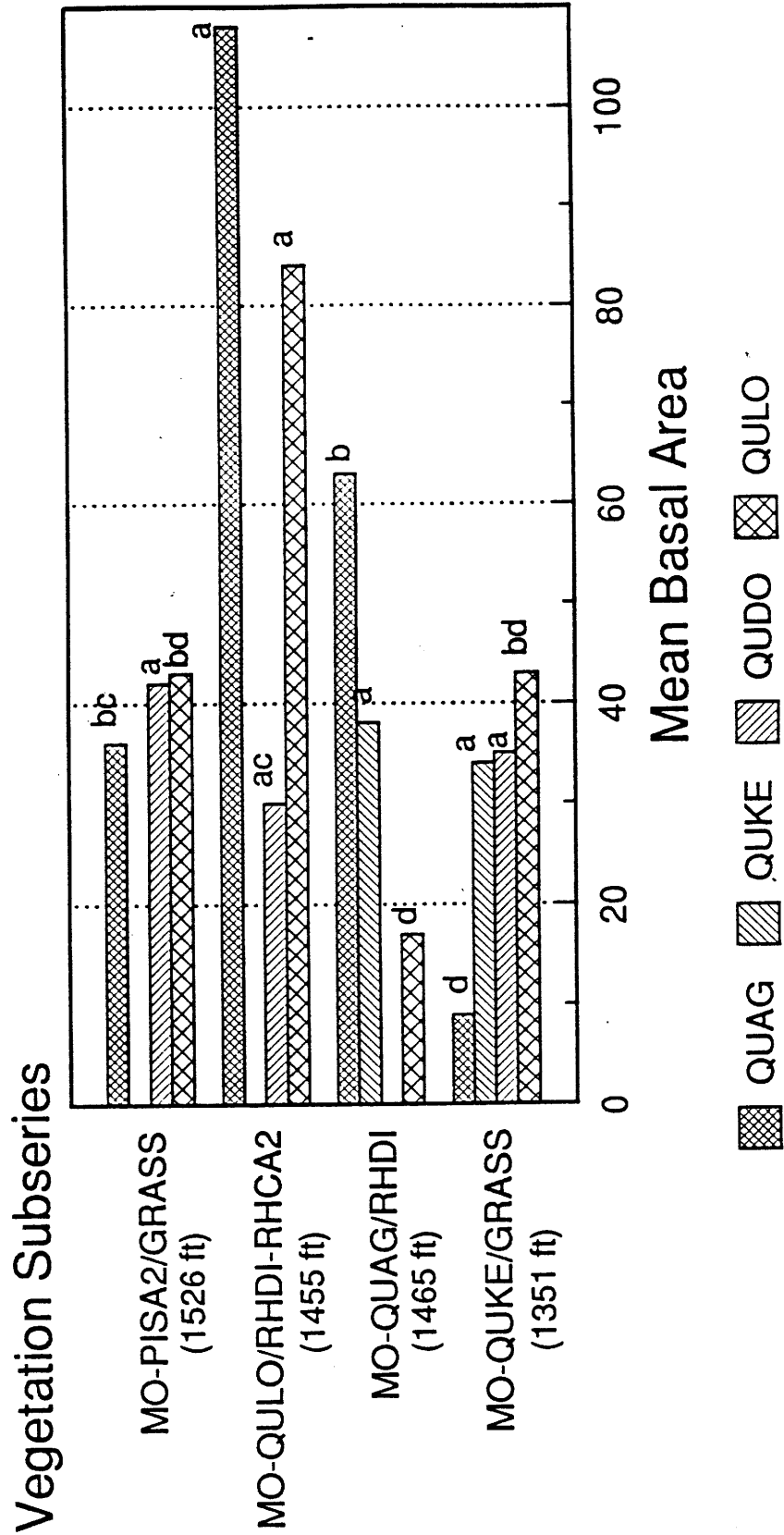


Figure 28. Different letters indicate significant differences ($p < .05$) in mean basal area by species between subseries (figs 24,26,28,30).

Mixed Oak Subseries

Coastal Middle Elevation Types

Major Understory Species

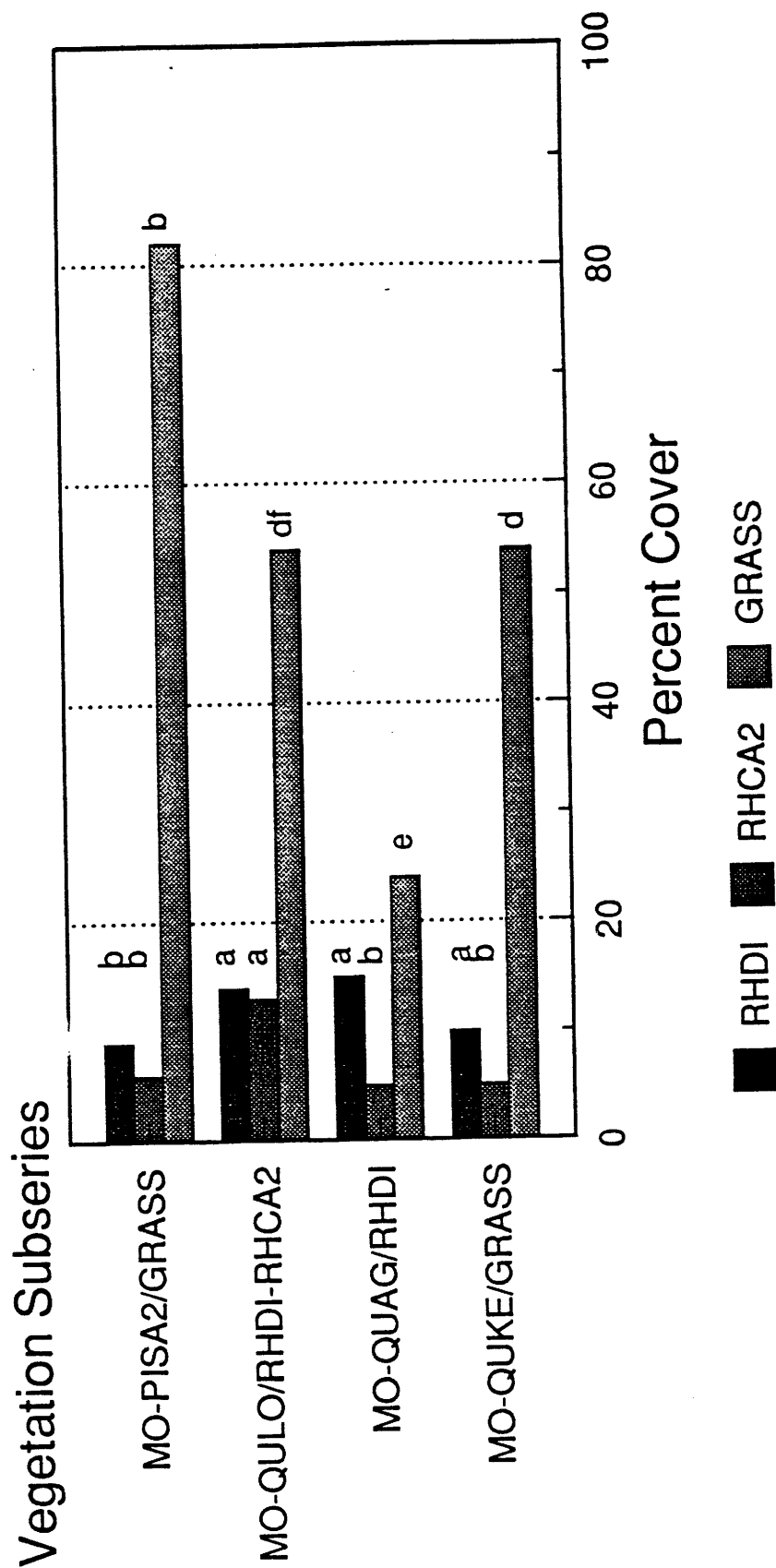


Figure 29. Different letters indicate significant differences ($p < .05$) in mean percent cover by species between subseries (figs 27,29).

The Mixed Oak-Coast Live Oak/Poison Oak type tends to occur on steeper slopes than its other middle elevation associates, and occurs on all soil textures and a wide range of parent materials from Sonoma to Monterey counties. The Mixed Oak-Black Oak/Grass subseries occurs primarily on soft sedimentary sandstone parent material, although it also may occur on shales, metamorphic, and other parent materials. Although primarily a coast range type, ten percent of the samples representing the Mixed Oak-Black Oak/Grass subseries were found in the Sierra Nevada.

The Blue Oak-Valley Oak-Coast Live Oak/Grass subseries occurs at a mean elevation of 1567 ft (figure 30). It is distinguished from its other coastal middle and upper elevation associates by the lack of black oak and foothill pine, and the high constancy and cover of grass as the only understory species.

The Black Oak-Valley Oak/Grass subseries is distinguished from all its other coastal associates by elevation. It is the highest of the Mixed Oak Series types with a mean elevation of 2375 ft. Black oak and grass are always present in the type, with very few other species in the understory (figure 30). Coast live oak is a common associate occurring on 47 percent of the plots representing this type.

Mixed Oak Subseries

Coastal Upper Elevation Types

Major Tree Species

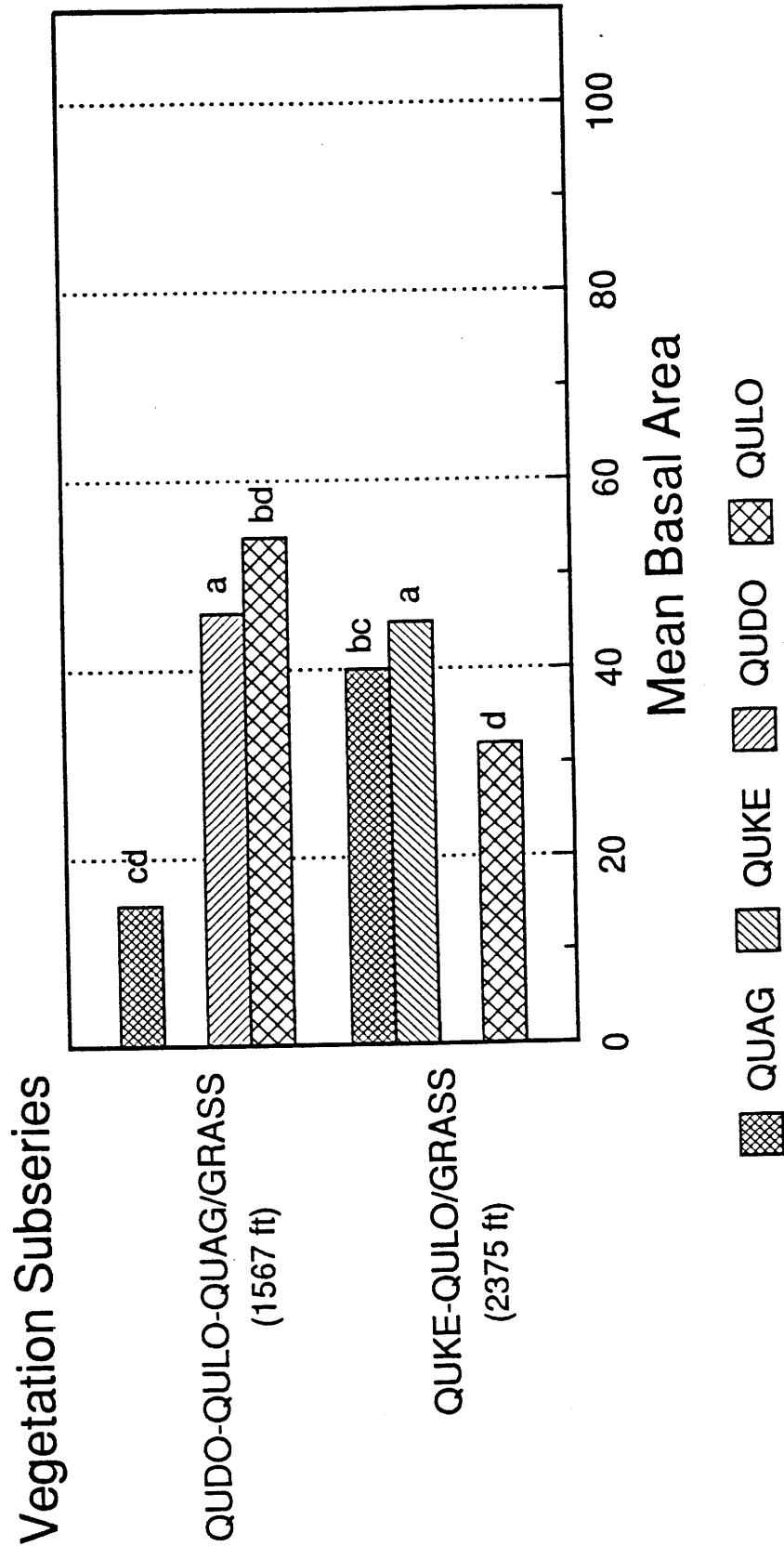


Figure 30. Different letters indicate significant differences ($p < .05$) in mean basal area by species between subseries (figs 24,26,28,30).

KEYS TO THE TYPES

Instructions

Each description contains the type name, number of plots used to describe the type, location information, environmental setting, and plant species. Additionally, a stand table is given for all tree species. Since the descriptions are founded on old plot data, the original units are used, without conversion to metric.

As mentioned before, this document does not contain garry oak, Engelmann oak, or tanoak plant community types. In addition, users may find themselves in oak cover types that are not described within the classification system. This may be because the data set used to develop the classification did not contain examples of the type. Specific examples are described in the overview of types.

Users must know approximately a dozen plant species to use the keys to the hardwood rangeland subseries. Since keys are only a tool in identifying the type, users must also read the type description to verify that he/she has correctly identified the type. If the description does not fit with what the user is seeing on the ground, he/she should go back through the key and check alternative routes.

The rangeland cover types have all been given a name (and number). The common name is given as well as the code name, which is a useful shorthand method of labeling the types. The name is composed of the dominant species of the tree, shrub, and/or herbaceous layer. The species having the greatest constancy (presence) across all plots representing the type is used in the name. A slash (/) is used to separate species of different life forms, and a dash (-) is used to separate species of the same life form.

Scientific species names, common names, and codes come from Munz and Keck 1968, and Powell 1987. Appendix 2 lists the plant species and codes used in this report. Notations on elevation and soils are given in feet. Basal area is given in square feet per acre. Appendix 3 displays the codes for environmental variables.

Constancy is expressed, in percent, as the number of plots in a type which contain a specific number of species divided by the total number of plots used to describe the type.

KEY TO THE SERIES

1a. Stand consists of single Quercus species.

Go to :

Coast Live Oak Key:	p. 62
Blue Oak Key:	p. 65
Valley Oak Key:	p. 68
Interior Live Oak Key:	p. 69
Black Oak Key:	p. 70
Scrub Oak Key:	p. 73

1b. Stand consists of two or more Quercus species.

2a. Go to the key of the dominant oak species.

2b. If stand consists of 3 or more oak species, go to:

Mixed Oak Series Key: p. 74

KEY TO THE COAST LIVE OAK SUBSERIES

- 1a. Coast live oak (QUAG) is the only overstory tree. Understory species are rarely present with total cover that seldom exceeds 25%. Coast live oak basal area is usually high (>200ft²/acre).

COAST LIVE OAKp. 107

- 1b. Coast live oak may be the only overstory tree present and total understory cover exceeds 25%. Coast live oak basal area is less than 200 sq.ft/acre.

- 2a. Understory grass cover generally exceeds 50%.

- 3a. Blue oak is present.

BLUE OAK-COAST LIVE OAK/GRASSp. 100

- 3b. Blue oak is absent.

COAST LIVE OAK/GRASSp. 97

- 2b. Understory grass cover is less than 50%.

- 4a. The following shrubs are present individually or together in the understory: coffeeberry, creambush, blackberry, and hazelnut. Big leaf maple may be present in the tree layer. The shrubs toyon, chamise, coast sagebrush, and black sage are absent. California bay is absent.

- 5a. Bracken fern is present, baccharis is often present. Big leaf maple, madrone, snowberry and hazelnut are absent.

COAST LIVE OAK/BLACKBERRY/BRACKEN FERNp. 77

- 5b. Bracken fern and baccharis are absent.

- 6a. Madrone and hazelnut are present. Big leaf maple, creambush and snowberry are absent.

COAST LIVE OAK-MADRONE/HAZELNUT-BLACKBERRYp. 81

- 6b. Madrone and hazelnut are absent. Big leaf maple, creambush and snowberry are present.

- 7a. Big leaf maple is present. Snowberry is absent.

COAST LIVE OAK-MAPLE/COFFEEBERRY-OCEAN SPRAY

.....p. 129

7b. Big leaf maple is absent.
Snowberry is present.

COAST LIVE OAK/OCEAN SPRAY-SNOWBERRYp. 118

4b. Blackberry, hazelnut, and big leaf maple are absent.
Coffeeberry and creambush may be present. The shrubs
toyon, chamise, coast sagebrush, and black sage may be
present. California bay may be present.

8a. Toyon is present. Redberry and California bay may
be present. Black sage and coast sagebrush are
absent.

9a. Other shrubs and trees are generally absent.

COAST LIVE OAK/TOYON-POISON OAKp. 110

9b. Coffeeberry, redberry, creambush and
California bay may be present. Chamise and
wedgeleaf ceanothus may be present.

10a. Chamise is present; wedgeleaf ceanothus
is often present. Coffeeberry, creambush and
California bay are absent.

COAST LIVE OAK/TOYON/GRASSp. 121

10b. Chamise and wedgeleaf ceanothus are
absent. Coffeeberry, redberry and California
bay are present.

11a. Coffeeberry and redberry are
present. California bay and scrub oak
are absent.

COAST LIVE OAK/COFFEEBERRY-TOYONp. 114

11b. Coffeeberry and redberry are
absent. California bay and scrub oak are
present.

COAST LIVE OAK-CALIFORNIA BAY/TOYON-SCRUB OAK

.....p. 125

8b. Toyon is absent. Redberry and California bay are
absent. Black sage and coast sagebrush may be
present.

12a. Chamise, black sage and coast sagebrush are present individually or together.

13a. Coast sagebrush is present with greater than 25% cover of grasses. Chamise and black sage are absent.

COAST LIVE OAK/COAST SAGEBRUSH/GRASSp. 89

13b. Coast sagebrush is absent. Chamise and black sage are present individually or together with less than 25% cover of grasses.

COAST LIVE OAK/CHAMISE-BLACK SAGEp. 103

12b. Chamise, black sage and coast sagebrush are absent.

14a. Poison oak is the dominant shrub cover. Grass cover is absent.

COAST LIVE OAK/POISON OAKp. 85

14b. Poison oak and grass both have high cover.

COAST LIVE OAK/POISON OAK/GRASSp. 93

KEY TO THE BLUE OAK SUBSERIES.

1a. Foothill pine is present in the stand.

2a. Foothill pine and interior live oak are present.
Wedgeleaf ceanothus is often present.

3a. Whiteleaf manzanita is present.

BLUE OAK-FOOTHILL PINE/WHITELEAF MANZANITA/GRASS
.....p. 138

3b. Whiteleaf manzanita is absent or occurs rarely.

4a. Understory interior live oak and blue oak are
often present. Other shrubs may be present
in the understory.

5a. Wedgeleaf ceanothus averages 18 percent
cover and is always present. Redberry,
poison oak, and other shrubs may be
present.

BLUE OAK/WEDGELEAF CEANOTHUS/GRASSp. 163

5b. Wedgeleaf ceanothus, if present,
averages 8 percent cover. Other shrubs
are rare.

BLUE OAK-INTERIOR LIVE OAK/GRASS.....p. 149

4b. Understory interior live oak and blue oak are
not present. Shrubs are rare. Interior live
oak is dominant in the stand.

INTERIOR LIVE OAK-BLUE OAK-FOOTHILL PINE.....p. 153

2b. Foothill pine is present. Interior live oak is absent.
Wedgeleaf ceanothus may or may not be present.

6a. Understory shrubs are rare, averaging < 10 percent
cover.

BLUE OAK-FOOTHILL PINE/GRASSp. 159

6b. Understory shrubs such as wedgeleaf ceanothus,
and/or mountain mahogany, and/or narrowleaf
goldenbush are present.

BLUE OAK-FOOTHILL PINE/WEDGELEAF CEANOTHUS-MT. MAHOGANY
.....p. 167

1b. Foothill pine is absent or rare.

7a. Generally other oaks are present in the stand with blue oak.

8a. Interior live oak may be present. Basal area of interior live oak is generally > 10 sq.ft./acre.

9a. The stand is dense with trees averaging > 155 trees per acre, with basal area > 100 sq.ft./acre.

INTERIOR LIVE OAK-BLUE OAK-FOOTHILL PINEp. 153

9b. The stand is relatively open, with basal area averaging 50 sq.ft./acre.

10a. Wedgeleaf ceanothus, if present, averages < 10 percent cover.

BLUE OAK-INTERIOR LIVE OAK/GRASS.....p. 149

10b. Wedgeleaf ceanothus is present and averages > 10 percent cover.

BLUE OAK/WEDGELEAF CEANOTHUS/GRASSp. 163

8b. Valley oak and/or coast live oak are present in the stand.

11a. Valley oak is codominant with blue oak.

12a. Coast live oak is absent.

BLUE OAK-VALLEY OAK/GRASSp. 142

12b. Both valley oak and coast live oak are present in the stand.

BLUE OAK-VALLEY OAK-COAST LIVE OAK/GRASSp. 156

11b. Valley oak is absent.

13a. Coast live oak is present. Coast sagebrush may also be present though shrubs are rare; elevation averages 1000 ft..

BLUE OAK-COAST LIVE OAK/GRASSp. 132

13b. Shrubs are common. Elevation averages 2500 ft..

BLUE OAK-FOOTHILL PINE/WEDGELEAF CEANOTHUS-MT. MAHOGANY	p. 167
7b. Generally blue oak is the only oak present in the stand.	
14a. Narrowleaf goldenbush is present.	
BLUE OAK/NARROWLEAF GOLDENBUSH	p. 171
14b. Narrowleaf goldenbush is absent. Grass is the primary understory species.	
15a. Understory blue oak are present.	
BLUE OAK-UNDERSTORY BLUE OAK/GRASS	p. 145
15b. Understory blue oak are absent.	
BLUE OAK/GRASS	p. 135

KEY TO THE VALLEY OAK SUBSERIES

1a. Valley oak is the only tree species in the overstory.

VALLEY OAK/GRASSp. 186

1b. Valley oak is mixed with other oak species.

2a. Black oak is present.

BLACK OAK-VALLEY OAK/GRASSp. 189

2b. Black oak is absent.

3a. Blue oak is present; coast live oak is rarely present.

BLUE OAK-VALLEY OAK/GRASSp. 183

3b. Blue oak is sometimes present; coast live oak is present.

4a. Poison oak is present.

5a. Coffeeberry is present.

MIXED OAK-VALLEY OAK/POISON OAK-COFFEEBERRY.....p. 180

5b. Coffeeberry is absent.

COAST LIVE OAK-VALLEY OAK/POISON OAKp. 174

4b. Poison oak is absent.

VALLEY OAK-COAST LIVE OAK/GRASSp. 177

KEY TO THE INTERIOR LIVE OAK SUBSERIES

- 1a. Yerba santa is present.
 - 2a. Yerba santa averages >20% cover, grass averages 30%, and overstory tree cover may or may not be present.
 INTERIOR LIVE OAK/YERBA SANTA/GRASSp. 209
 - 2b. Yerba Santa averages <20% cover, whiteleaf manzanita and/or wedgeleaf ceanothus is common. Interior live oak is present in the overstory.
 INTERIOR LIVE OAK/WHITELEAF MANZANITAp. 205
- 1b. Yerba santa is absent or is rare occurring at <5% cover.
 - 3a. Madrone is present, and grass is rare.
 INTERIOR LIVE OAK-MADRONE/POISON OAKp. 195
 - 3b. Madrone is absent.
 - 4a. Grass is present and interior live oak is often present in the understory.
 - 5a. Manzanita is common.
 - 6a. Foothill pine and/or blue oak are present.
 INTERIOR LIVE OAK-FOOTHILL PINE/MANZANITAp. 192
 - 6b. Foothill pine is rare and blue oak is absent.
 INTERIOR LIVE OAK/WHITELEAF MANZANITAp. 201
 - 5b. Manzanita is not common.
 - 7a. Understory interior live oak may be present, blue oak is common, and toyon is rare.
 INTERIOR LIVE OAK-BLUE OAK-FOOTHILL PINEp. 198
 - 7b. Understory interior live oak and toyon are present. Blue oak is rare.
 INTERIOR LIVE OAK/TOYONp. 205
 - 4b. Grass is absent.
 INTERIOR LIVE OAK-MADRONE/POISON OAKp. 195

KEY TO THE BLACK OAK SUBSERIES

- 1a. Coast live oak, valley oak, canyon live oak, madrone, and/or beach pine are present at >5 sq. ft. of basal area.

2a. Canyon live oak is present.

- 3a. Canyon live oak and/or black oak are present in the understory at >5% cover. Deerbrush is absent, or present at <10% cover. Grass is absent.

CANYON LIVE OAK-BLACK OAKp. 244

- 3b. Canyon live oak and/or black oak are absent in the understory, or present at <5% cover. Deerbrush is often present at >10% cover. Grass is often present.

BLACK OAK-CANYON LIVE OAK/POISON OAK/.....p. 240

2b. Canyon live oak is absent.

- 4a. Two of these three species are present: madrone, beach pine, ocean spray.

- 5a. Two of these three species are present: beach pine, ocean spray, coffeeberry. Toyon is absent.

BLACK OAK-COAST LIVE OAK-BEACH PINE/
OCEAN SPRAYp. 224

- 5b. Two of these three species are absent: beach pine, ocean spray, coffeeberry. Toyon is usually present.

BLACK OAK-MADRONE-COAST LIVE OAK.....p. 212

- 4b. Two of these three species are absent: madrone, beach pine, ocean spray.

- 6a. Valley oak is present and usually codominant with black oak.

BLACK OAK-VALLEY OAK/GRASSp. 228

- 6b. Valley oak absent, or present at <15 sq. ft. of basal area. Coast live oak is present.

MIXED OAK-COAST LIVE OAK/POISON OAKp. 216

1b. Coast live oak, valley oak, canyon live oak, and beach pine are absent. If present, each species is <5 sq. ft. of basal area.

7a. Poison oak is present. Usually found in Shasta County or the Coast Range.

8a. Deerbrush, California storax, and/or grass-nut are present. Found mainly in Shasta County.

9a. Bracken fern is present. Grass-nut is absent. Usually above 2000 ft. elevation.

BLACK OAK/DEERBRUSH-POISON OAK/BRACKEN FERN.....p.234

9b. Bracken fern is usually absent. Grass-nut and/or California storax are often present. Usually below 2000 ft. elevation.

BLACK OAK/POISON OAK-CALIFORNIA STORAX/GRASS-NUT
.....p. 220

8b. Deerbrush, California storax, and grass-nut are not present. Found mainly in the Coast Range.

10a. Grass is >10% cover. Foothill pine is often present.

BLACK OAK/POISON OAK/GRASSp. 237

10b. Grass is <10% cover. Foothill pine is absent.

BLACK OAK/POISON OAKp. 231

7b. Poison oak is absent. Usually found in the central and southern Sierra.

11a. Greenleaf manzanita and/or deerbrush are present.

12a. Greenleaf manzanita is present. Deerbrush is absent, or present at <25% cover.

BLACK OAK/GREENLEAF MANZANITAp. 254

12b. Greenleaf manzanita is absent. Deerbrush is present at >25% cover.

BLACK OAK/DEERBRUSHp. 248

11a. Greenleaf manzanita and deerbrush are absent.

13a. Grass is >5% cover.

BLACK OAK/GRASSp. 251

13b. Grass is <5% cover.

BLACK OAK/POISON OAKp. 231

KEY TO THE SCRUB OAK SUBSERIES

- 1a. Blue oak is present in the overstory. Grass is dominant in the understory.

SCRUB OAK-BLUE OAK/GRASSp. 260

- 1b. Blue oak is absent from the overstory.

- 2a. Grass is >25% cover.

SCRUB OAK/GRASSp. 257

- 2b. Grass is <25% cover.

SCRUB OAKp. 263

KEY TO THE MIXED OAK SUBSERIES

1a. You are located in the Sierra Nevada range.

2a. Understory interior live oak and/or toyon are present.

INTERIOR LIVE OAK/TOYONp. 269

2b. Understory interior live oak and/or toyon are rare.
Foothill pine is common.

MIXED OAK-INTERIOR LIVE OAK-FOOTHILL PINEp. 266

1b. You are located in the coast ranges.

3a. Mean elevation is greater than 2500 ft.; black oak and
valley oak are common.

BLACK OAK-VALLEY OAK/GRASSp. 302

3b. Mean elevation is less than 2500 ft..

4a. Valley oak is the dominant oak species in the mix.

5a. Valley oak and coast live oak are
codominants.

6a. Grass, poison oak, and coffeeberry may
be present. Valley and coast live oak
have mean basal area > 60 sq.ft/acre.

MIXED OAK-VALLEY OAK/POISON OAK-COFFEEBERRYp. 28

6b. Black oak is codominant with coast live
oak and valley oak. Grass and poison
oak are common.

MIXED OAK-BLACK OAK/GRASSp. 295

5b. Valley and blue oak are codominants. Coast
live oak is present.

BLUE OAK-VALLEY OAK-COAST LIVE OAK/GRASSp. 299

4b. Valley oak is not the dominant oak in the species
mix. Coast live oak and/or blue oak and/or black
oak is dominant.

7a. Coast live oak and black oak are common in
the stand. Blue oak is absent or present at
low constancy and cover.

- 8a. Baccharis and/or coffeeberry are common associates. Toyon may be present. Generally low elevation (mean=1000 ft.).

MIXED OAK/POISON OAK-BACCHARISp. 280

- 8b. Baccharis and coffeeberry are very rare. Poison oak is usually present. Mean basal area of coast live oak is twice that of the MO/Poison Oak-Baccharis type. Generally middle elevation (mean=1500 ft.).

MIXED OAK-COAST LIVE OAK/POISON OAKp. 291

- 7b. Blue oak is a common associate in the mixed oak stand.

- 9a. California buckeye is common. Grass cover averages 95 percent. Foothill pine is absent or very rare. Generally low elevation.

MIXED OAK-CALIFORNIA BUCKEYE/GRASSp. 273

- 9b. California buckeye is not common. Foothill pine may or may not be present.

- 10a. Foothill pine is absent. Black oak may be present. Low elevation sites.

MIXED OAK/GRASSp. 276

- 10b. Foothill pine is present. Black oak is absent. Middle elevation sites.

MIXED OAK-FOOTHILL PINE/GRASSp. 284

HARDWOOD RANGELAND SUBSERIES DESCRIPTIONS

COAST LIVE OAK SERIES

Coast Live Oak/Blackberry/Bracken Fern
QUAG/RUVI2/PTAQ
N=18

EXTENT: This type occurs in the central coast ranges from Contra Costa to Santa Cruz County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	783	200	2000
ASPECT	All aspects.		
SLOPE	All slopes.		

SOILS:

PARENT MATERIAL	Hard and soft sedimentary rocks.
TEXTURE	Sandy and gravelly loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Blackberry/Bracken Fern
(N=18)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	18	2-92	94
ARME3 Madrone	9	0-17	35
PSME Douglas-fir	43	0-90	28
UMCA1 Cal. bay	18	0-48	17
QUWI Interior live oak	9	0-14	17

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	3	0-5	24

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	14	0-28	76
RUVI2 Blackberry	13	0-43	71
BAPI Baccharis	35	0-95	53
HODI Ocean spray	18	0-59	53
CETH Blueblossom ceano.	17	0-49	41
COCO5 Hazelnut	16	0-35	29
ARCA7 Coast sagebrush	9	0-21	17
HEAR2 Toyon	2	0-4	17

HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
PTAQ Bracken Fern	13	0-42	82

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	15	0-66	41
ROCK	-		

Coast Live Oak/Blackberry/Bracken Fern
(N=18)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
QUDO Blue oak
QUKE Black oak
QULO Valley oak
SESE2 Coast redwood

TREE UNDERSTORY

AECA2 Cal. buckeye
PIAT1 Knobcone pine
QUDO Blue oak

SHRUBS

ARTO2 Shaggy barked manzanita
CEPA3 Warty-leaved ceanothus
CRCA2 Cal. croton
DIAU1 Bush monkeyflower
LECA3 Woodbalm
RHCA2 Coffeeberry
RUPA2 Western thimbleberry
SAL11 Willow
SACA4 Mtn blue elderberry
SYMO Creeping snowberry
SYRI Upright snowberry

HERBS

LOSC Lotus

Coast Live Oak/Blackberry/Bracken Fern
(N=18)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	2	0.0	0	0.0	1	0.7	0	0.0	2
ARME3	2	2.1	1	0.8	0	0.0	0	0.0	6
PIAT1	1	0.0	1	0.0	0	0.0	0	0.0	1
PSME	2	1.9	1	1.4	1	0.7	0	0.4	5
QUAG	5	4.2	1	1.9	0	0.2	0	0.2	17
QUDO	7	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	5	0.0	0	0.0	0	0.0	0	0.0	1
QULO	1	0.0	0	0.0	0	0.0	0	0.0	1
QUWI	5	3.2	0	0.0	0	0.0	0	0.0	3
SESE2	5	0.0	0	0.0	0	0.0	0	0.0	1
UMCA1	6	7.5	1	1.7	0	0.0	0	0.0	3

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	2	0.0	2	0	0.0	0	1	0.0	1	0	0.0	0
ARME3	2	2.4	5	1	1.7	3	0	0.0	0	0	0.0	0
PIAT1	1	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
PSME	2	1.9	5	3	4.4	2	1	0.9	4	1	0.0	1
QUAG	5	4.2	17	2	3.7	7	1	0.0	1	1	0.0	1
QUDO	7	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	5	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUWI	5	3.2	3	0	0.0	0	0	0.0	0	0	0.0	0
SESE2	5	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
UMCA1	6	7.5	3	3	0.0	1	0	0.0	0	0	0.0	0

Coast Live Oak-Madrone/Hazelnut-Blackberry
QUAG-ARME3/COCO5-RUVI2
N=23

EXTENT: This type occurs in the central coast ranges from Marin to Monterey County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	870	200	2400
ASPECT	92% on west to north to east.		
SLOPE	Mod steep, averages 36%.		

SOILS:

PARENT MATERIAL	Primarily soft sedimentary rocks.
TEXTURE	All kinds of loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak
Parker and Matyas (1989): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak-Madrone/Hazelnut-Blackberry
(N=23)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	122	53-287	100
ARME3 Madrone	44	0-227	64

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
ARME3 Madrone	7	0-28	27
QUAG Coast live oak	6	0-13	27

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
COCO5 Hazelnut	22	0-58	68
RUVI2 Blackberry	22	0-78	64
RHCA2 Coffeeberry	9	0-21	50
RHDI Poison oak	12	0-25	32
HEAR2 Toyon	5	0-16	27
HODI Ocean spray	3	0-5	27

HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
PTAQ Bracken fern	4	0-8	23

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	4	0-9	18
ROCK	2	-	8

Coast Live Oak-Madrone/Hazelnut-Blackberry
(N=23)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
LIDE2 Tan-oak
LIDE3 Incense-cedar
PSME Douglas fir
QUGA2 Garry oak
QUKE Black oak
QUWI Interior live oak
UMCA1 Cal. bay

TREE UNDERSTORY

AECA2 Cal. buckeye
PICO2 Coulter pine
QUCH2 Canyon live oak
QUWI Interior live oak
UMCA1 Cal. bay

SHRUBS

AMUT Utah serviceberry
ARCA7 Coast sagebrush
ARTO2 Shaggy barked manzanita
BAPI Baccharis
CASE3 Bush chinquapin
CEIN3 Deerbrush
CESO3 Jim brush
CETH Blueblossom ceanothus
ERFA Cal. buckwheat
MECH Ice plant
RHTR Squawbush
RICA1 Hillside gooseberry
ROGY Wood rose
RUPA2 Western thimbleberry
SAL11 Willow
SASP Pitcher Sage
SYRI Upright snowberry

HERBS

LOSC Lotus
PESP2 Showy penstemon
POMU1 Sword fern
PSPH Forest scurfpea

Coast Live Oak-Madrone/Hazelnut-Blackberry
(N=23)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
ARME3	9	15.7	2	2.6	0	0.7	0	0.4	15
LIDE2	0	0.0	1	0.0	0	0.0	0	0.0	1
LIDE3	1	0.7	1	0.7	0	0.0	0	0.0	2
PICO1	10	9.1	2	2.1	0	0.0	0	0.0	3
PSME	1	1.5	1	0.6	1	0.6	0	0.0	3
QUAG	23	17.2	10	17.0	1	1.7	0	0.5	23
QUGA2	1	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	1	1.2	0	0.6	0	0.0	0	0.0	3
QUWI	3	3.1	0	0.6	0	0.0	0	0.0	3
UMCA1	33	0.7	0	0.0	0	0.0	0	0.0	2

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	10	16.3	14	3	3.8	9	1	2.3	5	1	3.6	2
LIDE2	0	0.0	0	1	0.0	1	0	0.0	0	0	0.0	0
LIDE3	1	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
PICO1	15	15.6	2	4	3.6	2	0	0.0	0	0	0.0	0
PSME	2	2.4	2	1	1.0	2	1	1.0	2	0	0.0	0
QUAG	24	17.6	23	10	17.9	22	2	2.9	12	1	4.4	3
QUGA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	2	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUWI	4	4.9	2	1	0.0	1	0	0.0	0	0	0.0	0
UMCA1	33	0.7	2	0	0.0	0	0	0.0	0	0	0.0	0

Coast Live Oak/Poison Oak
QUAG/RHDI
N=48

EXTENT: This type occurs in the central coast ranges from Marin to Santa Barbara County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	910	250	2200
ASPECT	64% on north and northeast aspects.		
SLOPE	30% flat, 23% in the 36-45% category.		

SOILS:

PARENT MATERIAL	Sedimentary shale and sandstone, serpentine.
TEXTURE	All kinds of loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Poison Oak
(N=48)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	136	3-450	100
ARME3 Madrone	9	0-21	15
AECA2 Cal. buckeye	7	0-22	15
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	3	0-6	15
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	16	0-48	79
RHCA2 Coffeeberry	13	0-45	52
DIAU1 Bush monkeyflower	5	0-16	21
BAPI Baccharis	18	0-50	19
RHCR Redberry	10	0-28	15
HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
PTAQ Bracken fern	12	0-45	35
(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	3	0-3	2
ROCK	4	0-7	4

Coast Live Oak/Poison Oak
(N=48)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

LIDE2 Tan-oak
QUDO Blue oak
QUGA2 Garry oak
QUKE Black oak
QULO Valley oak
UMCA1 Cal. bay

TREE UNDERSTORY

AECA2 Cal. buckeye
ARME3 Madrone
QUDU2 Scrub oak
QUWI Interior live oak
UMCA1 Cal. bay

SHRUBS

ADFA Chamise
ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
ARTO2 Shaggy-barked manzanita
ARVI3 Whiteleaf manzanita
CEBE2 Birchleaf mtn-mahogany
CECU2 Wedgleaf ceanothus
CETH Blue blossom ceanothus
COCO5 Hazelnut
DERI Tree poppy
GAEL Coast silktassel
GAFR Fremont silktassel
HEAR2 Toyon
HODI Ocean spray
LOSU3 So. honeysuckle
PRIL1 Shrub hollyleaf cherry
RICA1 Hillside gooseberry
RISA Redflower currant
ROS Rose species
RUVI2 Blackberry
SACA4 Mtn blue elderberry
SAME6 Blue elderberry
SYMO Creeping snowberry
SYRI Upright snowberry

HERBS

LOSC Lotus

Coast Live Oak/Poison Oak
(N=48)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	5	5.0	0	0.0	0	0.0	0	0.0	7
ARME3	5	3.0	0	0.4	0	0.0	0	0.0	7
LIDE2	1	0.0	1	0.7	0	0.0	0	0.0	2
PICO1	8	9.5	1	2.0	0	0.0	0	0.0	9
QUAG	21	16.0	8	7.5	1	2.7	0	0.3	48
QUDO	0	0.0	1	0.0	0	0.0	0	0.0	1
QUGA2	28	45.9	2	3.5	0	0.0	0	0.0	3
QUKE	18	0.0	4	0.0	0	0.0	0	0.0	1
QULO	6	0.0	1	0.0	0	0.0	0	0.0	1
UMCA1	4	3.6	0	0.6	0	0.0	0	0.0	3

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	
AECA2	5	5.0	7	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	5	3.0	7	1	0.0	1	0	0.0	0	0	0.0	0
LIDE2	1	0.0	2	1	0.0	1	0	0.0	0	0	0.0	0
PICO1	8	9.5	9	3	5.8	3	0	0.0	0	0	0.0	0
QUAG	21	16.0	48	9	7.9	44	3	4.7	22	1	3.8	4
QUDO	0	0.0	0	1	0.0	1	0	0.0	0	0	0.0	0
QUGA2	42	69.3	2	6	0.0	1	0	0.0	0	0	0.0	0
QUKE	18	0.0	1	4	0.0	1	0	0.0	0	0	0.0	0
QULO	6	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
UMCA1	6	6.2	2	1	0.0	1	0	0.0	0	0	0.0	0

Coast Live Oak/Coast Sagebrush/Grass
QUAG/ARCA7/GRASS
N=115

EXTENT: This type occurs in the coast range from Santa Clara to San Diego County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1005	200	3300
ASPECT	All, varied		
SLOPE	0-65%		

SOILS:
PARENT MATERIAL Sedimentary: sandstone and shales.
TEXTURE Variable

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest;
Southern Coastal
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland, Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Coast Sagebrush/Grass
(N=115)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	73	2-371	100
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	4	0-17	19
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
ARCA7 Coast sagebrush	20	0-88	88
RHDI Poison oak	7	0-21	35
HEAR2 Toyon	4	0-13	26
DIAU1 Bush monkeyflower	6	0-29	22
SAME4 Black sage	23	0-92	17
SALE2 Purple sage	13	0-52	17
HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
LOSC Lotus	11	0-35	27
(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	48	0-100	89
ROCK	4	0-7	7

Coast Live Oak/Coast Sagebrush/Grass
(N=115)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ACMA Bigleaf maple
JUCA4 So. black walnut
PICO2 Coulter pine
PIRA Monterey pine
PISA2 Foothill pine
PSME Douglas fir
QUDO Blue oak
QUEN1 Engelmann oak
QUKE Black oak
QULO Valley oak
QUWI Interior live oak
UMCA1 Cal. bay

TREE UNDERSTORY

AECA2 Cal. buckeye
ARME3 Madrone
PICO2 Coulter pine
PISA2 Foothill pine
QUDO Valley oak
QUDU2 Scrub oak
QUGA2 Garry oak

HERBS

PECO3 Heartleaf penstemon
PTAQ Bracken fern

SHRUBS

ADFA Chamise
AMUT Utah serviceberry
ARCO6 Hoary manzanita
ARGL5 Bigberry manzanita
ARTO2 Shgy barked mnznita
BAPI Baccharis
CEBE2 Birchleaf mtn-mahog
CECU2 Wedgeleaf ceanothus
CEPA3 Warty-leaved cean.
CESO3 Jim brush
CETH Blueblossom cean.
DERI Tree poppy
ERCA6 Ca. yerba santa
ERCO7 Yellow yarrow
ERFA Cal. buchwheat
ERPA3 Dune eriogonum
HASQ2 Sawtooth goldenbush
HODI Ocean spray
LOSU3 So. honeysuckle
LUAL3 Silver lupine
PRIL1 Hollyleaf cherry
PRVID Western chokecherry
RHCA2 Coffeeberry
RHCR Redberry
RHLA Laurel sumac
RIB Gooseberry
RISP Fuschia-flwr g'berry
SAAP1 White sage
SACA4 Mtn. blue eldbry
SAME6 Blue elderberry
SASP Pitcher sage
YUWH Chaparral yucca

Coast Live Oak/Coast Sagebrush/Grass
(N=115)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	7	0.0	2	0.0	0	0.0	0	0.0	1
ARME3	3	0.0	0	0.0	0	0.0	0	0.0	1
JUCA4	9	9.7	0	0.0	0	0.0	0	0.0	3
PICO2	7	0.0	7	0.0	3	0.0	0	0.0	1
PIRA	23	0.0	4	0.0	1	0.0	0	0.0	1
PISA2	11	12.0	8	10.6	0	0.0	0	0.0	2
PSME	5	2.1	4	4.9	2	2.1	0	0.0	2
QUAG	9	9.2	4	5.1	1	1.5	0	0.3	115
QUCH2	1	0.0	0	0.0	0	0.0	0	0.0	1
QUDO	5	5.3	2	4.0	0	0.8	0	0.0	12
QUEN1	2	0.0	0	0.0	0	0.0	1	0.7	2
QUKE	0	0.0	1	0.0	0	0.0	0	0.0	1
QULO	1	1.3	3	2.8	0	0.0	0	0.0	9
QUWI	5	4.2	0	0.0	0	0.0	0	0.0	2
UMCA1	3	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	7	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
ARME3	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
JUCA4	9	9.7	3	0	0.0	0	0	0.0	0	0	0.0	0
PICO2	7	0.0	1	7	0.0	1	3	0.0	1	0	0.0	0
PIRA	23	0.0	1	4	0.0	1	1	0.0	1	0	0.0	0
PISA2	11	12.0	2	8	10.6	2	0	0.0	0	0	0.0	0
PSME	5	2.1	2	7	0.0	1	3	0.0	1	0	0.0	0
QUAG	10	9.5	108	5	5.5	101	3	4.2	36	1	6.3	6
QUCH2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	6	6.0	10	4	6.7	6	2	6.3	2	0	0.0	0
QUEN1	2	0.0	2	0	0.0	0	0	0.0	0	1	0.0	1
QUKE	0	0.0	0	1	0.0	1	0	0.0	0	0	0.0	0
QULO	2	1.8	6	4	4.0	6	0	0.0	0	0	0.0	0
QUWI	5	4.2	2	0	0.0	0	0	0.0	0	0	0.0	0
UMCA1	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Coast Live Oak/Poison Oak/Grass
QUAG/RHDI/GRASS
N=40

EXTENT: This type occurs in the central coast ranges from the San Francisco Bay area to Monterey County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1018	225	2800
ASPECT	66% on north, northeast, and east aspects.		
SLOPE	All slopes, flat to steep.		

SOILS:

PARENT MATERIAL Sedimentary shales, sandstones, limestone; serpentine, and igneous.

TEXTURE Primarily gravelly and rocky loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Poison Oak/Grass
(N=40)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	120	5-335	100
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	5	0-17	50
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	20	0-88	78
RHCA2 Coffeeberry	4	0-14	40
RUVI2 Blackberry	20	0-81	35
HEAR2 Toyon	8	0-25	23
BAPI Baccharis	10	0-22	20
DIAU1 Bush monkeyflower	8	0-33	18
MECH Ice plant	8	0-12	15
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	19	0-91	70
ROCK	1	-	3

Coast Live Oak/Poison Oak/Grass
(N=40)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ACMA Bigleaf maple
ARME3 Madrone
PILA Sugar pine
PIRA Monterey pine
PSME Douglas fir
QUGA2 Garry oak
QUKE Black oak
QULO Valley oak
QUWI Interior live oak
SESE2 Redwood

TREE UNDERSTORY

ACMA Bigleaf maple
AECA2 Cal. buckeye
QUCH2 Canyon live oak
QUKE Black oak
QUWI Interior live oak
UMCA1 Cal. bay

SHRUBS

ADFA Chamise
AMCA2 Mock locust
ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
CEIN3 Deerbrush
CETH Blueblossom ceanothus
COCO5 Hazelnut
ERCA6 Cal. yerba santa
GAEL Coast silktassel
HASQ2 Sawtooth goldenbush
HODI Ocean spray
LOSU3 So. honeysuckle
PREM Bitter cherry
PRIL1 Shrub hollyleaf cherry
RIAU Golden currant
RICA1 Hillside gooseberry
ROGY Wood rose
SAAP1 White sage
SACA4 Mtn blue elderberry
SYMO Creeping snowberry
SYRI Upright snowberry

HERBS

LOSC Lotus
PTAQ Bracken fern

Coast Live Oak/Poison Oak/Grass
(N=40)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	4	1.4	0	0.0	0	0.0	0	0.0	2
AECA2	3	0.0	2	0.0	0	0.0	0	0.0	1
ARME3	12	13.6	1	2.3	1	1.7	0	0.0	3
PICO1	4	2.5	1	0.8	0	0.0	0	0.0	7
PILA	4	2.1	0	0.0	0	0.0	0	0.0	2
PIRA	21	0.0	14	0.0	0	0.0	0	0.0	1
PSME	8	0.0	1	0.0	0	0.0	0	0.0	1
QUAG	19	16.1	7	6.2	1	1.8	0	0.5	40
QUGA2	2	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	2	0.0	0	0.0	0	0.0	0	0.0	3
QULO	1	0.0	0	0.0	0	0.0	0	0.0	1
QUWI	4	0.7	2	2.8	0	0.0	0	0.0	2
SESE2	2	0.7	3	1.4	0	0.0	1	0.7	2

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	4	1.4	2	0	0.0	0	0	0.0	0	0	0.0	0
AECA2	3	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
ARME3	12	13.6	3	4	0.0	1	3	0.0	1	0	0.0	0
PICO1	4	2.5	7	1	2.0	3	0	0.0	0	0	0.0	0
PILA	4	2.1	2	0	0.0	0	0	0.0	0	0	0.0	0
PIRA	21	0.0	1	14	0.0	1	0	0.0	0	0	0.0	0
PSME	8	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUAG	20	16.6	37	8	6.2	38	3	5.4	12	2	5.2	4
QUGA2	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	2	0.0	3	0	0.0	0	0	0.0	0	0	0.0	0
QULO	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUWI	4	0.7	2	4	0.0	1	0	0.0	0	0	0.0	0
SESE2	2	0.7	2	3	1.4	2	0	0.0	0	1	0.0	1

Coast Live Oak/Grass
QUAG/GRASS
N=14

EXTENT: This type occurs along the coast ranges from Solano to Monterey County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1050	150	2000
ASPECT	All but west.		
SLOPE	70% less than 45%.		

SOILS:

PARENT MATERIAL	Granitic and sedimentary, sandstone & shales
TEXTURE	Loam; 60% gravelly loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Grass
(N=14)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	44	11-111	100
AECA2 Cal. buckeye	9	0-12	17

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
ARCA7 Coast sagebrush	34	0-58	25

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	83	25-100	100
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
PSME Douglas fir
QUCH2 Canyon live oak
QUDU2 Scrub oak
QULO Valley oak

TREE UNDERSTORY
QUCH2 Canyon live oak
QUDU2 Scrub oak

SHRUBS
ADFA Chamise
HEAR2 Toyon
SAME4 Black sage

Coast Live Oak/Grass
(N=14)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	6	3.5	0	0.0	0	0.0	0	0.0	2
PSME	7	7.1	2	0.0	1	0.7	0	0.0	2
QUAG	5	3.3	3	2.3	0	0.6	0	0.0	13
QUCH2	3	0.0	0	0.0	1	0.0	0	0.0	1
QUDU2	5	0.0	0	0.0	0	0.0	0	0.0	1
QULO	0	0.0	2	0.7	0	0.0	0	0.0	2

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	6	3.5	2	0	0.0	0	0	0.0	0	0	0.0	0
PSME	7	7.1	2	2	0.0	2	1	0.0	1	0	0.0	0
QUAG	5	3.3	13	4	2.4	12	2	5.0	2	0	0.0	0
QUCH2	3	0.0	1	0	0.0	0	1	0.0	1	0	0.0	0
QUDU2	5	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	0	0.0	0	2	0.7	2	0	0.0	0	0	0.0	0

Blue Oak-Coast Live Oak/Grass
 QUDO-QUAG/GR2
 N=16

EXTENT: This type occurs in the central coast range from Napa to Monterey County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1054	500	1700
ASPECT	All aspects		
SLOPE	Fairly flat, 85% are less than 35% slope		

SOILS:

PARENT MATERIAL	Primarily sandstones and shales
TEXTURE	Loams, gravelly and sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
 Griffin (1977): Foothill Woodland, QUDO phase
 Holland (1986): Blue Oak Woodland
 Parker and Matyas (1981): Blue Oak-Foothill Pine
 Paysen et al. (1980): Blue Oak
 Mayer et al. (1988): Blue Oak Woodland; Coastal Oak Woodland

Blue Oak/Coast Live Oak/Grass
(N=16)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	39	17-84	100
QUAG Coast live oak	11	2-24	100
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	10	0-19	23
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
ARCA7 Coast sagebrush	3	0-4	23
LOSU3 So. honeysuckle	3	0-4	23
RHCR Redberry	3	0-4	15
HERBS	AVERAGE	RANGE	CONSTANCY%
GRASSES	83	51-100	100
ROCK	2	0-2	1

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
QUDU2 Scrub oak

TREE UNDERSTORY
QUDU2 Scrub oak

SHRUBS
ARMA3 Manzanita
RHDI Poison oak
RICA1 Hillside gooseberry

Blue Oak/Coast Live Oak/Grass
(N=163)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
QUAG	2	2.4	1	0.7	0	0.3	0	0.0	16
QUDO	11	5.5	1	2.0	0	0.4	0	0.0	16
QUDU2	1	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
QUAG	3	2.7	13	1	1.1	10	1	0.0	1	0	0.0	0
QUDO	11	5.5	16	2	2.8	10	1	2.0	4	0	0.0	0
QUDU2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Coast Live Oak/Chamise-Black Sage
QUAG/ADFA-SAME4
N=21

EXTENT: This type occurs in the coast ranges from Monterey south to Ventura County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1100	350	2400
ASPECT	All aspects.		
SLOPE	35% of plots on the flat, most less than 55%.		

SOILS:

PARENT MATERIAL	Soft and hard sedimentary.
TEXTURE	Gravelly, rocky and sandy loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Southern Coastal Oak Woodland;
Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Chamise-Black Sage
(N=21)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	25	2-130	100
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	7	0-22	67
QUUDU2 Scrub oak	6	0-14	29
QUWI Interior live oak	16	0-70	24
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
ADFA Chamise	33	0-91	86
SAME4 Black sage	12	0-38	62
HEAR2 Toyon	2	0-4	33
CEBE2 Birchleaf mtn-mahogany	9	0-17	29
AROB2 Serp. manzanita	39	0-66	24
DIAU1 Bush monkeyflower	4	0-8	19
RHCR Redberry	3	0-5	19
RHDI Poison oak	3	0-5	19
HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
LOSC Lotus	13	0-42	38
(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	6	0-19	24
ROCK	1	0-3	19

Coast Live Oak/Chamise-Black Sage
(N=21)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

PIAT1 Knobcone pine
PISA2 Foothill pine
UMCA1 Cal. bay

SHRUBS

ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
CECU2 Wedgeleaf ceanothus
CESP Greenbark ceanothus
DERI Tree poppy
ERPA3 Dune eriogonum
GAVE2 Veatch silktassel
LECA3 Woodbalm
PRIL1 Shrub hollyleaf cherry
RHCA2 Coffeeberry
RHLA Laurel sumac
SASP Pitcher sage

Herbs

LUAL3 Silver lupine
PTAQ Bracken fern

Coast Live Oak/Chamise-Black Sage
(N=21)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
PIAT1	1	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	5	0.0	3	0.0	0	0.0	0	0.0	1
QUAG	11	12.3	1	1.1	0	0.2	0	0.0	21
UMCA1	1	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
PIAT1	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	5	0.0	1	3	0.0	1	0	0.0	0	0	0.0	0
QUAG	11	12.3	21	2	4.6	5	1	0.0	1	0	0.0	0
UMCA1	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Coast Live Oak
QUAG
N=10

EXTENT: This type occurs from San Luis Obispo to San Diego County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1180	300	2700
ASPECT	All but north		
SLOPE	<55%		

SOILS:

PARENT MATERIAL 70% on hard sedimentary sandstone and shales, serpentine

TEXTURE 80% rocky and/or gravelly loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Southern Coastal Oak Woodland
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak Series
Paysen et al. (1980): Coast Live Oak Series
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak
(N=10)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	258	116-400	100
ACACMA Bigleaf maple	40	0-76	20
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHCA2 Coffeeberry	7	0-13	20
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	-		
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE UNDERSTORY
QUGA2 Garry oak

SHRUBS
DIAU1 Bush monkeyflower
HODI Ocean spray
RHDI Poison oak
SYRI Upright snowberry

HERBS
PTAQ Bracken fern

Coast Live Oak
(N=10)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	2	0.0	2	2.1	1	1.4	0	0.0	2
QUAG	17	9.4	14	9.1	4	2.2	0	0.9	10

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	2	0.0	2	3	0.0	1	2	0.0	1	0	0.0	0
QUAG	17	9.4	10	14	9.1	10	5	2.4	9	3	0.0	1

Coast Live Oak/Toyon-Poison Oak
QUAG/HEAR2-RHDI
N=49

EXTENT: This type occurs in the central coast ranges from Monterey to Ventura County. It also occurs in Napa County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1205	200	3250
ASPECT	63% on north and northeast aspects.		
SLOPE	70% greater than 36% slope.		

SOILS:

PARENT MATERIAL	73% hard sedimentary sandstone and shale.
TEXTURE	All kinds of loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Payson et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Toyon-Poison Oak
(N=49)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	89	2-382	100
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	7	0-24	60
UMCA1 California bay	2	0-4	19
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
HEAR2 Toyon	9	0-31	75
RHDI Poison oak	10	0-49	65
RHCA2 Coffeeberry	5	0-16	38
DIAU1 Bush monkeyflower	6	0-35	35
RHCR Redberry	5	0-12	31
ARCA7 Coast sagebrush	11	0-19	19
HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
PTAQ Bracken fern	17	0-76	17
(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	25	0-80	60
ROCK	-		

Coast Live Oak/Toyon-Poison Oak
(N=49)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ARME3 Madrone
PICO2 Coulter pine
PIPO Ponderosa pine
PISA2 Foothill pine
PSME Douglas fir
QUDU2 Scrub oak
QUKE Black oak
QULO Valley oak
QULO Valley oak
QUWI Interior live oak
UMCA1 California bay

SHRUBS

ADFA Chamise
AMCA2 Mock locust
ARCO6 Hoary manzanita
ARMA3 Manzanita
AROB2 Serp. manzanita
BAPI Baccharis
CEBE2 Mahogany
CECU2 Wedgeleaf ceanothus
CEIN3 Deerbrush
CESO3 Jim brush
CESP Greenbark ceanothus
CETH Blueblossom ceanothus
CHFO2 Mountain misery
COCO5 Hazelnut
ERPA3 Dune eriogonum
GAVE2 Veatch silktassel
HASQ2 Sawtooth goldenbush
HODI Ocean spray
LOIN3 Chap. honeysuckle
LOSU3 So. honeysuckle
LUP5 Lupine
MECH Ice plant
PRIL1 Hollyleaf cherry
RIAU Golden currant
SAAP1 White sage
SACA4 Mtn blue elderberry
SALE2 Purple sage
SAME4 Black sage
SAME6 Blue elderberry
SASP Pitcher sage
SYMO Creeping snowberry
SYRI Upright snowberry

TREE UNDERSTORY

ARME3 Madrone
QUCH2 Canyon live oak
QUDO Valley oak
QUDU2 Scrub oak
QUKE Black oak
QULO Valley oak
QUWI Interior live oak

HERBS

ERCO7 Yellow yarrow
LOSC Lotus
LUAL3 Silver lupine
PIMU1 Sword fern

Coast Live Oak/Toyon-Poison Oak
(N=49)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ARME3	2	0.0	0	0.0	0	0.0	0	0.0	2
PICO1	5	0.0	0	0.0	0	0.0	0	0.0	1
PICO2	3	2.5	0	0.6	1	1.0	0	0.0	3
PIMU1	1	0.0	0	0.0	0	0.0	0	0.0	1
PIPO	1	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	1	0.4	0	0.5	0	0.0	0	0.0	5
PSME	3	0.0	0	0.0	0	0.0	0	0.0	1
QUAG	15	14.8	6	5.6	1	1.5	0	0.2	48
QUDU2	2	0.7	1	1.4	0	0.0	0	0.0	2
QUKE	5	6.4	0	0.0	0	0.0	0	0.0	3
QULO	1	1.2	0	0.0	0	0.6	0	0.0	3
QUWI	2	0.0	0	0.0	0	0.0	0	0.0	1
UMCA1	3	1.0	0	0.5	0	0.0	0	0.0	4

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ARME3	2	0.0	2	0	0.0	0	0	0.0	0	0	0.0	0
PICO1	5	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PICO2	4	4.2	2	1	0.0	1	2	1.7	2	0	0.0	0
PIMU1	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PIPO	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	1	0.4	5	1	1.7	2	0	0.0	0	0	0.0	0
PSME	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUAG	15	14.8	48	7	6.4	39	3	7.4	9	1	4.7	3
QUDU2	2	0.7	2	2	0.0	1	0	0.0	0	0	0.0	0
QUKE	5	6.4	3	0	0.0	0	0	0.0	0	0	0.0	0
QULO	2	2.0	2	0	0.0	0	1	0.0	1	0	0.0	0
QUWI	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
UMCA1	3	1.0	4	1	0.0	1	0	0.0	0	0	0.0	0

Coast Live Oak/Coffeeberry-Toyon
QUAG/RHCA2-HEAR2
N=36

EXTENT: This type occurs in the central coast ranges from Santa Clara to Santa Barbara County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1250	200	2500
ASPECT	62% on north, northeast, and east aspects.		
SLOPE	78% less than 45% slope.		
SOILS:			
PARENT MATERIAL	Shales, sandstones, limestone, serpentine, and igneous.		
TEXTURE	Sandy, gravelly loams with 40% straight loam.		

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Coffeeberry-Toyon
(N=36)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	92	0-335	100
QULO Valley oak	21	0-106	38
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	3	0-8	19
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	8	0-23	64
RHCA2 Coffeeberry	10	0-44	61
HEAR2 Toyon	9	0-26	58
RHCR Redberry	6	0-23	56
SYRI Upright snowberry	15	0-28	22
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	42	0-81	70
ROCK	6	0-10	6

Coast Live Oak/Coffeeberry-Toyon
(N=36)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ACMA Bigleaf maple
AECA2 Cal. buckeye
ARME3 Madrone
PICO2 Coulter pine
PISA2 Foothill pine
PLRA Cal. sycamore
QUCH2 Canyon live oak
QUDO Blue oak
UMCA1 Cal. bay

TREE UNDERSTORY

AECA2 Cal. buckeye
QUDU2 Scrub oak
QULO Valley oak
UMCA1 Cal. bay

SHRUBS

ADFA Chamise
AMCA2 Mock locust
ARCA7 Coast sagebrush
ARCO6 Hoary manzanita
ARGL5 Bigberry manzanita
ARMA3 Manzanita
BAPI Baccharis
CEBE2 Birchleaf mtn-mahogany
CEIN3 Deerbrush
CELE2 Chap. whitethorn
CEPA3 Warty-leaved ceanothus
CESO3 Jim brush
DIAU1 Bush monkeyflower
HODI Ocean spray
PRIL1 Shrub hollyleaf cherry
PRVID Western chokecherry
RICA1 Hillside gooseberry
RISA Redflower currant
ROCA1 Cal. wild rose
RUVI2 Blackberry
SACA4 Mtn blue elderberry
SALI1 Willow
SASP Pitcher sage
YUWH Chaparral yucca

HERBS

LOSC Lotus
PTAQ Bracken fern

Coast Live Oak/Coffeeberry-Toyon
(N=36)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	5	4.4	1	1.2	0	0.0	0	0.0	3
AECA2	4	2.8	0	0.0	0	0.0	0	0.0	2
ARME3	2	0.0	0	0.0	0	0.0	0	0.0	1
PICO1	7	0.0	0	0.0	0	0.0	0	0.0	1
PICO2	6	1.4	4	4.9	3	0.7	0	0.0	2
PIPO	1	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	3	3.1	1	0.6	0	0.6	0	0.0	3
PLRA	3	0.0	2	0.0	0	0.0	0	0.0	1
QUAG	13	15.7	6	5.6	1	2.2	0	0.2	35
QUCH2	5	0.0	0	0.0	2	0.0	0	0.0	1
QUDO	3	4.4	2	2.1	1	1.0	0	0.0	3
QULO	3	2.5	1	1.1	0	0.9	0	0.0	14
UMCA1	2	0.0	0	0.0	0	0.0	0	0.0	3

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	5	4.4	3	2	0.0	1	0	0.0	0	0	0.0	0
AECA2	4	2.8	2	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PICO1	7	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PICO2	6	1.4	2	7	0.0	1	3	0.7	2	0	0.0	0
PIPO	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	4	4.9	2	1	0.6	3	1	0.0	1	0	0.0	0
PLRA	3	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
QUAG	13	16.0	34	7	6.3	29	3	5.5	12	1	0.0	1
QUCH2	5	0.0	1	0	0.0	0	2	0.0	1	0	0.0	0
QUDO	5	6.7	2	3	3.3	2	2	1.7	2	0	0.0	0
QULO	3	2.6	13	2	2.1	7	2	4.8	3	0	0.0	0
UMCA1	2	0.0	3	0	0.0	0	0	0.0	0	0	0.0	0

Coast Live Oak/Ocean Spray-Snowberry
QUAG/HODI-SYRI
N=20

EXTENT: This type occurs in the coast ranges in the counties of San Luis Obispo and Santa Barbara.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1300	850	1600
ASPECT	80% on north and northeast.		
SLOPE	Flat to 55% slopes.		

SOILS:

PARENT MATERIAL	Hard sedimentary sandstone/shale, serpentine
TEXTURE	Rocky and gravelly loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Payson et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Ocean Spray-Snowberry
(N=20)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	165	78-330	100
UMCA1 California bay	7	0-12	35
ARME3 Madrone	6	0-11	25
ACMA Big leaf maple	9	0-17	25
QULO Valley oak	47	0-76	20
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
UMCA1 Cal. bay	11	0-14	15
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	12	0-38	85
HODI Ocean spray	31	0-75	80
RHCA2 Coffeeberry	18	0-38	80
SYRI Upright snowberry	15	0-27	70
RHCR Redberry	5	0-9	40
HEAR2 Toyon	4	0-9	35
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	-		
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
QUCH2 Canyon live oak

SHRUBS
CEBE2 Birchleaf mtn-mahogany
CECU2 Wedgeleaf ceanothus
CEIN3 Deerbrush
CESO3 Jim brush
PREM Bitter cherry

HERBS
LOSC Lotus
PTAQ Bracken fern

Coast Live Oak/Ocean Spray-Snowberry
(N=20)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	6	3.7	0	0.0	0	0.0	0	0.0	5
ARME3	3	0.5	0	0.4	0	0.0	0	0.0	5
PICO1	6	0.0	0	0.0	0	0.0	0	0.0	1
QUAG	19	16.2	9	4.9	2	2.4	0	0.0	20
QUCH2	8	0.0	0	0.0	0	0.0	0	0.0	1
QULO	2	1.4	0	0.5	2	1.3	0	0.0	4
UMCA1	4	2.9	0	0.0	0	0.0	0	0.0	7

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	6	3.7	5	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	3	0.5	5	1	0.0	1	0	0.0	0	0	0.0	0
PICO1	6	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUAG	19	16.2	20	10	5.0	19	4	3.8	12	0	0.0	0
QUCH2	8	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	3	2.0	3	1	0.0	1	2	1.7	3	0	0.0	0
UMCA1	4	2.9	7	0	0.0	0	0	0.0	0	0	0.0	0

Coast Live Oak/Toyon/Grass
QUAG/HEAR2/GRASS
N=13

EXTENT: This type occurs in the coast ranges from Napa to Los Angeles County, primarily along the Central Coast.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1312	350	2750
ASPECT	All aspects except west.		
SLOPE	Flat to very steep (85%).		

SOILS:

PARENT MATERIAL	Primarily hard sedimentary.
TEXTURE	Primarily rocky and sandy loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak; Southern Coastal Oak Woodland
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak/Toyon/Grass
(N=13)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	49	2-190	100
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	13	0-29	69
ARME3 Madrone	17	0-34	23
QUDU2 Scrub oak	7	0-9	23
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
HEAR2 Toyon	4	0-11	85
ADFA Chamise	10	0-19	54
RHDI Poison oak	5	0-13	54
CECU2 Wedgeleaf ceanothus	32	0-77	46
RHCR Redberry	5	0-15	38
CEBE2 Birchleaf mtn-mahog.	6	0-13	31
SACA4 Mtn. blue elderbry	4	0-6	23
CESO3 Jim brush	5	0-9	23
ARCA7 Coast sagebrush	3	0-5	15
ARTO2 Shaggy barked manz.	13	0-22	15
ERCA6 Cal. yerba santa	10	0-16	15
RHCA2 Coffeeberry	7	0-8	15
RHTR Squaw bush	7	0-9	15
RUVI2 Blackberry	7	0-9	15
LECA3 Woodbalm	6	0-7	15
PRIL1 Shrub hollyleaf cherry	5	0-9	15
ERFA Cal. buckwheat	4	0-6	15
BAPI Baccharis	3	0-4	15
HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
LOSU3 So. honeysuckle	2	0-3	15
(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	28	0-69	62
ROCK	10	-	8

Coast Live Oak/Toyon-Chamise/Grass
(N=13)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ARME3 Madrone
QUDO Blue oak

TREE UNDERSTORY

QUDO Blue oak
QUKE Black oak
QUWI Interior live oak
UMCA1 Cal. bay

SHRUBS

AMUT Utah serviceberry
ARMA3 Manzanita
AROB2 Serp. manzanita
CELE2 Chap. whitethorn
CEPA3 Warty-leaved manzanita
CETH Blueblossom ceanothus
CRCA2 Cal. croton
DIAU1 Bush monkeyflower
FRDI Foothill ash
GAEL Coast silktassel
GAFLP Ashy silktassel
RIMA1 Chaparral currant
SAAP1 White sage
VAOV Cal. huckleberry

HERBS

LOSC Lotus
PECO3 Heartleaf penstemon
PTAQ Bracken fern

Coast Live Oak/Toyon/Grass
(N=13)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ARME3	20	0.0	0	0.0	0	0.0	0	0.0	1
QUAG	11	15.9	3	4.8	0	0.4	0	0.3	13
QUDO	1	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ARME3	20	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUAG	11	15.9	13	4	6.1	9	1	3.3	2	1	0.0	1
QUDO	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Coast Live Oak-California Bay/Toyon-Scrub oak
QUAG-UMCA1/HEAR2-QUDU2
N=22

EXTENT: This type occurs in the central coast ranges from
Contra Costa to Santa Barbara County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1318	700	1800
ASPECT	96% on north and northeast aspects.		
SLOPE	93% between 26 and 85% slope.		

SOILS:

PARENT MATERIAL	85% hard sedimentary sandstone and shale.
TEXTURE	All kinds of loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak-California Bay/Toyon-Scrub oak
(N=22)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	38	2-247	100
UMCA1 California bay	15	0-77	77
ARME3 Madrone	10	0-28	45

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUDU2 Scrub oak	11	0-58	73
AECA2 Cal. buckeye	3	0-7	41
UMCA1 California bay	16	0-52	32
QUAG Coast live oak	8	0-24	18

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
HEAR2 Toyon	9	0-25	95
RHDI Poison oak	13	0-35	82
HODI Ocean spray	9	0-24	50
CEBE2 Birchleaf mtn-mahog.	7	0-26	50
RHCA2 Coffeeberry	12	0-38	36
SACA4 Mtn blue elderberry	2	0-4	27
CESO3 Jim brush	13	0-31	23
GAEL Coast silktassel	4	0-7	23
AMUT Utah serviceberry	5	0-6	18
ARGL5 Bigberry manzanita	3	0-7	18

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	6	0-28	18
ROCK	-		

Coast Live Oak-California Bay/Toyon-Scrub oak
(N=22)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

PLRA Cal. sycamore
QUCH2 Canyon live oak
QUDU2 Scrub oak
QUKE Black oak

TREE UNDERSTORY

ARME3 Madrone
QUCH2 Canyon live oak
QUWI Interior live oak

SHRUBS

ADFA Chamise
ARCA7 Coast sagebrush
ARMA3 Manzanita
BAPI Baccharis
CECU2 Wedgeleaf ceanothus
CETH Blueblossom ceanothus
COCO5 Hazelnut
DIAU1 Bush monkeyflower
FRDI Foothill ash
GAFR Fremont silktassel
GAVE2 Veatch silktassel
LOSU3 So. honeysuckle
RHCR Redberry
RIAU Golden currant
RISA Redflower currant
ROS Rose species
RUPA2 W. thimbleberry
RUVI2 Blackberry
SYMO Creeping snowberry
SYRI Upright snowberry

HERBS

LOSC Lotus
PTAQ Bracken fern

Coast Live Oak-California Bay/Toyon-Scrub oak
(N=22)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ARME3	5	4.6	0	0.4	0	0.0	0	0.0	10
PLRA	2	0.0	0	0.0	0	0.0	0	0.0	1
QUAG	8	9.4	2	3.1	0	1.1	0	0.0	21
QUCH2	5	4.9	1	1.0	0	0.0	0	0.0	3
QUDU2	1	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	2	0.0	0	0.0	0	0.0	0	0.0	1
UMCA1	8	9.4	0	1.1	0	0.0	0	0.0	16

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ARME3	5	4.6	10	1	2.8	2	0	0.0	0	0	0.0	0
PLRA	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUAG	9	9.6	20	3	4.0	14	5	0.0	1	0	0.0	0
QUCH2	5	4.9	3	2	1.7	2	0	0.0	0	0	0.0	0
QUDU2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
UMCA1	8	9.8	15	2	6.1	3	0	0.0	0	0	0.0	0

Coast Live Oak-Maple/Coffeeberry-Ocean Spray
QUAG-ACMA/RHCA2-HODI
N=11

EXTENT: This type occurs in San Luis Obispo County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION(ft)	1695	700	2400
ASPECT	82% on north and northeast.		
SLOPE	Steep, 81% in 35-55% class.		

SOILS:

PARENT MATERIAL	Hard sedimentary sandstone/shale and serpentine.
TEXTURE	Rocky loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Southern Oak Woodland, QUAG phase.
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Coast Live Oak-Maple/Coffeeberry-Ocean Spray
(N=11)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	169	87-257	100
ACMA Big leaf maple	28	0-76	91
QULO Valley oak	36	0-56	18
ARME3 Madrone	29	0-50	18

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHCA2 Coffeeberry	14	0-24	91
HODI Ocean spray	12	0-26	73
RHDI Poison oak	13	0-25	55
PRVID W. chokecherry	11	0-14	18
RHCR Redberry	7	0-10	18

HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
PTAQ Bracken fern	7	0-8	18

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	19	0-19	9
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
PISA2 Foothill pine

SHRUBS
CESO3 Jim brush
HEAR2 Toyon

Coast Live Oak-Maple/Coffeeberry-Ocean Spray
(N=11)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	5	2.8	1	1.0	0	0.8	0	0.0	11
ARME3	8	4.2	2	2.8	0	0.0	0	0.0	2
PISA2	5	0.0	2	0.0	0	0.0	0	0.0	1
QUAG	17	10.9	10	3.5	2	2.3	0	0.0	11
QULO	2	2.8	1	0.0	1	1.4	0	0.0	2

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	5	2.8	11	2	1.3	8	2	6.0	2	0	0.0	0
ARME3	8	4.2	2	4	0.0	1	0	0.0	0	0	0.0	0
PISA2	5	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
QUAG	17	10.9	11	10	3.5	11	3	2.9	8	0	0.0	0
QULO	4	0.0	1	1	0.0	2	2	0.0	1	0	0.0	0

BLUE OAK SERIES

Blue Oak-Coast Live Oak/Grass
QUDO-QUAG/GRASS
N=13

EXTENT: This type occurs in the central coast range from Napa to Monterey County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1054	500	1700
ASPECT	All aspects		
SLOPE	Fairly flat, 85% are less than 35% slope		

SOILS:

PARENT MATERIAL	Primarily sandstones and shales
TEXTURE	Loams, gravelly and sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, Blue Oak phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak-Foothill Pine
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak Woodland; Coastal Oak Woodland

Blue Oak-Coast Live Oak/Grass
(N=13)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	39	17-84	100
QUAG Coast live oak	11	2-24	100
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	10	0-19	23
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
ARCA7 Coast sagebrush	3	0-4	23
LOSU3 So. honeysuckle	3	0-4	23
RHCR Redberry	3	0-4	15
HERBS	AVERAGE	RANGE	CONSTANCY%
GRASSES	83	51-100	100
ROCK	2	0-2	1

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
QUDU2 Scrub oak

TREE UNDERSTORY
QUDU2 Scrub oak

SHRUBS
ARMA3 Manzanita
RHDI Poison oak
RICA1 Hillside gooseberry

Blue Oak-Coast Live Oak/Grass
(N=13)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
QUAG	3	2.5	1	0.8	0	0.3	0	0.0	13
QUDO	12	5.8	2	2.1	0	0.5	0	0.0	13

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
QUAG	3	2.8	11	1	1.4	7	1	0.0	1	0	0.0	0
QUDO	12	5.8	13	3	3.1	8	1	1.7	4	0	0.0	0

Blue Oak/Grass
QUDO/GRASS
N=298

EXTENT: This type has a widespread occurrence ringing the Central Valley. It occurs in the central coast from Monterey to Santa Barbara County and the North-Central Coast from Sonoma to Contra Costa County. It is also present in the foothills of the Sierra Nevada from Butte to Mariposa County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1296	100	5500
ASPECT	All aspects, including southern		
SLOPE	Not steep, 85% less than 45% slope		

SOILS:

PARENT MATERIAL	All types; granitics, soft sedimentary, shales and sandstone
TEXTURE	All types

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, Blue Oak phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak-Foothill Pine; Blue Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak Woodland

Blue Oak/Grass
(N=298)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	47	5-195	100
(% Cover)	AVERAGE	RANGE	CONSTANCY%
SHRUBS	-		
HERBS	-		
GRASSES	90	0-100	99
ROCK	5	0-21	17

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY	SHRUBS
AECA2 Cal. buckeye	ADFA Chamise
JUCA4 Cal. walnut	ARCA5 Hoary manzanita
PICO1 Beach (lodgepole) pine	ARCA7 Coast sagebrush
PICO2 Coulter pine	ARMA3 Manzanita
PIJE Jeffrey pine	ARVI3 Whiteleaf manzanita
PIPO Ponderosa pine	CECU2 Wedgeleaf ceanothus
PISA2 Foothill pine	CEIN Deerbrush
PSME Douglas fir	ERCA6 Cal. yerba santa
QUAG Coast live oak	ERFA Cal. buckwheat
QUCH2 Canyon live oak	HALI Narrowleaf gldnbush
QUDU2 Scrub oak	HEAR2 Toyon
QUGA2 Garry oak	LOIN3 Chap. honeysuckle
QUKE Black oak	LOSU3 So. honeysuckle
QULO Valley oak	LUAL3 Silver lupine
QUMO Oracle oak	PRIL1 Shb hlyleaf cherry
QUWI Interior live oak	RHCA2 Coffeeberry
QUWI Interior live oak	RHCR Redberry
	RHDI Poison oak
	RHTR Squaw bush
TREE UNDERSTORY	RICA1 Hillside gooseberry
AECA2 Cal. buckeye	RIQU Foothill gooseberry
JUCA3 Cal. juniper	SAAP1 White sage
PILA Sugar pine	SALE2 Purple sage
PIMO2 One-needle pinyon pine	SAL11 Willow
PIQU Four-needle pinyon pine	XYBI Mission manzanita
PISA2 Foothill pine	
PSME Douglas fir	HERBS
QUCH2 Canyon live oak	HYPE Klamath weed
QUDO Blue oak	LOSC Lotus
QUDU2 Scrub oak	PTAQ Bracken fern
QUKE Black oak	
QUWI Interior live oak	

Blue Oak/Grass
(N=298)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	2	1.5	0	0.5	0	0.0	0	0.0	4
PICO1	2	0.0	0	0.0	0	0.0	0	0.0	1
PICO2	4	4.2	1	0.7	0	0.0	0	0.0	2
PIJE	4	0.0	0	0.0	0	0.0	0	0.0	1
PIPO	8	1.4	6	3.5	7	9.2	0	0.0	2
PISA2	1	0.7	1	1.4	0	0.0	0	0.0	8
PSME	10	5.7	2	1.4	0	0.0	0	0.0	2
QUAG	0	0.0	1	0.0	0	0.0	0	0.0	1
QUCH2	5	3.5	1	1.4	0	0.0	0	0.0	2
QUDO	11	9.9	3	2.2	0	0.7	0	0.1	292
QUDU2	19	32.6	0	0.5	0	0.0	0	0.0	4
QUGA2	3	0.0	2	0.0	0	0.0	0	0.0	1
QUKE	0	0.0	1	0.0	0	0.0	0	0.0	1
QULO	7	9.9	1	1.0	0	0.5	1	0.6	4
QUMO	1	0.0	0	0.0	0	0.0	0	0.0	1
QUWI	2	2.1	0	0.6	0	0.0	0	0.0	19

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	2	1.5	4	1	0.0	1	0	0.0	0	0	0.0	0
PICO1	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PICO2	4	4.2	2	1	0.0	1	0	0.0	0	0	0.0	0
PIJE	4	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PIPO	8	1.4	2	6	3.5	2	13	0.0	1	0	0.0	0
PISA2	1	1.1	5	2	1.8	6	0	0.0	0	0	0.0	0
PSME	10	5.7	2	2	1.4	2	0	0.0	0	0	0.0	0
QUAG	0	0.0	0	1	0.0	1	0	0.0	0	0	0.0	0
QUCH2	5	3.5	2	2	0.0	1	0	0.0	0	0	0.0	0
QUDO	11	10.1	281	3	2.3	261	2	3.4	55	1	16.0	3
QUDU2	19	32.6	4	1	0.0	1	0	0.0	0	0	0.0	0
QUGA2	3	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
QUKE	0	0.0	0	1	0.0	1	0	0.0	0	0	0.0	0
QULO	13	21.6	2	2	0.0	1	1	0.0	1	1	1.4	2
QUMO	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUWI	3	2.3	16	1	2.3	5	0	0.0	0	0	0.0	0

Blue Oak-Foothill Pine/Whiteleaf Manzanita/Grass
QUDO-PISA2/ARVI3/GRASS
N=60

EXTENT: This type occurs primarily in Shasta County (54%) and the Sierra and foothills areas from Nevada to Calaveras County. It rarely occurs in central California in Santa Clara, San Luis Obispo and Fresno counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1388	350	4600
ASPECT	Varied		
SLOPE	68% less than 15%; 96% less than 45%		

SOILS:

PARENT MATERIAL	Primarily igneous, granitics, some sedimentary and metamorphics
TEXTURE	All types of loams, gravelly and rocky, clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, Blue Oak phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine

Blue Oak-Foothill Pine/Whiteleaf Manzanita/Grass
(N=60)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	29	5-121	100
PISA2 Foothill pine	28	0-74	82
QUWI Interior live oak	6	0-21	25
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	4	0-13	57
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
ARVI3 Whiteleaf manz.	21	0-80	80
CECU2 Wedgeleaf ceano.	18	0-48	53
RHDI Poison oak	7	0-24	35
ARMA3 Manzanita	18	0-60	23
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	52	0-89	93
ROCK	13	0-27	25

Blue Oak-Foothill Pine/Whiteleaf Manzanita/Grass
(N=60)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
PICO2 Coulter pine
PIPO Ponderosa pine
QUCH2 Canyon live oak
QUKE Black oak

TREE UNDERSTORY

AECA2 Cal. buckeye
PICO2 Coulter pine
PISA2 Foothill pine
QUCH2 Canyon live oak
QUKE Black oak
QUWI Interior live oak

SHRUBS

ADFA Chamise
ARGL5 Bigberry manzanita
ARME2 Indian manzanita
CEBE2 Birchleaf mtn-mahog
CHFO2 Mountain misery
ERCA6 Cal. yerba santa
HEAR2 Toyon
RHCA2 Coffeeberry
RHCR Redberry
RHTR Squaw bush
RICA1 Hillside gooseberry

Herbs:

BRLA2 Grass nut
HYPE Klamath weed
LOSC Lotus

Blue Oak-Foothill Pine/Whiteleaf Manzanita/Grass
(N=60)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	12	14.1	0	0.0	0	0.0	0	0.0	2
PICO2	4	0.0	2	0.0	0	0.0	0	0.0	1
PIPO	0	0.6	1	0.6	0	0.0	0	0.0	3
PISA2	2	1.5	1	1.3	0	0.6	0	0.4	49
QUCH2	1	0.7	1	0.7	0	0.0	0	0.0	2
QUDO	7	5.1	1	1.7	0	0.5	0	0.0	60
QUKE	1	1.3	1	1.4	0	0.5	0	0.0	8
QUWI	3	1.9	0	0.4	0	0.0	0	0.0	15

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	12	14.1	2	0	0.0	0	0	0.0	0	0	0.0	0
PICO2	4	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
PIPO	1	0.0	1	1	1.0	2	0	0.0	0	0	0.0	0
PISA2	2	1.9	37	2	1.7	33	1	1.6	19	1	4.0	5
QUCH2	1	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUDO	7	5.2	58	2	2.5	36	1	1.7	18	0	0.0	0
QUKE	2	1.6	6	2	2.1	5	1	2.4	2	0	0.0	0
QUWI	3	1.9	15	1	3.6	2	0	0.0	0	0	0.0	0

Blue Oak-Valley Oak/Grass
QUDO-QULO/GRASS
N=32

EXTENT: This type primarily occurs along the central coast from Marin to Monterey and inland to Kern County. It is also represented in Placer and Calaveras counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1477	200	4400
ASPECT	All aspects		
SLOPE	Less steep 72% are have less than 35% slope		

SOILS:

PARENT MATERIAL	Hard and soft sedimentary; granitic
TEXTURE	Sandy to clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland; Valley Oak Woodland
Griffin (1977): Foothill Woodland, QULO and QUDO phases
Holland (1986): Blue Oak Woodland; Valley Oak Woodland
Parker and Matyas (1981): Blue Oak; Valley Oak
Paysen et al. (1980): Blue Oak; Valley Oak
Mayer et al. (1988): Blue Oak Woodland; Valley Oak Woodland

Blue Oak-Valley Oak/Grass
(N=32)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	31	5-84	100
QULO Valley oak	18	0-86	97

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	99	92-100	100
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
 AECA2 Cal. buckeye
 PISA2 Foothill pine
 QUAG Coast live oak
 QUDU2 Scrub oak
 QUWI Interior live oak

Shrubs:

ARMA3 Manzanita
 RHCA2 Coffeeberry
 RHDI Poison oak
 RIAU Golden currant
 RISP Redflower gooseberry

Blue Oak-Valley Oak/Grass
(N=32)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	2	0.0	0	0.0	0	0.0	0	0.0	3
PISA2	0	0.0	1	0.0	0	0.0	0	0.0	2
QUAG	0	0.0	1	0.0	0	0.0	0	0.0	1
QUDO	6	4.3	2	1.2	0	0.5	0	0.2	32
QUDU2	2	0.0	0	0.0	0	0.0	0	0.0	1
QULO	2	2.4	1	1.3	0	0.5	0	0.2	31
QUWI	5	5.4	0	0.4	0	0.0	0	0.0	5

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	2	0.0	3	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	0	0.0	0	1	0.0	2	0	0.0	0	0	0.0	0
QUAG	0	0.0	0	1	0.0	1	0	0.0	0	0	0.0	0
QUDO	6	4.5	30	2	1.4	27	1	2.4	7	1	0.0	1
QUDU2	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	2	3.0	22	2	2.0	18	1	3.1	5	1	0.0	1
QUWI	5	5.4	5	1	0.0	1	0	0.0	0	0	0.0	0

Blue Oak/Understory Blue Oak/Grass
QUDO/UQUDO/GRASS
N=63

EXTENT: This type occurs in the central coast and interior areas from Alameda to Santa Barbara County. It is also present in the Sierra and foothill areas from Shasta to Kern County, ringing the Central Valley.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1489	150	3450
ASPECT	All aspects		
SLOPE	Mostly flat or gentle slopes; 77% less than 35% slope		

SOILS:

PARENT MATERIAL Primarily sedimentary sandstones and shales; granitics

TEXTURE Varied, sandy to clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, Blue Oak phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak-Foothill Pine; Blue Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak Woodland

Blue Oak/Understory Blue Oak/Grass
(N=63)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	46	12-106	100

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	4	0-34	95

(% Cover)	AVERAGE	RANGE	CONSTANCY%
SHRUBS	-		
HERBS	-		
GRASSES	85	11-99	99
ROCK	7	0-35	33

Blue Oak/Understory Blue Oak/Grass
(N=63)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
PISA2 Foothill pine
QUDU2 Scrub oak
QULO Valley oak
QUWI Interior live oak

TREE UNDERSTORY

AECA2 Cal. buckeye
JUCA3 Cal. juniper
PISA2 Foothill pine
QUDU2 Scrub oak

SHRUBS

ARCA7 Coast sagebrush
ARGL5 Big berry manz.
ARVI3 Whiteleaf manzanita
CECU2 Wedgeleaf ceanothus
ERCA6 Cal. yerba santa
ERFA Cal. buckwheat
ERWR Eriognum sp.
HALI Narrowleaf goldenbush
LUP5 Bush lupine
RHCR Redberry
RHDI Poison oak
RIQU Foothill gooseberry

Blue Oak/Understory Blue Oak/Grass
(N=63)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	5	5.7	0	0.0	0	0.0	0	0.0	2
PISA2	3	0.7	0	0.0	0	0.0	0	0.0	2
QUDO	12	8.5	2	1.5	0	0.6	0	0.0	63
QULO	1	1.5	0	0.0	0	0.6	0	0.0	3

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	5	5.7	2	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	3	0.7	2	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	12	8.5	63	2	1.5	58	1	2.1	16	0	0.0	0
QULO	2	2.4	2	0	0.0	0	1	0.0	1	0	0.0	0

Blue Oak-Interior Live Oak/Grass
QUDO-QUWI/GRASS
N=72

EXTENT: This type occurs primarily in the foothills of the Sierra from Nevada to Mariposa County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1500	200	3800
ASPECT	All aspects		
SLOPE	92% less than 45% slope		

SOILS:

PARENT MATERIAL All types: Granitics, metamorphic and some sedimentary

TEXTURE All textures

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, Blue Oak phase
Holland (1986): Blue Oak Woodland; Interior Live Oak Woodland
Parker and Matyas (1981): Blue Oak; Interior Live Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine

Blue Oak-Interior Live Oak/Grass
(N=72)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	22	0-87	92
QUWI Interior live oak	17	0-63	85
PISA2 Foothill pine	8	0-23	64

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	7	0-88	69
QUDO Blue oak	3	0-14	67

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
CECU2 Wedgeleaf ceano.	8	0-39	54
RHDI Poison oak	7	0-31	33
ARMA3 Manzanita	5	0-29	25
HEAR2 Toyon	9	0-44	18
RHCR Redberry	4	0-21	14

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	76	0-98	85
ROCK	5	0-13	25

Blue Oak-Interior Live Oak/Grass
(N=72)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
PIPO Ponderosa pine
QUCH2 Canyon live oak
QUKE Black oak
QULO Valley oak

TREE UNDERSTORY

ACMA Bigleaf maple
AECA2 Cal. buckeye
PISA2 Foothill pine
PSME Douglas fir
QUKE Black oak

Shrubs:

ADFA Chamise
ARCA7 Coast sagebrush
ARVI3 Whiteleaf manzanita
CEBE2 Birchleaf mtn-mahogany
CELE2 Chap. whitethorn
DIAU1 Bush monkeyflower
ERCA6 Cal. yerba santa
RHCA2 Coffeeberry
RHTR Squaw bush
RIB Gooseberry
RICA1 Hillside gooseberry
SACA4 Mtn blue elderberry
SAME6 Blue elderberry
XYBI Mission manzanita

HERBS

COCA8 Corethrogyne
HAAR Goldenfleece

Blue Oak-Interior Live Oak/Grass
(N=72)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	6	9.3	1	1.0	0	0.0	0	0.0	4
PIPO	2	0.0	1	0.0	0	0.0	0	0.0	1
PISA2	2	2.3	1	0.7	0	0.0	0	0.0	46
QUCH2	3	0.0	0	0.0	0	0.0	0	0.0	1
QUDO	8	5.7	1	1.1	0	0.4	0	0.1	66
QUKE	1	1.2	1	0.9	0	0.0	0	0.0	5
QULO	2	1.7	0	0.6	0	0.0	0	0.0	3
QUWI	6	6.4	1	0.9	0	0.0	0	0.1	61

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	6	9.3	4	2	0.0	1	0	0.0	0	0	0.0	0
PIPO	2	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
PISA2	3	2.5	41	1	1.3	22	0	0.0	0	0	0.0	0
QUCH2	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	8	5.7	65	2	1.9	33	3	20.0	2	1	0.0	1
QUKE	2	2.0	3	2	2.7	2	0	0.0	0	0	0.0	0
QULO	3	3.0	2	1	0.0	1	0	0.0	0	0	0.0	0
QUWI	7	6.6	57	1	1.6	31	0	0.0	0	1	0.0	1

Interior Live Oak-Blue Oak-Foothill Pine/Grass
QUWI-QUDO-PISA2/GRASS
N=42

EXTENT: This type occurs in the Sierra from Butte to Kern County. It also occurs in San Benito County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1533	400	5000
ASPECT	28% north to northeast; 37% south to southwest.		
SLOPE	78% less than 25%		

SOILS:

PARENT MATERIAL	Granitic and mixed; some mafic and metamorphic
TEXTURE	Loams, rocky clay loams, and sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
 Griffin (1977): Foothill Woodland, QUDO and QUWI phases
 Holland (1986): Foothill Pine-Oak Woodland; Blue Oak Woodland
 Parker and Matyas (1981): Blue Oak; Interior Live Oak
 Paysen et al. (1980): Blue Oak
 Mayer et al. (1988): Blue Oak-Foothill Pine; Blue Oak Woodland

Interior Live Oak-Blue Oak-Foothill Pine/Grass
(N=42)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	41	6-110	100
QUDO Blue oak	29	0-120	96
PISA2 Foothill pine	32	0-91	78
QULO Valley oak	11	0-25	16
TREE UNDERSTORY	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	5	0-13	42
QUDO Blue oak	4	0-16	22
SHRUBS	AVERAGE	RANGE	CONSTANCY%
CECU2 Wedgeleaf ceanothus	10	0-34	40
RHDI Poison oak	6	0-22	24
RICA1 Hillside gooseberry	3	0-9	20
ARVI3 Whiteleaf manzanita	8	0-27	16
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	61	0-100	87
ROCK	8	0-12	4

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY	SHRUBS
AECA2 Cal. buckeye	AMUT Utah serviceberry
QUCH2 Canyon live oak	ARMA3 Manzanita
QUKE Black oak	ARMA4 Mariposa manzanita
	ARTR Basin sagebrush
TREE UNDERSTORY	CELE2 Chap. whitethorn
PIJE Jeffrey pine	CESP Greenbark ceanothus
PISA2 Foothill pine	ERCA6 Cal. yerba santa
QUGA2 Garry oak	ERFA Cal. buckwheat
	HALI Narwleaf goldenfleece
	HEAR2 Toyon
	JUCA3 Cal. juniper
	LOSU3 So. honeysuckle
	PRIL1 Shb hollyleaf cherry
	PRVID Western choke-cherry
	RHCA2 Coffeeberry
	RHCR Redberry
	RIB Gooseberry
	SAL11 Willow

Interior Live Oak-Blue Oak-Foothill Pine/Grass
(N=42)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	3	1.4	0	0.0	0	0.0	0	0.0	2
JUCA3	2	0.0	1	0.0	0	0.0	0	0.0	1
PISA2	2	3.1	2	1.7	0	0.8	0	0.0	35
QUCH2	0	0.0	1	1.4	1	0.7	0	0.0	2
QUDO	9	7.3	1	1.7	0	0.7	0	0.0	43
QUKE	2	0.7	0	0.0	0	0.0	0	0.0	2
QULO	2	1.6	1	0.8	0	0.4	0	0.0	7
QUWI	15	12.7	2	2.2	0	0.4	0	0.0	45

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	3	1.4	2	0	0.0	0	0	0.0	0	0	0.0	0
JUCA3	2	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
PISA2	4	4.1	23	2	1.9	29	2	2.5	11	0	0.0	0
QUCH2	0	0.0	0	2	0.0	1	1	0.0	1	0	0.0	0
QUDO	9	7.3	43	2	2.8	24	2	7.3	4	0	0.0	0
QUKE	2	0.7	2	0	0.0	0	0	0.0	0	0	0.0	0
QULO	2	1.8	6	1	2.0	3	1	0.0	1	0	0.0	0
QUWI	16	13.1	43	3	3.6	25	1	4.6	4	0	0.0	0

Blue Oak-Valley Oak-Coast Live Oak/Grass
QUDO-QULO-QUAG/GRASS
N=17

EXTENT: This type occurs in the central coast areas from Napa to Santa Barbara County. It also occurs in Calaveras County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1544	200	3500
ASPECT	All aspects		
SLOPE	Varied slopes		

SOILS:

PARENT MATERIAL	Varied, all types
TEXTURE	Varied; clay, gravelly and sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Oak Woodland: Blue Oak Woodland
Griffin (1977): Foothill Woodland: Blue Oak Phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak Series
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak Woodland

Blue Oak-Valley Oak-Coast Live Oak/Grass
(N=17)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	46	0-186	88
QUAG Coast live oak	21	0-103	82
QULO Valley oak	60	0-229	76

SHRUBS (% cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	3	0-3	18

(% cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	95	0-100	88
ROCK			

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
 AECA2 Cal. buckeye
 PISA2 Foothill pine
 QUDU2 Scrub oak
 QUKE Black oak

TREE UNDERSTORY
 QUAG Coast live oak
 QUDO Blue oak

SHRUBS
 ARCA7 Coast sagebrush
 ERPA3 Dune eriogonum
 HEAR2 Toyon
 SALE2 Purple sage

Blue Oak-Valley Oak-Coast Live Oak/Grass
(N=17)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	3	2.1	2	0.7	0	0.0	0	0.0	2
QUAG	3	7.5	2	1.8	0	0.3	0	0.0	14
QUDO	7	5.0	3	4.0	0	0.7	0	0.3	15
QUDU2	1	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	1	0.0	0	0.0	0	0.0	0	0.0	1
QULO	4	4.8	3	4.4	1	1.5	0	0.4	13

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	1
PISA2	3	2.1	2	2	0.7	2	0	0.0	0	0	0.0	0
QUAG	6	10.9	8	2	2.0	12	1	0.0	1	0	0.0	0
QUDO	7	5.0	15	4	4.9	11	1	2.3	5	1	0.0	1
QUDU2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	5	5.4	11	5	5.7	9	2	3.5	5	1	3.3	2

Blue Oak-Foothill Pine/Grass
QUDO-PISA2/GRASS
N=101

EXTENT: This type occurs in the foothills and Sierran regions from Placer to Fresno County and in the Central Coast area from Monterey to Los Angeles County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1749	300	4000
ASPECT	All Aspects		
SLOPE	46% occur on flat areas, 83% occur on slopes less than 35%		

SOILS:

PARENT MATERIAL	All types
TEXTURE	Varied: gravel to clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, Blue Oak phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak-Foothill Pine; Blue Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine

Blue Oak-Foothill Pine/Grass
(N=101)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	35	2-116	100
PISA2 Foothill pine	27	2-152	100

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
LOSU3 So. honeysuckle	4	0-10	16
CECU2 Wedgeleaf cean.	7	0-8	15
RHCR Redberry	3	0-23	15

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	92	0-100	98
ROCK	6	0-24	10

Blue Oak-Foothill Pine/Grass
(N=101)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
QUAG Coast live oak
QULO Valley oak
QUWI Interior live oak

TREE UNDERSTORY

AECA2 Cal. buckeye
PISA2 Foothill pine
QUAG Coast live oak
QUDO Blue oak
QUDU2 Scrub oak
QUWI Interior live oak
UMCA1 Cal. bay

SHRUBS

ADFA Chamise
ARCA7 Coast sagebrush
ARGL5 Bigberry manz.
ARMA3 Manzanita
ARVI3 Whiteleaf manz.
CEBE2 Birchleaf mtn-mahogany
CELE2 Chaparral whitethorn
CESO3 Jim brush
COCO5 Hazelnut
ERCA6 Cal. yerba santa
ERCR Thicketleaf yerba santa
ERFA Cal. buckwheat
FRDI Foothill ash
HALI Narrowleaf goldenbush
HASQ2 Sawtooth goldenbush
RHCA2 Coffeeberry
RHDI Poison oak
RHTR Squaw bush
RICA1 Hillside gooseberry
SACA4 Mtn blue elderberry

Blue Oak- Foothill Pine/Grass
(N=101)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	2
PISA2	3	3.1	2	2.2	0	0.6	0	0.0	101
QUAG	1	1.3	1	1.3	0	0.6	0	0.0	11
QUDO	9	7.2	2	1.7	0	0.6	0	0.1	100
QULO	4	2.1	2	2.1	0	0.0	0	0.0	3
QUWI	3	3.1	0	0.3	0	0.0	0	0.0	9

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	1	0.0	2	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	3	3.7	76	2	2.6	80	1	3.2	17	0	0.0	0
QUAG	2	2.0	7	2	2.2	6	2	0.0	1	0	0.0	0
QUDO	9	7.4	96	2	2.0	78	2	3.6	16	1	9.9	2
QULO	4	2.1	3	4	3.6	2	0	0.0	0	0	0.0	0
QUWI	4	3.3	8	1	0.0	1	0	0.0	0	0	0.0	0

Blue Oak/Wedgeleaf Ceanothus/Grass
QUDO/CECU2/GRASS
N=56

EXTENT: This type occurs in the foothill and Sierra from Butte to Fresno County, and in the central coast in Monterey and San Benito counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1752	300	3800
ASPECT	All aspects		
SLOPE	63% less than 25%, 89% less than 45%		

SOILS:

PARENT MATERIAL	Granitics, basalts and shales
TEXTURE	Rocky and gravelly sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, QUDO phase
Holland (1986): Blue Oak Woodland; Interior Live Oak Woodland
Parker and Matyas (1981): Blue Oak-Foothill Pine; Blue Oak; Interior Live oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine

Blue Oak/Wedgeleaf Ceanothus/Grass
(N=56)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	23	5-65	100
QUWI Interior live oak	13	0-56	76
PISA2 Foothill pine	19	0-48	73

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	8	0-25	85
QUWI Interior live oak	9	0-29	82
AECA2 Cal. buckeye	8	0-23	24
PISA2 Foothill pine	3	0-7	15

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
CECU2 Wedgeleaf cean.	18	0-62	100
RHCR Redberry	3	0-13	53
RHDI Poison oak	4	0-10	42
ARVI3 Whiteleaf manz.	8	0-29	38

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	50	0-75	93
ROCK	5	0-20	25

Blue Oak/Wedgeleaf Ceanothus/Grass
(N=56)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREES OVERSTORY

ACMA Bigleaf maple
AECA2 Cal. buckeye
PIPO Ponderosa pine
QUKE Black oak
QULO Valley oak

TREE UNDERSTORY

ACMA Bigleaf maple
FRCA2 Flannel bush
QUKE Black oak

SHRUBS:

ADFA Chamise
ARMA3 Manzanita
ARMA4 Mariposa manzanita
CEBE2 Birchleaf mtn-mahogany
CELE2 Chap. whitethorn
CHFO2 Mountain misery
COCO5 Hazelnut
DIAU1 Bush monkeyflower
ERCA6 Cal. yerba santa
FRDI Foothill ash
GAFLP Ashy tilktassel
HALI Narrowleaf goldenbush
HEAR2 Toyon
LOIN3 Chap. honeysuckle
LOSU3 So. honeysuckle
RHCA2 Coffeeberry
RIAU Golden currant
RICA1 Hillside gooseberry
SACA4 Mtn. blue elderberry
SALI1 Willow

HERBS

COCA8 Corethrogyne
HAAR Goldenfleece

Blue Oak/Wedgeleaf Ceanothus/Grass
(N=55)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	0	0.0	1	0.0	0	0.0	0	0.0	1
AECA2	3	3.5	0	0.6	0	0.0	0	0.0	3
PIPO	0	0.0	2	0.0	0	0.0	0	0.0	1
PISA2	3	2.9	1	1.2	0	0.2	0	0.0	39
QUDO	7	6.1	1	1.5	0	0.4	0	0.0	54
QUKE	2	1.0	0	0.6	0	0.0	0	0.0	3
QULO	2	1.4	1	0.7	0	0.0	0	0.0	2
QUWI	6	7.2	0	0.8	0	0.0	0	0.0	42

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	0	0.0	0	1	0.0	1	0	0.0	0	0	0.0	0
AECA2	3	3.5	3	1	0.0	1	0	0.0	0	0	0.0	0
PIPO	0	0.0	0	2	0.0	1	0	0.0	0	0	0.0	0
PISA2	4	3.1	34	2	1.5	30	1	0.0	1	0	0.0	0
QUDO	7	6.5	49	2	2.3	33	1	5.1	4	0	0.0	0
QUKE	2	1.0	3	1	0.0	1	0	0.0	0	0	0.0	0
QULO	2	1.4	2	1	0.0	1	0	0.0	0	0	0.0	0
QUWI	6	7.2	42	2	4.0	8	0	0.0	0	0	0.0	0

Blue Oak-Foothill Pine/Wedgeleaf Ceanothus-Mtn. Mahogany
QUDO-PISA2/CECU2-CEBE2
N=23

EXTENT: This type occurs in the central coast and San Joaquin Valley from Contra Costa to Monterey County and Stanislaus to Fresno County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2526	1000	4000
ASPECT	North to northeast aspects		
SLOPE	Varied		

SOILS:

PARENT MATERIAL	Sedimentary sandstones and shales
TEXTURE	Gravelly to clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, QUDO phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak-Foothill Pine; Blue Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine

Blue Oak-Foothill Pine/Wedgeleaf Ceanothus-Mtn. Mahogany
(N=23)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	25	2-136	100
PISA2 Foothill pine	17	0-84	83
PIJE Jeffrey pine	20	0-69	16
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	6	0-16	74
JUCA3 Cal. juniper	6	0-18	48
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
CECU2 Wedgeleaf ceano.	7	0-21	74
CEBE2 Birchleaf mtn-mahg	13	0-34	61
HALI Haplopappus	9	0-22	57
RHCR Redberry	3	0-7	39
LOSU3 So. honeysuckle	3	0-6	39
ERFA Cal. buckwheat	5	0-7	17
ARCA7 Coast sagebrush	3	0-5	17
ADFA Chamise	2	0-2	17
ARGL5 Bigberry manz.	2	0-2	17
HERBS	AVERAGE	RANGE	CONSTANCY%
GRASSES	59	0-92	91
ROCK	-		

Blue Oak-Foothill Pine/Wedgeleaf Ceanothus-Mtn. Mahogany
(N=23)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
QUAG Coast live oak
QULO Valley oak

TREE UNDERSTORY

AECA2 Cal. buckeye
FRCA2 Flannel bush
PICO2 Coulter pine
PISA2 Foothill pine
QUAG Coast live oak

SHRUBS

CELE2 Chaparral whitethorn
ERCA6 Cal. yerba santa
ERCR Thicket leaf yerba santa
ERWR Eriogonum sp.
FRDI Foothill ash
HEAR2 Toyon
RHCA2 Coffeeberry
RHDI Poison oak
RICA1 Hillside gooseberry
SACA4 Mtn blue elderberry
SAME4 Black sage

HERBS

LOSC Lotus

Blue Oak-Foothill Pine/Wedgeleaf Ceanothus-Mtn. Mahogany
(N=23)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	2	1.0	0	0.0	0	0.0	0	0.0	3
PIJE	3	3.1	3	3.1	0	0.0	0	0.0	4
PISA2	3	2.4	1	1.4	0	0.4	0	0.0	19
QUAG	0	0.6	1	0.0	0	0.0	0	0.0	3
QUDO	6	5.2	1	2.4	0	0.3	0	0.0	23
QULO	1	0.0	0	0.0	1	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	2	1.0	3	0	0.0	0	0	0.0	0	0	0.0	0
PIJE	3	4.0	3	3	4.0	3	0	0.0	0	0	0.0	0
PISA2	3	2.8	15	2	2.1	11	1	2.8	3	0	0.0	0
QUAG	1	0.0	1	1	0.0	3	0	0.0	0	0	0.0	0
QUDO	7	5.4	22	2	3.1	16	1	3.2	3	0	0.0	0
QULO	1	0.0	1	0	0.0	0	1	0.0	1	0	0.0	0

Blue Oak/Narrowleaf Goldenbush
QUDO/HALI
N=17

EXTENT: This type occurs along the coast from Alameda to Santa Barbara County and inland from Shasta to Merced County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2288	1450	3650
ASPECT	Northwest to east		
SLOPE	525 are on less than 25% slope		

SOILS:

PARENT MATERIAL	Hard and soft sandstones, shales, serpentine
TEXTURE	Sandy and gravelly-sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland: Blue Oak Phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak
Payson et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak

Blue Oak/Narrowleaf Goldenbush
N=17

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	28	10-61	100
PISA2 Foothill pine	25	0-84	23
TREE UNDERSTORY (% cover)	AVERAGE	RANGE	CONSTANCY%
JUCA3 Cal. juniper	5	0-10	47
QUDO Blue oak	4	0-6	41
SHRUBS (% cover)	AVERAGE	RANGE	CONSTANCY%
HALI Narrowleaf gldebush	22	0-65	94
ERFA Cal. buckwheat	5	0-7	23
(% cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	67	28-88	100
ROCK			

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

PIJE Jeffrey pine
QULO Valley oak

TREE UNDERSTORY

JUCA3 Cal. juniper
PISA2 Foothill pine
QUGA2 Garry oak
QULO Valley oak

SHRUBS

ARCA7 Coast sagebrush
ERWR Buckwheat
LOSU3 So. honeysuckle
RHCR Redberry
RIQU Foothill gooseberry
SALE2 Purple sage

Blue Oak/Narrowleaf Goldenbush
N=17

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
JUCA3	3	0.0	0	0.0	0	0.0	0	0.0	1
PIJE	2	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	2	1.0	1	1.9	1	1.0	0	0.0	4
QUDO	5	5.5	2	1.3	0	0.4	0	0.0	17
QULO	5	0.0	1	0.0	1	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
JUCA3	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PIJE	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	2	1.0	4	3	4.1	2	2	0.0	1	0	0.0	0
QUDO	5	5.7	16	2	1.5	14	1	2.1	4	0	0.0	0
QULO	5	0.0	1	1	0.0	1	1	0.0	1	0	0.0	0

VALLEY OAK SERIES

Coast Live Oak-Valley Oak/Poison Oak
QUAG-QULO/RHDI
N=34

EXTENT: This type occurs in the central and southern coast counties from Marin to Santa Barbara. It also occurs in inland counties from Napa to San Benito.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1101	200	2700
ASPECT	68% are north to east.		
SLOPE	56% are less than 35%		

SOILS:

PARENT MATERIAL	Hard and soft sedimentary
TEXTURE	50% sandy and clay loams; 50% all other types

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Valley Oak Woodland
Griffin (1977): Foothill Woodland, QULO phase
Holland (1986): Valley Oak Woodland
Parker and Matyas (1981): Valley Oak; Coast Live Oak
Paysen et al. (1980): Valley Oak
Mayer et al. (1988): Valley Oak Woodland

Coast Live Oak-Valley Oak/Poison Oak
(N=34)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	90	3-304	100
QULO Valley oak	45	6-124	100
PICO1 Beach pine	20	0-35	18

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	8	0-23	53

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	76	0-100	91
ROCK	4	0-11	15

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY	SHRUBS
ACMA Bigleaf maple	ARCA7 Coast sagebrush
AECA2 Cal. buckeye	ARCO6 Hoary manzanita
PICO2 Coulter pine	ARGL5 Bigberry manzanita
PILA Sugar pine	ARPRD Pink-brcd manzanita
PISA2 Foothill pine	BAPI Baccharis
QUCH2 Canyon live oak	CECU2 Wedgeleaf ceanothus
QUKE Black oak	ERCA6 Cal. yerba santa
UMCA1 Cal. bay	ERFA Cal. buckwheat
	HEAR2 Toyon
TREE UNDERSTORY	LOSU3 So. honeysuckle
ACMA Bigleaf maple	RHCA2 Coffeeberry
AECA2 Cal. buckeye	RHCR Redberry
PICO2 Coulter pine	RICA1 Hillside gooseberry
QUAG Coast live oak	ROCA1 Cal. wild rose
QUDU2 Scrub oak	RUVI2 Blackberry
UMCA1 Cal. bay	SAAP1 White sage
	SAME4 Black sage
	SYRI Upright snowberry

Coast Live Oak-Valley Oak/Poison Oak
(N=34)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	3	0.7	1	0.7	0	0.0	0	0.0	2
AECA2	4	2.0	1	1.2	0	0.0	0	0.0	6
PICO1	5	4.7	1	1.5	0	0.0	0	0.0	6
PICO2	14	0.0	4	0.0	1	0.0	0	0.0	1
PILA	2	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	2	1.5	1	0.0	0	0.0	0	0.0	3
QUAG	7	7.1	6	5.4	1	1.8	0	0.4	34
QUCH2	4	0.0	4	0.0	0	0.0	0	0.0	1
QUKE	1	0.0	0	0.0	0	0.0	0	0.0	1
QULO	4	3.8	2	2.4	1	1.1	0	0.4	34
UMCA1	3	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	3	0.7	2	1	0.0	1	0	0.0	0	0	0.0	0
AECA2	4	2.0	6	2	4.2	2	0	0.0	0	0	0.0	0
PICO1	5	4.7	6	2	2.2	4	0	0.0	0	0	0.0	0
PICO2	14	0.0	1	4	0.0	1	1	0.0	1	0	0.0	0
PILA	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	2	1.5	3	1	0.0	3	0	0.0	0	0	0.0	0
QUAG	8	8.0	28	6	5.6	32	3	3.9	14	2	8.5	2
QUCH2	4	0.0	1	4	0.0	1	0	0.0	0	0	0.0	0
QUKE	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	5	4.8	25	3	2.9	25	2	2.7	13	2	8.5	2
UMCA1	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Valley Oak-Coast Live Oak/Grass
QULO-QUAG/GRASS
N=37

EXTENT: This type occurs on the Southern coast, Central coast
and Kern, Merced, San Benito and Santa Clara counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1318	300	3800
ASPECT	All aspects		
SLOPE	79% are north to east		

SOILS:

PARENT MATERIAL	72% Hard sandstone and shale
TEXTURE	Rocky, sandy and clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Valley Oak Woodland
Griffin (1977): Foothill Woodland, QULO phase
Holland (1986): Valley Oak Woodland
Parker and Matyas (1981): Valley Oak
Paysen et al. (1980): Valley Oak
Mayer et al. (1988): Valley Oak Woodland; Coastal Oak
Woodland

Valley Oak-Coast Live Oak/Grass
(N=37)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QULO Valley oak	63	8-214	100
QUAG Coast live oak	47	0-171	84
PSME Douglas fir	29	0-64	32

(% Cover)	AVERAGE	RANGE	CONSTANCY%
SHRUBS	-		
HERBS	-		
GRASSES	97	30-100	100
ROCK	-	0-2	3

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
 PICO1 Beach (lodgepole) pine
 PILA Sugar pine
 PISA2 Foothill pine
 QUKE Black oak
 QUWI Interior live oak

TREE UNDERSTORY
 QUDO Blue oak

SHRUBS
 RHCA2 Coffeeberry
 RHCR Redberry
 SACA4 Mtn blue elderberry

Valley Oak-Coast Live Oak/Grass
(N=37)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	4	0.7	0	0.0	0	0.0	0	0.0	2
PICO1	1	0.0	0	0.0	0	0.0	0	0.0	1
PILA	1	0.0	3	0.0	0	0.0	0	0.0	1
PISA2	1	0.0	1	0.0	0	0.0	0	0.0	1
PSME	6	4.3	2	1.9	0	0.0	0	0.0	12
QUAG	3	3.3	3	2.0	1	1.2	0	0.2	31
QUKE	2	0.0	0	0.0	0	0.0	0	0.0	1
QULO	5	6.0	3	1.6	1	1.7	0	0.3	37
QUWI	0	0.0	2	0.0	1	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	4	0.7	2	0	0.0	0	0	0.0	0	0	0.0	0
PICO1	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PILA	1	0.0	1	3	0.0	1	0	0.0	0	0	0.0	0
PISA2	1	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
PSME	6	4.5	11	3	2.4	9	0	0.0	0	0	0.0	0
QUAG	4	4.4	21	3	2.0	31	2	3.6	10	1	0.0	1
QUKE	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	6	7.0	29	3	1.7	34	3	3.3	17	1	3.3	4
QUWI	0	0.0	0	2	0.0	1	1	0.0	1	0	0.0	0

Mixed Oak-Valley Oak/Poison Oak-Coffeeberry
MO-QULO/RHDI-RHCA2
N=22

EXTENT: This type occurs primarily in the central coast region from Monterey to San Luis Obispo County. It also occurs slightly inland in Contra Costa and Santa Clara counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1443	400	3000
ASPECT	47% north; 37% south to west		
SLOPE	58% are less than 35%		

SOILS:

PARENT MATERIAL	Soft and hard sedimentary
TEXTURE	Clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Valley Oak Woodland; Coast Live Oak Forest
Griffin (1977): Foothill Woodland, QULO and QUDO phases
Holland (1986): Valley Oak Woodland; Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak; Valley Oak; Blue Oak-Foothill Pine
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland; Valley Oak Woodland

Mixed Oak-Valley Oak/Poison Oak-Coffeeberry
(N=22)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QULO Valley oak	83	3-245	100
QUAG Coast live oak	108	0-385	90
QUDO Blue oak	28	0-81	54
AECA2 Cal. buckeye	22	0-46	30
PISA2 Foothill pine	16	0-33	27

SHRUBS (%cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	10	0-32	85
RHCA2 Coffeeberry	10	0-22	65
RHCR Redberry	4	0-5	20

(%cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	54	0-92	90
ROCK	14	0-14	5

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

PICO1 Beach (lodgepole) pine
UMCA1 Cal. bay

TREE UNDERSTORY

PISA2 Foothill pine
QUAG Coast live oak
UMCA1 Cal. bay

SHRUBS

ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
BAPI Baccharis
DIAU1 Bush monkeyflower
HEAR2 Toyon
HODI Ocean spray
LOSU3 So. honeysuckle
SAAP1 White sage

HERBS

LOSC Lotus
PTAQ Bracken fern

Mixed Oak-Valley Oak/Poison Oak-Coffeeberry
(N=22)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	3	0.0	0	0.0	0	0.0	0	0.0	1
AECA2	8	2.2	2	2.4	0	0.8	0	0.4	6
PICO2	8	0.0	6	0.0	0	0.0	0	0.0	1
PISA2	2	2.3	2	1.0	0	0.0	0	0.0	6
QUAG	7	4.0	5	3.8	1	2.4	0	0.2	20
QUDO	5	3.0	1	1.6	1	0.9	0	0.0	12
QULO	6	6.0	3	3.0	2	1.9	0	0.2	22
UMCA1	2	0.0	2	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	
ACMA	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
AECA2	8	2.2	6	3	4.8	3	2	0.0	1	1	0.0	1
PICO2	8	0.0	1	6	0.0	1	0	0.0	0	0	0.0	0
PISA2	4	3.4	4	2	1.2	5	0	0.0	0	0	0.0	0
QUAG	7	4.0	20	5	4.3	17	4	5.3	8	1	0.0	1
QUDO	5	3.0	12	3	3.1	6	2	2.6	4	0	0.0	0
QULO	6	6.2	21	4	3.6	17	3	2.2	18	1	0.0	1
UMCA1	2	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0

Blue Oak-Valley Oak/Grass
QUDO-QULO/GRASS
N=32

EXTENT: This type primarily occurs along the central coast from Marin to Monterey and inland to Kern County. It is also represented in Placer and Calaveras counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1477	200	4400
ASPECT	All aspects		
SLOPE	Less steep 72% are have less than 35% slope		

SOILS:

PARENT MATERIAL	Hard and soft sedimentary; granitic
TEXTURE	Sandy to clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland; Valley Oak Woodland
Griffin (1977): Foothill Woodland, QULO and QUDO phases
Holland (1986): Blue Oak Woodland; Valley Oak Woodland
Parker and Matyas (1981): Blue Oak; Valley Oak
Paysen et al. (1980): Blue Oak; Valley Oak
Mayer et al. (1988): Blue Oak Woodland; Valley Oak Woodland

Blue Oak-Valley Oak/Grass
(N=32)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	31	5-84	100
QULO Valley oak	18	0-86	97

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	99	92-100	100
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
 AECA2 Cal. buckeye
 PISA2 Foothill pine
 QUAG Coast live oak
 QUDU2 Scrub oak
 QUWI Interior live oak

Shrubs:
 ARMA3 Manzanita
 RHCA2 Coffeeberry
 RHDI Poison oak
 RIAU Golden currant
 RISP Redflower gooseberry

Blue Oak-Valley Oak/Grass
(N=32)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	2	0.0	0	0.0	0	0.0	0	0.0	3
PISA2	0	0.0	1	0.0	0	0.0	0	0.0	2
QUAG	0	0.0	1	0.0	0	0.0	0	0.0	1
QUDO	6	4.3	2	1.2	0	0.5	0	0.2	32
QUDU2	2	0.0	0	0.0	0	0.0	0	0.0	1
QULO	2	2.4	1	1.3	0	0.5	0	0.2	31
QUWI	5	5.4	0	0.4	0	0.0	0	0.0	5

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	2	0.0	3	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	0	0.0	0	1	0.0	2	0	0.0	0	0	0.0	0
QUAG	0	0.0	0	1	0.0	1	0	0.0	0	0	0.0	0
QUDO	6	4.5	30	2	1.4	27	1	2.4	7	1	0.0	1
QUDU2	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	2	3.0	22	2	2.0	18	1	3.1	5	1	0.0	1
QUWI	5	5.4	5	1	0.0	1	0	0.0	0	0	0.0	0

Valley Oak/Grass
QULO/GRASS
N=44

EXTENT: This type occurs coastally from Mendocino to Los Angeles County and inland in Contra Costa, Santa Clara, San Benito and Kern County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2253	50	5600
ASPECT	All aspects		
SLOPE	78% are less than 35%		

SOILS:

PARENT MATERIAL	Granitics; hard and soft sedimentary
TEXTURE	Mostly loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Valley Oak Woodland
Griffin (1977): Foothill Woodland, QULO phase
Holland (1986): Valley Oak Woodland
Parker and Matyas (1981): Valley Oak
Paysen et al. (1980): Valley Oak
Mayer et al. (1988): Valley Oak Woodland

Valley Oak/Grass
(N=44)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QULO Valley oak	74	10-273	100

(% Cover)	AVERAGE	RANGE	CONSTANCY%
SHRUBS	-		
HERBS	-		
GRASSES	90	0-100	91
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
 JUCA4 So. black walnut
 PISA2 Foothill pine
 QUDO Blue oak
 QUKE Black oak
 QUAG Coast live oak

TREE UNDERSTORY
 QUWI Interior live oak
 QULO Valley oak

HERBS
 PTAQ Bracken fern

SHRUBS
 ARCA7 Coast sagebrush
 ARMA3 Manzanita
 ARTR Basin sagebrush
 CECU2 Wedgeleaf ceanothus
 ERCI2 Red-stem filaree
 ERFA Cal. buckwheat
 HEAR2 Toyon
 RHCA2 Coffeeberry
 RHCR Redberry
 RHDI Poison oak
 RIB Gooseberry
 RICA1 Hillside gooseberry
 SYRI Upright snowberry

Valley Oak/Grass
(N=44)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
JUCA4	3	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	0	0.0	12	0.0	1	0.0	0	0.0	1
QUAG	5	1.4	0	0.0	0	0.0	0	0.0	2
QUDO	1	0.0	0	0.0	0	0.0	0	0.0	3
QUKE	2	1.4	1	0.0	0	0.0	0	0.0	2
QULO	6	7.2	3	2.8	1	1.6	0	0.8	44

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
JUCA4	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	0	0.0	0	12	0.0	1	1	0.0	1	0	0.0	0
QUAG	5	1.4	2	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	1	0.0	3	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	2	1.4	2	1	0.0	2	0	0.0	0	0	0.0	0
QULO	8	9.1	31	4	3.0	38	2	3.4	18	2	2.6	13

Black Oak-Valley Oak/Grass
QUKE-QULO/GRASS
N=19

EXTENT: This type occurs in the coast ranges from Mendocino to Santa Clara County. It also occurs in the south coast and inland areas of San Luis Obispo, Santa Barbara, San Diego and Kern counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2375	75	6000
ASPECT	All aspects.		
SLOPE	68% are less than 25%		

SOILS:

PARENT MATERIAL	Granitic; soft and hard sedimentary
TEXTURE	All textures

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): None
Griffin (1977): Foothill Woodland, QULO phase
Holland (1986): None
Parker and Matyas (1981): Valley Oak; Black Oak
Paysen et al. (1980): Valley Oak; Black Oak; Coast
Live Oak
Mayer et al. (1988): Montane Hardwood; Valley Oak Woodland;
Coastal Oak Woodland

Black Oak-Valley Oak/Grass
(N=19)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	45	3-195	100
QULO Valley oak	32	0-71	79
QUAG Coast live oak	40	0-146	47
PSME Douglas fir	38	0-68	16
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	3	0-4	32
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	92	0-100	89
ROCK	-	0-1	5

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
ACMA Bigleaf maple
ARME3 Madrone
PICO1 Beach pine
PICO2 Coulter pine
PISA2 Foothill pine

TREE UNDERSTORY
AECA2 Cal. buckeye
QUGA2 Garry oak
QULO Valley oak

SHRUBS
ARGL5 Bigberry manzanita
ARMA3 Manzanita
CECU2 Wedgeleaf manzanita
ERCO7 Yellow yarrow
HEAR2 Toyon
SYRI Upright snowberry

Black Oak-Valley Oak/Grass
(N=19)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	0	0.0	2	0.0	0	0.0	0	0.0	1
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
ARME3	6	5.7	4	2.8	0	0.0	0	0.0	2
PICO1	2	1.4	0	0.0	0	0.0	0	0.0	2
PICO2	2	0.0	3	0.0	0	0.0	0	0.0	1
PISA2	3	0.0	0	0.0	0	0.0	0	0.0	1
PSME	10	6.6	3	2.1	0	0.0	0	0.0	3
QUAG	5	5.8	3	2.9	0	1.0	0	0.0	9
QUKE	4	3.6	3	2.7	1	1.0	0	0.5	19
QULO	7	11.7	2	1.4	0	0.7	0	0.0	15

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	0	0.0	0	2	0.0	1	0	0.0	0	0	0.0	0
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	6	5.7	2	4	2.8	2	0	0.0	0	0	0.0	0
PICO1	2	1.4	2	0	0.0	0	0	0.0	0	0	0.0	0
PICO2	2	0.0	1	3	0.0	1	0	0.0	0	0	0.0	0
PISA2	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PSME	10	6.6	3	3	2.1	3	0	0.0	0	0	0.0	0
QUAG	7	6.9	7	4	4.1	6	2	5.5	2	0	0.0	0
QUKE	5	3.7	18	3	3.2	15	2	2.9	6	2	0.0	1
QULO	10	14.2	11	2	2.0	10	2	4.1	3	0	0.0	0

INTERIOR LIVE OAK SERIES

Interior Live Oak-Foothill Pine/Manzanita
QUWI-PISA2/ARMA3
N=36

EXTENT: This type occurs primarily within the Sierra Nevada foothills from El Dorado to Tuolumne County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1144	600	1900
SLOPE	69% less than or equal to 35%		
ASPECT	50% north to east; 72% northwest to east		

SOILS:

PARENT MATERIAL	Granite, andesite, serpentine and hard sedimentary.
TEXTURE	Rocky, gravelly sandy clay loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, QUDO and QUWI phases
Holland (1986): Foothill Pine-Oak Woodland; Blue Oak Woodland
Parker and Matyas (1981): Blue Oak; Interior Live Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine; Blue Oak Woodland

Interior Live Oak-Foothill Pine/Manzanita
(N=36)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	21	2-71	100
PISA2 Foothill pine	24	0-99	78
QUDO Blue oak	8	0-28	67
TREE UNDERSTORY	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	23	0-58	94
QUDO Blue oak	7	0-24	39
AECA2 Cal. buckeye	5	0-13	31
PISA2 Foothill pine	3	0-6	31
SHRUBS	AVERAGE	RANGE	CONSTANCY%
ARMA3 Manzanita	10	0-35	81
HEAR2 Toyon	15	0-44	64
RHDI Poison oak	7	0-20	56
CECU2 Wedgeleaf	7	0-16	47
RHCR Redberry	4	0-6	25
(% COVER)	AVERAGE	RANGE	CONSTANCY%
GRASSES	24	0-65	75
ROCK	2	0-6	19

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY	SHRUBS
AECA2 Cal. buckeye	ADFA Chamise
FRDI Foothill ash	ARMA4 Mariposa manzanita
QUKE Black oak	ARVI3 Whiteleaf manzanita
QULO Valley oak	CEBE2 Birchleaf mtn-mahog
QUMO Oracle oak	CECO2 Mtn. whitethorn
TREE UNDERSTORY	COCA8 Cal. corethrogyne
QUKE Black oak	ERCA6 Cal. yerba santa
QULO Valley oak	HAAR Goldenfleece
HERBS	RICA1 Hillside gooseberry
APCA Indian hemp	LUP5 Bush lupine
LOSC Lotus	

Interior Live Oak-Foothill Pine/Manzanita
(N=36)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	3	1.9	0	0.0	0	0.0	0	0.0	5
PISA2	4	3.7	2	1.3	0	0.7	0	0.0	28
QUDO	4	2.6	0	0.6	0	0.0	0	0.0	24
QUKE	2	0.7	1	0.7	0	0.0	0	0.0	2
QULO	4	0.0	1	0.0	0	0.0	0	0.0	1
QUMO	2	0.0	0	0.0	0	0.0	0	0.0	1
QUWI	11	8.8	1	0.8	0	0.0	0	0.0	36

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	3	1.9	5	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	4	4.3	22	2	1.5	23	3	12.8	2	0	0.0	0
QUDO	4	2.6	24	2	5.4	3	0	0.0	0	0	0.0	0
QUKE	2	0.7	2	1	0.0	1	0	0.0	0	0	0.0	0
QULO	4	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUMO	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUWI	11	8.8	36	2	2.3	12	0	0.0	0	0	0.0	0

Interior Live Oak-Madrone/Poison Oak
QUWI-ARME3/RHDI
N=23

EXTENT: This type occurs in the Sierra in Calaveras and El Dorado counties and in the Coast ranges from Mendocino to Monterey County. It also occurs in Shasta County.

ENVIRONMENT:

	MEAN	MIN
MAX		
ELEVATION (ft)	1493	500
3500		
ASPECT	All aspects except south	
SLOPE	40% flat; 78% less than or equal to 35%	

SOILS:

PARENT MATERIAL	Granitic and soft sedimentary
TEXTURE	Gravelly to rocky sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, QUDO and QUWI phases
Holland (1986): Foothill Pine-Oak Woodland; Blue Oak Woodland
Parker and Matyas (1981): Blue Oak; Interior Live Oak
Paysen et al. (1980): Blue Oak; Interior Live Oak
Mayer et al. (1988): Blue Oak-Foothill Pine; Blue Oak Woodland

Interior Live Oak-Madrone/Poison Oak
(N=23)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	67	19-145	100
ARME3 Madrone	31	0-66	52
QUKE Black oak	9	0-24	22
LIDE2 Tan-oak	32	0-51	17

TREE UNDERSTORY	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	10	0-29	43

SHRUBS	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	10	0-22	52
RHCA2 Coffeeberry	5	0-12	17

HERBS	AVERAGE	RANGE	CONSTANCY%
PTAQ Bracken fern	25	0-42	17

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	-		
ROCK	21	0-41	9

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY	SHRUBS
PICO1 Beach pine	AMUT Utah serviceberry
PICO2 Coulter pine	ARGL5 Bigberry manzanita
PISA2 Foothill pine	ARMA3 Manzanita
PSME Douglas fir	ARMA4 Mariposa manzanita
QUAG Coast live oak	BAPI Bacharris
QUCH2 Canyon live oak	CECU2 Wedgeleaf ceanothus
QUDO Blue oak	CETH Blueblossom ceanothus
QUGA2 Garry oak	COCO5 Hazelnut
QULO Valley oak	DIAU1 Bush monkeyflower
SESE2 Coast Redwood	ERCA6 Cal. yerba santa
UMCA1 Cal. bay	HEAR2 Toyon

PHLEC Cal. mock orange	TREE UNDERSTORY
RHTR Squaw bush	AECA2 Cal. buckeye
RUPA2 Western thimbleberry	
ARME3 Madrone	RUVI2 Blackberry
QUAG Coast live oak	VAOV Cal. huckleberry
QUDO Blue oak	
QUGA2 Garry oak	HERBS
UMCA1 Cal. bay	LOSC Lotus

Interior Live Oak-Madrone/Poison Oak
(N=23)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ARME3	8	6.4	1	1.7	0	0.8	0	0.0	12
LIDE2	12	14.5	1	0.8	0	0.5	0	0.0	4
PICO1	8	4.9	1	0.0	0	0.0	0	0.0	2
PICO2	1	0.0	2	0.0	0	0.0	0	0.0	1
PISA2	3	2.1	0	0.0	0	0.0	0	0.0	2
PSME	2	1.5	0	0.0	0	0.0	0	0.0	3
QUAG	7	4.6	0	0.0	2	2.9	0	0.0	3
QUCH2	3	0.0	0	0.0	0	0.0	0	0.0	1
QUDO	1	0.0	1	0.0	0	0.0	0	0.0	1
QUGA2	2	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	4	4.0	0	0.5	0	0.0	0	0.0	5
QULO	1	1.4	1	1.4	0	0.0	0	0.0	2
QUWI	25	20.1	2	2.3	0	0.8	0	0.2	23
SESE2	3	2.1	1	1.2	0	0.0	0	0.0	3
UMCA1	2	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ARME3	8	6.4	12	2	2.6	7	2	6.3	2	0	0.0	0
LIDE2	16	18.7	3	1	1.1	3	1	0.0	1	0	0.0	0
PICO1	8	4.9	2	1	0.0	2	0	0.0	0	0	0.0	0
PICO2	1	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
PISA2	3	2.1	2	0	0.0	0	0	0.0	0	0	0.0	0
PSME	2	1.5	3	0	0.0	0	0	0.0	0	0	0.0	0
QUAG	7	4.6	3	0	0.0	0	5	0.0	1	0	0.0	0
QUCH2	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	1	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUGA2	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	4	4.0	5	1	1.7	2	0	0.0	0	0	0.0	0
QULO	2	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
QUWI	25	20.1	23	3	2.9	17	2	4.5	4	1	0.0	1
SESE2	3	2.1	3	2	2.0	2	0	0.0	0	0	0.0	0
UMCA1	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Interior Live Oak-Blue Oak-Foothill Pine/Grass
QUWI-QUDO-PISA2/GR2
N=45

EXTENT: This type occurs in the Sierra from Butte to Kern County. It also occurs in San Benito County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1533	400	5000
ASPECT	28% north to northeast; 37% south to southwest.		
SLOPE	78% less than 25%		

SOILS:

PARENT MATERIAL	Granitic and mixed; some mafic and metamorphic
TEXTURE	Loams, rocky clay loams, and sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, QUDO and QUWI phases
Holland (1986): Foothill Pine-Oak Woodland; Blue Oak Woodland
Parker and Matyas (1981): Blue Oak; Interior Live Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine; Blue Oak Woodland

Interior Live Oak-Blue Oak-Foothill Pine/Grass
(N=45)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	41	6-110	100
QUDO Blue oak	29	0-120	96
PISA2 Foothill pine	32	0-91	78
QULO Valley oak	11	0-25	16
TREE UNDERSTORY	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	5	0-13	42
QUDO Blue oak	4	0-16	22
SHRUBS	AVERAGE	RANGE	CONSTANCY%
CECU2 Wedgeleaf ceanothus	10	0-34	40
RHDI Poison oak	6	0-22	24
RICA1 Hillside gooseberry	3	0-9	20
ARVI3 Whiteleaf manzanita	8	0-27	16
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS		-	
GRASSES	61	0-100	87
ROCK	8	0-12	4

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY	SHRUBS
AECA2 Cal. buckeye	AMUT Utah serviceberry
QUCH2 Canyon live oak	ARMA3 Manzanita
QUKE Black oak	ARMA4 Mariposa manzanita
	ARTR Basin sagebrush
	CELE2 Chap. whitethorn
TREE UNDERSTORY	CESP Greenbark ceanothus
PIJE Jeffrey pine	ERCA6 Cal. yerba santa
PISA2 Foothill pine	ERFA Cal. buckwheat
QUGA2 Garry oak	HALI Narwleaf goldenfleece
	HEAR2 Toyon
	JUCA3 Cal. juniper
	LOSU3 So. honeysuckle
	PRIL1 Shb hollyleaf cherry
	PRVID Western choke-cherry
	RHCA2 Coffeeberry
	RHCR Redberry
	RIB Gooseberry
	SAL11 Willow

Interior Live Oak-Blue Oak-Foothill Pine/Grass
(N=45)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	3	1.4	0	0.0	0	0.0	0	0.0	2
JUCA3	2	0.0	1	0.0	0	0.0	0	0.0	1
PISA2	2	3.1	2	1.7	0	0.8	0	0.0	35
QUCH2	0	0.0	1	1.4	1	0.7	0	0.0	2
QUDO	9	7.3	1	1.7	0	0.7	0	0.0	43
QUKE	2	0.7	0	0.0	0	0.0	0	0.0	2
QULO	2	1.6	1	0.8	0	0.4	0	0.0	7
QUWI	15	12.7	2	2.2	0	0.4	0	0.0	45

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	
AECA2	3	1.4	2	0	0.0	0	0	0.0	0	0	0.0	0
JUCA3	2	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
PISA2	4	4.1	23	2	1.9	29	2	2.5	11	0	0.0	0
QUCH2	0	0.0	0	2	0.0	1	1	0.0	1	0	0.0	0
QUDO	9	7.3	43	2	2.8	24	2	7.3	4	0	0.0	0
QUKE	2	0.7	2	0	0.0	0	0	0.0	0	0	0.0	0
QULO	2	1.8	6	1	2.0	3	1	0.0	1	0	0.0	0
QUWI	16	13.1	43	3	3.6	25	1	4.6	4	0	0.0	0

Interior Live Oak/Whiteleaf Manzanita
QUWI/ARVI3
N=72

EXTENT: This type occurs in the Sierra and foothill regions from Yuba to Madera County. It also occurs in Shasta County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1780	600	4250
ASPECT	All aspects		
SLOPE	90% less than 45%		

SOILS:

PARENT MATERIAL	Granitic, metamorphic and some sedimentary
TEXTURE	Gravelly sands and clayey loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): None
Griffin (1977): Foothill Woodland, QUWI Phase
Holland (1986): Interior Live Oak
Parker and Matyas (1981): Blue Oak Woodland, Interior Live Oak
Paysen et al. (1980): Interior Live Oak
Mayer et al. (1988): Blue Oak-Foothill Pine

Interior Live Oak/Whiteleaf Manzanita
(N=72)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	16	2-82	100
PISA2 Foothill pine	10	0-49	47
QUKE Black oak	10	0-60	25

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	16	0-6	78
QUDO Blue oak	6	0-24	39

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
ARVI3 Whiteleaf manz.	19	0-75	69
CECU2 Wedgeleaf ceano.	15	0-64	65
HEAR2 Toyon	8	0-35	57
RHDI Poison oak	9	0-46	47
RHCR Redberry	3	0-7	17

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	34	0-93	64
ROCK	6	0-31	19

Interior Live Oak/Whiteleaf Manzanita
(N=72)

RARELY OCCURRING SPECIES (less than 15% constancy):

OVERSTORY TREES:

AECA2 Cal. buckeye
LIDE3 Incense cedar
PIPO Ponderosa pine
PSME Douglas fir
QUCH2 Canyon live oak
QUDO Blue oak
QULO Valley oak
QUMO Oracle oak

UNDERSTORY TREES:

COCO5 Hazelnut
FRCA2 Flannel bush
PIPO Ponderosa pine
PISA2 Foothill pine
QUDU2 Scrub oak
QUKE Black oak
QULO Valley oak

HERBS:

APCA Indian hemp
BRLA2 Grass nut
ERCI2 Red-stem filaree
HAAR Goldenfleece
LUAL3 Silver lupine

SHRUBS:

ADFA Chamise
ARMA3 Manzanita
ARMA4 Mariposa manzanita
CEBE2 Birchleaf mtn-mahogany
CEIN3 Deerbrush
CELE2 Chap. whitethorn
CHFO2 Bear-clover
DIAU1 Bush monkeyflower
ERCA6 Cal. yerba santa
GAVE2 Veatch silktassel
LOSU3 So. honeysuckle
PRSU2 Sierra plum
RHCA2 Coffeeberry
RHTR Squaw bush
RICA1 Hillside gooseberry
RIRO Sierra gooseberry
ROCA1 Cal. wild rose
SACA4 Mtn blue elderberry
SYRI Upright elderberry

Interior Live Oak/Whiteleaf Manzanita
(N=72)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	2	1.2	0	0.0	0	0.0	0	0.0	3
LIDE3	0	0.0	1	0.0	0	0.0	0	0.0	1
PIPO	2	1.5	0	0.0	0	0.6	0	0.0	3
PISA2	2	1.3	1	0.8	0	0.2	0	0.0	34
PSME	3	0.7	0	0.0	0	0.0	0	0.0	2
QUCH2	9	0.0	0	0.0	0	0.0	0	0.0	1
QUDO	4	3.1	1	0.9	0	0.4	0	0.0	44
QUKE	2	2.3	1	1.7	0	0.0	0	0.0	18
QULO	2	0.0	0	0.0	0	0.0	0	0.0	2
QUMO	1	0.7	1	0.7	0	0.0	0	0.0	2
QUWI	7	7.8	1	1.0	0	0.1	0	0.0	72

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	2	1.2	3	0	0.0	0	0	0.0	0	0	0.0	0
LIDE3	0	0.0	0	1	0.0	1	0	0.0	0	0	0.0	0
PIPO	3	2.6	2	0	0.0	0	1	0.0	1	0	0.0	0
PISA2	2	1.5	28	1	1.4	18	1	5.7	2	0	0.0	0
PSME	3	0.7	2	0	0.0	0	0	0.0	0	0	0.0	0
QUCH2	9	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	4	3.3	41	2	2.4	15	1	4.6	4	0	0.0	0
QUKE	3	2.4	16	2	4.3	6	0	0.0	0	0	0.0	0
QULO	2	0.0	2	0	0.0	0	0	0.0	0	0	0.0	0
QUMO	1	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUWI	7	8.1	68	2	3.3	20	1	0.0	1	0	0.0	0

Interior Live Oak/Toyon
QUWI/HEAR2
N=43

EXTENT: This type occurs in the Sierra Nevada and the foothill areas of the Sierra primarily from Placer to Madera County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1855	600	3200
ASPECT	All aspects		
SLOPE	Below 55%		

SOILS:

PARENT MATERIAL	Granitic and metamorphic
TEXTURE	Rocky and sandy clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Foothill Woodland, QUWI phase
Griffin (1977): Blue Oak Woodland
Holland (1986): Interior Live Oak, Blue Oak Woodland
Parker and Matyas (1981): Interior Live Oak, Blue Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine

Interior Live Oak/Toyon
(N=43)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	16	0-53	88
QUDO Blue oak	4	0-11	33
PISA2 Foothill pine	6	0-17	28
QUKE Black oak	5	0-13	28

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	19	0-75	95
QUDO Blue oak	5	0-11	30

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
HEAR2 Toyon	14	0-47	78
RHDI Poison oak	11	0-51	55
RHCR Redberry	3	0-10	35
ARMA3 Manzanita	8	0-24	30
ARVI3 Whiteleaf manz.	9	0-31	28
ERCA6 Cal. yerba santa	4	0-7	20

HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
HAAR Goldenfleece	3	0-6	20

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	42	0-82	95
ROCK	9	0-24	14

Interior Live Oak/Toyon
(N=43)

RARELY OCCURRING SPECIES (less than 15% constancy):

OVERSTORY TREES:

AECA2 Cal. buckeye
PIPO Ponderosa pine
QUCH2 Canyon live oak
QULO Valley oak
QUMO Oracle oak

UNDERSTORY TREES:

AECA2 Cal. buckeye
PISA2 Foothill pine
QUCH2 Canyon live oak
QUKE Black oak
QULO Valley oak

HERBS:

HYPE Klamath weed
LOSC Lotus

SHRUBS:

ADFA Chamise
ARMA4 Mariposa manz.
CEBE2 Blf mtn-mahog.
CECU2 Wdleaf ceanothus
CELE2 Chap. whitethorn
DIAU1 Bush monkeyflower
RHCA2 Coffeeberry
RIRO Sierra gooseberry
ROCA1 Cal. wild rose
RUVI2 Blackberry
SAL11 Willow
STOFC Cal. storax

Interior Live Oak/Toyon
(N=43)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
PIPO	2	1.4	1	0.7	0	0.0	0	0.0	2
PISA2	1	1.9	1	0.7	0	0.0	0	0.0	14
QUCH2	1	0.6	0	0.0	0	0.0	0	0.0	3
QUDO	1	0.6	0	0.4	0	0.0	0	0.0	14
QUKE	2	0.9	0	0.4	0	0.0	0	0.0	13
QULO	2	0.7	1	0.7	0	0.0	0	0.0	2
QUMO	1	0.0	0	0.0	0	0.0	0	0.0	2
QUWI	6	6.0	1	1.3	0	0.2	0	0.0	38

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		"
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PIPO	2	1.4	2	1	0.0	1	0	0.0	0	0	0.0	0
PISA2	2	2.7	9	1	1.5	6	0	0.0	0	0	0.0	0
QUCH2	1	0.6	3	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	1	0.6	13	1	2.3	3	0	0.0	0	0	0.0	0
QUKE	2	0.9	12	1	2.2	3	0	0.0	0	0	0.0	0
QULO	2	0.7	2	1	0.0	1	0	0.0	0	0	0.0	0
QUMO	1	0.0	2	0	0.0	0	0	0.0	0	0	0.0	0
QUWI	6	6.1	37	2	3.4	13	1	6.0	2	0	0.0	0

Interior Live Oak/Yerba Santa/Grass
QUWI/ERCA6/GRASS
N=36

EXTENT: This type occurs in the Sierra and the Sierran foothills from Nevada County in the north, south to Madera County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2120	1000	3150
ASPECT	All aspects		
SLOPE	31% flat, 53% are less than 25%		

SOILS:

PARENT MATERIAL	42% granitic, some igneous and metamorphic
TEXTURE	Rocky, sandy and gravelly loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland, QUDO and QUWI phases
Holland (1986): Foothill Pine-Oak Woodland; Blue
Oak Woodland
Parker and Matyas (1981): Blue Oak; Interior Live Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine; Blue Oak
Woodland

Interior Live Oak/Yerba Santa/Grass
(N=36)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	8	0-20	61
QUDO Blue oak	7	0-26	42
PISA2 Foothill pine	9	0-25	36

TREE UNDERSTORY	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	15	0-59	86
QUDO Blue oak	3	0-9	47
AECA2 Cal. buckeye	3	0-6	22

SHRUBS	AVERAGE	RANGE	CONSTANCY%
ERCA6 Cal. yerba santa	23	0-63	92
CECU2 Wedgeleaf ceanothus	16	0-51	58
HEAR2 Toyon	16	0-37	56
RHCR Redberry	2	0-10	50
RHDI Poison oak	5	0-25	39
ARVI3 Whiteleaf manzanita	4	0-9	19
CELE2 Chap. whitethorn	10	0-34	17

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	31	1-65	100
ROCK	8	0-19	22

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ARME2 Madrone
FRDI Foothill ash
QUCH2 Canyon live oak
QUKE Black oak

TREE UNDERSTORY

FRCA2 Flannel bush
PISA2 Foothill pine
QUCH2 Canyon live
QUKE Black oak
UMCA1 Cal. bay

SHRUBS

ADFA Chamise
ARMA4 Mariposa manzanita
CEBE2 Birchleaf mtn-mahog
CEIN3 Deerbrush
DIAU1 Bush monkeyflower
HAAR Goldenfleece
LOIN3 Chap. honeysuckle
RICA1 Hillside gooseberry
RIMA1 Chaparral currant
RIRO Sierra gooseberry
SACA4 Mtn blue elderberry

HERBS

LUAL3 Silver lupine

Interior Live Oak/Yerba Santa/Grass
(N=36)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
PISA2	1	0.7	1	0.9	0	0.3	0	0.0	13
QUCH2	2	0.7	0	0.0	0	0.0	0	0.0	2
QUDO	2	1.8	0	0.7	0	0.0	0	0.0	15
QUKE	1	0.0	0	0.0	0	0.0	0	0.0	1
QUWI	3	2.5	0	0.6	0	0.0	0	0.0	22

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
PISA2	1	0.8	11	2	1.9	6	1	0.0	1	0	0.0	0
QUCH2	2	0.7	2	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	2	1.8	14	2	2.9	4	0	0.0	0	0	0.0	0
QUKE	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUWI	3	2.7	20	1	1.5	9	0	0.0	0	0	0.0	0

BLACK OAK SERIES

Black Oak-Madrone-Coast Live Oak
QUKE-ARME3-QUAG
N=23

EXTENT: This type occurs in the Coast Range from Santa Cruz to Sonoma County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1293	300	2500
ASPECT	57% are north, but can occurs on all		
SLOPE	All slopes		

SOILS:

PARENT MATERIAL	48% sandstone, 30% shale
TEXTURE	Mostly sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak
Griffin (1977): Foothill Woodland, North Slope Phase
Holland (1986): Black Oak Woodland; Mixed Evergreen Forest
Parker and Matyas (1981): Black Oak
Paysen et al. (1980): Coast Live Oak; Black Oak
Mayer et al. (1988): Montane Hardwood

Black Oak-Madrone-Coast Live Oak
(N=23)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	48	0-194	91
ARME3 Madrone	33	0-128	70
QUAG Coast live oak	21	0-60	70
PSME Douglas fir	68	0-172	26
UMCA1 California bay	3	0-6	26
ACMA Bigleaf maple	14	0-38	22
PICO1 Beach pine	11	0-17	17

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	7	0-33	48
ARME3 Madrone	5	0-23	48
UMCA1 California bay	7	0-17	43
QUAG Coast live oak	7	0-25	35

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	11	0-35	61
HEAR2 Toyon	7	0-16	61
HODI Ocean spray	27	0-59	17
SYMO Creeping snowberry	24	0-75	17
RUVI2 Blackberry	9	0-20	17

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	14	0-44	30
ROCK	-		

Black Oak-Madrone-Coast Live Oak
(N=23)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
LIDE3 Incense cedar
PILA Sugar pine
QUCH2 Canyon live oak
QUGA2 Garry oak
QULO Valley oak
QUWI Interior live oak

TREE UNDERSTORY

AECA2 Calif. buckeye
COCO5 Hazelnut
CONU2 Pacific dogwood
PILA Sugar pine
PSME Douglas fir
QUDO Blue oak
QUDU2 Scrub oak

HERBS

LOSC Lotus
LOSU3 So. honeysuckle
POMU1 Sword fern
PTAQP Bracken fern

SHRUBS

ADFA Chamise
AMCA2 Mock locust
AMUT Utah serviceberry
ARCA7 Coast sage
ARGL5 Bigberry manzanita
ARMA3 Manzanita
BAPI Baccharis
CECU2 Wedgeleaf ceanothus
CETH Blueblossom ceanothus
CRCA2 Cal. croton
RHCA2 Coffeeberry
ROCA1 Calif. wild rose
SAAP1 White sage

Black Oak-Madrone-Coast Live Oak
(N=23)

STAND TABLE: number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	6	3.3	0	0.0	0	0.4	0	0.0	5
AECA2	11	0.0	0	0.0	0	0.0	0	0.0	1
ARME3	13	11.8	1	2.2	0	0.2	0	0.0	17
PICO1	7	3.5	0	0.0	0	0.0	0	0.0	4
PILA	1	0.0	0	0.0	0	0.0	0	0.0	1
PSME	5	4.7	4	2.7	1	2.0	0	0.0	6
QUAG	10	13.3	1	0.9	0	0.3	0	0.0	16
QUCH2	3	2.1	0	0.0	0	0.0	0	0.0	2
QUDO	0	0.0	0	0.0	0	0.0	0	0.0	1
QUGA2	15	18.4	1	0.7	0	0.0	0	0.0	2
QUKE	23	26.0	1	1.5	0	0.5	0	0.0	21
QULO	4	3.6	1	1.2	0	0.0	0	0.0	3
QUWI	1	0.0	1	0.0	0	0.0	0	0.0	1
UMCA1	2	1.5	0	0.0	0	0.0	0	0.0	6

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	6	3.3	5	0	0.0	0	1	0.0	1	0	0.0	0
AECA2	11	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	13	11.8	17	3	5.6	6	1	0.0	1	0	0.0	0
PICO1	7	3.5	4	0	0.0	0	0	0.0	0	0	0.0	0
PILA	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PSME	6	5.4	5	4	3.2	5	3	3.9	3	0	0.0	0
QUAG	10	13.8	15	2	2.8	5	1	0.0	1	0	0.0	0
QUCH2	3	2.1	2	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	0
QUGA2	15	18.4	2	1	0.0	1	0	0.0	0	0	0.0	0
QUKE	24	26.7	20	2	3.0	10	2	6.6	2	0	0.0	0
QULO	4	3.6	3	2	0.0	1	0	0.0	0	0	0.0	0
QUWI	1	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
UMCA1	2	1.5	6	0	0.0	0	0	0.0	0	0	0.0	0

Mixed Oak-Coast Live Oak/Poison Oak
MO-QUAG/RHDI
N=42

EXTENT: This type occurs in Santa Clara County (55%) and along the central coast range counties from Sonoma and Napa to Monterey and Santa Benito.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1465	400	3500
ASPECT	97% north to east; 85% north to northeast		
SLOPE	All slopes		

SOILS:

PARENT MATERIAL	92% Hard sedimentary
TEXTURE	Gravelly to clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Mixed Hardwood Forest
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak; Black Oak;
Valley Oak
Paysen et al. (1980): Black Oak; Coast Live Oak
Mayer et al. (1988): Valley Oak Woodland; Coastal Oak
Woodland; Montane Hardwood

Mixed Oak-Coast Live Oak/Poison Oak
(N=42)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	54	0-289	95
QUKE Black oak	38	0-128	85
QULO Valley oak	16	0-90	40
AECA2 Cal. buckeye	9	0-24	33
ARME3 Madrone	10	0-56	23
UMCA1 Cal. bay	9	0-36	18
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	4	0-9	38
UMCA1 Cal. bay	6	0-18	28
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	16	0-64	90
RHCA2 Coffeeberry	5	0-11	38
SYRI Upright snowberry	11	0-49	19
HEAR2 Toyon	7	0-19	19
DIAU1 Bush monkeyflower	4	0-10	19
(%Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	26	0-76	71
ROCK	5	0-8	8

Mixed Oak-Coast Live Oak/Poison Oak
(N=42)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

LIDE3 Incense cedar
PICO1 Beach (lodgepole) pine
PICO2 Coulter pine
PISA2 Foothill pine
PSME Douglas fir
QUCH2 Canyon live oak
QUDO Blue oak
QUGA2 Garry oak
QUWI Interior live oak

TREE UNDERSTORY

ACMA Bigleaf maple
AECA2 Cal. buckeye
QUCH2 Canyon live oak
QUGA2 Garry oak
QUKE Black oak
QUWI Interior live oak

SHRUBS

ADFA Chamise
AMUT Utah serviceberry
ARCA5 Hoary manzanita
ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
ARMA3 Manzanita
BAPI Baccharis
CECU2 Wedgeleaf ceanothus
CEPA3 Warty-leaved ceanothus
COCO5 Hazelnut
HODI Ocean spray
LUAL3 Silver lupine
RHCR Redberry
RICA1 Hillside gooseberry
RISP Fuschia-flower gooseberry
ROS Rose
SYMO Creeping snowberry

HERBS

PTAQ Bracken fern

Mixed Oak-Coast Live Oak/Poison Oak
(N=42)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	7	6.4	0	0.4	0	0.0	0	0.0	15
ARME3	2	1.4	1	1.8	0	0.0	0	0.0	11
PICO1	3	2.5	0	0.5	0	0.0	0	0.0	6
PICO2	9	5.7	3	0.0	0	0.0	1	0.7	2
PISA2	2	0.0	3	0.0	0	0.0	0	0.0	1
PSME	5	1.4	3	3.5	0	0.0	0	0.0	2
QUAG	11	14.3	4	4.0	1	1.7	0	0.0	40
QUCH2	3	2.1	0	0.0	0	0.0	0	0.0	2
QUDO	2	0.0	0	0.0	0	0.0	0	0.0	1
QUGA2	9	0.0	4	0.0	0	0.0	0	0.0	1
QUKE	10	9.7	2	1.5	0	1.0	0	0.0	34
QULO	4	3.4	1	1.5	0	0.3	0	0.2	18
QUWI	3	0.0	0	0.0	0	0.0	0	0.0	1
UMCA1	3	1.6	1	1.5	0	0.0	0	0.0	7

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	7	6.4	15	1	3.6	2	0	0.0	0	0	0.0	0
ARME3	2	1.4	11	3	6.1	3	0	0.0	0	0	0.0	0
PICO1	4	2.9	5	1	2.0	2	0	0.0	0	0	0.0	0
PICO2	9	5.7	2	3	0.0	2	0	0.0	0	1	0.0	1
PISA2	2	0.0	1	3	0.0	1	0	0.0	0	0	0.0	0
PSME	5	1.4	2	5	0.0	1	0	0.0	0	0	0.0	0
QUAG	12	14.9	37	4	4.3	36	3	6.8	8	0	0.0	0
QUCH2	3	2.1	2	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUGA2	9	0.0	1	4	0.0	1	0	0.0	0	0	0.0	0
QUKE	10	10.1	32	2	1.6	29	3	11.9	3	0	0.0	0
QULO	4	3.5	17	3	4.4	6	1	4.0	2	1	0.0	1
QUWI	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
UMCA1	3	1.6	7	4	0.0	1	0	0.0	0	0	0.0	0

Black Oak/Poison Oak-California Storax/Grass-nut
QUKE/RHDI-STOFC/BRLA2
N=19

EXTENT: This type occurs primarily in Shasta County; also found in Nevada County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1484	800	2500
ASPECT	68% north or northwest		
SLOPE	Sixty eight percent of plots are found on greater than 35% slope, but occurs on all slopes less than 75% slope.		

SOILS:

PARENT MATERIAL	74% granitic, 26% sandstone
TEXTURE	63% loamy clay, 37% loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Range Ponderosa
Pine Forest
Griffin (1977): None
Holland (1986): Black Oak Forest
Parker and Matyas (1981): Black Oak
Paysen et al. (1980): Black Oak
Mayer et al. (1988): Montane Hardwood-Conifer;
Montane Hardwood

Black Oak/Poison Oak-California Storax/Grass-nut
(N=19)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	48	8-189	100
QUGA2 Garry oak	6	0-17	26
PIPO Ponderosa pine	8	0-25	21
PIAT1 Knobcone pine	9	0-11	16
PSME Douglas fir	15	0-25	16

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	9	2-35	100
QUCH2 Canyon live oak	3	0-6	26
PIPO Ponderosa pine	4	0-8	16

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	26	4-56	100
STOFC California storax	11	0-39	74
ARVI3 Whiteleaf manzanita	15	0-41	53
CEIN3 Deerbrush	10	0-31	53
RHCA2 Coffeeberry	2	0-4	16

HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
BRLA2 Grass-nut	31	0-54	74
PTAQF Bracken fern	7	0-16	32

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	-		
ROCK	5	0-6	11

Black Oak/Poison Oak-California Storax/Grass-nut
(N=19)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ARME3 Madrone

QUCH2 Canyon live oak

QUWI Interior live oak

TREE UNDERSTORY

AECA2 Cal. buckeye

PISA2 Foothill pine

QUWI Interior live oak

SHRUBS

ARPA9 Greenleaf manzanita

CEOC California redbud

CETH Blueblossom ceanothus

CETO Woollyleaf ceanothus

PRSU2 Sierra plum

RHTR Squaw bush

RUVI2 Blackberry

Black Oak/Poison Oak-California Storax/Grass-nut
(N=19)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ARME3	1	0.0	0	0.0	0	0.0	0	0.0	1
PIAT1	1	1.2	1	0.0	0	0.0	0	0.0	3
PIPO	2	0.6	0	0.0	0	0.5	0	0.0	4
PSME	1	1.0	1	0.6	0	0.6	0	0.0	3
QUCH2	1	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	8	5.9	2	1.9	1	0.8	0	1.1	19
QUWI	1	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ARME3	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PIAT1	2	0.0	1	1	0.0	3	0	0.0	0	0	0.0	0
PIPO	2	0.6	4	0	0.0	0	1	0.0	1	0	0.0	0
PSME	2	1.7	2	1	1.0	2	1	0.0	1	0	0.0	0
QUCH2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	9	6.1	18	3	3.5	10	2	2.7	6	5	0.0	1
QUWI	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Black Oak-Coast Live Oak-Beach Pine/Ocean Spray
QUKE-QUAG-PICO1/HODI
N=17

EXTENT: This type is found in the central coast range from San Benito to Sonoma County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1691	600	3000
ASPECT	76% are north or northeast		
SLOPE	Fifty three percent of plots are found between 25% and 55%, but can be found on all slopes.		

SOILS:

PARENT MATERIAL	71% on sandstone, 29% on shale
TEXTURE	Sandy loam to loamy clay

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Foothill Woodland, North Slope Phase; Mixed Hardwood Forest
Holland (1986): Black Oak Woodland; Mixed Evergreen Forest
Parker and Matyas (1981): Black Oak
Paysen et al. (1980): Coast Live Oak; Black Oak
Mayer et al. (1988): Montane Hardwood

Black Oak-Coast Live Oak-Beach Pine/Ocean Spray
(N=17)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	53	5-111	100
PICO1 Beach pine	29	0-124	65
QUAG Coast live oak	63	0-132	59
ARME3 Madrone	19	0-48	47
QULO Valley oak	13	0-25	29
AECA2 Cal. buckeye	11	0-31	29
UMCA1 California bay	26	0-58	29
QUCH2 Canyon live oak	15	0-29	18

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
UMCA1 California bay	3	0-7	71
QUCH2 Canyon live oak	4	0-7	18

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
HODI Ocean spray	25	0-49	76
RHDI Poison oak	14	0-55	76
RHCA2 Coffeeberry	6	0-12	65
RICA1 Hillside gseberry	9	0-25	18

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	16	0-47	47
ROCK	4	0-7	24

Black Oak-Coast Live Oak-Beach Pine/Ocean Spray
(N=68)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ACMA Bigleaf maple

TREE UNDERSTORY

AECA2 Cal. buckeye

COCO5 Hazelnut

PIPO Ponderosa pine

QUAG Coast live oak

QUKE Black oak

QUWI Interior live oak

SHRUBS

AMUT Utah serviceberry

BAPI Baccharis

HEAR2 Toyon

MYCA Pacific wax myrtle

ROCA1 Cal. wild rose

ROS Rose

RUVI2 Blackberry

SAAP1 White sage

SACA4 Mtn blue elderberry

SAME4 Black sage

SYRI Upright snowberry

HERBS

ERCI2 Red-stem filaree

LOSC Lotus

PTAQ Bracken fern

Black Oak-Coast Live Oak-Beach Pine/Ocean Spray
(N=17)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	4	0.0	0	0.0	0	0.0	0	0.0	1
AECA2	7	7.3	0	0.0	0	0.0	0	0.0	5
ARME3	3	3.9	1	1.1	0	0.7	0	0.0	8
PICO1	14	16.5	1	1.9	0	0.0	0	0.0	11
QUAG	11	7.8	4	2.9	1	0.8	0	0.0	10
QUCH2	4	3.5	1	1.0	0	0.0	0	0.0	3
QUKE	10	11.1	2	2.2	1	1.2	0	0.0	17
QULO	3	2.4	0	0.5	0	0.4	0	0.0	5
UMCA1	8	7.2	1	1.4	0	0.4	0	0.0	5

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	4	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
AECA2	7	7.3	5	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	5	6.3	5	2	1.8	5	2	0.0	1	0	0.0	0
PICO1	15	17.4	10	3	7.1	3	0	0.0	0	0	0.0	0
QUAG	11	7.8	10	5	3.1	9	2	3.2	3	0	0.0	0
QUCH2	4	3.5	3	2	1.7	2	0	0.0	0	0	0.0	0
QUKE	12	11.9	15	3	2.9	12	2	2.5	7	0	0.0	0
QULO	3	2.4	5	1	1.7	2	1	0.0	1	0	0.0	0
UMCA1	8	7.2	5	3	4.4	2	1	0.0	1	0	0.0	0

Black Oak-Valley Oak/Grass
QUKE-QULO/GRASS
N=19

EXTENT: This type occurs in the coast ranges from Mendocino to Santa Clara County. It also occurs in the south coast and inland areas of San Luis Obispo, Santa Barbara, San Diego and Kern counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2375	75	6000
ASPECT	All aspects.		
SLOPE	68% are less than 25%		

SOILS:

PARENT MATERIAL	Granitic; soft and hard sedimentary
TEXTURE	All textures

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): None
Griffin (1977): Foothill Woodland, QULO phase
Holland (1986): None
Parker and Matyas (1981): Valley Oak; Black Oak
Paysen et al. (1980): Valley Oak; Black Oak; Coast
Live Oak
Mayer et al. (1988): Montane Hardwood; Valley
Oak Woodland; Coastal Oak Woodland

Black Oak-Valley Oak/Grass
(N=19)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	45	3-195	100
QULO Valley oak	32	0-71	79
QUAG Coast live oak	40	0-146	47
PSME Douglas fir	38	0-68	16
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	3	0-4	32
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	92	0-100	89
ROCK	-	0-1	5

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
ACMA Bigleaf maple
AECA2 Cal. buckeye
ARME3 Madrone
PICO1 Beach (lodgepole) pine
PICO2 Coulter pine
PISA2 Foothill pine

TREE UNDERSTORY
AECA2 Cal. buckeye
QUGA2 Garry oak
QULO Valley oak

SHRUBS
ARGL5 Bigberry manzanita
ARMA3 Manzanita
CECU2 Wedgeleaf manzanita
HEAR2 Toyon
SYRI Upright snowberry

Black Oak-Valley Oak/Grass
(N=19)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	0	0.0	2	0.0	0	0.0	0	0.0	1
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
ARME3	6	5.7	4	2.8	0	0.0	0	0.0	2
PICO1	2	1.4	0	0.0	0	0.0	0	0.0	2
PICO2	2	0.0	3	0.0	0	0.0	0	0.0	1
PISA2	3	0.0	0	0.0	0	0.0	0	0.0	1
PSME	10	6.6	3	2.1	0	0.0	0	0.0	3
QUAG	5	5.8	3	2.9	0	1.0	0	0.0	9
QUKE	4	3.6	3	2.7	1	1.0	0	0.5	19
QULO	7	11.7	2	1.4	0	0.7	0	0.0	15

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	0	0.0	0	2	0.0	1	0	0.0	0	0	0.0	0
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	6	5.7	2	4	2.8	2	0	0.0	0	0	0.0	0
PICO1	2	1.4	2	0	0.0	0	0	0.0	0	0	0.0	0
PICO2	2	0.0	1	3	0.0	1	0	0.0	0	0	0.0	0
PISA2	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PSME	10	6.6	3	3	2.1	3	0	0.0	0	0	0.0	0
QUAG	7	6.9	7	4	4.1	6	2	5.5	2	0	0.0	0
QUKE	5	3.7	18	3	3.2	15	2	2.9	6	2	0.0	1
QULO	10	14.2	11	2	2.0	10	2	4.1	3	0	0.0	0

Black Oak/Poison Oak
QUKE/RHDI
N=19

EXTENT: This type occurs in both the central coast range from Monterey to Napa County and the Sierra from Shasta to Kern County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2486	500	5300
ASPECT	58% north; also northeast and northwest		
SLOPE	All; up to 65% slope		

SOILS:

PARENT MATERIAL	24% sandstone, 24% shale, assorted others
TEXTURE	Sandy loam to loamy clay

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): None
Griffin (1977): Foothill Woodland; Mixed Evergreen Forest
Holland (1986): Black Oak Woodland; Mixed Evergreen Forest
Parker and Matyas (1981): Black Oak
Paysen et al. (1980): Black Oak
Mayer et al. (1988): Montane Hardwood; Coastal Oak Woodland

Black Oak/Poison Oak
(N=19)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	115	11-305	100
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	12	0-25	21
UMCA1 California bay	4	0-6	21
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	13	0-22	58
SYRI Upright snowberry	13	0-19	21
RHCA2 Coffeeberry	4	0-10	21
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	6	0-10	16
ROCK	2	0-1	5

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY	HERBS
PSME Douglas fir	LUAL3 Silver lupine
QUAG Coast live oak	PTAQ Bracken fern
QUCH2 Canyon live oak	
QUDO Blue oak	
QULO Valley oak	
QUWI Interior live oak	
TREE UNDERSTORY	
COCO5 Hazelnut	
QUCH2 Canyon live oak	
QUDO Blue oak	
SHRUBS	
ARGL5 Bigberry manzanita	
CEBE2 Birchleaf mtn. mahogany	
CEOC California rosebud	
CHFO2 Mountain misery	
HEAR2 Toyon	

Black Oak/Poison Oak
(N=19)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
PSME	1	0.0	0	0.0	0	0.0	0	0.0	1
QUAG	3	0.0	0	0.0	0	0.0	0	0.0	1
QUCH2	2	0.0	0	0.0	0	0.0	0	0.0	1
QUDO	2	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	26	27.2	5	3.9	1	2.5	0	0.4	19
QULO	1	1.2	0	0.0	0	0.0	0	0.0	3
QUWI	1	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
PSME	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUAG	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUCH2	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	28	28.0	18	6	4.4	16	3	4.9	8	1	2.8	3
QULO	2	2.0	2	0	0.0	0	0	0.0	0	0	0.0	0
QUWI	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Black Oak/Deerbrush-Poison Oak/Bracken Fern
QUKE/CEIN3-RHDI/PTAQ
N=11

EXTENT: This type occurs in the northern Sierra from Shasta to Butte County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2527	1000	4200
ASPECT	45% are north or northwest; occurs on all aspects		
SLOPE	Fifty five percent are less than 45% slope, but occurs up to 75% slope		

SOILS:

PARENT MATERIAL	45% sedimentary; also granitic and igneous
TEXTURE	64% clay loams, also gravelly loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Westside Ponderosa Pine Forest
Rundel et. al. (1977): Lower Montane Forest
Holland (1986): Black Oak Forest
Parker and Matyas (1981): Mixed Conifer-Pine; Black Oak
Paysen et al. (1980): Black Oak
Mayer et al. (1988): Montane Hardwood-Conifer; Montane Hardwood

Black Oak/Deerbrush-Poison Oak/Bracken Fern
(N=11)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	63	0-223	82
PIPO Ponderosa pine	13	0-24	36

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	13	0-30	91
PIPO Ponderosa pine	2	0-6	45
PSME Douglas fir	1	0-1	18

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
CEIN3 Deerbrush	11	0-22	73
RHDI Poison oak	12	0-39	64
CEOC California redbud	2	0-6	45
ARVI3 Whiteleaf manzanita	15	0-34	45
RHCA2 Coffeeberry	5	0-10	36
STOFC California storax	6	0-17	36
COC05 Hazelnut	9	0-15	27
ARPA9 Greenleaf manzanita	2	0-2	18
PREM Bitter cherry	7	0-9	18
PRSU2 Sierra plum	5	0-6	18

HERBS (% Cover)	AVERAGE	RANGE	CONSTANCY
PTAQP Bracken fern	10	0-29	91

(% Cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	1	0-1	9
ROCK	8	4-12	27

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
ACMA Bigleaf maple

TREE UNDERSTORY
PILA Sugar pine
QUCH2 Canyon live oak
UMCA1 California bay

SHRUBS
CECU2 Wedgeleaf ceanothus
CEPR Squaw carpet
CETH Blueblossom cenaothus
RHTR Squaw bush
SAME4 Black sage

Black Oak/Deerbrush-Poison Oak/Bracken Fern
(N=11)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	2	0.0	0	0.0	0	0.0	0	0.0	1
PIPO	1	0.6	0	0.0	1	0.6	0	0.0	4
QUKE	5	3.4	2	2.4	1	2.2	0	0.3	9

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PIPO	1	1.4	2	0	0.0	0	1	1.4	2	0	0.0	0
QUKE	5	3.4	9	4	3.4	6	4	7.2	3	1	0.0	1

Black Oak/Poison Oak/Grass
QUKE/RHDI/GRASS
N=13

EXTENT: This type is found primarily in the Central Coast Range from Santa Cruz to Alameda County. It also occurs in Mariposa and Calaveras Counties in the Sierra.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2746	2200	3500
ASPECT	77% north or northeast		
SLOPE	All are greater than 25%; sixty two percent are between 35% and 55% slope		

SOILS:

PARENT MATERIAL	62% sandstone, some shale and granitic
TEXTURE	Sandy loam to loamy clay

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): None
Griffin (1977): Mixed Hardwood Forest
Holland (1986): Black Oak Woodland; Blue Oak Woodland;
Mixed Evergreen Forest
Parker and Matyas (1981): Black Oak
Paysen et al. (1980): Black Oak
Mayer et al. (1988): Montane Hardwood

Black Oak/Poison Oak/Grass
(N=13)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	81	35-59	100
PISA2 Foothill pine	15	0-31	46
QUDO Blue oak	4	0-8	46
QUCH2 Canyon live oak	3	0-5	31
AECA2 Cal. buckeye	22	0-36	23
UMCA1 California bay	5	0-6	23
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
PISA2 Foothill pine	4	0-14	38
QUCH2 Canyon live oak	4	0-8	23
QUDO Blue oak	1	0-1	15
QUKE Black oak	15	0-30	15
UMCA1 California bay	3	0-3	15
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	12	0-21	77
ARGL5 Bigberry manzanita	14	0-30	38
RHCA2 Coffeeberry	27	0-55	23
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	36	0-77	92
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
PIAT1 Knobcone pine
PSME Douglas fir
QUWI Interior live oak

TREE UNDERSTORY
ARME3 Madrone
QUWI Interior live oak

SHRUBS
ADFA Chamise
RUVI2 Blackberry

HERBS
PTAQL Bracken fern

Black Oak/Poison Oak/Grass
(N=13)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	14	10.8	0	0.0	0	0.0	0	0.0	3
PIAT1	1	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	5	3.3	1	1.3	0	0.0	0	0.0	6
PSME	2	0.0	1	0.0	0	0.0	0	0.0	1
QUCH2	2	0.8	0	0.0	0	0.0	0	0.0	4
QUDO	2	1.0	0	0.4	0	0.0	0	0.0	6
QUKE	9	8.5	4	3.1	1	0.9	0	0.4	13
QUWI	2	0.0	1	0.0	0	0.0	0	0.0	1
UMCA1	3	1.0	0	0.0	0	0.0	0	0.0	3

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	14	10.8	3	0	0.0	0	0	0.0	0	0	0.0	0
PIAT1	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	5	3.3	6	2	2.6	3	0	0.0	0	0	0.0	0
PSME	2	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUCH2	2	0.8	4	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	2	1.2	5	1	0.0	1	0	0.0	0	0	0.0	0
QUKE	10	9.5	11	4	3.2	12	2	1.2	10	1	3.3	2
QUWI	2	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
UMCA1	3	1.0	3	0	0.0	0	0	0.0	0	0	0.0	0

Black Oak-Canyon Live Oak/Poison Oak
QUKE-QUCH2/RHDI
N=19

EXTENT: This type is found primarily in the Sierra from Kern to Shasta County. Also found without deerbrush in Santa Clara and Alameda counties in the Coast Range.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2963	1500	7200
ASPECT	47% north or northeast, but occurs on all aspects		
SLOPE	All occur on greater than 25% slope		

SOILS:

PARENT MATERIAL	32% sandstone, 26% granitic, other mixed
TEXTURE	All

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Canyon Live Oak Forest
Griffin (1977): Northern Oak Woodland
Holland (1986): Black Oak Forest; Black Oak Woodland
Parker and Matyas (1981): Black Oak; Canyon Live Oak
Paysen et al. (1980): Black Oak; Canyon Live Oak
Mayer et al. (1988): Montane Hardwood

Black Oak-Canyon Live Oak/Poison Oak
(N=19)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	69	0-229	95
QUCH2 Canyon live oak	50	0-179	89
PISA2 Foothill pine	22	0-56	32

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUCH2 Canyon live oak	4	0-12	37
AECA2 Cal. buckeye	10	0-16	16

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
CEIN3 Deerbrush	19	0-74	53
RHDI Poison oak	14	0-66	53
STOFC California storax	31	0-74	32
ARVI3 Whiteleaf manzanita	3	0-7	26
CEBE2 Birchleaf mtn-mahogany	11	0-18	26

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	19	0-62	53
ROCK	12	0-43	32

Black Oak-Canyon Live Oak/Poison Oak
(N=19)

RARELY OCCURRING SPECIES (less than 15% constancy)

TREE OVERSTORY

ACMA Bigleaf maple
AECA2 Calif. buckeye
COCO5 Hazelnut
CONU2 Pacific dogwood
LIDE3 Incense cedar
PICO2 Coulter pine
QUDO Blue oak
QUGA2 Garry oak
QUWI Interior live oak

TREE UNDERSTORY

CONU2 Pacific dogwood
FRCA2 Flannel bush
FRDI Foothill ash
PICO2 Coulter pine
QUDO Blue oak
QUKE Black oak
QULO Valley oak
QUWI Interior live oak
UMCA1 California bay

SHRUBS

ARPA9 Greenleaf manzanita
BAPI Baccharis
CECO2 Mountain whitethorn
CECU2 Wedgeleaf ceanothus
CELE2 Chap. whitethorn
CEOC California redbud
CHFO2 Mountain misery
HEAR2 Toyon
PHLEC California mock orange
PRSU2 Sierra plum
RHCA2 Coffeeberry
RHCR Redberry
RHRU Sierra coffeeberry
RHTR Squaw bush
RIRO Sierra gooseberry

Black Oak-Canyon Live Oak/Poison Oak
(N=19)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	4	0.0	0	0.0	0	0.0	0	0.0	1
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
CONU2	1	0.0	0	0.0	0	0.0	0	0.0	1
LIDE3	0	0.0	2	0.0	1	0.0	1	0.0	1
PICO2	3	0.0	2	0.0	4	0.0	0	0.0	1
PISA2	1	0.9	1	1.1	1	0.8	0	0.0	6
QUCH2	5	5.4	2	2.2	1	1.3	0	0.3	17
QUDO	1	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	11	12.8	3	4.0	1	1.0	0	0.3	18
QUWI	8	7.8	1	1.4	0	0.0	0	0.0	2
UMCA1	3	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	4	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
CONU2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
LIDE3	0	0.0	0	2	0.0	1	1	0.0	1	1	0.0	1
PICO2	3	0.0	1	2	0.0	1	4	0.0	1	0	0.0	0
PISA2	2	1.4	4	2	1.6	4	2	3.1	2	0	0.0	0
QUCH2	7	7.0	12	3	3.2	11	2	2.4	8	1	3.9	2
QUDO	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	13	14.4	15	4	4.7	14	1	1.5	11	1	4.0	2
QUWI	8	7.8	2	2	0.0	1	0	0.0	0	0	0.0	0
UMCA1	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Canyon Live Oak-Black Oak
QUCH2-QUKE
N=24

EXTENT: This type is found primarily in the northern Sierra from Shasta to Tuolumne County; also found in Mendocino and Santa Cruz counties in the Coast Range.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	3230	1600	5700
ASPECT	All aspects		
SLOPE	Eighty three percent are between 25% to 65%.		

SOILS:

PARENT MATERIAL	42% sandstone, also some metamorphic and igneous.
TEXTURE	Mostly loams; 67% have a rocky component

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Canyon Live Oak Forest
Griffin (1977): Mixed Hardwood Forest
Holland (1986): Black Oak Woodland; Canyon Live Oak Forest;
Black Oak Forest
Parker and Matyas (1981): Canyon Live Oak; Black Oak
Paysen et al. (1980): Canyon Live Oak; Black Oak
Mayer et al. (1988): Montane Hardwood

Canyon Live Oak-Black Oak
(N=24)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUCH2 Canyon live oak	38	0-114	96
QUKE Black oak	28	0-106	83
PIPO Ponderosa pine	14	0-27	50
QUGA2 Garry oak	17	0-25	37
PSME Douglas fir	10	0-35	29

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUCH2 Canyon live oak	13	0-39	87
QUKE Black oak	8	0-30	50
COC05 Hazelnut	5	0-10	21

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
CEIN3 Deerbrush	6	0-25	37
CHFO2 Mountain misery	18	0-49	29
CEOC California redbud	5	0-7	21
STOFC California storax	10	0-17	21
CEBE2 Mountain mahogany	9	0-12	17

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	9	0-9	4
ROCK	10	0-21	42

Black Oak-Canyon Live Oak

RARELY OCCURRING SPECIES (less than 15% constancy)

TREE OVERSTORY

ACMA Bigleaf maple
ARME3 Madrone
PIJE Jeffrey pine
PISA2 Foothill pine

TREE UNDERSTORY

ABCO White fir
ACMA Bigleaf maple
AECA2 Cal. buckeye
CONU2 Pacific dogwood
FRDI Mountain ash
LIDE2 Tan-oak
LIDE3 Incense cedar
PILA Sugar pine
PSME Douglas fir
QUGA2 Garry oak
UMCA1 California bay

SHRUBS

ADFA Chamise
ARMA3 Manzanita
ARME2 Indian manzanita
ARPA9 Greenleaf manzanita
ARVI3 Whiteleaf manzanita
CECU2 Wedgeleaf ceanothus
HODI Ocean spray
PHLEC Cal. mock orange
PREM Bitter cherry
RHCA2 Coffeeberry
RHDI Poison oak
RHTR Squaw bush

Black Oak-Canyon Live Oak
(N=24)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	3	0.0	2	0.0	0	0.0	0	0.0	1
ARME3	15	0.0	0	0.0	0	0.0	0	0.0	1
PIJE	2	0.0	1	0.0	0	0.0	0	0.0	1
PIPO	1	1.0	1	0.8	0	0.5	0	0.0	12
PISA2	3	0.0	0	0.0	0	0.0	0	0.0	1
PSME	1	1.0	0	0.5	0	0.0	0	0.4	7
QUCH2	12	8.8	2	2.2	0	0.6	0	0.2	23
QUGA2	10	7.1	0	0.6	0	0.0	0	0.0	3
QUKE	11	13.3	1	1.2	0	0.2	0	0.2	20

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	3	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
ARME3	15	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PIJE	2	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
PIPO	2	2.0	6	1	1.4	7	1	2.1	3	0	0.0	0
PISA2	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PSME	2	1.1	6	1	2.2	2	0	0.0	0	1	0.0	1
QUCH2	12	9.1	22	3	3.6	13	3	0.0	1	1	0.0	1
QUGA2	10	7.1	3	1	0.0	1	0	0.0	0	0	0.0	0
QUKE	11	13.3	20	2	2.3	10	1	0.0	1	1	0.0	1

Black Oak/Deerbrush
QUKE/CEIN3
N=13

EXTENT: This type is found in the Sierra from Tuolumne to Shasta County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	3435	1400	5000
ASPECT	62% are north or northeast, but occurs on all aspects but south and southeast		
SLOPE	Sixty nine percent are less than 45% slope, but is occasionally found on steep slopes		

SOILS:

PARENT MATERIAL	46% granitic
TEXTURE	Sandy loam to clay loam

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Sierran Mixed Conifer Forest
Rundel et. al. (1977): Lower Montane Forest
Holland (1986): Black Oak Forest
Parker and Matyas (1981): Mixed Conifer-Pine; Black Oak
Paysen et al. (1980): Mixed Conifer; Black Oak
Mayer et al. (1988): Montane Hardwood-Conifer; Sierran
Mixed Conifer; Ponderosa Pine

Black Oak/Deerbrush
(N=13)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	38	2-115	100
PIPO Ponderosa pine	21	0-45	31

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	13	0-44	85
QUCH2 Canyon live oak	6	0-14	23
COC05 Hazelnut	6	0-6	15
PIPO Ponderosa pine	1	0-1	15

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
CEIN3 Deerbrush	56	22-96	100
PREM Bitter cherry	11	0-31	31
RHDI Poison oak	5	0-11	31
ARPA9 Greenleaf manzanita	18	0-49	23
ARVI3 Whiteleaf manzanita	3	0-7	23
CHFO2 Mountain misery	14	0-23	15
RHCA2 Coffeeberry	2	0-3	15

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	8	0-8	8
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy)

TREE OVERSTORY

LIDE3 Incense cedar

PSME Douglas fir

QUCH2 Canyon live oak

QUGA2 Garry oak

TREE UNDERSTORY

ABCO White fir

ACMA Bigleaf maple

CONU2 Pacific dogwood

PILA Sugar pine

QUWI Interior live oak

SHRUBS

CASE3 Bush chinquapin

CETO Woollyleaf ceanothus

PHLEC California mock orange

RIB Gooseberry

STOFC California storax

HERBS

PTAQP Bracken fern

Black Oak/Deerbrush
(N=13)

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
QUGA2	1	0.0	0	0.0	0	0.0	0	0.0	1
LIDE3	10	0.0	0	0.0	0	0.0	0	0.0	1
PIPO	1	1.3	2	1.3	0	0.5	0	0.0	4
PSME	1	0.0	0	0.0	0	0.0	0	0.0	1
QUCH2	5	0.0	1	0.0	0	0.0	0	0.0	1
QUKE	10	7.0	2	3.0	0	0.4	0	0.0	13

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
QUGA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
LIDE3	10	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PIPO	2	1.6	3	2	1.7	3	1	0.0	1	0	0.0	0
PSME	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUCH2	5	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUKE	10	7.0	13	4	4.4	8	1	3.3	2	0	0.0	0

Black Oak/Grass
QUKE/GRASS
N=15

EXTENT: Occurs in two areas: the Transverse Ranges in Kern and San Bernardino counties, and the Coast Range from Monterey to Napa County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	4193	1500	6100
ASPECT	93% north, northeast, or northwest		
SLOPE	Sixty seven percent are less than 25% slope, but occurs on up to 50% slope		

SOILS:

PARENT MATERIAL	53% granitic, 33% sandstone
TEXTURE	53% sandy loam; also loam and clay loam

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Range Ponderosa Pine Forest
Thorne (1977): Lower Montane Coniferous Forest
Holland (1986): Black Oak Woodland; Upland Coast Range Ponderosa Pine Forest; Black Oak Forest
Parker and Matyas (1981): Black Oak
Paysen et al. (1980): Black Oak
Mayer et al. (1988): Montane Hardwood-Conifer; Montane Hardwood

Black Oak/Grass
(N=15)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	97	47-204	100
PIPO Ponderosa pine	9	0-13	27

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUCH2 Canyon live oak	1	0-2	27
QUKE Black oak	5	0-5	20

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHCA2 Coffeeberry	2	0-3	20

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	44	0-100	87
ROCK	11	0-13	13

RARELY OCCURRING SPECIES (less than 15% constancy)

TREE OVERSTORY	TREE UNDERSTORY
ABCO White fir	AECA2 Cal. buckeye
ARME3 Madrone	
LIDE3 Incense cedar	
PISA2 Foothill pine	
PLRA Western sycamore	
QUDO Blue oak	HERBS
QULO Valley oak	LUP5 Lupine
	PTAQL Bracken fern

SHRUBS

ADFA Chamise

ARGL5 Bigberry manzanita

ARTO2 Shaggy-barked manzanita

CEBE2 Birch-leaf mtn. mahogany

CEIN3 Deerbrush

LOSU3 So. honeysuckle

RHDI Poison oak

RHTR Squaw bush

RIB Gooseberry

RIRO Sierra gooseberry

SYMO Creeping snowberry

Black Oak/Grass
(N=15)

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ABCO	0	0.0	1	0.0	0	0.0	0	0.0	2
ARME3	3	0.0	0	0.0	0	0.0	0	0.0	1
LIDE3	4	4.9	1	0.7	0	0.0	1	0.7	2
PIPO	2	1.3	1	0.5	0	0.0	0	0.0	4
PISA2	2	0.7	1	0.7	0	0.0	0	0.0	2
PLRA	4	0.0	0	0.0	0	0.0	0	0.0	1
QUDO	2	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	22	13.1	4	3.5	1	1.2	0	0.3	15
QULO	5	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ABCO	0	0.0	0	1	0.0	2	0	0.0	0	0	0.0	0
ARME3	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
LIDE3	7	0.0	1	1	0.0	1	0	0.0	0	1	0.0	1
PIPO	2	1.7	3	1	0.7	3	0	0.0	0	0	0.0	0
PISA2	2	0.7	2	1	0.0	1	0	0.0	0	0	0.0	0
PLRA	4	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	24	13.7	14	4	3.8	13	2	2.0	9	1	0.0	1
QULO	5	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Black Oak/Greenleaf Manzanita
QUKE/ARPA9
N=19

EXTENT: This type is found in the Sierra from Tulare to Sierra County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	5647	4600	7100
ASPECT	Primarily western and southern, but can be found on all exposures		
SLOPE	Seventy four percent of the plots are on slopes less than 35%		

SOILS:

PARENT MATERIAL	42% granitic, 32% andesitic tuff
TEXTURE	Mostly loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Sierran Mixed Conifer Forest
Griffin (1977): Lower Montane Forest
Holland (1986): Black Oak Woodland
Parker and Matyas (1981): Mixed Conifer-Pine; Black Oak
Paysen et al. (1980): Black Oak; Mixed Conifer
Mayer et al. (1988): Sierran Mixed Conifer; Montane
Hardwood-Conifer

Black Oak/Greenleaf Manzanita
(N=19)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft ²)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	19	2-48	100
LIDE3 Incense cedar	9	0-38	47
ABCO White fir	4	0-8	32
PIPO Ponderosa pine	7	0-10	26
PIJE Jeffrey pine	15	0-32	21
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	5	0-22	47
LIDE3 Incense cedar	3	0-4	21
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
ARPA9 Greenleaf manz.	53	0-91	95
CECO2 Mtn. whitethorn	18	0-64	63
CEIN3 Deerbrush	8	0-23	53
PREM Bitter cherry	9	0-20	42
CASE3 Bush chinquapin	7	0-12	21
CHFO2 Mountain misery	1	0-2	21
ARME2 Indian manzanita	17	0-43	16
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	23	0-44	11
ROCK	14	0-39	16

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
PSME Douglas fir

TREE UNDERSTORY
ABCO White oak
QUCH2 Canyon live oak
QUVA Huckleberry oak

SHRUBS
AMUT Utah serviceberry
ARMA4 Mariposa manzanita
CEPR Squaw carpet
GAFR Fremont silktassel
PHLEC California mock orange
SYMO Creeping snowberry

Black Oak/Greenleaf Manzanita
(N=19)

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ABCO	1	1.4	0	0.4	0	0.0	0	0.0	6
LIDE3	2	1.1	1	1.3	0	0.0	0	0.0	9
PIJE	2	2.4	1	0.5	0	0.5	0	0.0	4
PIPO	1	1.2	1	0.5	0	0.0	0	0.0	5
PSME	2	0.7	1	0.7	0	0.0	0	0.0	2
QUKE	9	8.4	0	1.2	0	0.0	0	0.0	19

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ABCO	2	1.6	5	1	0.0	1	0	0.0	0	0	0.0	0
LIDE3	2	1.4	7	2	2.7	4	0	0.0	0	0	0.0	0
PIJE	3	5.1	2	1	0.7	3	1	0.0	1	0	0.0	0
PIPO	2	2.0	3	1	1.0	3	0	0.0	0	0	0.0	0
PSME	2	0.7	2	1	0.0	1	0	0.0	0	0	0.0	0
QUKE	9	8.4	19	2	5.4	4	0	0.0	0	0	0.0	0

SCRUB OAK SERIES

Scrub Oak/Grass

QUDU2/GRASS

N=16

EXTENT: This type is found in the Coast Range in Monterey and San Luis Obispo Counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1369	800	2150
ASPECT	75% north		
SLOPE	All slopes		

SOILS:

PARENT MATERIAL	81% shale, 19% sandstone
TEXTURE	Mostly loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Californian Mixed Chaparral
Griffin (1977): Woodland Chaparral
Holland (1986): Scrub Oak Chaparral
Parker and Matyas (1981): Scrub Oak
Paysen et al. (1980): Scrub Oak
Mayer et al. (1988): Mixed Chaparral

Scrub Oak/Grass
(N=16)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDU2 Scrub oak	50	17-93	100
TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUDU2 Scrub oak	9	0-32	87
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
LOSU3 So. honeysuckle	2	0-3	19
% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	78	34-98	100
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

PISA2 Foothill pine
QUAG Coast live oak

TREE UNDERSTORY

PISA2 Foothill pine

SHRUBS

ARGL5 Bigberry manzanita
HALI Narrowleaf goldenbush
HEAR2 Toyon
LUAL3 Silver lupine
MYCA Pacific wax-myrtle
PRIL1 Shrub hollyleaf cherry
RHCR Redberry
SYRI Upright snowberry

Scrub Oak/Grass
(N=16)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
PISA2	2	0.0	1	0.0	0	0.0	0	0.0	1
QUAG	1	0.0	0	0.0	0	0.0	0	0.0	2
QUDU2	27	14.6	1	1.0	0	0.0	0	0.0	16

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
PISA2	2	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUAG	1	0.0	2	0	0.0	0	0	0.0	0	0	0.0	0
QUDU2	27	14.6	16	2	1.8	9	0	0.0	0	0	0.0	0

Scrub Oak-Blue Oak/Grass
QUDU2-QUDO/GRASS
N=14

EXTENT: This type is found in the Coast Range in Monterey, San Luis Obispo, and San Benito counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1400	1000	1800
ASPECT	50% are north, others northerly		
SLOPE	Seventy one percent are between 15% and 45%; some are steep		

SOILS:

PARENT MATERIAL	64% on shale, 29% on sandstone
TEXTURE	43% clay loam, others mostly loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland
Griffin (1977): Foothill Woodland-Blue Oak Phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak-Foothill
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine

Scrub Oak-Blue Oak/Grass
(N=14)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDU2 Scrub oak	34	3-119	100
QUDO Blue oak	21	5-44	100
TREE UNDERSTORY	AVERAGE	RANGE	CONSTANCY%
QUDU2 Scrub oak	5	0-15	64
SHRUBS	AVERAGE	RANGE	CONSTANCY%
LOSU3 So. honeysuckle	5	0-9	43
RHCR Redberry	3	0-4	29
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	85	16-100	100
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy).

TREE OVERSTORY
PISA2 Foothill pine

TREE UNDERSTORY
JUCA3 California juniper
QUDO Blue oak

SHRUBS
ARGL5 Bigberry manzanita
CEBE2 Birchleaf mountain-mahogany
CECU2 Wedgeleaf ceanothus
ERFA California buckwheat
HALI Narrowleaf goldenbush
HEAR2 Toyon
PRIL1 Shrub hollyleaf cherry

Scrub Oak-Blue Oak/Grass
(N=14)

STAND TABLE: Number of trees by diameter class (in inches)

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
PISA2	1	0.0	1	0.7	0	0.0	0	0.0	2
QUDO	3	2.9	2	1.3	0	0.0	0	0.0	14
QUDU2	10	7.7	2	2.8	0	0.3	0	0.0	14

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
PISA2	1	0.0	2	1	0.0	1	0	0.0	0	0	0.0	0
QUDO	3	3.3	10	2	1.2	13	0	0.0	0	0	0.0	0
QUDU2	10	7.7	14	4	4.5	8	1	0.0	1	0	0.0	0

Scrub Oak
QUDU2
N=11

EXTENT: This type is found in the Coast Range in Monterey and San Luis Obispo counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1427	850	1900
ASPECT	82% north or northeast		
SLOPE	Ninety one percent of the plots are greater than 25% slope		

SOILS:

PARENT MATERIAL	64% shale, 36% sandstone
TEXTURE	Mostly gravelly or rocky loam

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Californian Mixed Chaparral
Griffin (1977): Woodland Chaparral
Holland (1986): Scrub Oak Chaparral
Parker and Matyas (1981): Scrub Oak
Paysen et al. (1980): Scrub Oak
Mayer et al. (1988): Mixed Chaparral

Scrub Oak
(N=11)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDU2 Scrub oak	73	23-181	100

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUDU2 Scrub oak	21	0-70	91
QUWI Interior live oak	5	0-7	27

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
HEAR2 Toyon	4	0-8	45
PRIL1 Hollyleaf cherry	5	0-11	36
CECU2 Wedgelf. ceanothus	2	0-2	27
LOSU3 So. honeysuckle	7	0-12	27
ADFA Chamise	2	0-2	18
ARGL5 Bigberry manzanita	1	0-1	18

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	10	0-21	45
ROCK	1	0-1	9

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
PISA2 Foothill pine
QUWI Interior live oak

SHRUBS
ARCA7 Coast sagebrush
HASQ2 Sawtooth goldenbush
HODI Ocean spray
LOSC Southern honeysuckle

Scrub Oak
(N=11)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
PISA2	2	0.0	0	0.0	0	0.0	0	0.0	1
QUDU2	36	30.8	2	2.7	0	0.0	0	0.0	11
QUWI	1	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
PISA2	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUDU2	36	30.8	11	4	5.9	5	0	0.0	0	0	0.0	0
QUWI	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

MIXED OAK SERIES

Mixed Oak-Interior Live Oak-Foothill Pine
MO-QUWI-PISA2
N=11

EXTENT: This subseries is found in the Sierra Nevada primarily in Calaveras and Tuolumne counties, though it may be found throughout the Central Sierra.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2014	1300	2900
ASPECT	Primarily north to northeast.		
SLOPE	Seventy five percent of plots were less than 45% slope.		

SOILS:

PARENT MATERIAL	Primarily metamorphic with some igneous; deep soils.
TEXTURE	Sandy clay loams to clay loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): None
Griffin (1977): Foothill Woodland, QUDO and QUWI phases
Holland (1986): Black Oak Woodland; Interior Live Oak Woodland
Parker and Matyas (1981): Black Oak; Interior Live Oak
Paysen et al. (1980): Black Oak; Interior Live Oak
Mayer et al. (1988): Montane Hardwood

Mixed Oak-Interior Live Oak-Foothill Pine
(N=11)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
PISA2 Foothill pine	14	2-34	100
QUWI Interior live oak	18	0-22	82
QUKE Black oak	15	0-74	82
QUDO Blue oak	16	0-28	55
PIPO Ponderosa pine	37	0-80	36
AECA2 Cal. buckeye	4	0-6	27

SHRUBS (%cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	9	0-20	45
ARMA3 Manzanita	5	0-7	36
HEAR2 Toyon	5	0-7	36
CECU2 Wedgeleaf ceanothus	3	0-3	36
ARVI3 Whiteleaf manzanita	4	0-9	27

(%cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	78	45-96	100
ROCK	-		

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
QUMO Oracle oak

TREE UNDERSTORY
AECA2 Cal. buckeye
QUWI Interior live oak

SHRUBS
ERCA6 Cal. yerba santa
RHCR Redberry

Mixed Oak-Interior Live Oak-Foothill Pine
(N=11)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	3	1.5	0	0.0	0	0.0	0	0.0	3
PIPO	0	0.5	2	1.0	1	1.4	0	0.0	4
PISA2	1	0.8	1	1.1	0	0.3	0	0.0	11
QUDO	3	4.1	1	1.2	0	0.4	0	0.0	6
QUKE	3	2.2	1	1.0	0	0.7	0	0.0	9
QUMO	1	0.0	0	0.0	0	0.0	0	0.0	2
QUWI	6	5.1	1	0.9	0	0.0	0	0.0	9

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	3	1.5	3	0	0.0	0	0	0.0	0	0	0.0	0
PIPO	1	0.0	1	2	1.0	4	2	3.2	2	0	0.0	0
PISA2	1	1.0	8	2	1.4	8	1	0.0	1	0	0.0	0
QUDO	4	4.7	5	2	2.3	3	1	0.0	1	0	0.0	0
QUKE	3	2.2	9	2	3.1	3	2	0.0	1	0	0.0	0
QUMO	1	0.0	2	0	0.0	0	0	0.0	0	0	0.0	0
QUWI	7	5.6	8	1	1.1	7	0	0.0	0	0	0.0	0

Interior Live Oak/Toyon
QUWI-HEAR2
N=40

EXTENT: This type is found in the Sierra Nevada and the foothill areas of the Sierra primarily from Placer to Madera County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1856	600	3200
ASPECT	All aspects		
SLOPE	Below 55%		

SOILS:

PARENT MATERIAL	Granitics and metamorphics
TEXTURE	Rocky and sandy clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Foothill Woodland, QUWI phase
Griffin (1977): Blue Oak Woodland
Holland (1986): Interior Live Oak, Blue Oak Woodland
Parker and Matyas (1981): Interior Live Oak, Blue Oak
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak-Foothill Pine

Interior Live Oak/Toyon
(N=40)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	16	0-53	88
QUDO Blue oak	4	0-11	33
PISA2 Foothill pine	6	0-17	28
QUKE Black oak	5	0-13	28

TREE UNDERSTORY (% Cover)	AVERAGE	RANGE	CONSTANCY%
QUWI Interior live oak	19	0-75	95
QUDO Blue oak	5	0-11	30

SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
HEAR2 Toyon	14	0-47	78
RHDI Poison oak	11	0-51	55
RHCR Redberry	3	0-10	35
ARMA3 Manzanita	8	0-24	30
ARVI3 Whiteleaf manz.	9	0-31	28
ERCA6 Cal. yerba santa	4	0-7	20
HAAR Goldenfleece	3	0-6	20

(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	42	0-82	95
ROCK	9	0-24	14

Interior Live Oak/Toyon
(N=40)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
PIPO Ponderosa pine
QUCH2 Canyon live oak
QULO Valley oak
QUMO Oracle oak

TREE UNDERSTORY

AECA2 Cal. buckeye
PISA2 Foothill pine
QUCH2 Canyon live oak
QUKE Black oak
QULO Valley oak

SHRUBS

ADFA Chamise
ARMA4 Mariposa manzanita
CEBE2 Birchleaf mountain-mahogany
CECU2 Wedgeleaf ceanothus
CELE2 Chaparral whitethorn
DIAU1 Bush monkeyflower
RHCA2 Coffeeberry
RICA1 Hillside gooseberry
RIRO Sierra gooseberry
ROCA1 Cal. wild rose
RUVI2 Blackberry
SACA4 Mountain blue elderberry
SAL11 Willow
STOFC Cal. storax

HERBS

HYPE Klamath weed
LOSC Lotus

Interior Live Oak/Toyon
(N=40)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
PIPO	2	1.4	1	0.7	0	0.0	0	0.0	2
PISA2	2	2.2	0	0.7	0	0.0	0	0.0	11
QUCH2	1	0.6	0	0.0	0	0.0	0	0.0	3
QUDO	1	0.6	0	0.4	0	0.0	0	0.0	13
QUKE	2	0.9	0	0.5	0	0.0	0	0.0	11
QULO	2	0.7	1	0.7	0	0.0	0	0.0	2
QUMO	1	0.0	0	0.0	0	0.0	0	0.0	1
QUWI	6	5.9	1	1.3	0	0.2	0	0.0	35

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PIPO	2	1.4	2	1	0.0	1	0	0.0	0	0	0.0	0
PISA2	2	3.0	7	1	2.0	4	0	0.0	0	0	0.0	0
QUCH2	1	0.6	3	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	1	0.6	12	1	2.2	3	0	0.0	0	0	0.0	0
QUKE	2	1.0	10	1	2.0	3	0	0.0	0	0	0.0	0
QULO	2	0.7	2	1	0.0	1	0	0.0	0	0	0.0	0
QUMO	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUWI	6	6.0	34	2	4.1	10	1	5.7	2	0	0.0	0

Mixed Oak-California Buckeye/Grass
MO-AECA2/GR2
N=29

EXTENT: This type occurs in the central coast ranges from Napa to San Benito County. It tends to occur further inland from the coast than its other two low elevation mixed oak associates.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	938	100	2000
ASPECT	65% occur on northwest to northeast aspects.		
SLOPE	88% between 16 and 55%		

SOILS:

PARENT MATERIAL	Hard and soft sedimentary materials.
TEXTURE	Mostly sandy and gravelly loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland; South Coastal Oak Woodland
 Griffin (1977): Mixed Hardwood Forest; Foothill Woodland, QUDO phase
 Holland (1986): Blue Oak Woodland; Coast Live Oak Woodland
 Parker and Matyas (1981): Coast Live Oak; Blue Oak-Foothill pine
 Paysen et al. (1980): Coast Live Oak
 Mayer et al. (1988): Montane Hardwood; Blue Oak Woodland; Valley Oak Woodland; Coastal Oak Woodland

Mixed Oak-California Buckeye/Grass
(N=29)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	27	0-92	90
AECA2 Calif. buckeye	9	0-27	79
QUAG Coast live oak	20	0-42	76
QULO Valley oak	10	0-41	45
QUWI Interior live oak	34	0-74	17

TREE UNDERSTORY (%cover)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	3	0-6	20

(%cover)	AVERAGE	RANGE	CONSTANCY%
SHRUBS	-		
HERBS	-		
GRASSES	96	54-100	100
ROCK	9	0-9	4

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
PICO1 Beach pine
PISA2 Foothill pine
UMCA1 Cal. bay

TREE UNDERSTORY
QUAG Coast live oak
QUWI Interior live oak
UMCA1 Cal. bay

SHRUBS
ARMA3 Manzanita
RHDI Poison oak
ROCA1 California wild rose

Mixed Oak-California Buckeye/Grass
(N=29)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	4	3.2	0	0.8	0	0.0	0	0.0	23
PICO1	2	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	7	0.0	1	0.0	0	0.0	0	0.0	1
QUAG	4	4.6	2	1.1	0	0.2	0	0.0	22
QUDO	7	4.9	1	1.6	0	0.6	0	0.0	26
QULO	3	2.2	0	0.5	0	0.3	0	0.0	13
QUWI	6	5.9	1	1.3	1	0.9	0	0.0	5
UMCA1	1	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	4	3.3	22	1	2.5	7	0	0.0	0	0	0.0	0
PICO1	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	7	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUAG	5	5.0	19	2	1.3	18	1	0.0	1	0	0.0	0
QUDO	8	5.1	24	2	1.9	19	2	9.9	2	0	0.0	0
QULO	3	2.5	11	1	1.4	5	1	0.0	1	0	0.0	0
QUWI	6	5.9	5	2	2.2	3	2	2.7	2	0	0.0	0
UMCA1	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Mixed Oak/Grass
MO/GRASS
N=35

EXTENT: This type occurs in the central coast from Sonoma to Santa Barbara County. Fifty percent of the plots which characterize this type were taken in Santa Clara County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	952	100	2700
ASPECT	Primarily north to northeast, but found on all.		
SLOPE	Moderately steep, 16% to 55%.		

SOILS:

PARENT MATERIAL	Primarily sandstones and shales.
TEXTURE	Widely diverse; sandy, rocky, clay loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland; Southern Coastal Oak Woodland; Coast Live Oak Forest
Griffin (1977): Mixed Hardwood Forest; Foothill Woodland, QUDO and QULO phases
Holland (1986): Blue Oak Woodland; Coast live Oak Woodland
Parker and Matyas (1981): Coast Live Oak; Blue Oak-Foothill pine; Valley Oak
Paysen et al. (1980): Coast Live Oak; Blue Oak
Mayer et al. (1988): Montane Hardwood; Blue Oak Woodland; Coastal Oak Woodland; Blue Oak-Foothill Pine

Mixed Oak/Grass
(N=35)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	38	0-125	97
QUDO Blue oak	26	0-50	80
QULO Valley oak	11	0-74	74
QUKE Black oak	7	0-20	20

TREE UNDERSTORY (%cover)	AVERAGE	RANGE	CONSTANCY%
QUDO Valley oak	3	0-14	19

SHRUBS (%cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	8	0-49	66
HEAR2 Toyon	3	0-6	20
ARCA7 Coast sagebrush	5	0-21	17

(%cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	68	12-100	100
ROCK	4	0-8	9

Mixed Oak/Grass
(N=35)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

AECA2 Cal. buckeye
ARME3 Madrone
MYCA Pacific wax-myrtle
PICO1 Beach pine
PICO2 Coulter pine
PISA2 Foothill pine
QUGA2 Garry oak
QUWI Interior live oak

TREE UNDERSTORY

QUAG Coast live oak
QUCH2 Canyon live oak
QUGA2 Garry oak
QUWI Interior live oak
UMCA1 Cal. bay

SHRUBS

AMCA2 Mock locust
ARGL5 Bigberry manzanita
ARMA3 Manzanita
BAPI Baccharis
CEBE2 Birchleaf mountain-mahogany
CECU2 Wedgeleaf ceanothus
COCO5 Hazelnut
DIAU1 Bush monkeyflower
HODI Ocean spray
MECH Ice plant
RHCA2 Coffeeberry
RHCR Redberry
RIB Gooseberry
RICA1 Hillside gooseberry
ROCA1 Cal. wild rose
SAAP1 White sage
SALE2 Purple sage
SAME4 Black sage

HERBS

LOSC Lotus

Mixed Oak/Grass
(N=35)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
ARME3	1	0.0	0	0.0	0	0.0	0	0.0	1
PICO1	1	0.0	1	0.7	0	0.0	0	0.0	2
PICO2	11	8.5	5	4.9	7	9.2	1	0.7	2
PISA2	2	1.7	1	1.5	0	0.6	0	0.0	3
QUAG	6	5.4	2	1.6	0	0.5	0	0.4	34
QUDO	8	7.1	1	1.2	0	0.4	0	0.0	28
QUGA2	5	5.3	0	0.6	0	0.0	0	0.0	3
QUKE	3	1.8	0	0.7	0	0.0	0	0.0	8
QULO	2	2.5	1	0.9	0	0.3	0	0.0	26
QUWI	2	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PICO1	1	0.0	2	1	0.0	1	0	0.0	0	0	0.0	0
PICO2	11	8.5	2	5	4.9	2	13	0.0	1	1	0.0	1
PISA2	2	1.7	3	2	2.4	2	1	0.0	1	0	0.0	0
QUAG	6	5.8	30	2	1.6	33	1	3.3	5	1	2.7	5
QUDO	8	7.3	27	2	1.7	18	1	2.4	5	0	0.0	0
QUGA2	5	5.3	3	1	0.0	1	0	0.0	0	0	0.0	0
QUKE	3	1.8	8	2	3.7	2	0	0.0	0	0	0.0	0
QULO	3	2.9	21	1	1.5	13	1	4.9	2	0	0.0	0
QUWI	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Mixed Oak/Poison Oak-Baccharis
MO/RHDI-BAPI
N=22

EXTENT: This type occurs in the central coast from Alameda to Santa Barbara County. Fifty percent of the plots used to characterize the type are from Santa Clara County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1020	300	2200
ASPECT	77% north to east.		
SLOPE	59% less than 35%.		

SOILS:

PARENT MATERIAL	Primarily hard sedimentary.
TEXTURE	Vried types of loams.

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Mixed Hardwood Forest; Foothill Woodland,
QUDO phase
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland

Mixed Oak/Poison Oak-Baccharis
(N=22)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	31	0-105	95
QUKE Black oak	28	0-72	45
QULO Valley oak	21	0-81	45
UMCA1 Cal. bay	15	0-39	43
QUDO Blue oak	11	0-31	36
AECA2 Cal. buckeye	16	0-31	18

TREE UNDERSTORY (%cover)	AVERAGE	RANGE	CONSTANCY%
UMCA1 Cal. bay	2	0-6	36
QUAG Coast live oak	1	0-2	36
QUDU2 Scrub oak	11	0-28	21

SHRUBS (%cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	10	0-17	86
RHCA2 Coffeeberry	14	0-22	79
BAPI Baccharis	14	0-42	71
HEAR2 Toyon	13	0-27	50
DIAU1 Bush monkeyflower	4	0-6	43
HODI Ocean spray	8	0-15	21

HERBS (%cover)	AVERAGE	RANGE	CONSTANCY%
PTAQ Bracken fern	21	0-45	21

(%cover)	AVERAGE	RANGE	CONSTANCY%
GRASSES	28	0-63	86
ROCK	-		

Mixed Oak/Poison Oak-Baccharis
(N=22)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

PICO1 Beach (lodgepole) pine
PIMO2 One needle pinyon pine
PISA2 Foothill pine
PSME Douglas fir

TREE UNDERSTORY

QUCH2 Canyon live oak
QUDO Blue oak
QUDU2 Scrub oak
QUGA2 Garry oak
QULO Valley oak
QUWI Interior live oak

SHRUBS

AMCA2 Mock locust
AMUT Utah serviceberry
ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
LOSU3 Southern honeysuckle
MECH Ice plant
RHCR Redberry
RISA Red flowering currant
RUVI2 Blackberry
SACA4 Mtn. blue elderberry
SAL11 Willow
SYMO Creeping snowberry
SYRI Upright snowberry

Mixed Oak/Poison Oak-Baccharis
(N=22)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	10	7.4	0	0.0	0	0.0	0	0.0	4
PICO1	3	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	2	1.2	0	0.6	0	0.0	0	0.0	3
PSME	1	0.0	1	0.0	0	0.0	0	0.0	1
QUAG	7	6.3	2	1.4	0	0.7	0	0.0	21
QUDO	6	6.3	0	0.4	0	0.0	0	0.0	8
QUKE	6	4.6	2	1.8	0	0.6	0	0.0	10
QULO	5	3.2	1	2.4	0	0.3	0	0.0	10
UMCA1	8	9.3	0	0.8	0	0.0	0	0.0	6

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	10	7.4	4	0	0.0	0	0	0.0	0	0	0.0	0
PICO1	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	2	1.2	3	1	0.0	1	0	0.0	0	0	0.0	0
PSME	1	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUAG	8	6.9	18	2	1.5	18	2	8.8	2	0	0.0	0
QUDO	6	6.3	8	1	0.0	1	0	0.0	0	0	0.0	0
QUKE	7	4.9	9	2	2.3	7	2	0.0	1	0	0.0	0
QULO	6	3.5	9	2	3.5	6	1	0.0	1	0	0.0	0
UMCA1	8	9.3	6	2	0.0	1	0	0.0	0	0	0.0	0

Mixed Oak-Foothill Pine/Grass
MO-PISA2/GRASS
N=68

EXTENT: This type occurs in the central coast ranges from Santa Clara to Santa Barbara County. It also occurs in Contra Costa and Kern counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1499	700	2800
ASPECT	North, northeast or flat		
SLOPE	84% are less than 45%		

SOILS:

PARENT MATERIAL	81% are hard sedimentary
TEXTURE	All textures

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland; Southern Coastal Oak Woodland; Coast Live Oak Forest
Griffin (1977): Mixed Hardwood Forest; Foothill Woodland, QUDO phase
Holland (1986): Blue Oak Woodland; Coast Live Oak Forest
Parker and Matyas (1981): Coast Live Oak; Blue Oak-Foothill pine
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Montane Hardwood; Blue Oak Woodland; Coastal Oak Woodland

Mixed Oak-Foothill Pine/Grass
(N=68)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	37	0-133	94
QUDO Blue oak	42	0-153	93
PISA2 Foothill pine	29	0-226	76
QULO Valley oak	46	0-118	40

SHRUBS (%cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	9	0-55	35
RHCR Redberry	4	0-12	28
CECU2 Wedgeleaf ceanothus	5	0-14	21

(%cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	82	2-100	100
ROCK	3	0-4	3

Mixed Oak-Foothill Pine/Grass
(N=68)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ACMA Bigleaf maple
AECA2 Cal. buckeye
FRDI Foothill ash
PICO2 Coulter pine
PIJE Jeffrey pine
QUDU2 Scrub oak

TREE UNDERSTORY

AECA2 Cal. buckeye
JUCA3 Cal. juniper
PIQU Four-needle pinyon pine
PISA2 Foothill pine
PSME Douglas fir
QUAG Coast live oak
QUDO Blue oak
QUDU2 Scrub oak
QULO Valley oak

SHRUBS

ADFA Chamise
ARCA5 Hoary manzanita
ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
ARPRD Pink-bracted manzanita
ARVI3 Whiteleaf manzanita
CEBE2 Birchleaf mountain mahogany
CESO3 Jim bush
COCO5 Hazelnut
ERCR2 Thick-leaf yerba santa
ERFA Cal. buckwheat
HALI Narrowleaf goldenbush
HASQ2 Sawtooth goldenbush
HEAR2 Toyon
LOSU3 So. honeysuckle
LUAL3 Silver lupine
RHCA2 Coffeeberry
RHTR Squaw bush
RICA1 Hillside gooseberry
SACA4 Mountain blue elderberry
SAME6 Blue elderberry

HERBS

LOSC Lotus

Mixed Oak-Foothill Pine/Grass
(N=68)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	3	0.7	0	0.0	0	0.0	0	0.0	2
AECA2	4	0.0	0	0.0	0	0.0	0	0.0	2
PICO2	5	0.0	1	0.0	0	0.0	0	0.0	1
PIJE	2	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	4	4.2	2	2.2	0	0.6	0	0.1	52
QUAG	3	3.5	2	1.4	1	0.9	0	0.1	64
QUDO	7	6.0	3	2.9	0	0.7	0	0.1	63
QUDU2	3	0.0	0	0.0	0	0.0	0	0.0	1
QULO	2	2.1	2	1.2	1	1.1	0	0.3	27

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	3	0.7	2	0	0.0	0	0	0.0	0	0	0.0	0
AECA2	4	0.0	2	0	0.0	0	0	0.0	0	0	0.0	0
PICO2	5	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
PIJE	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	4	4.2	50	3	2.6	40	2	6.3	5	1	0.0	1
QUAG	4	4.0	52	2	1.6	55	1	2.1	25	1	0.0	1
QUDO	7	6.1	62	4	3.4	49	1	2.5	16	1	0.0	1
QUDU2	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	3	3.1	17	2	1.4	22	2	1.6	17	1	5.0	2

Mixed Oak-Valley Oak/Poison Oak-Coffeeberry
MO-QULO/RHDI-RHCA2
N=22

EXTENT: This type occurs primarily in the central coast region from Monterey to San Luis Obispo County. It also occurs slightly inland in Contra Costa and Santa Clara counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1443	400	3000
ASPECT	47% north; 37% south to west		
SLOPE	58% are less than 35%		

SOILS:

PARENT MATERIAL	Soft and hard sedimentary
TEXTURE	Clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Valley Oak Woodland;
Coast Live Oak Forest
Griffin (1977): Foothill Woodland, QULO and QUDO phases
Holland (1986): Valley Oak Woodland; Coast Live Oak
Woodland
Parker and Matyas (1981): Coast Live Oak; Valley Oak;
Blue Oak-Foothill Pine
Paysen et al. (1980): Coast Live Oak
Mayer et al. (1988): Coastal Oak Woodland; Valley Oak
Woodland

Mixed Oak-Valley Oak/Poison Oak-Coffeeberry
(N=22)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QULO Valley oak	84	3-245	100
QUAG Coast live oak	108	0-385	90
QUDO Blue oak	28	0-81	54
AECA2 Cal. buckeye	22	0-46	30
PISA2 Foothill pine	16	0-33	27

SHRUBS (%cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	10	0-32	85
RHCA2 Coffeeberry	10	0-22	65
RHCR Redberry	4	0-5	20

(%cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	54	0-92	90
ROCK	14	0-14	5

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

PICO1 Beach (lodgepole) pine
UMCA1 Cal. bay

TREE UNDERSTORY

PISA2 Foothill pine
QUAG Coast live oak
UMCA1 Cal. bay

SHRUBS

ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
BAPI Baccharis
DIAU1 Bush monkeyflower
HEAR2 Toyon
HODI Narrowleaf goldenbush
LOSU3 So. honeysuckle
SAAP1 White sage

HERBS

LOSC Lotus
PTAQ Bracken fern

Mixed Oak-Valley Oak/Poison Oak-Coffeeberry
(N=22)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	3	0.0	0	0.0	0	0.0	0	0.0	1
AECA2	8	2.2	2	2.4	0	0.8	0	0.4	6
PICO2	8	0.0	6	0.0	0	0.0	0	0.0	1
PISA2	2	2.3	2	1.0	0	0.0	0	0.0	6
QUAG	7	4.0	5	3.8	1	2.4	0	0.2	20
QUDO	5	3.0	1	1.6	1	0.9	0	0.0	12
QULO	6	6.0	3	3.0	2	1.9	0	0.2	22
UMCA1	2	0.0	2	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
AECA2	8	2.2	6	3	4.8	3	2	0.0	1	1	0.0	1
PICO2	8	0.0	1	6	0.0	1	0	0.0	0	0	0.0	0
PISA2	4	3.4	4	2	1.2	5	0	0.0	0	0	0.0	0
QUAG	7	4.0	20	5	4.3	17	4	5.3	8	1	0.0	1
QUDO	5	3.0	12	3	3.1	6	2	2.6	4	0	0.0	0
QULO	6	6.2	21	4	3.6	17	3	2.2	18	1	0.0	1
UMCA1	2	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0

Mixed Oak-Coast Live Oak/Poison Oak
MO-QUAG/RHDI
N=42

EXTENT: This type occurs in Santa Clara County (55%) and along the central coast range counties from Sonoma and Napa to Monterey and Santa Benito.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1465	400	3500
ASPECT	97% north to east; 85% north to northeast		
SLOPE	All slopes		

SOILS:

PARENT MATERIAL	92% Hard sedimentary
TEXTURE	Gravelly to clay loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Coast Live Oak Forest
Griffin (1977): Mixed Hardwood Forest
Holland (1986): Coast Live Oak Woodland
Parker and Matyas (1981): Coast Live Oak; Black Oak;
Valley Oak
Paysen et al. (1980): Black Oak; Coast Live Oak
Mayer et al. (1988): Valley Oak Woodland; Coastal Oak
Woodland; Montane Hardwood

Mixed Oak-Coast Live Oak/Poison Oak
(N=42)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	54	0-289	95
QUKE Black oak	38	0-128	85
QULO Valley oak	16	0-90	40
AECA2 Cal. buckeye	9	0-24	33
ARME3 Madrone	10	0-56	23
UMCA1 Cal. bay	9	0-36	18

TREE UNDERSTORY (%cover)	AVERAGE	RANGE	CONSTANCY%
QUAG Coast live oak	4	0-9	38
UMCA1 Cal. bay	6	0-18	28

SHRUBS (%cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	16	0-64	90
RHCA2 Coffeeberry	5	0-11	38
SYRI Upright snowberry	11	0-49	19
HEAR2 Toyon	7	0-19	19
DIAU1 Bush monkeyflower	4	0-10	19

(%cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-	.	
GRASSES	26	0-76	71
ROCK	5	0-8	8

Mixed Oak-Coast Live Oak/Poison Oak
(N=42)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

LIDE3 Incense cedar
PICO1 Beach (lodgepole) pine
PICO2 Coulter pine
PISA2 Foothill pine
PSME Douglas fir
QUCH2 Canyon live oak
QUDO Blue oak
QUGA2 Garry oak
QUWI Interior live oak

TREE UNDERSTORY

ACMA Bigleaf maple
AECA2 Cal. buckeye
QUCH2 Canyon live oak
QUGA2 Garry oak
QUKE Black oak
QUWI Interior live oak

SHRUBS

ADFA Chamise
AMUT Utah serviceberry
ARCA5 Hoary manzanita
ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
ARMA3 Manzanita
BAPI Baccharis
CECU2 Wedgeleaf ceanothus
CEPA3 Warty-leaved ceanothus
COCO5 Hazelnut
HODI Ocean spray
LUAL3 Silver lupine
RHCR Redberry
RICA1 Hillside gooseberry
RISP Fuschia-flower gooseberry
ROS Rose
SYMO Creeping snowberry

HERBS

PTAQ Bracken fern

Mixed Oak-Coast Live Oak/Poison Oak
(N=42)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	7	6.4	0	0.4	0	0.0	0	0.0	15
ARME3	2	1.4	1	1.8	0	0.0	0	0.0	11
LIDE3	1	0.0	0	0.0	0	0.0	0	0.0	1
PICO1	3	2.5	0	0.5	0	0.0	0	0.0	6
PICO2	9	5.7	3	0.0	0	0.0	1	0.7	2
PISA2	2	0.0	3	0.0	0	0.0	0	0.0	1
PSME	5	1.4	3	3.5	0	0.0	0	0.0	2
QUAG	11	14.3	4	4.0	1	1.7	0	0.0	40
QUCH2	3	2.1	0	0.0	0	0.0	0	0.0	2
QUDO	2	0.0	0	0.0	0	0.0	0	0.0	1
QUGA2	9	0.0	4	0.0	0	0.0	0	0.0	1
QUKE	10	9.7	2	1.5	0	1.0	0	0.0	34
QULO	4	3.4	1	1.5	0	0.3	0	0.2	18
QUWI	3	0.0	0	0.0	0	0.0	0	0.0	1
UMCA1	3	1.6	1	1.5	0	0.0	0	0.0	7

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	7	6.4	15	1	3.6	2	0	0.0	0	0	0.0	0
ARME3	2	1.4	11	3	6.1	3	0	0.0	0	0	0.0	0
LIDE3	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PICO1	4	2.9	5	1	2.0	2	0	0.0	0	0	0.0	0
PICO2	9	5.7	2	3	0.0	2	0	0.0	0	1	0.0	1
PISA2	2	0.0	1	3	0.0	1	0	0.0	0	0	0.0	0
PSME	5	1.4	2	5	0.0	1	0	0.0	0	0	0.0	0
QUAG	12	14.9	37	4	4.3	36	3	6.8	8	0	0.0	0
QUCH2	3	2.1	2	0	0.0	0	0	0.0	0	0	0.0	0
QUDO	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUGA2	9	0.0	1	4	0.0	1	0	0.0	0	0	0.0	0
QUKE	10	10.1	32	2	1.6	29	3	11.9	3	0	0.0	0
QULO	4	3.5	17	3	4.4	6	1	4.0	2	1	0.0	1
QUWI	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
UMCA1	3	1.6	7	4	0.0	1	0	0.0	0	0	0.0	0

Mixed Oak-Black Oak/Grass
MO-QUKE/GRASS
N=37

EXTENT: This type occurs in the central coast areas from Marin to Monterey County (primarily in Santa Clara County (50%)). It also occurs in the Sierra from Nevada to Tuolumne County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1351	100	3000
ASPECT	Primarily north; 80% north to northeast		
SLOPE	40% are less than 25%; some steep		

SOILS:

PARENT MATERIAL	80% hard and soft sedimentary
TEXTURE	Varied, all types of loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Blue Oak Woodland; Valley Oak Woodland
 Griffin (1977): Mixed Hardwood Forest
 Holland (1986): Black Oak Woodland; Valley Oak Woodland; Blue Oak
 Parker and Matyas (1981): Blue Oak-Foothill Pine; Valley Oak; Black Oak
 Paysen et al. (1980): Black Oak; Valley Oak
 Mayer et al. (1988): Montane Hardwood; Blue Oak Woodland; Valley Oak Woodland; Coastal Oak Woodland

Mixed Oak-Black Oak/Grass
(N=37)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	34	0-97	89
QUDO Blue oak	34	0-92	71
QULO Valley oak	43	0-232	71
QUAG Coast live oak	9	0-18	45
AECA2 Cal. Buckeye	13	0-28	26
QUWI Interior live oak	23	0-38	21

TREE UNDERSTORY (%cover)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	3	0-9	18

SHRUBS (%cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	11	0-35	76
RHCA2 Coffeeberry	5	0-11	29

(%cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	54	0-100	89
ROCK	4	0-11	16

Mixed Oak-Black Oak/Grass
(N=37)

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY

ARME3 Madrone
PICO1 Beach (lodgepole) pine
PISA2 Foothill pine
PSME Douglas fir
UMCA1 Cal. bay

TREE UNDERSTORY

AECA2 Cal. buckeye
QUAG Coast live oak
QUKE Black oak
QULO Valley oak
QUWI Interior live oak
UMCA1 Cal. bay

SHRUBS

ADFA Chamise
ARCA7 Coast sagebrush
ARGL5 Bigberry manzanita
ARMA3 Manzanita
ARPRD Pink-bracted manzanita
BAPI Baccharis
CECU2 Wedgeleaf ceanothus
DIAU1 Bush monkeyflower
HEAR2 Toyon
HODI Ocean spray
LOSU3 So. honeysuckle
RHCR Redberry
RICA1 Hillside gooseberry
SYRI Upright snowberry

HERBS

PTAQ Bracken fern

Mixed Oak-Black Oak/Grass
(N=37)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	7	3.7	0	0.7	0	0.0	0	0.0	10
ARME3	1	0.0	0	0.0	0	0.0	0	0.0	1
PICO1	1	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	3	0.0	2	0.0	0	0.0	0	0.0	1
PSME	3	0.0	1	0.0	0	0.0	0	0.0	1
QUAG	2	2.1	1	0.7	0	0.0	0	0.0	17
QUDO	8	7.3	2	2.0	0	0.6	0	0.0	27
QUKE	6	8.7	2	1.8	0	0.8	0	0.2	34
QULO	4	4.5	2	2.7	1	1.6	0	0.4	27
QUWI	8	6.6	1	1.4	0	0.0	0	0.0	8
UMCA1	2	0.0	0	0.0	0	0.0	0	0.0	1

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	7	3.7	10	2	4.3	2	0	0.0	0	0	0.0	0
ARME3	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PICO1	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	3	0.0	1	2	0.0	1	0	0.0	0	0	0.0	0
PSME	3	0.0	1	1	0.0	1	0	0.0	0	0	0.0	0
QUAG	3	2.6	13	1	1.5	8	0	0.0	0	0	0.0	0
QUDO	9	7.5	26	3	2.8	17	1	2.8	6	0	0.0	0
QUKE	7	9.7	28	2	2.1	27	1	2.9	8	1	0.0	1
QULO	5	4.6	26	3	3.9	16	3	7.5	5	1	2.3	5
QUWI	8	6.6	8	2	2.2	5	0	0.0	0	0	0.0	0
UMCA1	2	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0

Blue Oak-Valley Oak-Coast Live Oak/Grass
QUDO-QULO-QUAG/GRASS
N=17

EXTENT: This type occurs in the central coast areas from Napa to Santa Barbara County.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	1544	200	3500
ASPECT	All aspects		
SLOPE	Varied slopes		

SOILS:

PARENT MATERIAL	Varied, all types
TEXTURE	Varied; clay, gravelly and sandy loams

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): Oak Woodland: Blue Oak Woodland
Griffin (1977): Foothill Woodland: Blue Oak Phase
Holland (1986): Blue Oak Woodland
Parker and Matyas (1981): Blue Oak Series
Paysen et al. (1980): Blue Oak
Mayer et al. (1988): Blue Oak Woodland

Blue Oak-Valley Oak-Coast Live Oak/Grass
(N=17)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUDO Blue oak	46	0-186	88
QUAG Coast live oak	21	0-103	82
QULO Valley oak	60	0-229	77

SHRUBS (% cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	3	0-3	18

(% cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	95	0-100	88
ROCK			

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
 AECA2 Cal. buckeye
 PISA2 Foothill pine
 QUDU2 Scrub oak
 QUKE Black oak

TREE UNDERSTORY
 QUAG Coast live oak
 QUDO Blue oak

SHRUBS
 ARCA7 Coast sagebrush
 ERPA3 Dune eriogonum
 HEAR2 Toyon
 SALE2 Purple sage

Blue Oak-Valley Oak-Coast Live Oak/Grass
(N=17)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
PISA2	3	2.1	2	0.7	0	0.0	0	0.0	2
QUAG	3	7.5	2	1.8	0	0.3	0	0.0	14
QUDO	7	5.0	3	4.0	0	0.7	0	0.3	15
QUDU2	1	0.0	0	0.0	0	0.0	0	0.0	1
QUKE	1	0.0	0	0.0	0	0.0	0	0.0	1
QULO	4	4.8	3	4.4	1	1.5	0	0.4	13

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PISA2	3	2.1	2	2	0.7	2	0	0.0	0	0	0.0	0
QUAG	6	10.9	8	2	2.0	12	1	0.0	1	0	0.0	0
QUDO	7	5.0	15	4	4.9	11	1	2.3	5	1	0.0	1
QUDU2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QUKE	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
QULO	5	5.4	11	5	5.7	9	2	3.5	5	1	3.3	2

Black Oak-Valley Oak/Grass
QUKE-QULO/GRASS
N=19

EXTENT: This type occurs in the coast ranges from Mendocino to Santa Clara County. It also occurs in the south coast and inland areas of San Luis Obispo, Santa Barbara, San Diego and Kern counties.

ENVIRONMENT:

	MEAN	MIN	MAX
ELEVATION (ft)	2375	75	6000
ASPECT	All aspects.		
SLOPE	68% are less than 25%		

SOILS:

PARENT MATERIAL	Granitic; soft and hard sedimentary
TEXTURE	All textures

RELATIONSHIPS TO OTHER CLASSIFICATIONS:

Cheatham and Haller (1975): None
Griffin (1977): Foothill Woodland, QULO phase
Holland (1986): None
Parker and Matyas (1981): Valley Oak; Black Oak
Paysen et al. (1980): Valley Oak; Black Oak; Coast
Live Oak
Mayer et al. (1988): Montane Hardwood; Valley
Oak Woodland; Coastal Oak Woodland

Black Oak-Valley Oak/Grass
(N=19)

VEGETATION COVER SUMMARY

TREE OVERSTORY (BA ft2)	AVERAGE	RANGE	CONSTANCY%
QUKE Black oak	45	3-195	100
QULO Valley oak	32	0-71	79
QUAG Coast live oak	40	0-146	47
PSME Douglas fir	38	0-68	16
SHRUBS (% Cover)	AVERAGE	RANGE	CONSTANCY%
RHDI Poison oak	3	0-4	32
(% Cover)	AVERAGE	RANGE	CONSTANCY%
HERBS	-		
GRASSES	92	0-100	89
ROCK	-	0-1	5

RARELY OCCURRING SPECIES (less than 15% constancy):

TREE OVERSTORY
ACMA Bigleaf maple
AECA2 Cal. buckeye
ARME3 Madrone
PICO1 Beach (lodgepole) pine
PICO2 Coulter pine
PISA2 Foothill pine

TREE UNDERSTORY
AECA2 Cal. buckeye
QUGA2 Garry oak
QULO Valley oak

SHRUBS
ARGL5 Bigberry manzanita
ARMA3 Manzanita
CECU2 Wedgeleaf ceanothus
HEAR2 Toyon
SYRI Snowberry

Black Oak-Valley Oak/Grass
(N=19)

STAND TABLE: Number of trees by diameter class (in inches).

ABSOLUTE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11		DBH 12-23		DBH 24-35		DBH 36+		Total Plots
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev	
ACMA	0	0.0	2	0.0	0	0.0	0	0.0	1
AECA2	1	0.0	0	0.0	0	0.0	0	0.0	1
ARME3	6	5.7	4	2.8	0	0.0	0	0.0	2
PICO1	2	1.4	0	0.0	0	0.0	0	0.0	2
PICO2	2	0.0	3	0.0	0	0.0	0	0.0	1
PISA2	3	0.0	0	0.0	0	0.0	0	0.0	1
PSME	10	6.6	3	2.1	0	0.0	0	0.0	3
QUAG	5	5.8	3	2.9	0	1.0	0	0.0	9
QUKE	4	3.6	3	2.7	1	1.0	0	0.5	19
QULO	7	11.7	2	1.4	0	0.7	0	0.0	15

RELATIVE MEAN NUMBER OF TREES BY SPECIES

Species	DBH 4-11			DBH 12-23			DBH 24-35			DBH 36+		
	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N	\bar{X}	SD	N
ACMA	0	0.0	0	2	0.0	1	0	0.0	0	0	0.0	0
AECA2	1	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
ARME3	6	5.7	2	4	2.8	2	0	0.0	0	0	0.0	0
PICO1	2	1.4	2	0	0.0	0	0	0.0	0	0	0.0	0
PICO2	2	0.0	1	3	0.0	1	0	0.0	0	0	0.0	0
PISA2	3	0.0	1	0	0.0	0	0	0.0	0	0	0.0	0
PSME	10	6.6	3	3	2.1	3	0	0.0	0	0	0.0	0
QUAG	7	6.9	7	4	4.1	6	2	5.5	2	0	0.0	0
QUKE	5	3.7	18	3	3.2	15	2	2.9	6	2	0.0	1
QULO	10	14.2	11	2	2.0	10	2	4.1	3	0	0.0	0

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APPENDICES

APPENDIX 1.

COMPARISON OF OTHER CLASSIFICATION SYSTEMS

Attributes Used in Delineating Types

	% COVER DOMINANTS/ CODOMINANTS	% COVER TREES &/OR SHRUBS	TREE DENSITY OR BA	% COVER GRASS/FORBS	ASSOCIATED SPECIES	PLANT HEIGHT	GEOGR LOCATION	ELEVATION
BARBOUR & MAJOR 1977	x		x				x	
BARRY 1985	x				x	x		
BROWN et al 1980	x		x		x	x	x	
CDF								
CHEATHAM & HALLER 75				x	x	x	x	x
EYRE 1980		x	x		x			x
FOSBERG 1961	x							
HEWITT 1964					x		x	
HOLLAND 1986							x	x
HOLSTEIN 1980	x							
JENSEN 1947				x				
LEGRIS 1961	x							
MUNZ & KECK 1959	x				x	x	x	x
PARKER & MATYAS '81	x			x	x	x	x	
PASSOF et al 1985		x						
PAYSEN et al 1980					x	x		x
PENALOSA 1963		x			x		x	
PLUMB & McDONALD '81							x	x
SCS 1981							x	x
SCS RANGE SITE 1986	x	x				x	x	x
STD SITE COMP 1986	x	x	x	x		x	x	x
THORNE 1976							x	x
TWISSELMANN 1956					x		x	
UNESCO 1973		x				x		

continued

APPENDIX 1.

COMPARISON OF OTHER CLASSIFICATION SYSTEMS

Attributes Used in Delineating Types

	PARENT MATERIAL	% COVER	CONIFERS	PHYSIOGNOMY OF VEG	SOIL TYPE	SOIL TEXTURE	SOIL DRAINAGE	ASPECT	% SLOPE
BARBOUR & MAJOR 1977								X	
BARRY 1985				X					
BROWN et al. 1980				X					
CDF		X							X
CHEATHAM & HALL 1975				X				X	
EYRE 1980					X				X
FOSBERG 1981				X					
HEWITT 1984					X				
HOLLAND 1985	X			X			X		
HOLSTEIN 1980				X					
JENSEN 1947			X						
LEGHIS 1961				X					
MUNZ & KECK 1959				X					
PARKER & MATYAS '81				X					X
PASSOF et al. 1986									
PAYSEN et al. 1980				X					
PENAI OSA 1983							X		
PLUMB & McDONALD '81	X								
SCS 1981					X		X		
SCS RANGE SITE 1986					X			X	X
STD. SITE COMP. 1986					X			X	X
THORNE 1976	X								
TWISSEL MANN 1968									
UNESCO 1973			X		X				