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Timber Resource Statistics for the Sacramento Resource Area of California

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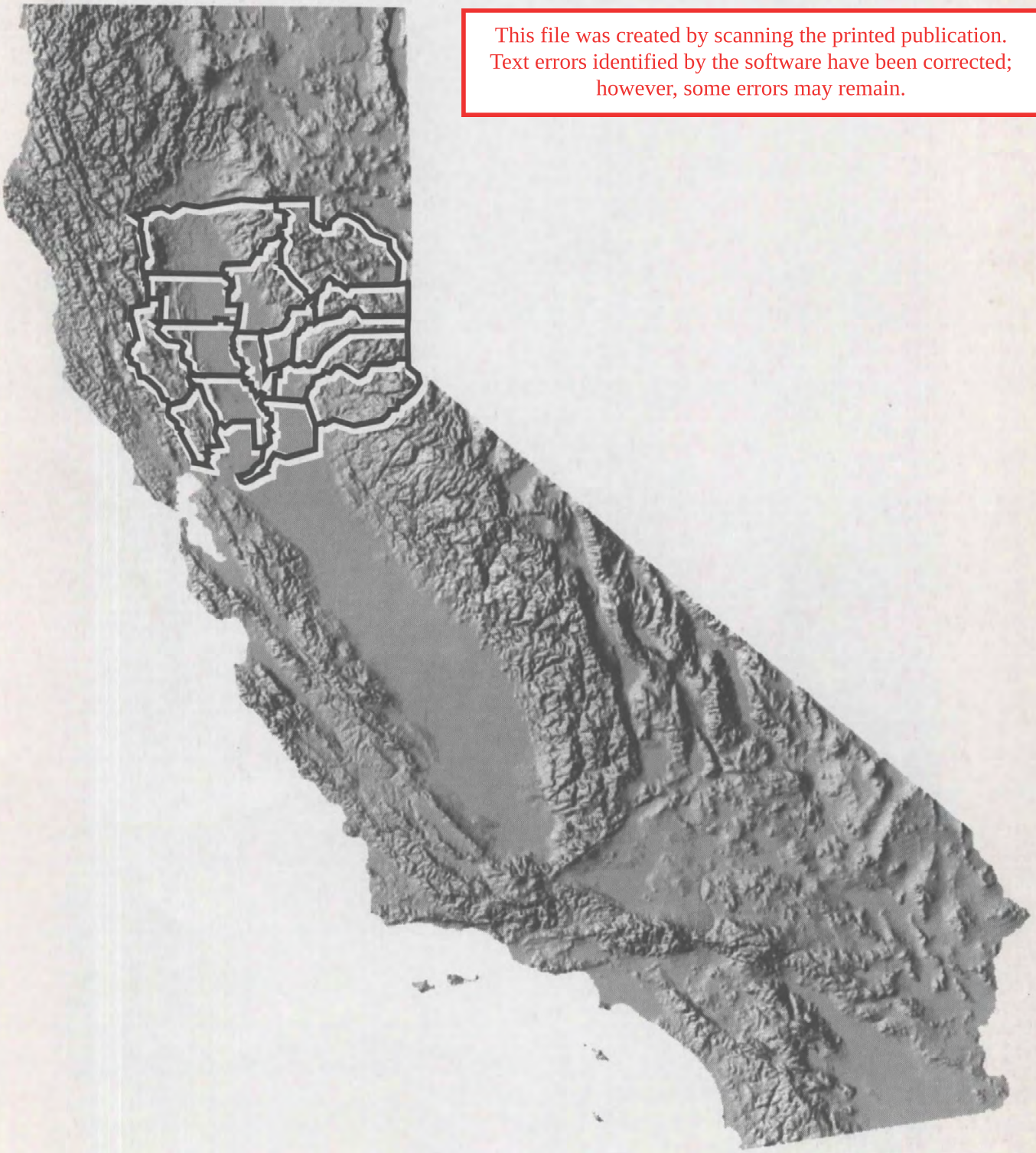

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Cover Map

The image on the cover was created from the North American 30 arc-second Digital Elevation Model obtained from the EROS Data Center, Sioux Falls, South Dakota.

Abstract

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This report is a summary of timber resource statistics for the Sacramento Resource Area of California, which includes Butte, Colusa, El Dorado, Glenn, Lake, Napa, Nevada, Placer, Plumas, Sacramento, Sierra, Sutter, Tehama, Yolo, and Yuba Counties. Data were collected as part of a statewide multiresource inventory. The inventory sampled private and public lands except reserved areas and National Forests. The National Forest System provided data from regional inventories of the Eldorado, Lassen, Mendocino, Plumas, Shasta-Trinity, Tahoe, and Toiyabe National Forests and the Lake Tahoe Basin Management Unit. Area information for parks and other reserves was obtained directly from the organizations managing these areas. Statistical tables summarize all ownerships and provide estimates of land area, timber volume, growth, mortality, and harvest. Estimates of periodic change of timberland area and timber volume are presented for all ownerships outside National Forests.

Keywords: Forest surveys, forest inventory, statistics (forest), timber resources, resources (forest), periodic change, trends, Sacramento, Butte County, Colusa County, El Dorado County, Glenn County, Lake County, Napa County, Nevada County, Placer County, Plumas County, Sacramento County, Sierra County, Sutter County, Tehama County, Yolo County, and Yuba County, California.

Summary

The Sacramento Resource Area of California includes about 12.7 million acres of land in Butte, Colusa, El Dorado, Glenn, Lake, Napa, Nevada, Placer, Plumas, Sacramento, Sierra, Sutter, Tehama, Yolo, and Yuba Counties. About 58 percent of this land is forest land, with 34 percent, or an estimated 4.3 million acres, in timberland. The majority of timberland (about 61 percent) is publicly owned and is primarily in National Forests. Mixed conifer is the predominant forest type, occupying over 2.3 million acres of land. Most of the 14 billion cubic feet of volume is in softwood forest types growing in stands of sawtimber-sized trees. Softwood species comprise 91 percent of the total volume, with white fir, Douglas-fir, and ponderosa pine being the most prevalent species across all ownerships. Most of the softwood volume is in trees greater than 21 inches in diameter at breast height (d.b.h.), and most of the hardwood volume is in trees smaller than 21 inches d.b.h. Outside the National Forests, the majority of volume is found in stands less than 100 years old; within National Forests, most stands exceed 100 years. Estimates of change between 1984 and 1994 are available for land outside National Forests. Data from both points in time were compiled by using current methods and procedures, to provide a common basis for evaluating periodic change (this is more accurate than using previously published data for 1984 as a comparison for change). An analysis of change outside National Forests indicates that 16,000 acres of timberland were transferred to National Forest ownership and 7,000 acres were converted to rights-of-way. During the 1984-94 period, total growing-stock volume increased by 475 million cubic feet, a 9-percent rise. Hardwood volume had the largest increase in this period, about 25 percent, mainly from canyon live oak and California black oak, and softwoods had a volume increase of just over 6 percent. These changes in volume were due to growth exceeding mortality and harvest during the 1984-94 period.

Preface

Forest Inventory and Analysis (FIA) is a nationwide project of the USDA Forest Service authorized by the Forest and Rangeland Renewable Resources Research Act of 1978. Work units, located at Forest Service research and experiment stations, conduct forest resource inventories throughout the 50 States. The Pacific Resource Inventory, Monitoring, and Evaluation (PRIME) Program of the Pacific Northwest Research Station at Portland, Oregon, is responsible for forest inventories in Alaska, California, Hawaii, Oregon, and Washington.

Contents

List of tables

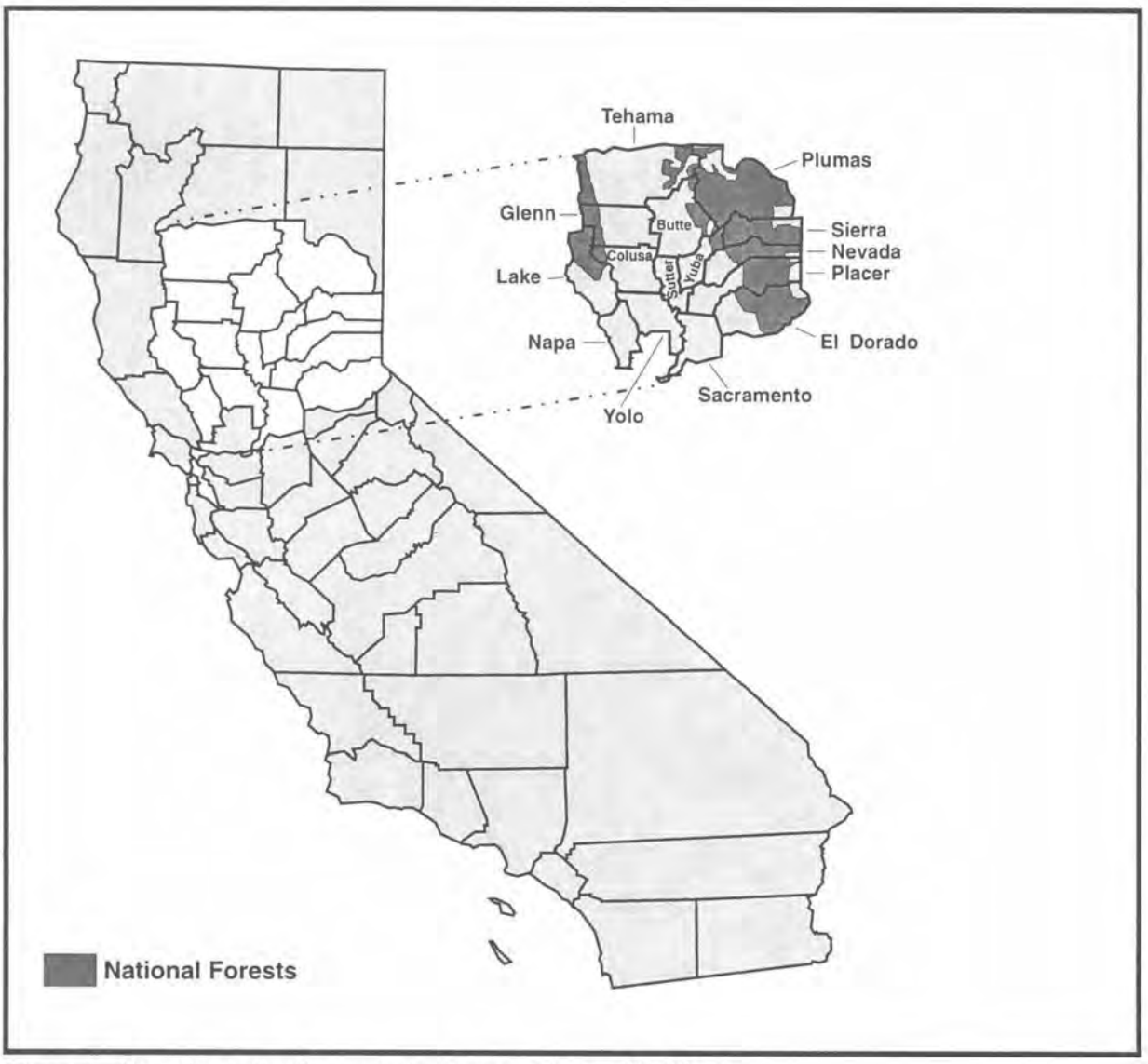

Figure 1-- Counties in the Sacramento Resource Area of California.

Introduction

A multiresource inventory was conducted in California's forests from 1991 to 1994. The inventory area consisted of all land except reserved areas and public land administered by the National Forest System. Information about parks and other reserved areas was obtained directly from the organizations managing these areas. This report summarizes forest area and timber volume in the 15 counties of the Sacramento Resource Area (fig. 1). Statistical tables include data supplied by the National Forest System for both area and volume and provide a complete assessment of current timber resources across all ownerships. Other resources sampled in the inventory, but not included in this report, are oak woodlands, chaparral, standing snags, coarse woody debris, shrubs, and herbs.

The Pacific Resource Inventory, Monitoring, and Evaluation (PRIME) Program in the Pacific Northwest Research Station has been responsible for doing forest inventories on land outside National Forests in California since 1966. The earliest inventory carried out by the Pacific Northwest Research Station for the Sacramento Resource Area was reported by Wall (1978) and Bolsinger (1980). A second forest inventory was completed in 1984 (Lloyd and others 1986). The most recent inventory of the Sacramento Resource Area was conducted from 1991 to 1994. Earlier inventories were conducted by the Pacific Southwest Forest and Range Experiment Station in the 1930s, in 1953, and in 1963.

This report incorporates data for the Eldorado, Lassen, Mendocino, Plumas, Shasta-Trinity, and Tahoe National Forests and the Lake Tahoe Basin Management Unit, which are administered by the Pacific Southwest Region (Region 5), and a small portion of the Toiyabe National Forest administered by the Intermountain Region (Region 4). Only National Forest area that falls within the 15 counties of the Sacramento Resource Area is included in this report.

The 36 statistical tables that follow provide current estimates of land area, timber volume, net annual growth and mortality, and harvest. Tables 30 through 34 provide estimates of change in timberland area and volume between the 1981-84 inventory and the 1991-94 inventory for land outside National Forests. For consistency, data from the remeasured portions of the 1981-84 inventory plots were recompiled by using current procedures, definitions, standards, and expansion factors. Tables 30 through 34 can be used to make comparisons between inventories on land outside National Forests.

Inventory Procedures

Land Outside National Forests

The Sacramento Resource Area was inventoried with a double sampling for stratification design (Cochran 1977) on permanent, systematic grids. These grids produce an even geographic distribution of field and photo plots across the State and maintain an equal sampling intensity across counties. Photo plots for the primary sample were chosen by randomly selecting a point inside each square of the grid.

In the Sacramento Resource Area, the primary sample was a grid of 14,543 photo plots established during the 1981-84 inventory and updated in 1991 for changes in ownership. The primary sample included 3,780 timberland photo plots that were examined in 1981 to classify the forest stand at the grid location.

The secondary sample consisted of 891 forest and nonforest field plot locations established in the previous inventory and reclassified or remeasured in 1991-94. Each plot was a cluster of five subplots and subsampled about every 16th photo plot on the primary grid. This ratio of 1 field plot to 16 photo plots provides enough plots to meet the required sampling precision for estimates of forest area and volume. All 224 timberland plot locations were remeasured.

Permanent five-subplot field plots were installed at timberland grid locations during the 1981-84 inventory. At that time, all five subplots sampled a single homogeneous condition; if necessary, subplots were moved into the condition found at the center of the plot. Variable-radius sampling was used to select trees 7 to 36 inches in diameter at breast height (d.b.h.) on a subplot. Trees of all other diameters were selected with fixed-radius plots.

In 1991, the field plot design was modified to remove the potential for bias inherent in the 1981-84 procedures. The term "condition class" was defined for the modified design to identify different situations that could occur on a plot. A condition class or "condition" refers to an area with a distinct land class (for example, timberland, oak woodland, nonforest) or a distinct vegetative condition (for example, forest type, stand structure). The modified design requires that all subplots in the cluster be placed in fixed locations on the plot, regardless of the number of conditions found. If a plot straddled two or more conditions, the boundary around each condition was mapped and the conditions were sampled. Tree selection procedures were identical to those used in the previous inventory. Data for each condition on a plot were kept separate and compiled as "condition class plots." For the 891 field plots in the 1991-94 inventory, we sampled 1,408 condition classes, of which 289 were timberland, 269 were oak-woodland, 132 were chaparral, and the rest were nonforest.

Current estimates of area for timberland, other forest, and nonforest land are based on all 1,408 condition classes. Tree data on timberland conditions are used to estimate timber volume, growth, mortality, and removals; and to determine stand characteristics such as forest type, stand size, and stand age by condition class.

Estimates of change in area and volume were compiled from data on subplots installed in 1981-84 that were in the same location in 1991-94. Subplots that were offset slightly in the previous inventory to ensure that the entire subplot fell in one condition also were remeasured to analyze for change. All other subplots that were moved by more than 56 feet in the 1981-84 inventory were not remeasured.

For more information about field, photo interpretation, or technical procedures (including volume and stocking equations, design discussion, and specific methods used in the compilation of data), see appendix A.

National Forest Land

The Pacific Southwest Region of the Forest Service (Region 5) supplied the most recent inventory data available for the Eldorado, Lassen, Mendocino, Plumas, Shasta-Trinity, and Tahoe National Forests, and the Lake Tahoe Basin Management Unit. Data were collected in different years as follows: Eldorado, 1994; Lassen, 1995; Plumas, 1993; and Lake Tahoe Basin, 1993. Older inventories for the Mendocino, Shasta-Trinity, and Tahoe National Forests were updated by the Region to 1992. Data for the Toiyabe National Forest (Region 4) were extracted primarily from the national timber inventory database developed for the 1992 Resources Planning Act (RPA) assessment (Powell and others 1994). Inventory designs and methods have changed over the years and may differ among the National Forests and Regions: details of National Forest inventories may be obtained from the timber management staff at each Regional office (see appendices A and B).

The following is a brief description of current inventory procedures used by Region 5. Individual inventories were conducted within the administrative boundaries of a National Forest. Satellite imagery and aerial photography were used to create a map of the vegetation types (conifer, hardwood, shrub, or grassland) by using the CALVEG classification system (U.S. Department of Agriculture 1981). Information obtained from the vegetation map was used to develop strata, which were identified by vegetation type, stand size, and stand density. Field plots were established on a permanent, systematic grid extending across an entire National Forest. Plots were pinpricked on orthophotos and contain five subplots. Each subplot included a variable-radius plot to sample intermediate-sized trees and two fixed-radius circular plots to sample the smallest and largest trees. Plots were linked to the vegetation maps developed for a Forest and were stratified based on characteristics of each stratum. Area estimates were calculated from strata delineated on maps, and volume per acre was estimated from tree measurements on field plots within a stratum. Total volume estimates were calculated by expanding the stratum volume per acre by the area in that stratum.

Changes in Definitions and Techniques

In 1991-94, some changes were made in the definitions and techniques used in the 1981-84 inventory. The most notable differences are adoption of new area figures from the latest Bureau of Census report (U.S. Department of Commerce 1990), a modified field plot design, and a different method to classify stand characteristics, such as forest type, on timberland plots.

Land and Water Area Updated

The Bureau of Census compiles and publishes the area of land and water in the United States every 10 years. These area figures, available by state and county, are accepted and used by PRIME as the gross number of acres to be inventoried in each county. The previous inventory was based on 1980 census data, and the current inventory uses 1990 census figures. Raster-scanned U.S. Geological Survey topographic maps and a geographic information system are now used by the Bureau of Census to identify water bodies and landforms and to determine the size of much smaller areas than was possible previously. As a result, the definition of inland water was changed to reflect the finer resolution: streams with a minimum width of 200 feet are now recognized, compared to 660 feet in 1980; and small water bodies are now at least 4.5 acres in size, compared to 40 acres in the past.

The new numbers and change in definitions caused a shift in gross area between land and water in California and affected the distribution of area among the counties. According to the 1990 census, total land area decreased by 43,749 acres in the Sacramento Resource Area. This has a direct impact on the size of the inventory area and the expansion factors (acres) associated with each plot.

Modified Field Plot Design

The field plot design adopted for the current inventory of California had a significant impact on the plot layout, the compilation of data, and the development of data for periodic change analysis. In the new plot layout, all five subplots were established in fixed positions and all conditions on a plot were sampled. New subplots were installed in 1991-94 to replace previously moved subplots from the 1981-84 inventory. Only data collected on subplots in the fixed layout pattern of the modified design were included in estimates of current area and volume for 1991-94.

The 1981-84 design forced all subplots to be laid out in the condition found at the center of the first subplot. Because the current design samples all conditions on a plot, more data are available for conditions that might not have been sampled as thoroughly in the previous inventory. Less prevalent conditions, such as riparian areas, are not found as often at the plot center because of the small land area occupied. The current design samples these areas as they are encountered on a plot and should improve the estimates for these areas.

Plots that cross condition class boundaries contain information pertinent to each condition. When multiple conditions exist on a plot, all data in one condition are processed together. The basic sampling unit is no longer the plot; it is now the condition class. This can impact the amount of information present to classify stand characteristics, such as forest type, stand-size, and stand age.

Although five-subplot plots were established during both inventories, the locations may not coincide, thereby affecting the number of subplots available for remeasurement. Subplots installed in the previous inventory that were moved more than 56 feet were not remeasured in 1991-94. Because of this, remeasured plots can contain less than five subplots or include less than 100 percent of the plot area.

An outcome of the modified design is two databases, each containing different sets of condition class plots; one set contains all conditions and is used to produce current estimates of area and volume for 1991-94, and the second set contains only remeasured subplots and conditions on a plot and is used to produce estimates of change between the two inventories. Because remeasured subplots are in the same condition at both inventories, each plot in the "change" database contains only one condition, and its expansion factor may differ from that used in the current database. Thus, current inventory estimates from the "change" database differ slightly from those based on the new sample--the result of sampling error. The current database is more reliable for estimates of the current status of resources in 1991-94 but is less reliable for estimating periodic change, because it includes data not sampled in the earlier inventory.

Classifying Stand Characteristics on Timberland Plots

Stand characteristics such as forest type, stand-size, and stand age are calculated from tree data tallied for a plot. In the previous inventory, these characteristics were assigned by computing the relative proportion of basal area among trees of different species, d.b.h., or age. In the current inventory, a technique was adopted that compares the individual contribution of each tree to the density of a normal stand (MacLean 1979). This method is based on area occupancy and reflects the ability of a tree to use the limited resources of a site (light, water, nutrients). Species with large crowns, for example, can intercept more light and water and will occupy a larger portion of the site. Stocking equations were developed by species from the relation between tree diameter and the average growing space occupied by trees in normal stands. Stocking estimates were adjusted for tree clumping, quadratic mean diameter, crown position, and stockability of the site. In 1991-94, stocking estimates were used to determine the stand characteristics of a plot, which in some cases were different from characteristics developed with the basal area method used in the past. For example, hardwood species with broad crowns generally occupy a greater proportion of a site and receive larger stocking estimates with the current procedure. As a result, stand classifications changed for some plots compared to the 1981-84 inventory, simply due to the change in procedure.

Analysis of Change Between Inventories on Lands Outside National Forests

Changes in forest resources based on comparisons of statistics from this report with those published for the 1981-84 inventory of the Sacramento Resource Area (Lloyd and others 1986) are obscured by definition or the procedural changes discussed above. Instead, the reader should use summaries of recompiled 1981-84 data that take into account the technical changes made in the 1991-94 inventory. Those summaries are provided in tables 30 to 34, which have been developed from remeasured plots on land outside National Forests and include recompiled 1981-84 data. An analysis of data in these tables will provide reliable estimates of area and volume at both inventories. Note that tables displaying periodic change do not include National Forest data, because data from earlier inventories were not recompiled to reflect real change over the period.

Tables 30, 31, and 32 show changes in timberland area and volume on ownerships other than National Forests in the period between the 1981-84 and 1991-94 inventories. Table 33 displays the change in area and volume by forest type, and table 34 presents volume by species for both inventories. All estimates were computed directly from the sample-based inventory data and are subject to sampling error. Other tables of recompiled 1981-84 data for land outside National Forests are available by request.

Reliability of Inventory Data

Standard errors for the estimated area, cubic-foot volume, and net annual cubic-foot growth and mortality for the Sacramento Resource Area, outside National Forests, are shown below. Confidence intervals can be calculated with this information.

Confidence intervals are quantitative expressions of the variability of the estimates for area and volume. The tabulation below indicates, for instance, a two-in-three (68-percent, one standard error) chance that the timberland area estimate for all non-National Forest owners (1,742 thousand acres) is within the range of 1,695 to 1,789 thousand acres.

The sample design in this inventory provides the highest precision when estimates are aggregated for the entire Sacramento Resource Area. As the sample is divided into smaller units, the confidence interval gets broader. For example, estimates of area by forest type for one county are less precise than the estimate of forest type for the whole resource area.

Standard errors for estimates of land area, by land class and owner class outside National Forests, are displayed below:

Land class	Other public	Forest industry	Other private	All owners
		Thousand acres (± standard error)		
Timberland	79 ± 14	911 ± 38	752 ± 49	1,742 ± 47
Other forest	303 ± 26	36 ± 15	1,885 ± 59	2,224 ± 58
Nonforest	89 ± 20	83 ± 17	2,612 ± 55	2,785 ± 53

Standard errors for estimates of land area and growing-stock volume, by county, outside National Forests, are displayed below:

County	Timberland area	Softwood species volume	Hardwood species volume	Total volume
	Thousand acres (± standard error)	*-----Million cubic feet (± standard error)-----*		
Butte	237 ± 18	710 ± 93	222 ± 41	932 ± 107
Colusa	2 ± 2	5 ± 5	6 ± 1	11 ± 6
El Dorado	259 ± 17	662 ± 108	141 ± 29	803 ± 117
Glenn	25 ± 3	41 ± 6	0	41 ± 6
Lake	79 ± 15	94 ± 29	67 ± 25	161 ± 39
Napa	22 ± 3	52 ± 17	28 ± 9	80 ± 25
Nevada	220 ± 17	669 ± 91	102 ± 26	771 ± 95
Placer	177 ± 16	400 ± 58	110 ± 65	510 ± 72
Plumas	317 ± 16	901 ± 85	56 ± 28	957 ± 85
Sierra	112 ± 8	410 ± 75	17 ± 15	427 ± 85
Tehama	216 ± 10	573 ± 78	48 ± 18	621 ± 86
Yuba	76 ± 12	252 ± 81	95 ± 32	347 ± 97
Total	1,742 ± 47	4,769 ± 234	892 ± 87	5,661 ± 260

Standard errors for estimates of timber volume, growth, and mortality, by species or forest type group and owner class, on timberland outside National Forests are shown below:

Volume, species, and forest type	Other public	Forest industry	Other private	All owners
	Million cubic feet (volume ± standard error)			
Net volume:				
Softwood species	249 ± 79	2,861 ± 211	1,659 ± 51	4,769 ± 234
Hardwood species	49 ± 13	304 ± 55	539 ± 71	892 ± 87
Total	298 ± 77	3,165 ± 228	2,198 ± 185	5,661 ± 260
Net volume:				
Softwood forest types	258 ± 82	2,843 ± 234	1,702 ± 169	4,803 ± 262
Hardwood forest types	40 ± 20	319 ± 101	494 ± 103	853 ± 144
Total [1]	298 ± 77	3,165 ± 228	2,198 ± 185	5,661 ± 260
	Thousand cubic feet (volume ± standard error)			
Net annual growth:				
Softwood forest types	4,827 ± 1,539	51,110 ± 5,237	35,955 ± 3,992	91,892 ± 6,218
Hardwood forest types	479 ± 241	5,565 ± 1,688	11,592 ± 2,600	17,635 ± 3,084
Total [1]	5,306 ± 1,473	56,716 ± 5,292	47,681 ± 4,479	109,703 ± 6,479
Net annual mortality:				
Softwood forest types	2,516 ± 1,042	31,789 ± 3,417	14,316 ± 1,706	48,621 ± 3,684
Hardwood forest types	114 ± 60	3,156 ± 1,133	3,283 ± 737	6,553 ± 1,341
Total [1]	2,630 ± 1,034	35,001 ± 3,381	17,615 ± 1,792	55,247 ± 3,659

Standard errors have been calculated for most of the tabular data in this report and are available on request from the PRIME Program, Pacific Northwest Research Station, Forestry Sciences Laboratory, P.O. Box 3890, Portland, Oregon 97208-3890.

Data Quality

Field crews attended a 2-week intensive training session to learn data collection procedures. During the first few weeks of field work, inexperienced crew members were paired with experienced crew members. About 10 percent of the field plots were revisited, and all items were remeasured to check on accuracy and consistency in classification, plot layout, tree measurements, and species identification. Each person's work was audited about five times during the field season. If consistent errors were detected, crews were informed and retrained as necessary. Data were edited extensively by using computer programs in both the field and the office. The edits checked for reasonableness of tree measurements in relation to other measurements on the tree. Questionable data were sent back to the field for verification, and data were corrected as necessary.

[1] Volume of the nonstocked forest type is included in the total.

Terminology

Available other forest land--Forest land incapable of growing 20 cubic feet per acre per year (mean annual increment at culmination in fully stocked, natural stands) of industrial wood because of adverse conditions such as sterile soils, dry climate, poor drainage, subalpine sites, steepness, or rockiness.

Class of timber--A classification of trees as growing stock, cull, and salvable dead. Growing-stock trees are divided into poletimber and sawtimber trees.

Condition class--A mapped area on a plot with a distinct land class (for example, timberland, oak woodland, nonforest) or a distinct vegetative condition (for example, forest type, stand size). The first condition identified at plot center is the only condition that is remeasured and used for the analysis of periodic change.

County and municipal lands--Lands owned by county and other local public agencies.

Cull trees--Live trees of noncommercial species, and live trees of commercial species that are more than 75 percent defective. Noncommercial species are junipers, pinyon pines, gray pine, Pacific yew, Pacific dogwood, apple, and willow. Cull trees are not growing-stock trees.

Cull trees, rotten--Cull trees with defect caused primarily by rot.

Cull trees, sound--Trees of noncommercial species or cull trees of commercial species with defect caused primarily by poor form and roughness.

Diameter class--A classification of trees based on diameter outside the bark measured at breast height, 4-1/2 feet above the ground. D.b.h. is the common abbreviation for diameter at breast height. Trees are grouped into 2-inch classes up to 21 inches d.b.h., after which the class intervals become broader.

Even-aged stands--Stands where 70 percent or more of the tree stocking falls within three adjacent 10-year age classes.

Farmer-owned lands--Lands owned by the operators of farms.

Forest industry lands--Lands owned by companies that grow timber for industrial use. Includes companies both with and without wood processing plants.

Forest land--Land at least 10 percent stocked with live trees, or land that had this minimum tree stocking in the past and is not currently developed for nonforest use. The minimum area recognized is 1 acre.

Forest types--Stands are assigned a pure softwood, pure hardwood, softwood-hardwood mix, hardwood-softwood mix, or mixed-conifer forest type. Stands with 70 percent or more of the stocking in live softwood trees are classified as pure softwood types and are assigned the type name of the softwood species with the greatest stocking among all softwoods on the condition class plot. Stands with 70 percent or more of the stocking in live hardwood trees are classified as pure hardwood types and are assigned the type name of the hardwood species with the greatest stocking among all hardwoods on the condition class plot. Mixed species types are assigned

if softwood stocking is between 31 to 69 percent total stocking on the plot: stands with 50 to 69 percent of the stocking in live softwood trees are classed as softwood-hardwood types and receive a type name that includes the softwood species with the greatest softwood stocking, followed by the hardwood species with the greatest hardwood stocking; stands with 51 to 69 percent of the stocking in live hardwood trees are classed as hardwood-softwood types, and receive a type name that includes the hardwood species with the greatest hardwood stocking, followed by the softwood species with the greatest softwood stocking. For ease in reporting, the secondary forest type will be identified after a slash as "softwood" or "hardwood" in the summary tables. If a softwood forest type is one of the following species--sugar pine, ponderosa pine, Jeffrey pine, incense-cedar, Douglas-fir, white fir, or red fir--the plot is examined to determine if it is a mixed-conifer type (see appendix A, item 3, for a procedural reference). The alpine forest type is a general classification used by the National Forest System for high-elevation areas occupied by one or more of the following species: subalpine fir, Engelmann spruce, limber pine, bristlecone pine, whitebark pine, foxtail pine, or western white pine.

Growing-stock trees--All live trees except cull trees (see "cull trees").

Growing-stock volume--Net volume in cubic feet of live sawtimber and poletimber growing-stock trees from the top of a stump 12 inches tall to a minimum 4-inch top (of central stem) inside the bark. Net volume is gross volume less deductions for rot and missing bole sections.

Growth, current net annual, growing-stock--The increase in growing-stock volume during the last year in the period between the previous and current inventories. Components of current net annual growth for growing-stock volume include (a) the increment in net volume of poletimber and sawtimber growing-stock trees alive at the beginning of the year and surviving to year end; plus (b) ingrowth, the net volume of growing-stock trees reaching poletimber or sawtimber size during the year; minus (c) mortality, the net volume of poletimber and sawtimber growing-stock trees that died during the year.

Growth, current net annual, sawtimber--The increase in sawtimber volume during the last year in the period between the previous and current inventories. Components of current net annual growth for sawtimber volume include (a) the increment in net volume of sawtimber trees alive at the beginning of the year and surviving to year end; plus (b) ingrowth, the net volume of trees reaching sawtimber size during the year; minus (c) mortality, the net volume of sawtimber trees that died during the year.

Growth, periodic gross, growing-stock--The increase in growing-stock volume between the previous and current inventories that is attributable to increasing tree size. Periodic gross growth includes (a) the increment in net volume of poletimber and sawtimber growing-stock trees alive at both the previous and current inventories; (b) the increment in net volume of poletimber and sawtimber growing-stock trees alive at the previous inventory and harvested between inventories; and (c) ingrowth, the net volume of growing-stock trees reaching poletimber or sawtimber size between inventories.

Growth, periodic gross, sawtimber--The increase in sawtimber volume between the previous and current inventories that is attributable to increasing tree size. Periodic gross growth includes (a) the increment in net volume of sawtimber trees alive at the both the previous and current inventories; (b) the increment in net volume of sawtimber trees alive at the previous inventory and harvested between inventories; and (c) ingrowth, the net volume of trees reaching sawtimber size between inventories.

Hardwoods--Nonconiferous trees, usually broad-leaved. See "Names of Trees" for a list of hardwood species in this report.

Industrial wood--All commercial roundwood products except fuelwood. Roundwood includes logs or bolts that are in straight sections at least 8 feet long for hardwoods and 12 feet long for softwoods.

Land area--Area reported as land by the Bureau of the Census (U.S. Department of Commerce 1990). Total land area includes dry land and land temporarily or partially covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, and canals less than 200 feet wide; and lakes, reservoirs, and ponds less than 4.5 acres in area.

Land class--A classification of land by major use. The minimum area for classification is 1 acre.

Mean annual increment (MAI) at culmination--A measure of the productivity of forest land expressed as the average increase in cubic-foot volume per acre per year. For a given species and site index, the mean is based on the age at which the mean annual increment culminates for fully stocked natural stands. The MAI is calculated from equations and is based on the site index of the plot.

Miscellaneous Federal lands--Federal lands other than lands administered by the Forest Service.

Miscellaneous private owners--All private owners not otherwise classified.

Mortality, average annual, growing stock--The annual net volume of poletimber and sawtimber growing-stock trees that died between the previous and current inventories.

Mortality, average annual, sawtimber--The annual net volume of sawtimber trees that died between the previous and current inventories.

Mortality, periodic, growing stock--The net volume of poletimber and sawtimber growing-stock trees that died between the previous and current inventories.

Mortality, periodic, sawtimber--The net volume of sawtimber trees that died between the previous and current inventories.

National Forest lands--Federal lands that have been designated by Executive Order or statute as National Forest or purchase units and other lands under the administration of the Forest Service, U.S. Department of Agriculture, including experimental areas and Bankhead-Jones Title III lands.

Native American lands--Tribal and allotted lands held in trust by the Federal Government. Native American lands are grouped with farmer and miscellaneous private lands as other private lands.

Net volume--Gross volume less deductions for sound and rotten defects. Growing-stock net volume is gross cubic-foot volume less deductions for rot and missing bole sections on poletimber and sawtimber growing-stock trees. Sawtimber net volume is gross board-foot volume less deductions for rot, sweep, crook, missing bole sections, and other defects that affect the use of sawtimber trees for lumber.

Noncommercial species--A tree species not suitable for industrial wood products: junipers, gray pine, Pacific yew, Pacific dogwood, apple, and willow. Noncommercial species will not be included in growing-stock volume tables; however, if one or more of these species dominate on a plot, the forest type might be classified as a noncommercial species.

Nonforest land--Land that has never supported forests or formerly was forested and currently is developed for nonforest uses. Included are lands used for agricultural crops, Christmas tree farms, improved pasture, residential areas, city parks, constructed roads, operating railroads and their right-of-way clearings, powerline and pipeline clearings, streams more than 30 feet wide, and 1- to 40-acre areas of water classified by the Bureau of the Census, U.S. Department of Commerce, as land. If intermingled in forest areas, unimproved roads and other nonforest strips must be more than 120 feet wide, and clearings or other areas must be 1 acre or larger to qualify as nonforest land.

Nonstocked areas--Timberland less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are classified as nonstocked area.

Other private lands--Private lands not owned by forest industry. Native American lands, farmer-owned lands, and miscellaneous private lands are included.

Other public lands--Lands administered by public agencies other than the U.S. Department of Agriculture, Forest Service. Other public lands do not include Native American lands, which are included with other private lands.

Poletimber stands--Stands with a quadratic mean diameter (mean diameter weighted by basal area) from 5.0 to 9.0 inches at breast height if a softwood stand and from 5.0 to 11.0 inches at breast height if a hardwood stand.

Poletimber trees--Live growing-stock trees of commercial species that are 5.0 inches in d.b.h. or larger but smaller than sawtimber trees.

Removals, average annual, growing stock--The annual net volume of poletimber and sawtimber growing-stock trees removed by harvesting, silvicultural activities, and land clearing between the previous and current inventories. Removals are estimated from data collected on field plots in the inventory and not from information in State harvesting records.

Removals, average annual, sawtimber--The annual net volume of sawtimber trees removed by harvesting, silvicultural activities, and land clearing between the previous and current inventories. Removals are estimated from data collected on field plots in the inventory and not from information in State harvesting records.

Removals, periodic, growing stock--The net volume of poletimber and sawtimber growing-stock trees removed by harvesting, silvicultural activities, and land clearing between the previous and current inventories. Removals are estimated from data collected on field plots in the inventory and not from information in State harvesting records.

Removals, periodic, sawtimber--The net volume of sawtimber trees removed by harvesting, silvicultural activities, and land clearing between the previous and current inventories. Removals are estimated from data collected on field plots in the inventory and not from information in State harvesting records.

Reserved other forest--Forest land incapable of growing 20 cubic feet per acre per year (mean annual increment at culmination in fully stocked, natural stands) of industrial wood that has been dedicated to noncommodity use through statute, ordinance, or administrative order.

Reserved timberland--Forest land capable of growing 20 cubic feet or more per acre per year (mean annual increment at culmination in fully stocked, natural stands) of industrial wood that has been dedicated to noncommodity use through statute, ordinance, or administrative order. Plots were not established in reserved areas; tree data therefore were not available to determine the mean annual increment (MAI) for these plots. Because of this, reserved forest land with an MAI of less than 20 cubic feet per acre per year may be classified as reserved timberland rather than reserved other forest land.

Roundwood--Logs, bolts, or other round sections cut from trees.

Sapling and seedling stands--Stands with a quadratic mean diameter (mean diameter weighted by basal area) less than 5.0 inches at breast height.

Sapling and seedling trees--Live trees of commercial species that are less than 5.0 inches in d.b.h. and have no diseases, defects, or deformities likely to prevent their becoming poletimber trees.

Saw-log portion--The bole of sawtimber trees between the stump and the saw-log top. Saw-log top is 7.0 inches in diameter outside bark on softwoods and 9.0 inches in diameter outside bark on hardwoods.

Sawtimber stands--Stands with a quadratic mean diameter (mean diameter weighted by basal area) larger than 9.0 inches at breast height if a softwood stand and larger than 11.0 inches at breast height if a hardwood stand.

Sawtimber trees--Live softwood trees of commercial species at least 9.0 inches in d.b.h. and live hardwood trees of commercial species at least 11.0 inches in d.b.h. At least 25 percent of the board-foot volume in a sawtimber tree must be free from defect. Softwood trees must contain at least one 12-foot saw log with a top diameter of not less than 7 inches outside bark; hardwood trees must contain at least one 8-foot saw log with a top diameter of not less than 9 inches outside bark.

Sawtimber volume--Net volume of sawtimber trees measured in board feet. Softwood volume is estimated from the top of a stump 12 inches tall up to a minimum 6-inch top diameter, inside bark, and hardwood volume is estimated from the top of a stump 12 inches tall up to a minimum 8-inch top diameter, inside bark. Net sawtimber volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Scribner rule--The common board-foot log rule used locally in California to determine sawtimber volume. Scribner volume is estimated in terms of 16-foot logs for both softwoods and hardwoods. See "sawtimber volume" for utilization limits.

Site class--A classification of the potential productivity of forest land expressed as mean annual increment (MAI) at culmination in fully stocked natural stands. Six classes in this report are based on a range of MAI values that were calculated on every plot.

Site index--A measure of the productivity of forest land expressed as the average height of dominant and codominant trees at a specified age.

Softwoods--Coniferous trees, usually evergreen, with needles or scalelike leaves. See "Names of Trees" for a list of softwood species in this report.

Stand age--The 10-year age class that best characterizes the stand. See "even-aged stand" and "uneven-aged stand" for more details.

Stand-size class--A classification of stands based on tree size. Stand-size classes are sawtimber, poletimber, and sapling-seedling stands.

State lands--Lands owned by States or administered by State agencies.

Timber harvest--Volume of roundwood removed from forest land for products. Timber harvest statistics reported in tables 35 and 36 were collected by the California State Board of Equalization, Timber Tax Division, in Sacramento. The Board of Equalization figures do not include smash, mismanufacture, breakage, or wood left behind in the forest. Average annual removals (tables 28 and 29) and periodic removals (tables 31 and 32) are based on trees sampled in PRIME inventories that were live during the previous inventory but were harvested or killed in a cultural operation before the current inventory.

Timber volume--Includes the net volume in cubic feet of poletimber and sawtimber trees and salvable dead sawtimber trees, and the net volume in cubic feet of cull trees of commercial species. In table 18, the volume of cull trees includes the gross volume of noncommercial species. Volume is measured from the top of a stump 12 inches tall to a minimum 4-inch top diameter, inside bark.

Timberland--Forest land capable of growing 20 cubic feet or more per acre per year (mean annual increment at culmination in fully stocked, natural stands) of industrial wood and not in a reserved status through removal of the area from timber utilization by statute, ordinance, or administrative order; and not in a withdrawn status where it is pending consideration for reserved status.

Uneven-aged stands--Stands where less than 70 percent of the tree stocking falls in three adjacent 10-year age classes.

Upper stem portion--The bole of sawtimber trees above the saw-log top--7.0 inches diameter outside bark for softwoods and 9.0 inches diameter outside bark for hardwoods--to a minimum top diameter of 4.0 inches inside bark, or to the point where the central stem divides into limbs.

Withdrawn timberland--Timberland in National Forests that is being considered for permanent reserved status. Although this land has not been removed from timber utilization by statute, ordinance, or administrative order, it is not being actively managed as timberland.

Names of Trees

Common name	Scientific name [2]
Softwoods:	
Bristlecone pine	*Pinus aristata* Engelm.
California-nutmeg	*Torreya californica* Torr.
Douglas-fir	*Pseudotsuga menziesii* (Mirb.) Franco
Engelmann spruce	*Picea engelmannii* Parry ex Engelm.
Foxtail pine	*Pinus balfouriana* Grev. & Balf.
Giant sequoia	*Sequoiadendron giganteum* (Lindl.) Buchholz.
Gray pine (foothill pine)	*Pinus sabiniana* Dougl.
Incense-cedar	*Libocedrus decurrens* Torr.
Jeffrey pine	*Pinus jeffreyi* Grev. & Balf.
Knobcone pine	*Pinus attenuata* Lemm.
Limber pine	*Pinus flexilis* James
Lodgepole pine	*Pinus contorta* Dougl. ex Loud.
Mountain hemlock	*Tsuga mertensiana* (Bong.) Carr.
Pacific yew	*Taxus brevifolia* Nutt.
Pinyon pine	*Pinus* spp.
Ponderosa pine	*Pinus ponderosa* Dougl. ex Laws.
Red fir:	
California red fir	*Abies magnifica* A. Murr.
Shasta red fir	*Abies magnifica* var. *shastensis* Lemmon
Redwood	*Sequoia sempervirens* (D. Don) Endl.
Subalpine fir	*Abies lasiocarpa* (Hook.) Nutt.
Sugar pine	*Pinus lambertiana* Dougl.
Western juniper	*Juniperus occidentalis* Hook.
Western white pine	*Pinus monticola* Dougl. ex D. Don
Whitebark pine	*Pinus albicaulis* Engelm.
White fir	*Abies concolor* (Gord. & Glend.) Lindl. ex Hildebr.

[2] Nomenclature per Little (1979).

Common name	Scientific name[2]
Hardwoods:	
Apple	*Malus* spp. Mill.
Bigleaf maple	*Acer macrophyllum* Pursh
Black cottonwood	*Populus tricocarpa* Torr. & Gray
Blue oak	*Quercus douglasii* Hook. & Arn.
California black oak	*Quercus kelloggii* Newb.
California buckeye	*Aesculus californica* (Spach) Nutt.
California-laurel	*Umbellularia californica* (Hook. & Arn.) Nutt.
Canyon live oak	*Quercus chrysolepis* Liebm.
Coast live oak	*Quercus agrifolia* Née
Fremont cottonwood	*Populus fremontii* Wats.
Giant chinkapin	*Castanopsis chrysophylla* (Dougl.) A. DC.
Interior live oak	*Quercus wislizeni* A. DC.
Oregon white oak	*Quercus garryana* Dougl. ex Hook.
Pacific dogwood	*Cornus nuttallii* Audubon
Pacific madrone	*Arbutus menziesii* Pursh
Quaking aspen	*Populus tremuloides* Michx.
Red alder	*Alnus rubra* Bong.
Tanoak	*Lithocarpus densiflorus* (Hook. & Arn.) Rehd.
Valley oak	*Quercus lobata* Née
White alder	*Alnus rhombifolia* Nutt.
Willow	*Salix* spp.

[2] Nomenclature per Little (1979).

Tables

Table 1--Land area, by county, land class, and administrative status, Sacramento Resource Area, California, 1994 [a b]

County	Forest land						Non-forest	All land [c]
	Timberland	Reserved timberland	Withdrawn timberland	Available other forest	Reserved other forest	Total forest		
	Thousand acres							
Butte	354	7	--	182	3	546	503	1,049
Colusa	23	4	0	216	3	246	491	737
El Dorado	636	32	13	167	16	864	231	1,095
Glenn	101	5	0	192	4	302	540	842
Lake	180	10	0	476	19	685	120	805
Napa	22	2	0	266	10	300	182	482
Nevada	354	4	0	132	6	496	117	613
Placer	421	35	3	139	28	626	273	899
Plumas	1,235	62	4	42	7	1,350	285	1,635
Sacramento	0	--	0	20	1	21	597	618
Sierra	450	3	--	49	2	504	106	610
Sutter	0	0	0	16	--	16	370	386
Tehama	410	50	14	608	83	1,165	724	1,889
Yolo	0	0	0	126	3	129	519	648
Yuba	112	3	0	63	6	184	219	403
Total	4,298	217	34	2,694	191	7,434	5,277	12,711

-- = less than 500 acres, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Source: U.S. Department of Commerce 1990.

Table 2--Area of reserved timberland, withdrawn timberland, and other forest land, by forest type, Sacramento Resource Area, California, 1994 [a b]

Forest type	Reserved timberland	Withdrawn timberland	Other forest		Total
			Available	Reserved	
	Thousand acres				
Softwood types:					
Alpine types	7	--	0	0	7
Gray pine	0	0	39	1	40
Jeffrey pine	2	0	3	0	5
Knobcone pine	--	0	30	2	32
Lodgepole pine	6	0	0	0	6
Ponderosa pine	6	3	20	0	30
Other pines	24	0	0	1	25
Mixed conifer	98	18	16	6	137
True firs	52	9	0	1	62
Pinyon-juniper	0	0	0	1	1
Other softwoods	1	0	0	4	5
Total, softwood types	196	30	108	17	351
Hardwood types:					
Blue oak	0	0	430	9	439
Valley oak	0	0	8	0	8
California black oak	7	2	49	7	64
Canyon live oak	0	0	123	14	137
Interior live oak	0	0	106	--	106
Other oaks	0	0	796	77	873
Other hardwoods	1	0	10	--	11
Total, hardwood types	8	2	1,522	107	1,638
Chaparral	0	0	1,024	63	1,087
Nonstocked	13	2	7	0	22
Unclassified	0	0	32	4	36
Total, all types	217	34	2,694	191	3,135

-- = less than 500 acres, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

Table 3--Area of timberland by county and owner class, Sacramento Resource Area , California, 1994 [a b]

County	Public						Private					
		Other public						Other private				
	National Forest	Bureau of Land Management	Miscellaneous Federal	State	County and municipal	Total public	Forest industry	Farmer	Native American	Miscel-laneous	Total private	All owners
	Thousand acres											
Butte	117	4	0	3	1	125	153	28	0	48	229	354
Colusa	21	0	0	0	0	21	0	1	0	1	2	23
El Dorado	377	6	0	2	0	385	120	3	0	128	251	636
Glenn	76	0	0	0	0	76	18	5	0	2	25	101
Lake	101	13	0	1	0	115	6	3	0	56	65	180
Napa	0	0	0	0	0	0	0	6	0	16	22	22
Nevada	134	14	1	4	2	155	36	3	0	160	199	354
Placer	244	8	4	2	1	259	69	6	0	87	162	421
Plumas	918	1	0	0	0	919	216	0	0	100	316	1,235
Sacramento	0	0	0	0	0	0	0	0	0	0	0	0
Sierra	338	0	0	0	1	339	63	3	0	45	111	450
Sutter	0	0	0	0	0	0	0	0	0	0	0	0
Tehama	194	10	0	1	0	205	196	6	0	3	205	410
Yolo	0	0	0	0	0	0	0	0	0	0	0	0
Yuba	36	0	0	0	0	36	34	12	0	30	76	112
Total	2,556	56	5	13	5	2,635	911	76	0	676	1,663	4,298

0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

Table 4--Area of timberland, by forest type and owner class, Sacramento Resource Area, California, 1994 [a] [b]

Forest type	National Forest	Other public	Forest industry	Other private	All owners
			Thousand acres		
Softwood types:					
Douglas-fir / hardwood	0	0	0	21	21
Mixed conifer--					
Mixed conifer	1,523	28	521	243	2,315
Mixed conifer / hardwood	0	12	95	113	220
Total	1,523	40	616	356	2,535
Ponderosa / Jeffrey pine--					
Ponderosa pine	163	4	36	68	270
Ponderosa pine / hardwood	0	3	3	7	14
Jeffrey pine	153	1	12	44	209
Total	316	8	51	119	493
True firs--					
White fir	98	11	70	7	186
Red fir	242	0	38	3	283
Total	340	11	108	10	468
Other softwood types--					
Lodgepole pine	7	1	19	14	41
Knobcone pine	1	0	0	1	2
Western white pine	0	0	3	0	3
Alpine types	14	0	0	0	14
Total	22	1	22	15	60
Total, softwood types	2,201	59	797	520	3,577
Hardwood types:					
White alder	0	0	3	0	3
Pacific madrone / softwood	0	0	8	6	14
Tanoak	6	0	0	2	9
Tanoak / softwood	0	0	10	8	17
Canyon live oak	0	20	16	24	60
Canyon live oak / softwood	0	0	18	16	34
California black oak	109	0	16	65	190
California black oak / softwood	0	0	17	51	68
Interior live oak	0	0	0	30	30
Interior live oak / softwood	0	0	0	4	4
California-laurel / softwood	0	0	8	7	16
Total, hardwood types	115	20	97	212	444
Nonstocked [c]	239	0	17	20	277
Total, all types	2,556	79	911	752	4,298

0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 5--Area of timberland, by owner class, stand-size class, and forest type group, Sacramento Resource Area, California, 1994 [a] [b]

Owner	Sawtimber			Poletimber			Seedling - sapling			All stand-size classes			
	Softwood types	Hardwood types	All types	Softwood types	Hardwood types	All types	Softwood types	Hardwood types	All types	Softwood types	Hardwood types	Not classified [c]	All types
	Thousand acres												
National Forest	1,759	111	1,870	301	3	305	137	0	137	2,197	115	245	2,556
Other public	56	20	75	4	0	4	--	0	--	59	20	0	79
Forest industry	742	54	796	22	34	56	33	8	41	797	97	17	911
Other private	475	136	610	24	53	77	21	23	45	520	212	20	752
All owners	3,031	321	3,352	351	91	442	191	32	223	3,573	443	282	4,298

-- = less than 500 acres, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Stand-size class was not determined for nonstocked stands, and for some hardwood types on National Forest land.

Table 6--Area of timberland, by cubic-foot site class and owner class, Sacramento Resource Area, California, 1994 [a] [b]

Owner	Site class [c]						All classes
	≥225	165-224	120-164	85-119	50-84	20-49	
	Thousand acres						
National Forest	0	87	766	920	547	236	2,556
Other public	0	7	7	31	26	9	79
Forest industry	16	98	213	304	191	88	911
Other private	9	16	150	122	231	224	752
All owners	25	208	1,137	1,377	995	556	4,298

0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Site class is the mean annual increment cubic-foot growth per acre at culmination in fully stocked, natural stands.

Table 7--Area of timberland, by forest type and stand-size class, Sacramento Resource Area, California, 1994 [a] [b]

Forest type	Sawtimber	Poletimber	Seedling-sapling	Not classified [c]	All classes
			Thousand acres		
Softwood types:					
Douglas-fir / hardwood	21	0	0	0	21
Mixed conifer--					
Mixed conifer	1,942	243	130	--	2,315
Mixed conifer / hardwood	201	11	7	0	220
Total	2,143	254	137	--	2,535
Ponderosa / Jeffrey pine--					
Ponderosa pine	223	31	17	0	271
Ponderosa pine / hardwood	11	3	0	0	14
Jeffrey pine	168	26	15	0	209
Total	402	60	32	0	494
True firs--					
White fir	159	18	9	0	186
Red fir	255	19	5	5	283
Total	413	37	13	5	468
Other softwood types--					
Lodgepole pine	34	0	8	0	41
Knobcone pine	1	0	1	0	2
Western white pine	3	0	0	0	3
Alpine types	14	0	0	0	14
Total	52	0	9	0	60
Total, softwood types	3,031	351	191	5	3,578
Hardwood types:					
White alder	3	0	0	0	3
Pacific madrone / softwood	6	8	0	0	14
Tanoak	6	0	2	0	9
Tanoak / softwood	10	6	2	0	17
Canyon live oak	43	16	0	0	60
Canyon live oak / softwood	31	3	0	0	34
California black oak	160	21	9	1	190
California black oak / softwood	50	17	2	0	68
Interior live oak	5	17	9	0	30
Interior live oak / softwood	0	4	0	0	4
California-laurel / softwood	7	0	8	0	16
Total, hardwood types	321	91	32	1	444
Nonstocked [d]	0	0	0	277	277
Total, all types	3,352	442	223	282	4,298

-- = less than 500 acres, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Stand-size class was not determined for nonstocked stands, and for some softwood and hardwood types on National Forest land.

[d] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 8--Number of live trees on timberland outside National Forests, by species and diameter class, Sacramento Resource Area, California, 1994 [a] [b]

Species	Diameter class (inches at breast height)													All classes
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0-38.9	39.0 +	
	Thousand trees													
Softwoods:														
White fir	74,238	29,245	19,459	7,675	8,211	6,314	4,021	3,154	1,882	1,487	1,575	2,848	152	160,261
California red fir	18,164	8,581	2,781	2,957	1,804	1,205	769	698	746	394	254	645	109	39,107
Western juniper	0	0	0	0	0	0	0	0	0	0	0	0	18	18
Incense-cedar	41,656	23,607	11,388	5,531	4,390	3,093	2,492	1,579	1,579	835	648	1,768	99	98,666
Knobcone pine	0	184	0	124	98	0	0	0	0	0	0	0	0	406
Lodgepole pine	2,827	1,220	887	209	1,318	418	315	311	80	130	52	193	6	7,965
Jeffrey pine	4,775	4,600	3,655	3,527	2,511	1,232	1,112	668	599	436	353	383	28	23,877
Sugar pine	6,692	2,902	1,812	1,039	785	655	491	438	316	383	202	1,032	157	16,904
Western white pine	380	724	0	0	0	90	94	0	57	0	64	112	20	1,540
Ponderosa pine	13,647	9,093	6,148	4,601	2,022	2,024	2,532	1,540	1,684	1,298	962	2,680	108	48,338
Gray pine	949	346	0	0	176	114	136	38	32	42	0	58	0	1,891
Douglas-fir	52,626	20,204	13,258	8,660	5,715	2,477	3,063	1,998	1,179	1,280	792	2,460	304	114,015
Redwood	1,900	173	0	136	77	104	0	134	57	64	17	135	8	2,804
Giant sequoia	0	0	184	0	0	0	0	0	0	0	0	0	0	184
Pacific yew	447	223	173	0	0	0	46	0	0	0	0	0	0	888
California-nutmeg	259	0	0	145	0	0	0	0	0	0	0	0	0	404
Total	218,562	101,102	59,745	34,601	27,107	17,724	15,071	10,557	8,210	6,349	4,917	12,314	1,008	517,267
Hardwoods:														
Bigleaf maple	4,667	1,965	1,071	1,272	673	55	162	132	29	18	0	6	0	10,049
California buckeye	1,324	568	0	0	0	0	0	0	0	0	0	0	0	1,892
Red alder	0	0	334	214	0	0	0	55	31	54	0	13	0	700
White alder	1,774	322	730	304	138	72	72	72	0	0	0	8	0	3,493
Pacific madrone	11,382	3,601	3,533	1,806	621	427	448	168	0	32	18	51	0	22,088
Pacific dogwood	11,422	1,561	0	0	0	0	0	0	0	0	0	0	0	12,983
Tanoak	28,914	9,705	2,748	3,013	1,296	535	260	144	31	30	45	59	0	46,780
Apple	0	0	0	0	0	0	45	0	0	0	0	0	0	45
Quaking aspen	0	0	0	0	0	0	0	0	0	0	24	0	0	24
Black cottonwood	0	0	0	0	101	0	0	0	0	0	0	42	0	143
Fremont cottonwood	0	0	0	0	0	0	0	0	0	0	17	0	0	17
Coast live oak	173	0	0	0	0	0	0	0	0	0	0	0	0	173
Canyon live oak	25,617	9,916	6,958	4,834	2,063	1,749	949	427	321	161	78	261	3	53,337
Blue oak	195	201	0	0	0	0	0	0	24	19	0	0	0	439
Oregon white oak	0	0	258	0	0	0	0	0	0	0	0	0	0	258
California black oak	16,328	11,210	11,251	9,820	5,319	3,089	2,359	1,010	854	470	451	1,075	71	63,306
Valley oak	0	530	0	0	0	0	0	0	0	0	0	0	0	530
Interior live oak	8,731	4,935	1,870	1,264	351	119	43	36	26	24	16	7	0	17,422
Willow	201	0	0	0	90	0	0	0	0	0	0	0	0	292
California-laurel	8,495	1,979	911	441	133	182	0	0	0	0	0	0	0	12,141
Total	119,223	46,494	29,664	22,967	10,786	6,228	4,340	2,044	1,315	807	648	1,522	74	246,110
All species	337,784	147,596	89,408	57,568	37,893	23,953	19,410	12,601	9,525	7,157	5,565	13,835	1,082	763,377

0 = none found

[a] Includes cull trees.

[b] Totals may be off because of rounding; data subject to sampling error.

Table 9--Number of growing-stock trees on timberland outside National Forests, by species and diameter class, Sacramento Resource Area, California, 1994 [a] [b]

Species	Diameter class (inches at breast height)													All classes
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0-38.9	39.0 +	
	Thousand trees													
Softwoods:														
White fir	72,419	28,589	18,847	7,539	8,211	6,256	3,959	3,154	1,882	1,487	1,575	2,788	152	156,857
California red fir	17,405	8,087	2,781	2,957	1,804	1,205	769	670	746	394	254	645	109	37,824
Incense-cedar	41,581	22,900	10,720	5,531	4,390	3,015	2,428	1,579	1,579	835	648	1,733	93	97,032
Knobcone pine	0	184	0	124	98	0	0	0	0	0	0	0	0	406
Lodgepole pine	2,827	1,220	703	209	1,318	418	270	311	80	130	52	174	6	7,717
Jeffrey pine	4,644	4,471	3,655	3,527	2,511	1,232	1,112	668	599	436	353	383	28	23,617
Sugar pine	6,211	2,741	1,812	1,039	785	655	491	438	316	383	202	1,032	157	16,261
Western white pine	380	724	0	0	0	90	94	0	57	0	64	112	20	1,540
Ponderosa pine	13,572	8,920	5,814	4,601	2,022	2,024	2,532	1,540	1,684	1,298	962	2,673	108	47,750
Douglas-fir	51,370	20,003	13,085	8,423	5,715	2,477	3,063	1,998	1,179	1,280	792	2,417	298	112,098
Redwood	1,900	173	0	136	77	104	0	134	57	64	17	135	8	2,804
Giant sequoia	0	0	184	0	0	0	0	0	0	0	0	0	0	184
California-nutmeg	259	0	0	145	0	0	0	0	0	0	0	0	0	404
Total	212,567	98,011	57,601	34,229	26,931	17,474	14,718	10,491	8,178	6,307	4,917	12,091	977	504,494
Hardwoods:														
Bigleaf maple	4,483	1,782	903	1,149	582	55	162	132	29	0	0	0	0	9,276
California buckeye	1,324	395	0	0	0	0	0	0	0	0	0	0	0	1,720
Red alder	0	0	258	214	0	0	0	55	31	54	0	13	0	625
White alder	1,774	322	730	304	138	72	56	72	0	0	0	8	0	3,476
Pacific madrone	11,026	2,670	1,997	1,512	541	348	351	133	0	32	18	51	0	18,679
Tanoak	20,726	9,125	2,408	2,850	1,190	535	260	144	31	30	19	52	0	37,368
Quaking aspen	0	0	0	0	0	0	0	0	0	0	24	0	0	24
Black cottonwood	0	0	0	0	101	0	0	0	0	0	0	42	0	143
Fremont cottonwood	0	0	0	0	0	0	0	0	0	0	17	0	0	17
Coast live oak	173	0	0	0	0	0	0	0	0	0	0	0	0	173
Canyon live oak	24,325	8,958	5,731	3,491	1,620	1,378	891	394	321	110	78	211	0	47,506
Blue oak	195	0	0	0	0	0	0	0	24	19	0	0	0	238
Oregon white oak	0	0	258	0	0	0	0	0	0	0	0	0	0	258
California black oak	15,736	10,825	9,768	9,184	4,762	2,819	2,117	952	702	369	382	821	35	58,471
Valley oak	0	530	0	0	0	0	0	0	0	0	0	0	0	530
Interior live oak	7,173	3,767	778	680	268	119	43	36	26	24	16	7	0	12,937
California-laurel	7,479	1,572	630	441	133	182	0	0	0	0	0	0	0	10,438
Total	94,414	39,946	23,462	19,824	9,334	5,507	3,880	1,918	1,163	638	552	1,204	35	201,876
All species	306,981	137,957	81,063	54,053	36,266	22,981	18,598	12,409	9,341	6,945	5,470	13,295	1,012	706,370

0 = none found

[a] Growing-stock trees are all live trees except cull trees (noncommercial species are classified as sound cull trees).

[b] Totals may be off because of rounding; data subject to sampling error.

Table 10--Net volume of growing stock on timberland, by species and diameter class, Sacramento Resource Area, California, 1994 [a b c]

Species	Diameter class (inches at breast height)											All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0-38.9	39.0 +	
	Million cubic feet											
Softwoods:												
White fir	79	119	194	261	273	311	300	291	1,008	613	400	3,849
Red fir	9	27	32	46	45	55	83	70	273	332	292	1,265
Incense-cedar	21	36	52	64	66	65	88	65	263	222	135	1,076
Whitebark pine	0	--	--	--	--	--	--	--	--	--	0	1
Knobcone pine	0	1	1	--	--	--	0	--	--	0	0	3
Lodgepole pine	2	5	20	16	20	28	16	17	54	27	5	209
Jeffrey pine	10	28	46	55	59	66	69	70	204	150	135	890
Sugar pine	5	10	14	19	25	35	37	51	223	257	354	1,029
Western white pine	0	1	3	4	4	3	5	4	32	26	35	117
Ponderosa pine	16	38	43	58	96	88	123	121	543	389	264	1,779
Douglas-fir	51	83	117	92	136	135	129	147	520	552	471	2,431
Redwood	0	--	1	2	0	3	2	4	13	6	4	34
Giant sequoia	--	0	0	0	0	0	0	0	0	0	0	--
California-nutmeg	0	1	0	0	0	0	0	0	0	0	0	1
Mountain hemlock	--	1	1	2	2	2	2	4	9	5	1	31
Other softwoods	0	0	--	--	1	--	--	--	--	--	0	1
Total	193	350	523	620	727	791	853	842	3,141	2,581	2,096	12,717
Hardwoods:												
Bigleaf maple	3	9	7	1	5	6	2	--	0	0	0	33
Red alder	1	2	0	1	--	3	2	3	1	2	0	15
White alder	2	2	1	1	1	2	0	0	0	1	0	10
Pacific madrone	7	12	6	7	11	7	--	3	9	1	--	65
Giant chinkapin	0	0	--	0	0	--	0	--	--	0	0	--
Tanoak	5	12	10	9	6	4	3	3	7	5	1	64
Quaking aspen	0	0	0	1	--	1	--	--	3	0	0	5
Black cottonwood	0	--	1	0	0	0	0	0	4	0	0	5
Fremont cottonwood	0	0	0	0	0	0	0	0	1	0	0	1
Canyon live oak	20	25	26	29	28	17	19	10	35	18	2	228
Blue oak	0	0	0	0	0	0	1	1	0	0	0	3
Oregon white oak	1	--	--	0	--	--	--	--	--	0	0	1
California black oak	45	82	75	75	75	56	49	37	172	90	19	774
Interior live oak	3	5	3	2	1	1	1	2	1	2	--	21
California-laurel	2	4	1	3	0	0	0	0	0	0	0	10
Other hardwoods	--	--	0	--	0	0	0	--	0	0	0	1
Total	88	153	130	128	127	98	78 0	60	233	119	22	1,235
All species	281	503	653	747	854	889	931	902	3,374	2,700	2,118	13,952

-- = less than 500,000 cubic feet, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Includes growing-stock trees ≥ 5 inches d.b.h.

[c] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

Table 11--Net volume of sawtimber on timberland, by species and diameter class, Sacramento Resource Area, California, 1994 [a b c]

Species	Diameter class (inches at breast height) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0-38.9	39.0 +	All classes
	Million board feet, Scribner rule									
Softwoods:										
White fir	605	975	1,206	1,402	1,411	1,462	5,575	3,814	2,584	19,033
Red fir	93	171	193	243	390	342	1,495	2,062	1,898	6,887
Incense-cedar	116	209	231	243	353	275	1,233	1,169	789	4,617
Whitebark pine	--	--	--	1	1	--	2	--	0	4
Knobcone pine	4	--	--	--	--	--	1	0	0	6
Lodgepole pine	58	54	83	117	72	85	294	160	31	952
Jeffrey pine	130	196	243	286	312	341	1,106	951	929	4,494
Sugar pine	41	63	105	150	169	253	1,230	1,631	2,468	6,109
Western white pine	8	15	16	11	23	17	171	155	236	651
Ponderosa pine	129	209	414	403	595	632	3,110	2,539	1,879	9,909
Douglas-fir	377	351	604	636	626	762	2,907	3,449	3,131	12,842
Redwood	2	6	0	12	8	20	68	36	23	174
Mountain hemlock	3	8	9	11	10	19	54	34	9	156
Other softwoods	--	--	3	2	1	1	1	1	0	9
Total	1,564	2,258	3,106	3,516	3,971	4,206	17,247	16,000	13,975	65,843
Hardwoods:										
Bigleaf maple		2	9	19	6	--	0	0	0	36
Red alder		3	1	14	11	15	5	11	0	58
White alder		3	4	10	0	0	0	4	0	21
Pacific madrone		17	36	21	--	11	23	--	--	108
Giant chinkapin		0	0	--	0	--	--	0	--	--
Tanoak		25	14	11	6	8	22	11	0	96
Quaking aspen		--	--	--	--	--	12	--	--	12
Black cottonwood		0	0	0	0	0	17	0	0	17
Fremont cottonwood		0	0	0	0	0	2	0	0	2
Canyon live oak		52	45	27	28	11	54	21	--	238
Blue oak		0	0	0	3	3	0	0	0	6
Oregon white oak		0	--	--	--	--	--	0	0	--
California black oak		92	97	72	76	59	280	132	24	833
Interior live oak		3	1	2	3	3	4	5	0	21
California-laurel		10	0	0	0	0	0	0	0	10
Other hardwoods		--	0	0	0	--	0	0	0	--
Total		205	208	177	132	110	418	183	24	1,457
All species	1,564	2,463	3,314	3,693	4,103	4,316	17,665	16,183	13,999	67,300

-- = less than 500,000 board feet, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Includes sawtimber softwood trees ≥ 9 inches d.b.h. and sawtimber hardwood trees ≥ 11 inches d.b.h.

[c] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

Table 12--Net volume of growing stock on timberland, by species and owner class, Sacramento Resource Area, California, 1994 [a b c]

Species	National Forest	Other public	Forest industry	Other private	All owners
			Million cubic feet		
Softwoods:					
White fir	2,687	97	827	239	3,849
Red fir	953	3	279	30	1,265
Incense-cedar	563	19	269	225	1,076
Whitebark pine	1	0	0	0	1
Knobcone pine	1	0	0	2	3
Lodgepole pine	128	9	36	36	209
Jeffrey pine	656	18	54	162	890
Sugar pine	668	3	305	54	1,029
Western white pine	86	0	19	12	117
Ponderosa pine	857	61	465	396	1,779
Douglas-fir	1,316	39	606	470	2,431
Redwood	0	0	0	34	34
Giant sequoia	0	0	0	--	--
California-nutmeg	0	0	1	0	1
Mountain hemlock	31	0	0	0	31
Other softwoods	1	0	0	0	1
Total	7,948	249	2,861	1,659	12,717
Hardwoods:					
Bigleaf maple	3	0	10	20	33
Red alder	5	0	8	3	15
White alder	0	0	8	2	10
Pacific madrone	8	2	9	46	65
Giant chinkapin	--	0	0	0	--
Tanoak	13	0	27	24	64
Quaking aspen	3	0	2	0	5
Black cottonwood	--	0	1	4	5
Fremont cottonwood	0	0	0	1	1
Canyon live oak	60	33	53	83	228
Blue oak	0	0	0	3	3
Oregon white oak	1	0	1	0	1
California black oak	246	14	184	330	774
Interior live oak	4	--	0	16	21
California-laurel	0	0	2	8	10
Other hardwoods	1	0	0	0	1
Total	343	49	304	539	1,235
All species	8,291	298	3,165	2,198	13,952

-- = less than 500,000 cubic feet, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Includes growing-stock trees ≥ 5 inches d.b.h.

[c] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

Table 13--Net volume of sawtimber on timberland, by species and owner class, Sacramento Resource Area, California, 1994 [a b c]

Species	National Forest	Other public	Forest industry	Other private	All owners
			Million board feet, Scribner rule		
Softwoods:					
White fir	13,790	443	3,786	1,014	19,033
Red fir	5,393	14	1,332	148	6,887
Incense-cedar	2,637	63	1,005	913	4,617
Whitebark pine	4	0	0	0	4
Knobcone pine	3	0	0	3	6
Lodgepole pine	592	50	164	147	953
Jeffrey pine	3,483	102	258	652	4,494
Sugar pine	4,072	18	1,724	295	6,109
Western white pine	487	0	100	65	651
Ponderosa pine	5,010	353	2,497	2,050	9,909
Douglas-fir	7,407	191	3,005	2,240	12,842
Redwood	0	0	0	174	174
Mountain hemlock	156	0	0	0	156
Other softwoods	9	0	0	0	9
Total	43,041	1,233	13,868	7,701	65,843
Hardwoods:					
Bigleaf maple	0	0	4	32	36
Red alder	23	0	24	12	58
White alder	0	0	13	8	21
Pacific madrone	0	8	11	89	108
Giant chinkapin	--	0	0	0	--
Tanoak	0	0	45	51	96
Quaking aspen	0	0	12	0	12
Black cottonwood	0	0	0	17	17
Fremont cottonwood	0	0	0	2	2
Canyon live oak	0	56	87	95	238
Blue oak	0	0	0	6	6
Oregon white oak	--	0	0	0	--
California black oak	0	26	266	541	833
Interior live oak	0	0	0	21	21
California-laurel	0	0	3	7	10
Other hardwoods	--	0	0	0	--
Total	23	90	466	879	1,457
All species	43,063	1,323	14,334	8,580	67,300

-- = less than 500,000 board feet, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Includes sawtimber softwood trees ≥ 9 inches d.b.h. and sawtimber hardwood trees ≥ 11 inches d.b.h.

[c] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

Table 14--Net volume of growing stock on timberland, by forest type and stand-size class, Sacramento Resource Area, California, 1994 [a b c]

Forest type	Sawtimber	Poletimber	Seedling-sapling	Not classified [d]	All classes
			Million cubic feet		
Softwood types:					
Douglas-fir / hardwood	79	0	0	0	79
Mixed conifer--					
Mixed conifer	8,191	606	22	0	8,820
Mixed conifer / hardwood	769	20	10	0	799
Total	8,961	626	32	0	9,618
Ponderosa / Jeffrey pine--			0		
Ponderosa pine	691	41	2	0	734
Ponderosa pine / hardwood	19	2	0	0	21
Jeffrey pine	364	43	2	0	410
Total	1,075	86	4	0	1,165
True firs--					
White fir	523	17	5	0	545
Red fir	1,107	26	3	0	1,136
Total	1,630	43	8	0	1,681
Other softwood types--					
Lodgepole pine	127	0	--	0	127
Knobcone pine	--	0	0	0	--
Western white pine	17	0	0	0	17
Alpine types	52	0	0	0	52
Total	196	0	--	0	196
Total, softwood types	11,940	755	44	0	12,739
Hardwood types:					
White alder	12	0	0	0	12
Pacific madrone / softwood	16	4	0	0	20
Tanoak	--	0	9	0	9
Tanoak / softwood	56	21	0	0	78
Canyon live oak	106	28	0	0	133
Canyon live oak / softwood	106	3	0	0	109
California black oak	386	46	9	2	443
California black oak / softwood	168	30	0	0	198
Interior live oak	13	13	8	0	34
Interior live oak / softwood	0	13	0	0	13
California-laurel / softwood	16	0	20	0	36
Total, hardwood types	879	158	47	2	1,085
Nonstocked [e]	0	0	0	128	128
Total, all types	12,819	913	90	130	13,952

-- = less than 500,000 cubic feet, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Includes growing-stock trees ≥ 5 inches d.b.h.

[c] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[d] Stand-size class was not determined for nonstocked stands, and for some hardwood types on National Forest land.

[e] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 15--Net volume of sawtimber on timberland, by forest type and stand-size class, Sacramento Resource Area, California, 1994 [a b c]

Forest type	Sawtimber	Poletimber	Seedling-sapling	Not classified [d]	All classes
			Million board feet, Scribner rule		
Softwood types:					
Douglas-fir / hardwood	341	0	0	0	341
Mixed conifer--					
Mixed conifer	41,930	2,465	100	0	44,495
Mixed conifer / hardwood	3,025	50	53	0	3,128
Total	44,954	2,515	153	0	47,622
Ponderosa / Jeffrey pine--					
Ponderosa pine	3,250	165	8	0	3,422
Ponderosa pine / hardwood	80	0	0	0	80
Jeffrey pine	1,615	132	8	0	1,755
Total	4,945	297	16	0	5,258
True firs--					
White fir	2,404	83	27	0	2,514
Red fir	6,040	130	14	0	6,184
Total	8,444	213	41	0	8,698
Other softwood types--					
Lodgepole pine	594	0	0	0	594
Knobcone pine	--	0	0	0	--
Western white pine	92	0	0	0	92
Alpine types	285	0	--	0	285
Total	971	0	--	0	971
Total, softwood types	59,655	3,025	209	0	62,889
Hardwood types:					
White alder	42	0	0	0	42
Pacific madrone / softwood	54	6	0	0	60
Tanoak	2	0	45	0	47
Tanoak / softwood	256	49	0	0	305
Canyon live oak	324	38	0	0	362
Canyon live oak / softwood	371	5	0	0	376
California black oak	1,595	46	19	1	1,661
California black oak / softwood	546	56	0	0	602
Interior live oak	42	36	27	0	105
Interior live oak / softwood	0	63	0	0	63
California-laurel / softwood	54	0	103	0	156
Total, hardwood types	3,285	298	194	1	3,779
Nonstocked [e]	0	0	0	631	631
Total, all types	62,940	3,323	404	633	67,300

-- = less than 500,000 board feet, 0= none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Includes sawtimber softwood trees ≥ 9 inches d.b.h. and sawtimber hardwood trees ≥ 11 inches d.b.h.

[c] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[d] Stand-size class was not determined for nonstocked stands, and for some hardwood types on National Forest land.

[e] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 16--Net volume of growing stock on timberland, by forest type and owner class, Sacramento Resource Area, California, 1994 [a b c]

Forest type	National Forest	Other public	Forest industry	Other private	All owners
			Million cubic feet		
Softwood types:					
Douglas-fir / hardwood	0	0	0	79	79
Mixed conifer--					
Mixed conifer	5,973	132	1,884	832	8,820
Mixed conifer / hardwood	0	18	357	423	799
Total	5,973	150	2,241	1,255	9,618
Ponderosa / Jeffrey pine--					
Ponderosa pine	462	20	109	143	734
Ponderosa pine / hardwood	0	10	2	9	21
Jeffrey pine	271	2	20	117	410
Total	733	32	131	269	1,165
True firs--					
White fir	185	64	250	46	545
Red fir	959	0	173	3	1,136
Total	1,145	64	424	49	1,681
Other softwood types--					
Lodgepole pine	34	11	30	51	127
Knobcone pine	--	0	0	0	--
Western white pine	--	0	17	0	17
Alpine types	52	0	0	0	52
Total	87	11	47	51	196
Total, softwood types	7,937	258	2,843	1,702	12,739
Hardwood types:					
White alder	0	0	12	0	12
Pacific madrone / softwood	0	0	4	16	20
Tanoak	--	0	0	9	9
Tanoak / softwood	0	0	56	21	78
Canyon live oak	0	40	43	50	133
Canyon live oak / softwood	0	0	72	37	109
California black oak	231	0	63	149	443
California black oak / softwood	0	0	49	149	198
Interior live oak	0	0	0	34	34
Interior live oak / softwood	0	0	0	13	13
California-laurel / softwood	0	0	20	16	36
Total, hardwood types	231	40	319	494	1,085
Nonstocked [d]	123	0	3	2	128
Total, all types	8,291	298	3,165	2,198	13,952

-- = less than 500,000 cubic feet, 0 = none found
[a] Totals may be off because of rounding; data subject to sampling error.
[b] Includes growing-stock trees ≥ 5 inches d.b.h.
[c] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.
[d] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 17--Net volume of sawtimber on timberland, by forest type and owner class, Sacramento Resource Area, California, 1994 [a b c]

Forest type	National Forest	Other public	Forest industry	Other private	All owners
			Million board feet, Scribner rule		
Softwood types:					
Douglas-fir / hardwood	0	0	0	341	341
Mixed conifer--					
Mixed conifer	31,302	619	8,999	3,575	44,495
Mixed conifer / hardwood	0	73	1,439	1,616	3,128
Total	31,302	692	10,438	5,191	47,622
Ponderosa / Jeffrey pine--					
Ponderosa pine	2,094	127	525	675	3,422
Ponderosa pine / hardwood	0	39	0	42	80
Jeffrey pine	1,219	9	97	431	1,755
Total	3,313	175	623	1,147	5,258
True firs--					
White fir	858	287	1,153	216	2,514
Red fir	5,336	0	834	13	6,184
Total	6,194	287	1,988	229	8,698
Other softwood types--					
Lodgepole pine	180	57	130	227	594
Knobcone pine	--	0	0	0	--
Western white pine	1	0	91	0	92
Alpine types	285	0	0	0	285
Total	466	57	221	227	971
Total, softwood types	41,274	1,211	13,269	7,135	62,889
Hardwood types:					
White alder	0	0	42	0	42
Pacific madrone / softwood	0	0	6	54	60
Tanoak	2	0	0	45	47
Tanoak / softwood	0	0	256	49	305
Canyon live oak	0	112	169	81	362
Canyon live oak / softwood	0	0	232	144	376
California black oak	1,175	0	115	371	1,661
California black oak / softwood	0	0	133	469	602
Interior live oak	0	0	0	105	105
Interior live oak / softwood	0	0	0	63	63
California-laurel / softwood	0	0	103	54	156
Total, hardwood types	1,177	112	1,056	1,435	3,779
Nonstocked [d]	612	0	10	9	631
Total, all types	43,063	1,323	14,334	8,580	67,300

0 = none found
[a] Totals may be off because of rounding; data subject to sampling error.
[b] Includes sawtimber softwood trees ≥ 9 inches d.b.h. and sawtimber hardwood trees ≥ 11 inches d.b.h.
[c] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.
[d] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 18--Volume of timber on timberland, by class of timber, owner group, and species group, Sacramento Resource Area, California, 1994 [a] [b]

Class of timber	Softwood species	Hardwood species	All species
	Million cubic feet		
Sawtimber trees:			
Outside National Forests--			
Saw-log portion	4,384	350	4,734
Upper-stem portion	98	247	344
Total	4,482	597	5,078
National Forests	7,692	298	7,991
Total, sawtimber trees	12,173	895	13,069
Poletimber trees (all owners)	544	340	884
All growing-stock trees	12,717	1,235	13,952
Cull trees:			
Outside National Forests--			
Sound cull trees	19	65	85
Rotten cull trees	19	62	81
Total	39	127	166
National Forests	48	11	60
Total, cull trees	87	138	225
All timber	12,804	1,374	14,178

[a] Totals may be off because of rounding; data subject to sampling error.
[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

Table 19--Current net annual growth of growing stock on timberland, by forest type and owner class, Sacramento Resource Area, California, 1994 [a] [b]

Forest type	National Forest	Other public	Forest industry	Other private	All owners
			Thousand cubic feet		
Softwood types:					
Douglas-fir / hardwood	0	0	0	1,823	1,823
Mixed conifer--					
Mixed conifer	152,786	2,608	35,490	16,329	207,213
Mixed conifer / hardwood	0	500	8,639	10,429	19,567
Total	152,786	3,108	44,129	26,758	226,780
Ponderosa / Jeffrey pine--					
Ponderosa pine	11,821	92	3,078	2,700	17,691
Ponderosa pine / hardwood	0	305	277	58	640
Jeffrey pine	7,039	14	509	2,834	10,395
Total	18,860	411	3,864	5,592	28,726
True firs--					
White fir	4,635	1,236	1,236	786	7,892
Red fir	20,944	0	1,326	45	22,315
Total	25,579	1,236	2,562	830	30,207
Other softwood types--					
Lodgepole pine	768	73	463	953	2,257
Western white pine	0	0	92	0	92
Alpine types	840	0	0	0	840
Total	1,608	73	555	953	3,189
Total, softwood types	198,833	4,827	51,110	35,955	290,725
Hardwood types:					
White alder	0	0	384	0	384
Pacific madrone / softwood	0	0	194	492	685
Tanoak	10	0	0	153	163
Tanoak / softwood	0	0	1,356	1,019	2,375
Canyon live oak	0	479	334	726	1,539
Canyon live oak / softwood	0	0	844	511	1,355
California black oak	5,101	0	949	3,372	9,422
California black oak / softwood	0	0	1,247	3,845	5,091
Interior live oak	0	0	0	817	817
Interior live oak / softwood	0	0	0	146	146
California-laurel / softwood	0	0	259	510	769
Total, hardwood types	5,101	479	5,565	11,592	22,736
Nonstocked [c]	2,953	0	41	135	3,128
Total, all types	206,886	5,306	56,716	47,681	316,589

0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 20--Current net annual growth of sawtimber on timberland outside National Forests, by forest type and owner class, Sacramento Resource Area, California, 1994 [a b]

Forest type	Other public	Forest industry	Other private	All owners
	Thousand board feet, Scribner rule			
Softwood types:				
Douglas-fir / hardwood	0	0	9,481	9,481
Mixed conifer--				
Mixed conifer	17,524	222,231	98,259	338,014
Mixed conifer / hardwood	2,192	41,870	48,594	92,656
Total	19,716	264,100	146,854	430,670
Ponderosa / Jeffrey pine--				
Ponderosa pine	916	18,680	14,122	33,718
Ponderosa pine / hardwood	1,625	0	391	2,016
Jeffrey pine	91	2,854	14,380	17,325
Total	2,633	21,534	28,892	53,059
True firs--				
White fir	7,229	12,247	5,247	24,724
Red fir	0	10,080	266	10,346
Total	7,229	22,327	5,513	35,069
Other softwood types--				
Lodgepole pine	384	4,560	4,390	9,334
Western white pine	0	748	0	748
Total	384	5,307	4,390	10,082
Total, softwood types	29,962	313,269	195,129	538,360
Hardwood types:				
White alder	0	1,520	0	1,520
Pacific madrone / softwood	0	467	1,963	2,430
Tanoak	0	0	919	919
Tanoak / softwood	0	9,716	2,657	12,373
Canyon live oak	2,625	1,751	5,572	9,949
Canyon live oak / softwood	0	3,008	1,793	4,801
California black oak	0	1,622	18,088	19,710
California black oak / softwood	0	5,956	13,999	19,954
Interior live oak	0	0	2,687	2,687
Interior live oak / softwood	0	0	721	721
California-laurel / softwood	0	1,865	4,889	6,755
Total, hardwood types	2,625	25,906	53,288	81,819
Nonstocked [c]	0	144	751	894
Total, all types	32,588	339,318	249,168	621,073

0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Board-foot growth is not available on National Forest land.

[c] Nonstocked areas are less than 10 percent with live trees. Recent clearcuts scheduled for planting are included.

Table 21-Average annual mortality of growing stock on timberland, by forest type and owner class, Sacramento Resource Area, California, 1994 [a] [b]

Forest type	National Forest	Other public	Forest industry	Other private	All owners
			Thousand cubic feet		
Softwood types:					
Douglas-fir / hardwood	0	0	0	467	467
Mixed conifer--					
Mixed conifer	44,674	1,149	18,952	7,024	71,799
Mixed conifer / hardwood	0	115	2,962	3,385	6,463
Total	44,674	1,264	21,914	10,409	78,262
Ponderosa / Jeffrey pine--					
Ponderosa pine	1,275	204	938	1,172	3,588
Ponderosa pine / hardwood	0	73	20	55	148
Jeffrey pine	4,977	5	100	820	5,901
Total	6,252	281	1,058	2,046	9,636
True firs--					
White fir	6,473	874	4,902	757	13,006
Red fir	8,949	0	3,500	43	12,492
Total	15,421	874	8,402	800	25,497
Other softwood types--					
Lodgepole pine	254	98	263	593	1,208
Western white pine	0	0	152	0	152
Alpine types	366	0	0	0	366
Total	620	98	415	593	1,726
Total, softwood types	66,968	2,516	31,788	14,316	115,588
Hardwood types:					
White alder	0	0	127	0	127
Pacific madrone / softwood	0	0	40	124	164
Tanoak	1	0	0	49	50
Tanoak / softwood	0	0	524	215	740
Canyon live oak	0	114	250	213	577
Canyon live oak / softwood	0	0	970	129	1,099
California black oak	1,489	0	729	952	3,170
California black oak / softwood	0	0	400	1,183	1,583
Interior live oak	0	0	0	214	214
Interior live oak / softwood	0	0	0	86	86
California-laurel / softwood	0	0	117	118	234
Total, hardwood types	1,490	114	3,156	3,283	8,043
Nonstocked [c]	638	0	56	16	710
Total, all types	69,095	2,630	35,001	17,615	124,342

0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 22--Average annual mortality of sawtimber on timberland outside National Forests, by forest type and owner class, Sacramento Resource Area, California, 1994 [a] [b]

Forest type	Other public	Forest industry	Other private	All owners
	Thousand board feet, Scribner rule			
Softwood types:				
Douglas-fir / hardwood	0	0	1,276	1,276
Mixed conifer--				
Mixed conifer	5,385	87,121	28,490	120,996
Mixed conifer / hardwood	323	10,324	11,013	21,661
Total	5,708	97,445	39,503	142,656
Ponderosa / Jeffrey pine--				
Ponderosa pine	1,224	4,100	5,395	10,718
Ponderosa pine / hardwood	286	0	226	512
Jeffrey pine	22	477	2,494	2,993
Total	1,532	4,577	8,114	14,222
True firs--				
White fir	4,014	22,812	3,491	30,317
Red fir	0	17,740	199	17,939
Total	4,014	40,552	3,689	48,255
Other softwood types--				
Lodgepole pine	468	1,101	2,719	4,288
Western white pine	0	776	0	776
Total	468	1,877	2,719	5,065
Total, softwood types	11,722	144,451	55,302	211,474
Hardwood types:				
White alder	0	255	0	255
Pacific madrone / softwood	0	24	322	346
Tanoak	0	0	231	231
Tanoak / softwood	0	2,008	430	2,438
Canyon live oak	358	933	312	1,603
Canyon live oak / softwood	0	3,328	512	3,841
California black oak	0	1,220	1,773	2,993
California black oak / softwood	0	1,265	2,473	3,738
Interior live oak	0	0	591	591
Interior live oak / softwood	0	0	245	245
California-laurel / softwood	0	231	327	558
Total, hardwood types	358	9,264	7,215	16,838
Nonstocked [c]	0	222	72	294
Total, all types	12,080	153,937	62,589	228,606

0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Board-foot mortality is not available on National Forest land.

[c] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 23--Land area, by county and land class (metric), Sacramento Resource Area, California, 1994 [a] [b]

County	Forest land							
	Timberland	Reserved timberland	Withdrawn timberland	Available other forest	Reserved other forest	Total forest	Non-forest	All land [c]
	Thousand hectares							
Butte	143	3	--	74	1	221	204	425
Colusa	9	2	0	87	1	99	199	298
El Dorado	257	13	5	68	6	350	93	443
Glenn	41	2	0	78	2	122	219	341
Lake	73	4	0	193	8	277	49	326
Napa	9	1	0	108	4	121	74	195
Nevada	143	2	0	53	2	201	47	248
Placer	170	14	1	56	11	253	111	364
Plumas	500	25	2	17	3	546	116	662
Sacramento	0	--	0	8	--	9	241	250
Sierra	182	1	--	20	1	204	43	247
Sutter	0	0	0	6	--	6	150	156
Tehama	166	20	6	246	34	471	293	764
Yolo	0	0	0	51	1	52	210	262
Yuba	45	1	0	25	2	74	89	163
Total	1,739	88	14	1,090	77	3,008	2,136	5,144

-- = less than 500 hectares, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Source: U.S. Department of Commerce 1990.

Table 24--Area of timberland, by owner class and stand-size class (metric), Sacramento Resource Area, California, 1994 [a] [b]

Owner	Sawtimber	Poletimber	Seedling-sapling	Not classified [c]	All classes
	Thousand hectares				
National Forest	757	123	55	99	1,034
Other public	31	1	--	0	32
Forest industry	322	23	17	7	369
Other private	247	31	18	8	304
All owners	1,357	179	90	114	1,739

-- = less than 500 hectares; 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Stand-size class was not determined for nonstocked stands, and for some softwood and hardwood types on National Forest land.

Table 25--Area of reserved timberland and other forest land, by forest type and owner class, Sacramento Resource Area, California, 1994 [a] [b]

Land class and forest type	National Forest	Other public	Forest industry	Other private	All owners
			Thousand acres		
Reserved timberland:					
Softwood types--					
Alpine types	7	0	0	0	7
Mixed conifer	86	12	0	0	98
Lodgepole pine	1	5	0	0	6
Ponderosa pine	6	0	0	0	6
Other pines	2	24	0	--	26
True firs	44	9	0	0	53
Other softwoods	0	1	0	0	1
Total	146	50	0	--	196
Hardwood types--					
California black oak	7	0	0	0	7
Other hardwoods	1	--	0	0	1
Total	8	1	0	0	8
Nonstocked	13	0	0	0	13
Total, reserved timberland	167	50	0	--	217
Reserved other forest:					
Softwood types--					
Red fir	1	0	0	0	1
Mixed conifer	6	0	0	0	6
Gray pine	1	1	0	0	1
Knobcone pine	2	0	0	0	2
Other pines	0	1	0	0	1
Cypress	0	4	0	0	4
Pinyon-juniper	0	1	0	0	1
Total	10	7	0	0	17
Hardwood types--					
Blue oak	9	0	0	0	9
California black oak	7	0	0	0	7
Canyon live oak	14	0	0	0	14
Other oaks	--	57	0	20	77
Other hardwoods	--	0	0	0	--
Total	30	57	0	20	107
Chaparral	40	23	0	--	63
Unclassified	--	3	0	1	4
Total, reserved other forest	80	90	0	21	191
Total, reserved forest land	247	140	0	21	408
Available other forest:					
Softwood types--					
Mixed conifer	16	--	0	0	16
Ponderosa pine	11	0	0	9	20
Jeffrey pine	0	3	0	0	3
Knobcone pine	30	0	0	0	30
Gray pine	1	0	8	30	39
Total	58	4	8	38	108
Hardwood types--					
Blue oak	11	14	0	406	430
Valley oak	0	0	0	8	8
California black oak	15	0	0	34	49
Canyon live oak	78	11	--	34	123
Interior live oak	--	0	0	106	106
Other oaks	--	42	13	741	796
Aspen / cottonwood	2	0	0	0	2
White alder	6	0	0	0	6
Willow	1	0	0	1	2
Total	113	66	13	1,330	1,522
Chaparral	297	224	3	500	1,024
Nonstocked	0	7	0	0	7
Unclassified	3	2	11	17	32
Total, available other forest	470	303	36	1,885	2,694

-- = less than 500 acres, 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

Table 26--Area, net volume of growing stock, and net volume of sawtimber on timberland, by stand age and owner class, Sacramento Resource Area, California, 1994 [a] [b]

Stand age	National Forest			Other public			Forest industry			Other private			All owners		
	Area	Growing stock volume	Sawtimber volume, Scribner rule	Area	Growing stock volume	Sawtimber volume, Scribner rule	Area	Growing stock volume	Sawtimber volume, Scribner rule	Area	Growing stock volume	Sawtimber volume, Scribner rule	Area	Growing stock volume	Sawtimber volume, Scribner rule
	Thousand acres	*Thousand cubic feet*	*Thousand board feet*	*Thousand acres*	*Thousand cubic feet*	*Thousand board feet*	*Thousand acres*	*Thousand cubic feet*	*Thousand board feet*	*Thousand acres*	*Thousand cubic feet*	*Thousand board feet*	*Thousand acres*	*Thousand cubic feet*	*Thousand board feet*
Even-aged:															
0-9	95	2,195	8,624	--	0	0	26	0	0	17	5,273	26,670	138	7,468	35,294
10-19	--	0	0	0	0	0	0	0	0	4	12,908	64,465	4	12,908	64,465
20-29	30	13,716	33,304	--	0	0	0	0	0	0	0	0	30	13,716	33,304
30-39	30	20,574	75,607	0	0	0	9	9,180	36,218	30	57,080	176,277	69	86,834	288,102
40-49	0	9,984	36,147	4	3,131	6,516	17	39,988	149,985	49	126,061	337,861	70	179,163	530,508
50-59	22	--	--	3	10,298	38,841	97	255,206	919,609	29	48,413	170,071	151	313,917	1,128,522
60-69	6	8,561	35,352	0	0	0	27	97,494	451,929	17	37,709	71,602	49	143,764	558,883
70-79	44	79,347	339,933	11	74,732	366,883	78	356,019	1,570,001	80	251,990	971,209	213	762,087	3,248,027
80-89	52	119,503	537,821	3	11,423	54,959	31	124,889	541,816	50	175,345	716,562	136	431,159	1,851,158
90-99	348	1,353,563	7,000,865	5	11,749	53,646	30	145,239	645,827	55	151,904	555,742	438	1,662,455	8,256,080
100-109	474	2,047,650	10,653,364	0	0	0	7	23,486	125,521	20	88,095	395,117	501	2,159,230	11,174,001
110-119	287	979,386	5,051,873	0	0	0	0	0	0	20	37,246	158,958	307	1,016,632	5,210,832
120-129	341	1,552,591	8,411,658	0	0	0	0	0	0	0	0	0	341	1,552,591	8,411,658
130-139	103	312,953	1,377,767	0	0	0	14	58,972	338,595	2	2,479	8,920	119	374,404	1,725,282
140-149	88	281,331	1,519,539	0	0	0	0	0	0	0	0	0	88	281,331	1,519,539
150-159	26	92,951	489,636	0	0	0	0	0	0	0	0	0	26	92,951	489,636
160-169	31	115,454	585,654	0	0	0	0	0	0	0	0	0	31	115,454	585,654
170-179	63	223,114	1,117,193	1	11,434	56,993	0	0	0	0	0	0	65	234,547	1,174,187
180-189	108	712,805	3,927,161	0	0	0	0	0	0	0	0	0	108	712,805	3,927,161
190-199	49	183,017	923,277	1	1,741	8,570	0	0	0	0	0	0	49	184,758	931,848
200-299	16	59,063	325,189	0	0	0	10	22,864	123,708	0	0	0	27	81,927	448,897
300 +	--	170	950	0	0	0	0	0	0	7	8,851	43,707	8	9,021	44,657
Uneven-aged:															
< 100	0	0	0	21	94,382	399,087	246	831,332	3,619,326	177	695,594	2,753,804	443	1,621,308	6,772,217
100 +	0	0	0	29	79,114	337,339	300	1,197,197	5,801,948	177	497,052	2,119,264	506	1,773,363	8,258,551
Nonstocked [c]	239	123,135	612,190	0	0	0	17	2,690	9,674	20	2,182	9,452	277	128,006	631,317
Undetermined [d]	107	0	0	0	0	0	0	0	0	0	0	0	107	0	0
Total, all ages	2,556	8,291,060	43,063,104	79	298,003	1,322,834	911	3,164,555	14,334,157	752	2,198,180	8,579,682	4,298	13,951,797	67,299,776

-- = less than 500 acres, 500 cubic feet, or 500 board feet; 0 = none found

[a] Totals may be off because of rounding, data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

[d] No age class was estimated for these stands.

Table 27--Net volume of growing stock and sawtimber on timberland, by county, owner class, and species group, Sacramento Resource Area, California, 1994 [a] [b]

County	National Forest			Other public			Forest industry			Other private			All owners		
	Softwood species	Hardwood species	All species	Softwood species	Hardwood species	All species	Softwood species	Hardwood species	All species	Softwood species	Hardwood species	All species	Softwood species	Hardwood species	All species
							Million cubic feet								
Growing stock:															
Butte	346	35	381	9	8	17	574	118	692	127	96	223	1,056	257	1,313
Colusa	67	11	78	0	0	0	0	0	0	5	6	11	72	17	89
El Dorado	1,358	75	1,433	34	4	38	338	8	346	290	129	419	2,020	216	2,236
Glenn	238	34	272	0	0	0	32	0	32	9	0	9	279	34	313
Lake	259	46	305	18	24	42	2	2	4	74	41	115	353	113	466
Napa	0	0	0	0	0	0	0	0	0	52	28	80	52	28	80
Nevada	453	3	456	123	4	127	160	3	163	386	95	481	1,122	105	1,227
Placer	845	16	861	48	6	54	139	58	197	213	46	259	1,245	126	1,371
Plumas	2,470	51	2,521	2	0	2	647	38	685	252	18	270	3,371	107	3,478
Sierra	1,107	6	1,114	5	0	5	236	2	238	169	15	184	1,517	23	1,541
Tehama	665	62	726	10	3	13	547	44	591	16	1	17	1,238	110	1,347
Yuba	140	6	146	0	0	0	186	31	217	66	64	130	392	101	493
Total	7,948	344	8,291	249	49	298	2,861	304	3,165	1,659	539	2,198	12,717	1,236	13,952
							Million board feet, Scribner rule								
Sawtimber:															
Butte	1,865	3	1,867	42	15	57	2,941	149	3,090	685	161	846	5,533	328	5,860
Colusa	375	0	375	0	0	0	0	0	0	26	5	31	401	5	406
El Dorado	7,601	5	7,607	189	9	198	1,595	16	1,611	1,478	245	1,723	10,863	275	11,139
Glenn	1,365	0	1,365	0	0	0	132	0	132	42	0	42	1,539	0	1,539
Lake	1,470	0	1,470	90	46	136	4	0	4	307	49	356	1,871	95	1,966
Napa	0	0	0	0	0	0	0	0	0	273	48	321	273	48	321
Nevada	2,474	0	2,474	595	10	605	752	10	762	1,822	159	1,981	5,643	179	5,822
Placer	4,641	1	4,642	236	10	246	625	114	739	968	66	1,034	6,470	191	6,661
Plumas	12,844	14	12,858	11	0	11	3,052	42	3,094	982	24	1,006	16,889	80	16,969
Sierra	6,006	--	6,006	17	0	17	1,061	8	1,069	770	8	778	7,854	16	7,870
Tehama	3,607	0	3,607	53	0	53	2,652	68	2,720	72	3	75	6,384	71	6,455
Yuba	792	1	792	0	0	0	1,054	59	1,113	276	111	387	2,122	171	2,292
Total	43,040	23	43,063	1,233	90	1,323	13,868	466	14,334	7,701	879	8,580	65,843	1,457	67,300
							Million cubic meters								
Growing stock:															
Butte	10	1	11	--	--	--	16	3	20	4	3	6	30	7	37
Colusa	2	--	2	0	0	0	0	0	0	--	--	--	2	--	3
El Dorado	38	2	41	1	--	1	10	--	10	8	4	12	57	6	63
Glenn	7	1	8	0	0	0	1	0	1	--	0	--	8	1	9
Lake	7	1	9	1	1	1	--	--	--	2	1	3	10	3	13
Napa	0	0	0	0	0	0	0	0	0	1	1	2	1	1	2
Nevada	13	--	13	3	--	4	5	--	5	11	3	14	32	3	35
Placer	24	--	24	1	--	2	4	2	6	6	1	7	35	4	39
Plumas	70	1	71	--	0	--	18	1	19	7	1	8	95	3	98
Sierra	31	--	32	--	0	--	7	--	7	5	--	5	43	1	44
Tehama	19	2	21	--	--	--	15	1	17	--	--	--	35	3	38
Yuba	4	--	4	0	0	0	5	1	6	2	2	4	11	3	14
Total	225	10	235	7	1	8	81	9	90	47	15	62	360	35	395

-- = less than 500,000 board feet, or 500,000 cubic meters; 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

Table 28--Current net annual growth, average annual mortality, and average annual removals of growing stock on timberland, by species and owner, Sacramento Resource Area, California, 1994 [a] [b]

Species	National Forest [c]		Outside National Forests												All owners [c]	
			Other public			Forest industry			Other private			Total, outside National Forests				
	Current net annual growth	Average annual mortality	Current net annual growth	Average annual mortality	Average annual removals	Current net annual growth	Average annual mortality	Average annual removals	Current net annual growth	Average annual mortality	Average annual removals	Current net annual growth	Average annual mortality	Average annual removals	Current net annual growth	Average annual mortality
	Thousand cubic feet															
Softwoods:																
White fir	74,461	41,821	1,679	1,543	152	9,981	15,407	17,317	3,296	4,441	1,602	14,955	21,392	19,071	89,417	63,212
Red fir	24,253	11,891	26	39	0	2,145	5,764	9,561	208	581	769	2,379	6,384	10,330	26,632	18,275
Incense-cedar	15,827	361	380	148	76	5,517	1,725	4,942	4,025	1,249	2,502	9,922	3,122	7,520	25,749	3,483
Knobcone pine	0	0	0	0	0	0	0	0	9	33	0	9	33	0	9	33
Lodgepole pine	3,060	966	40	56	0	450	328	0	877	185	0	1,368	569	0	4,428	1,535
Jeffrey pine	12,030	2,223	333	44	0	945	416	494	3,557	1,122	1,426	4,834	1,582	1,920	16,865	3,805
Sugar pine	14,749	1,712	57	15	357	6,091	1,954	6,600	1,071	298	80	7,219	2,268	7,036	21,968	3,979
Western white pine	943	275	0	0	0	211	54	0	101	40	869	313	94	869	1,255	369
Ponderosa pine	26,156	3,171	1,142	439	1,303	10,220	3,635	5,902	9,131	2,834	1,251	20,493	6,908	8,455	46,649	10,079
Douglas-fir	34,948	6,087	1,096	156	2,077	15,951	2,586	6,105	15,548	1,854	1,236	32,595	4,596	9,417	67,543	10,683
Redwood	0	0	0	0	0	0	0	0	543	133	0	543	133	0	543	133
Giant sequoia	0	0	0	0	0	0	0	0	16	2	0	16	2	0	16	2
California-nutmeg	0	0	0	0	0	22	7	0	0	0	0	22	7	0	22	7
Mountain hemlock	333	58	0	0	0	0	0	0	0	0	0	0	0	0	333	58
Other softwoods	26	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0
Total	206,785	68,565	4,753	2,441	3,964	51,532	31,876	50,919	38,383	12,772	9,735	94,668	47,089	64,618	301,453	115,654
Hardwoods:																
Bigleaf maple	0	0	0	0	0	132	120	0	975	244	0	1,107	364	0	1,107	364
Red alder	0	50	0	0	0	325	73	0	63	42	0	388	115	0	388	165
White alder	0	0	0	0	0	320	144	0	30	13	0	350	157	0	350	157
Pacific madrone	0	100	63	5	0	225	83	232	1,018	614	0	1,306	703	232	1,306	803
Tanoak	0	0	0	0	0	1,252	356	0	728	259	0	1,980	615	0	1,980	615
Quaking aspen	24	0	0	0	0	--	38	0	0	0	0	--	38	0	12	38
Black cottonwood	0	0	0	0	0	36	15	0	28	21	0	64	36	0	64	36
Fremont cottonwood	0	0	0	0	0	0	0	0	8	4	0	8	4	0	8	4
Canyon live oak	0	0	386	44	0	690	445	0	1,659	268	341	2,736	757	341	2,736	757
Blue oak	0	0	0	0	0	0	0	0	4	16	0	4	16	0	4	16
Oregon white oak	0	0	0	0	0	25	1	0	0	0	0	25	1	0	25	1
California black oak	78	381	98	138	0	2,139	1,831	511	4,118	3,091	1,428	6,355	5,059	1,939	6,433	5,440
Interior live oak	0	0	6	2	0	0	0	0	265	151	0	271	152	0	271	152
California-laurel	0	0	0	0	0	53	20	0	401	122	0	454	142	0	454	142
Total	101	530	553	189	0	5,184	3,125	743	9,298	4,843	1,769	15,034	8,158	2,512	15,136	8,688
All species	206,886	69,095	5,306	2,630	3,964	56,716	35,001	51,662	47,681	17,615	11,504	109,703	55,247	67,130	316,589	124,342

-- = less than 500 cubic feet; 0 = none found

[a] Totals may be off because of rounding, data subject to sampling error.

[b] Data for some National Forests were collected during 1993-95, older data were updated to 1992; data for other owners were collected during 1991-94.

[c] Annual removal volume and hardwood growth volume are not available for National Forests.

Table 29--Current net annual growth, average annual mortality, and average annual removals of sawtimber on timberland outside National Forests, by species and owner class, Sacramento Resource Area, California, 1994 [a] [b]

Species	Other public			Forest industry			Other private			All owners		
	Current net annual growth	Average annual mortality	Average annual removals	Current net annual growth	Average annual mortality	Average annual removals	Current net annual growth	Average annual mortality	Average annual removals	Current net annual growth	Average annual mortality	Average annual removals
	Thousand board feet, Scribner rule											
Softwoods:												
White fir	12,062	7,290	934	77,737	71,843	96,561	21,845	18,923	8,331	111,643	98,056	105,826
Red fir	209	195	0	17,729	28,538	53,890	1,729	2,919	4,106	19,667	31,653	57,996
Incense-cedar	1,501	420	266	27,187	5,753	21,197	24,539	4,694	11,355	53,227	10,867	32,818
Knobcone pine	0	0	0	0	0	0	119	19	0	119	19	0
Lodgepole pine	341	297	0	3,455	1,528	0	3,383	661	0	7,178	2,485	0
Jeffrey pine	1,993	229	0	4,670	1,922	2,908	19,341	3,886	7,389	26,004	6,037	10,297
Sugar pine	379	85	2,126	37,251	10,790	41,443	6,957	1,626	296	44,587	12,502	43,865
Western white pine	0	0	0	2,346	247	0	620	203	4,567	2,966	450	4,567
Ponderosa pine	7,610	2,474	7,789	68,044	17,629	34,858	52,895	13,935	6,207	128,549	34,038	48,853
Douglas-fir	6,506	775	11,930	85,957	11,787	35,138	81,845	8,847	6,475	174,308	21,408	53,543
Redwood	0	0	0	0	0	0	3,318	659	0	3,318	659	0
Total	30,600	11,765	23,046	324,375	150,037	285,993	216,590	56,372	48,726	571,565	218,174	357,764
Hardwoods:												
Bigleaf maple	0	0	0	64	26	0	486	193	0	550	219	0
Red alder	0	0	0	387	146	0	409	193	0	796	339	0
White alder	0	0	0	626	238	0	211	47	0	837	284	0
Pacific madrone	296	21	0	2,509	68	957	2,355	896	0	5,160	986	957
Tanoak	0	0	0	1,713	465	0	1,741	385	0	3,454	850	0
Quaking aspen	0	0	0	--	202	0	0	0	0	--	202	0
Black cottonwood	0	0	0	0	0	0	184	101	0	184	101	0
Fremont cottonwood	0	0	0	0	0	0	52	9	0	52	9	0
Canyon live oak	1,396	61	0	1,317	583	0	9,246	211	426	11,960	856	426
Blue oak	0	0	0	0	0	0	16	36	0	16	36	0
California black oak	296	232	0	8,233	2,156	1,094	14,885	3,944	2,235	23,414	6,331	3,330
Interior live oak	0	0	0	0	0	0	348	134	0	348	134	0
California-laurel	0	0	0	119	16	0	2,645	69	0	2,764	85	0
Total	1,988	315	0	14,942	3,900	2,052	32,578	6,217	2,661	49,508	10,432	4,712
All species	32,588	12,080	23,046	339,318	153,937	288,045	249,168	62,589	51,386	621,073	228,606	362,477

-- = less than 500 board feet; 0 = none found

[a] Totals may be off because of rounding, data subject to sampling error.

[b] Board-foot growth, mortality, and removal volume are not available for National Forests.

Table 30--Changes in timberland area outside National Forests, by owner class, Sacramento Resource Area, California, 1984, 1994 [a] [b]

Description of change	Other public	Forest industry	Other private	All owners
		Thousand acres		
Timberland area published in 1984 [c]	70	935	708	1,713
New estimate of timberland area for 1984, based on remeasured plots only [d]	48	930	738	1,716
Adjustments to 1984 area:				
Updates to owner or land class [e]	37	- 19	73	91
Adjusted timberland area for 1984 [f]	**85**	**911**	**811**	**1,807**
Area change (during 1984 -1994) due to:				
Changes in land use --				
Timberland to rights-of-way	--	--	- 7	- 7
Changes in inventory area--				
To National Forest	--	- 22	- 32	- 54
From National Forest	--	24	14	38
Net change	--	2	- 18	- 16
Changes in ownership--				
From other public	--	--	--	--
From forest industry	--	- 8	8	--
From other private	--	15	- 15	--
Net change	--	7	- 7	--
Timberland area in 1994, based on remeasured plots only [f]	**85**	**921**	**778**	**1,784**
Timberland area in 1994, based on all sample plots [g]	79	911	752	1,742

-- = none found or less than 500 acres.

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Negative values are losses of timberland and positive values are gains in timberland. Losses are shown by the 1984 owner, and gains are shown by the 1994 owner.

[c] Source: Lloyd and others 1986.

[d] The modified sampling design for the 1991-94 inventory produced a different set of plots for the sample, which includes existing plots that were remeasured and new plots. Only remeasured plots were used to create this table. The 1984 data were recompiled by using the current (1994) procedures. Updates to the original classification of owner and land class were incorporated into the new version of the 1984 data. The adjusted 1984 data also reflect the new Bureau of Census (1990) land area figures.

[e] The classification of owner or land class assigned to a plot in 1984 was verified during the 1994 inventory. In some cases, updates were made to the 1984 data when new or more accurate information was available.

[f] Use the adjusted 1984 data and the 1994 remeasured plot data (bold type in table) when analyzing for periodic change.

[g] All sample plots include remeasured plots and plots that are new to the inventory. All sample plots are used for the current estimates of area displayed in tables 1-29.

Table 31--Changes in net volume of growing stock on timberland outside National Forests, by species group and owner class, Sacramento Resource Area, California, 1984, 1994 [a b c]

Description of change	Softwood species				Hardwood species			
	Other public	Forest industry	Other private	All owners	Other public	Forest industry	Other private	All owners
	Million cubic feet							
Volume published in 1984 [d]	169	2,821	1,486	4,476	61	290	333	684
New estimate of volume for 1984, based on remeasured plots only [e]	113	2,683	1,610	4,406	55	263	400	718
Adjustments to 1984 volume:								
Updates to owner or land class [f]	141	62	-127	76	- 7	- 12	40	21
Adjusted volume for 1984 [g]	**254**	**2,745**	**1,483**	**4,482**	**48**	**251**	**440**	**739**
Volume changes due to:								
Change in inventory area--								
To National Forest	--	- 40	- 126	- 166	--	--	--	--
From National Forest	--	92	18	110	--	--	--	--
Net change	--	52	-108	- 56	--	--	--	--
Changes in owner--								
From other public	--	--	--	--	--	--	--	--
From forest industry	--	- 39	39	--	--	--	--	--
From other private	--	42	- 42	--	--	7	- 7	--
Net change	--	3	- 3	--	--	7	- 7	--
Growth, mortality, and harvest--								
Periodic gross growth	84	973	529	1,586	10	90	162	263
Periodic mortality	- 23	- 148	- 89	- 260	- 1	- 13	- 19	- 33
Periodic removals	- 51	- 796	- 134	- 981	--	- 19	- 24	- 42
Net change	10	29	306	345	9	58	119	187
Total volume in 1994, based on remeasured plots only [g]	**264**	**2,829**	**1,678**	**4,771**	**56**	**316**	**553**	**925**
Total volume in 1994, based on all sample plots [h]	249	2,861	1,659	4,769	49	304	539	892

-- = none found or less than 500,000 cubic feet.

[a] Includes growing-stock trees ≥ 5 inches d.b.h.

[b] Totals may be off because of rounding; data subject to sampling error.

[c] Negative values are losses of volume and positive values are gains in volume. Losses are shown by the 1984 owner and gains are shown by the 1994 owner.

[d] Source: Lloyd and others 1986.

[e] The modified sampling design for the 1991-94 inventory produced a different set of plots for the sample, which includes existing plots that were remeasured and new plots. Only remeasured plots were used to create this table. The 1984 data were recompiled by using the current (1994) procedures. Updates to the original classification of owner and land class were incorporated into the new version of the 1984 data. The adjusted 1984 data also reflect the new Bureau of Census (1990) land area figures.

[f] The classification of owner or land class assigned to a plot in 1984 was verified during the 1994 inventory. In some cases, updates were made to the 1984 data when new or more accurate information was available.

[g] Use the adjusted 1984 data and the 1994 remeasured plot data (bold type in table) when analyzing for periodic change.

[h] All sample plots include remeasured plots and plots that are new to the inventory. All sample plots are used for the current estimates of volume displayed in tables 1-29.

Table 32--Changes in net volume of sawtimber on timberland outside National Forests, by species group and owner class, Sacramento Resource Area, California, 1984, 1994 [a b c]

Description of change	Softwood species				Hardwoods species			
	Other public	Forest industry	Other private	All owners	Other public	Forest industry	Other private	All owners
	Million board feet, Scribner rule							
Volume published in 1984 [d]	892	13,843	6,874	21,609	109	454	608	1,171
New estimate of volume for 1984, based on remeasured plots only [e]	591	13,088	7,458	21,137	79	401	667	1,147
Adjustments to 1984 volume:								
Updates to owner or land class [f]	680	360	- 687	353	8	- 16	49	41
Adjusted volume for 1984 [g]	**1,271**	**13,448**	**6,771**	**21,490**	**87**	**385**	**716**	**1,188**
Volume changes due to:								
Changes in inventory area--								
To National Forest	--	- 160	- 588	- 748	--	--	--	--
From National Forest	--	460	84	544	--	--	--	--
Net change	--	300	- 504	- 204	--	--	--	--
Changes in ownership--								
From other public	--	--	--	--	--	--	--	--
From forest industry	--	- 188	188	--	--	--	--	--
From other private	--	172	- 172	--	--	20	- 20	--
Net changes	--	- 16	16	--	--	20	- 20	--
Growth, mortality, and harvest--								
Periodic gross growth	464	5,132	2,728	8,324	18	170	256	444
Periodic mortality	- 115	- 629	- 415	- 1,160	- 2	- 12	- 32	- 46
Periodic removals	- 298	- 4,426	- 678	- 5,401	--	- 51	- 35	- 86
Net change	51	77	1,635	1,763	16	107	189	312
Total volume in 1994, based on remeasured plots only [g]	**1,322**	**13,809**	**7,918**	**23,049**	**103**	**512**	**885**	**1,500**
Total volume in 1994, based on all sample plots [h]	1,233	13,868	7,701	22,802	90	466	879	1,435

-- = none found or less than 500,000 board feet.

[a] Includes sawtimber softwood trees ≥ 9 inches d.b.h. and sawtimber hardwood trees ≥ 11 inches d.b.h.

[b] Totals may be off because of rounding; data subject to sampling error.

[c] Negative values are losses of volume and positive values are gains in volume. Losses are shown by the 1984 owner and gains are shown by the 1994 owner.

[d] Source: Lloyd and others 1986.

[e] The modified sampling design for the 1991-94 inventory produced a different set of plots for the sample, which includes existing plots that were remeasured and new plots. Only remeasured plots were used to create this table. The 1984 data were recompiled by using the current (1994) procedures. Updates to the original classification of owner and land class were incorporated into the new version of the 1984 data. The adjusted 1984 data also reflect the new Bureau of Census (1990) land area figures.

[f] The classification of owner or land class assigned to a plot in 1984 was verified during the 1994 inventory. In some cases, updates were made to the 1984 data when new or more accurate information was available.

[g] Use the adjusted 1984 data and the 1994 remeasured plot data (bold type in table) when analyzing for periodic change.

[h] All sample plots include remeasured plots and plots that are new to the inventory. All sample plots are used for the current estimates of volume displayed in tables 1-29.

Table 33--Area, net volume of growing stock, and net volume of sawtimber on timberland outside National Forests, by forest type, Sacramento Resource Area, California, 1984, 1994 [a] [b]

Forest type	Outside National Forests					
	1981-84			1991-94		
	Area	Growing stock	Sawtimber	Area	Growing stock	Sawtimber
	Thousand acres	*Million cubic feet*	*Million board feet*	*Thousand acres*	*Million cubic feet*	*Million board feet*
Softwood types:						
Douglas-fir / hardwood	17	55	244	24	91	393
Mixed conifer	849	2,912	13,668	821	2,888	13,552
Mixed conifer / hardwood	201	531	2,017	219	776	3,012
Ponderosa pine	108	249	1,227	112	324	1,617
Ponderosa pine / hardwood	11	15	47	11	19	80
Jeffrey pine	84	179	713	66	161	632
Lodgepole pine	25	85	361	32	47	203
White fir	68	275	1,212	79	343	1,571
Red fir	31	188	972	22	97	490
Total	1,394	4,488	20,460	1,386	4,746	21,550
Hardwood types:						
Bigleaf maple / softwood	26	91	398	11	68	313
Pacific madrone	15	16	52	16	14	31
Tanoak	13	41	120	6	41	163
Tanoak / softwood	8	40	153	15	84	297
Black cottonwood	8	18	89	8	20	103
Canyon live oak	51	115	329	68	161	449
Canyon live oak / softwood	34	96	334	40	117	403
California black oak	117	181	320	76	186	372
California black oak / softwood	46	70	183	64	149	417
Interior live oak	15	17	49	31	35	115
Interior live oak / softwood	16	28	127	8	27	124
California-laurel / softwood	7	10	24	18	43	189
Total	356	724	2,176	359	945	2,977
Nonstocked [c]	56	8	42	38	5	22
Total, all types	1,807	5,221	22,678	1,784	5,696	24,549

0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data are summarized from remeasured plots only. All data from the 1981-84 inventory were recompiled with the same procedures and methods used in the 1991-94 inventory. See text for discussion of data used for change analysis.

[c] Nonstocked areas are less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are included.

Table 34--Net volume of growing stock and net volume of sawtimber on timberland outside National Forests, by species and year, Sacramento Resource Area, California, 1984, 1994 [a] [b]

Species	Outside National Forests			
	1981-84		1991-94	
	Growing stock	Sawtimber	Growing stock	Sawtimber
	Million cubic feet	*Million board feet*	*Million cubic feet*	*Million board feet*
Softwoods:				
White fir	1,167	5,276	1,196	5,425
Red fir	292	1,429	235	1,128
Incense-cedar	501	1,927	503	1,919
Knobcone pine	2	0	2	3
Lodgepole pine	83	326	57	256
Jeffrey pine	295	1,323	237	1,023
Sugar pine	337	1,895	346	1,905
Western white pine	28	143	22	111
Ponderosa pine	802	4,160	969	5,193
Douglas-fir	959	4,922	1,183	5,981
Redwood	17	90	20	105
California-nutmeg	--	0	1	0
Total	4,482	21,490	4,770	23,049
Hardwoods:				
Bigleaf maple	30	46	42	58
Red alder	12	47	15	59
White alder	3	9	4	16
Pacific madrone	32	72	44	89
Tanoak	39	73	68	141
Quaking aspen	2	10	2	12
Black cottonwood	13	62	12	61
Fremont cottonwood	1	2	1	2
Canyon live oak	152	202	187	266
Blue oak	3	8	4	9
Oregon white oak	0	0	1	0
California black oak	433	638	515	755
Interior live oak	13	19	19	23
California-laurel	6	0	10	10
Total	739	1,188	926	1,500
All species	5,221	22,678	5,696	24,549

-- = less than 500,000 cubic feet , 0 = none found

[a] Totals may be off because of rounding; data subject to sampling error.

[b] Data are from remeasured plots only. All data from the 1981-84 inventory were recompiled with the same procedures and methods used in the 1991-94 inventory. See text for discussion of data used for change analysis.

Table 35--Timber harvest volume by year and county, Sacramento Resource Area, California, 1948-77 [a]

Year	County										
	Butte	Colusa and Lake [b]	El Dorado	Glenn	Nevada	Placer	Plumas	Sierra	Tehema	Yuba	Total
	Thousand board feet, local scale [c]										
1948	194,519	24,500	243,937	0	36,878	44,901	187,823	45,295	96,344	74,469	948,666
1949	137,612	32,491	155,503	0	71,729	53,025	344,095	42,184	91,794	52,549	980,982
1950	105,490	18,100	202,615	6,229	98,416	87,243	348,368	41,627	128,198	53,990	1,090,276
1951	126,607	21,351	240,251	31,750	97,024	137,199	318,862	60,128	74,472	31,090	1,138,734
1952	136,523	29,874	251,101	25,914	103,593	106,424	419,195	65,162	71,730	40,348	1,249,864
1953	172,600	19,732	213,380	56,849	151,017	110,750	401,504	99,583	82,868	33,129	1,341,412
1954	129,779	20,890	150,456	28,750	132,739	110,176	276,840	118,598	120,967	57,152	1,146,347
1955	124,134	34,448	228,621	34,682	126,285	98,526	289,093	133,456	81,540	44,119	1,194,904
1956	136,065	17,180	213,194	51,377	120,199	111,087	300,478	71,400	114,383	45,797	1,181,160
1957	115,381	39,472	154,576	43,872	94,480	57,732	268,461	70,195	103,611	42,399	990,179
1958	102,033	40,761	170,756	32,662	67,292	79,053	213,514	87,452	141,205	49,621	984,349
1959	104,890	30,483	218,442	40,944	70,246	117,039	211,610	83,905	102,104	67,342	1,047,005
1960	144,113	34,883	336,824	39,968	64,442	74,283	179,712	99,594	146,067	36,500	1,156,386
1961	53,319	45,876	197,450	52,681	71,692	182,333	185,881	130,170	155,255	60,695	1,135,352
1962	43,588	11,723	189,009	66,889	75,108	111,630	215,451	114,622	157,053	60,022	1,045,095
1963	50,329	19,209	160,758	45,270	70,120	139,298	250,195	116,168	135,291	26,555	1,013,193
1964	65,721	36,822	135,562	48,617	42,768	138,399	214,741	122,270	138,425	35,668	978,993
1965	55,796	55,597	199,995	56,305	54,986	95,977	173,383	117,886	140,914	50,128	1,000,967
1966	49,701	71,877	233,003	51,020	59,186	113,215	221,345	165,847	107,365	38,111	1,110,670
1967	69,121	69,753	197,264	31,027	61,420	84,723	250,016	121,843	127,880	66,616	1,079,663
1968	64,220	49,475	210,426	22,672	73,735	95,271	231,957	143,426	139,852	48,933	1,079,967
1969	28,267	3,676	253,622	58,494	54,799	103,607	217,743	84,534	158,906	43,835	1,007,483
1970	44,867	37,330	259,525	49,494	52,241	113,971	157,462	46,243	179,551	41,344	982,028
1971	61,000	41,562	206,324	42,481	75,782	118,170	238,915	61,602	181,240	30,095	1,057,171
1972	48,951	40,087	194,946	54,376	79,491	126,715	286,659	92,198	161,119	25,068	1,109,610
1973	48,868	43,271	197,163	60,975	62,624	120,056	305,437	73,748	151,732	39,829	1,103,703
1974	29,916	17,090	301,665	42,418	53,869	96,376	248,170	79,793	133,902	42,441	1,045,640
1975	43,156	18,180	261,952	29,872	37,713	131,569	214,535	63,744	141,085	29,845	971,651
1976	69,949	14,922	228,038	47,690	54,783	117,617	220,419	88,262	158,273	34,878	1,034,831
1977	60,975	32,775	211,353	56,209	79,297	128,153	155,729	56,959	115,140	34,280	930,870

[a] The harvest data in this table include no cull, fuelwood, hardwood chips or logs, poles, pilings, or posts.
[b] Colusa and Lake Counties were combined in the data we received from the California Department of Forestry.
[c] Various log rules were used in California; no attempt was made to convert the data to a common base; however, most timber companies in the Sacramento Resource Area use the short-log (16-foot) Scribner rule.

Source: California Department of Forestry 1948-77.

Table 36--Timber harvest volume, by year, owner group, and county Sacramento, California, 1978-95 [a]

Year	Owner group	County											
		Butte	Colusa and Lake [b]	El Dorado	Glenn	Napa	Nevada	Placer	Plumas	Sierra	Tehema	Yuba	Total
		Thousand board feet, local scale [c]											
1978	Private	33,481	16,497	100,552	10,569	1,817	43,954	92,926	91,905	67,891	100,080	13,791	573,463
	Public	53,921	6,753	91,296	31,330	--	16,180	32,213	164,206	63,538	41,489	10,964	511,890
	Total	87,402	23,250	191,848	41,899	1,817	60,134	125,139	256,111	131,429	141,569	24,755	1,085,353
1979	Private	49,416	3,080	81,308	7,684	572	32,786	96,451	61,166	50,947	67,278	8,676	459,364
	Public	45,106	18,536	81,378	25,250	--	15,788	44,026	234,647	85,844	72,070	10,825	633,470
	Total	94,522	21,616	162,686	32,934	572	48,574	140,477	295,813	136,791	139,348	19,501	1,092,834
1980	Private	23,032	1,857	85,646	3,410	--	20,115	46,302	49,418	33,861	116,805	17,493	397,939
	Public	20,049	2,548	70,369	12,564	--	7,625	42,394	154,010	51,254	30,943	19,849	411,605
	Total	43,081	4,405	156,015	15,974	--	27,740	88,696	203,428	85,115	147,748	37,342	809,544
1981	Private	28,597	3,163	72,297	5,180	248	23,004	47,550	25,926	34,091	96,373	11,818	348,247
	Public	3,677	14,131	78,187	13,391	--	9,200	36,193	95,602	27,963	24,631	7,808	310,783
	Total	32,274	17,294	150,484	18,571	248	32,204	83,743	121,528	62,054	121,004	19,626	659,030
1982	Private	46,142	8,975	32,307	6,492	--	7,695	19,908	29,687	10,305	114,900	3,681	280,092
	Public	2,048	1,904	97,316	2,294	--	9,769	15,994	99,246	26,355	49,987	11,122	316,035
	Total	48,190	10,879	129,623	8,786	--	17,464	35,902	128,933	36,660	164,887	14,803	596,127
1983	Private	71,471	8,232	52,014	7,612	238	21,402	30,044	60,422	28,137	70,812	16,164	366,548
	Public	24,152	10,798	92,787	17,046	--	9,613	50,778	126,226	60,426	60,457	12,473	464,756
	Total	95,623	19,030	144,801	24,658	238	31,015	80,822	186,648	88,563	131,269	28,637	831,304
1984	Private	67,919	1,007	70,154	4,794	223	21,377	28,243	57,375	42,646	99,100	8,393	401,231
	Public	3,039	25,964	70,081	36,754	--	39,540	36,189	201,056	47,950	18,870	6,763	486,206
	Total	70,958	26,971	140,235	41,548	223	60,917	64,432	258,431	90,596	117,970	15,156	887,437
1985	Private	74,168	6,411	117,256	6,758	2,232	21,602	48,252	49,877	48,464	82,477	9,254	466,751
	Public	797	16,384	103,699	26,799	--	35,384	34,102	220,090	64,208	33,437	10,837	545,737
	Total	74,965	22,795	220,955	33,557	2,232	56,986	82,354	269,967	112,672	115,914	20,091	1,012,488
1986	Private	77,357	8,162	161,419	6,007	--	13,943	25,454	70,381	43,256	95,337	10,475	511,791
	Public	6,235	38,803	131,308	28,479	--	30,841	49,073	237,799	75,463	55,109	24,055	677,165
	Total	83,592	46,965	292,727	34,486	--	44,784	74,527	308,180	118,719	150,446	34,530	1,188,956
1987	Private	59,110	8,344	89,195	3,808	739	35,097	47,694	74,294	64,555	120,675	23,232	526,743
	Public	11,649	23,391	136,829	12,495	--	43,589	59,402	247,665	76,439	43,064	3,413	657,936
	Total	70,759	31,735	226,024	16,303	739	78,686	107,096	321,959	140,994	163,739	26,645	1,184,679
1988	Private	100,666	7,355	105,207	12,250	1,802	29,305	85,320	42,872	45,173	115,727	10,088	555,765
	Public	45,706	41,400	112,170	16,965	--	42,896	34,833	172,279	160,321	44,082	7,452	678,104
	Total	146,372	48,755	217,377	29,215	1,802	72,201	120,153	215,151	205,494	159,809	17,540	1,233,869
1989	Private	57,057	8,039	128,759	19,858	1,092	56,327	83,986	82,926	35,823	74,769	19,268	567,904
	Public	25,242	15,485	144,812	17,089	--	40,901	35,696	174,248	66,448	29,799	10,055	559,775
	Total	82,299	23,524	273,571	36,947	1,092	97,228	119,682	257,174	102,271	104,568	29,323	1,127,679
1990	Private	42,554	10,664	162,312	25,991	256	29,726	141,296	83,625	25,795	82,903	18,452	623,574
	Public	10,210	1,865	154,542	8,884		24,022	31,177	163,616	56,902	50,571	7,092	508,881
	Total	52,764	12,529	316,854	34,875	256	53,748	172,473	247,241	82,697	133,474	25,544	1,132,455
1991	Private	59,091	3,010	77,473	7,777	195	34,033	84,087	83,228	21,238	125,661	10,031	505,824
	Public	16,851	3,426	114,118	5,921	--	31,267	40,044	198,432	26,782	20,528	7,404	464,773
	Total	75,942	6,436	191,591	13,698	195	65,300	124,131	281,660	48,020	146,189	17,435	970,597
1992	Private	29,967	3,795	69,262	1,461	593	44,909	91,587	106,477	9,998	46,178	23,379	427,606
	Public	8,571	612	82,770	11,829	--	19,227	16,865	114,964	28,073	16,784	6,110	305,805
	Total	38,538	4,407	152,032	13,290	593	64,136	108,452	221,441	38,071	62,962	29,489	733,411
1993	Private	90,495	6,360	121,854	6,348	--	33,819	52,386	76,207	19,503	38,764	33,555	479,291
	Public	6,027	1,705	120,236	3,036	--	3,970	5,711	59,185	17,065	7,165	3,215	227,315
	Total	96,522	8,065	242,090	9,384	--	37,789	58,097	135,392	36,568	45,929	36,770	706,606
1994	Private	99,123	8,013	110,334	6,353	335	41,899	57,768	66,353	17,835	46,140	20,977	475,130
	Public	2,477	2	18,033	2,204	--	3,512	2,028	41,369	16,968	10,179	1,635	98,407
	Total	101,600	8,015	128,367	8,557	335	45,411	59,796	107,722	34,803	56,319	22,612	573,537
1995	Private	87,929	8,316	113,204	10,852	881	48,944	48,188	86,665	16,054	78,653	25,494	525,180
	Public	3,904	20	11,393	--	9	2,822	6,656	59,136	46,774	3,375	860	134,949
	Total	91,833	8,336	124,597	10,852	890	51,766	54,844	145,801	62,828	82,028	26,354	660,129

[a] The harvest data in this table include no cull, fuelwood, hardwood chips or logs, poles, pilings, or posts.
[b] Some counties were combined in the data we received from the California State Board of Equalization.
[c] Various log rules were used in California; no attempt was made to convert the data to a common base; however, most timber companies in the Sacramento Resource Area use the short-log (16-foot) Scribner rule.
Source: California State Board of Equalization, Timber Tax Division 1978-95.

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Metric Equivalents

1 acre = 0.405 hectare
1 acre = 4046.86 square meters
1,000 acres = 404.7 hectares
1,000 cubic feet = 28.3 cubic meters
1 cubic foot per acre = 0.07 cubic meter per hectare
1 foot = 0.3048 meter
1 inch = 2.54 centimeters
1 mile = 1.609 kilometers

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Appendix A

Reference documentation for the 1991-94 inventory of California. Note that these are unpublished, in-house documents.

1. Field instructions for the 1991-94 inventory of California, 1992. 219 p. On file with: Pacific Resource Inventory, Monitoring, and Evaluation (PRIME) Program, Pacific Northwest Research Station, Portland, Oregon.

2. California photo-interpretation manual for California, 1981. On file with: Pacific Resource Inventory, Monitoring, and Evaluation (PRIME) Program, Pacific Northwest Research Station, Portland, Oregon.

3. California inventory procedures and techniques documentation for the 1991-94 forest inventory. On file with: Pacific Resource Inventory, Monitoring, and Evaluation (PRIME) Program, Pacific Northwest Research Station, Portland, Oregon.

4. Forest Inventory and Analysis User's Guide, U.S. Department of Agriculture, Forest Service, Region 5. June, 1995. On file with: Land Management Planning Staff (Remote Sensing Lab Team), Sacramento, California.

Appendix B

For more information about National Forest inventory procedures, contact the timber management staff at the following addresses:

For California--
USDA Forest Service, Pacific Southwest Region
Land Management Planning: Remote Sensing Lab
1920 20th St.
Sacramento, CA 95814

For the eastern edge of California adjacent to Nevada--
USDA Forest Service, Intermountain Region
Timber Management
Federal Building
324 25th Street
Ogden, UT 84401

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Waddell, Karen L.; Bassett, Patricia M. 1997. Timber resource statistics for the Sacramento resource area of California. Resour. Bull. PNW-RB-220. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 50 p.

This report is a summary of timber resource statistics for the Sacramento Resource Area of California, which includes Butte, Colusa, El Dorado, Glenn, Lake, Napa, Nevada, Placer, Plumas, Sacramento, Sierra, Sutter, Tehama, Yolo, and Yuba Counties. Data were collected as part of a statewide multiresource inventory. The inventory sampled private and public lands except reserved areas and National Forests. The National Forest System provided data from regional inventories of the Eldorado, Lassen, Mendocino, Plumas, Shasta-Trinity, Tahoe, and Toiyabe National Forests and the Lake Tahoe Basin Management Unit. Area information for parks and other reserves was obtained directly from the organizations managing these areas. Statistical tables summarize all ownerships and provide estimates of land area, timber volume, growth, mortality, and harvest. Estimates of periodic change of timberland area and timber volume are presented for all ownerships outside National Forests.

Keywords: Forest surveys, forest inventory, statistics (forest), timber resources, resources (forest), periodic change, trends, Sacramento, Butte County, Colusa County, El Dorado County, Glenn County, Lake County, Napa County, Nevada County, Placer County, Plumas County, Sacramento County, Sierra County, Sutter County, Tehama County, Yolo County, and Yuba County, California.

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation s forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives as directed by Congress to provide increasingly greater service to a growing Nation.

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