USDA
United States Department of Agriculture

California's Forest Resources: Forest Inventory and Analysis, 2001–2010

Forest Service

Pacific Northwest Research Station

General Technical Report PNW-GTR-913

February 2016

Technical Editors

Glenn A. Christensen is a forester, **Karen L. Waddell** is a forester, **Sharon M. Stanton** is an ecologist, and **Olaf Kuegler** is a mathematical statistician, U. S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Forestry Sciences Laboratory, 620 SW Main Street, Suite 400, Portland, OR 97205.

Contributing Authors

Joel Thompson is a forestry technician, **John Chase** is a geographic information system specialist, **Jeremy Fried** is a research forester, and **Sarah Jovan** is a research ecologist, Forestry Sciences Laboratory, 620 SW Main Street, Suite 400, Portland, OR 97205. **Andrew Gray** is a research ecologist, Forestry Sciences Laboratory, 3200 SW Jefferson Way, Corvallis, OR 97331.

Cover: Siskiyou Mountains at sunrise, with Preston Peak on the horizon (elevation 7,313 feet, the highest point in this range). Photo by Gerad Dean.

California's Forest Resources: Forest Inventory and Analysis, 2001–2010

Glenn A. Christensen,
Karen L. Waddell,
Sharon M. Stanton,
Olaf Kuegler,
Technical Editors

U.S. Department of Agriculture
Forest Service
Pacific Northwest Research Station
Portland, Oregon
General Technical Report PNW-GTR-913
February 2016

Abstract

Christensen, Glenn A.; Waddell, Karen L.; Stanton, Sharon M.; Kuegler, Olaf, tech. eds. 2015. California's forest resources: Forest Inventory and Analysis, 2001–2010. Gen. Tech. Rep. PNW-GTR-913. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 293 p.

This report highlights key findings from the most recent (2001–2010) data collected by the Forest Inventory and Analysis program across all forest land in California, updating previously published findings from data collected from 2001 through 2005 (Christensen et al. 2008). We summarize and interpret basic resource information such as forest area, ownership, volume, biomass, and carbon stocks; forest structure and function topics such as biodiversity, forest age, and dead wood; disturbance information such as tree damage, fire, and invasive plants; and tree growth, mortality, and removals for timber products. Consistent sampling across different ownerships and forest management regimes now allow comparisons. The appendices provide details on inventory methods and design and include summary tables of data, with statistical error, for the suite of forest characteristics inventoried.

Keywords: Biomass, carbon, dead wood, fire, forest land, insects, invasive plants, inventory, timber volume, timberland, California.

Contents

J. Feinbeg

Monterey County, California.

What Is the Purpose of This Report?

This report presents a summary of California's forest resources across all ownerships and forest types. It highlights key forest characteristics, summarized from inventory field plots sampled across California over a period of 10 years (2001 through 2010). Basic resource information includes forest area, ownership, land use, biomass, biodiversity, dead wood, and forest health issues.

Pacific Northwest Forest Inventory and Analysis (PNW-FIA) implemented an annual sampling strategy in California in 2001, measuring a systematic sample each year that represents 10 percent of all plots in the state.

This report updates the previous *California's Forest Resources, 2001–2005: Five-Year Forest Inventory and Analysis Report* (Christensen et al. 2008), summarizing and averaging the most recent inventory information that includes 100 percent of all FIA plots in the state. Therefore, these data are not independent from those published in the earlier report, but are a part of the same 10-year inventory estimate and should be treated as one full cycle of data. Statistical estimates of change in overall tree growth, removals, and mortality are provided in this report.

What Is Forest Inventory and Analysis?

The FIA program was created within the U.S. Department of Agriculture, Forest Service in 1928 to conduct unbiased assessments of all the Nation's forested lands for use in economic and forest management planning. The program was charged with collecting forest data on a series of permanent field plots, compiling and making data available, and providing research and interpretations from those data. Four FIA units are responsible for inventories of all forested lands in the continental United States, Alaska, Hawaii, Puerto Rico, Guam, American Samoa, Palau, the U.S. Virgin Islands, and Pacific Island groups including the Marshall Islands, Federated States of Micronesia, and Northern Mariana Islands.

Starting in 2000, as required by the Agricultural Research, Extension, and Education Reform Act of 1998 (the Farm Bill), FIA implemented a new standardized national inventory method in which a portion of all plots in each state were measured each year. Appendix 1 explains the differences between the previous and current inventory methods. The effect of the change is that, for the first time in 70 years, all FIA units are using a common plot design, a common set of measurement protocols, and a standard database design for compilation and distribution of data. Under this unified approach, FIA now provides unbiased estimates of a wide variety of forest conditions over all forested lands in the United States in a consistent and timely manner.

This report covers all forested lands in California, with estimates representing averaged values for all inventory plots visited by field crews between 2001 and 2010 (figs. 1 and 2). The base set of field plots is spaced at about 3-mile intervals on a hexagonal grid, spanning both publicly and privately owned forests, and including lands reserved from industrial wood production (e.g., national parks, wilderness areas, and natural areas). The annual inventory involves a cycle of measurements for 10 systematic subsamples, each representing about 10 percent of the approximately 6,000 forest land plots in California (figs. 3 and 4). Additional information about annual inventories is available in appendix 1 of this report and at http://fia.fs.fed.us/.

Why Are California's Forests Important?

Californians derive a variety of economic, ecological, and social benefits from the state's forests. Historically, the state's economy was based largely upon natural resources, and today forests and timber still play a key role in California's economy and culture. Since statehood, California has ranked as high as second for softwood lumber production in the Nation, along with Oregon and Washington (Morgan et al. 2012). The industry has gone through significant changes such as private forests shifting from old-growth to second-growth forest management, and a decline in harvests from federal timberlands by as much as 75 percent during the 1990s. Currently, the industry is experiencing a rise in wood harvested as biomass for energy production. Biomass power plants generate electricity by burning wood waste from sawmills and logging operations. California's forests also provide many nontimber forest products (NTFPs) and financial benefits to the state from ecosystem services such as the regulation of water quality and quantity, carbon sequestration, and soil creation and retention.

Ecological benefits of the structure and function of forested ecosystems include providing habitat for plants and animals such as fish by filtering runoff to streams, providing shade that helps control water temperatures, and contributing to the food web. Forested ecosystems also increase water absorption and retention of soils, and complete nutrient cycling.

There are also less tangible social benefits that can be more difficult to quantify. Forests are often the location for recreational, cultural, and spiritual activities. California is home to some of the Nation's most treasured national forests and internationally known national parks including Yosemite, Redwood, and Sequoia and Kings Canyon (fig. 5). In 2013, the state's 26 national parks were visited by over 35 million people and contributed over $1.5 billion in economic benefit from tourism in 2012 (NPS 2014). West coast culture values the natural world, and people living there tend to have strong cultural and spiritual values concerning forested communities. Many of those living in the Western States consider outdoor recreation an important part of their lifestyle and enjoy significantly greater access to publically managed forests than in other regions of the United States.

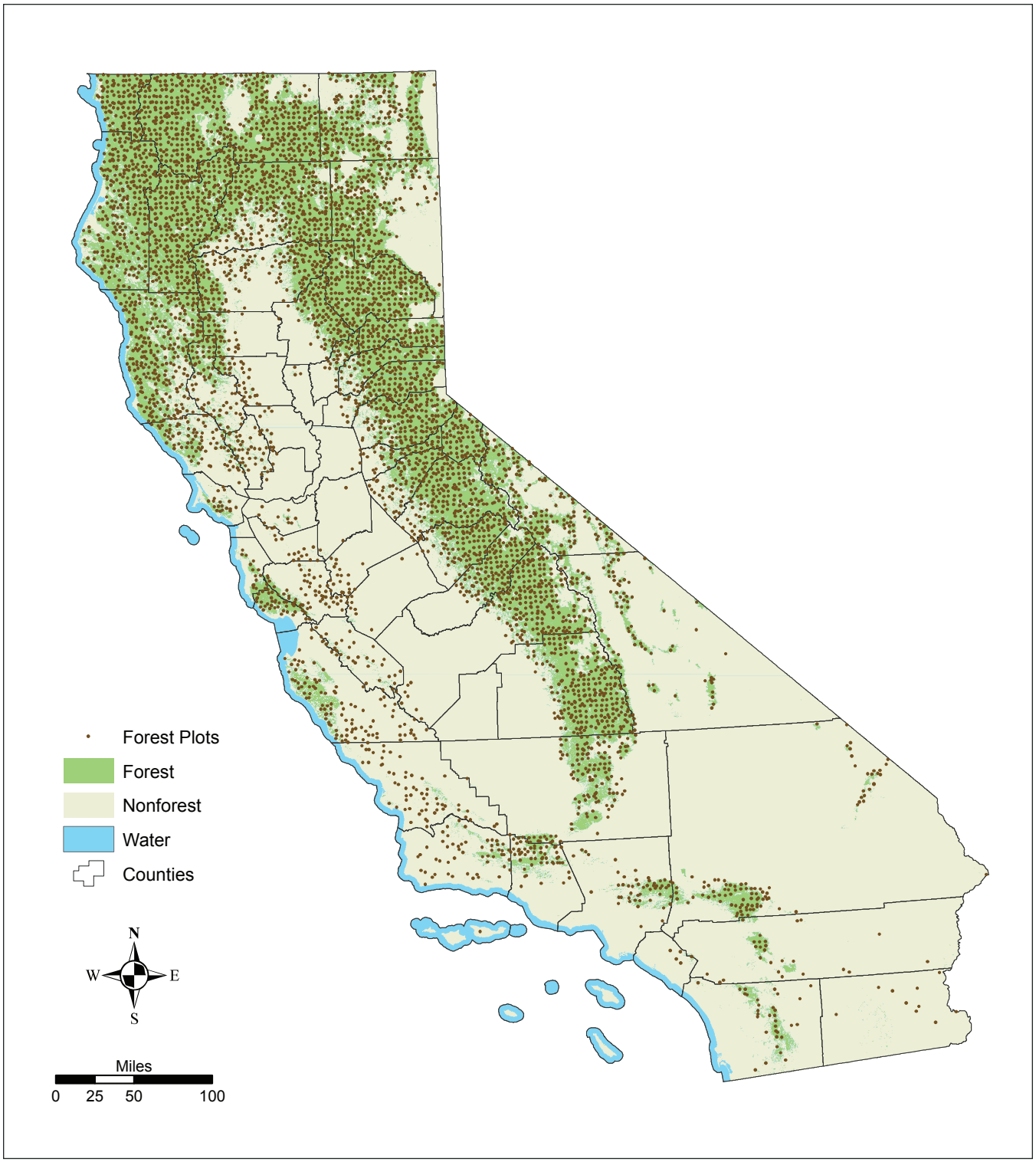
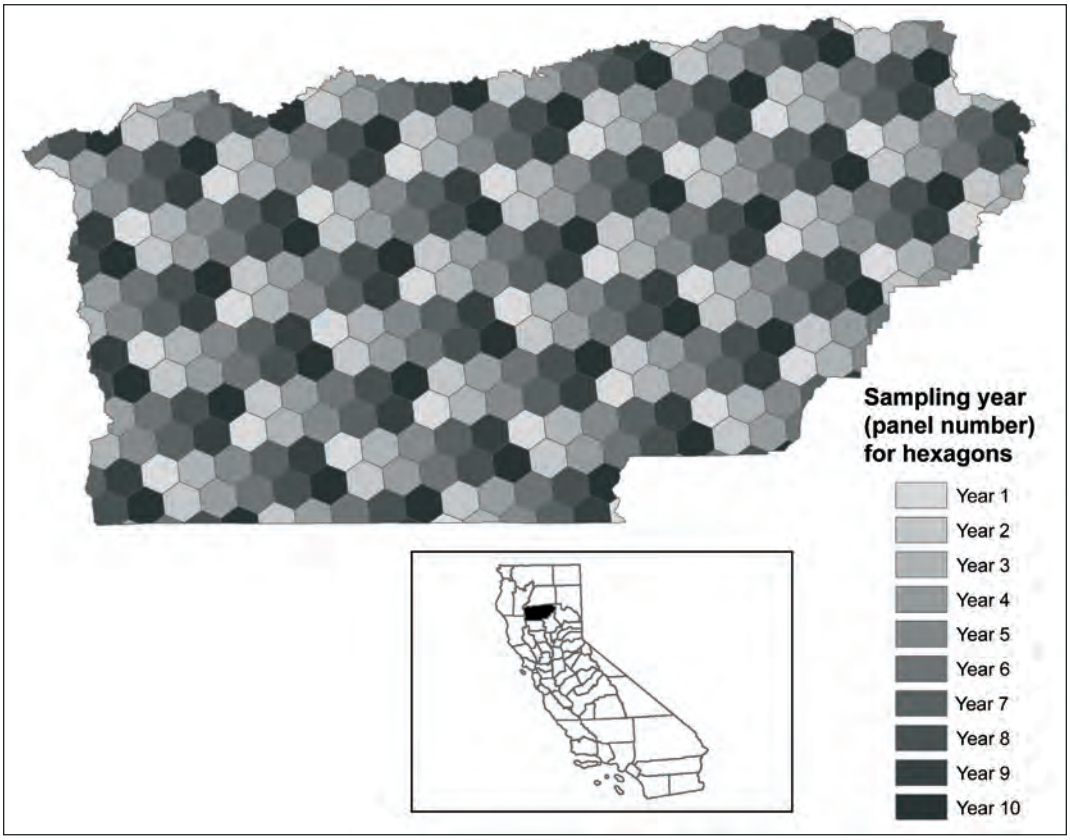


Figure 1—Forested plots measured between 2001 and 2010 provide the data used in this report. Locations are approximate (forest/nonforest geographic information system layer: Blackard et al. 2008).

J. Carson

Figure 2—Forest Inventory and Analysis field crews take a wide variety of measurements on each plot visited.



D. Weyermann

Figure 3—Example of the hexagonal grid that serves as the foundation of field plot assignment, with the cells shaded by which one of the 10 annual measurement panels it belongs to, magnified for Tehama County, California. All plots in one panel are sampled in 1 year.

B. Rifkin

Figure 4—Forest Inventory and Analysis field crews using equipment to accurately determine location of a plot for measurement.

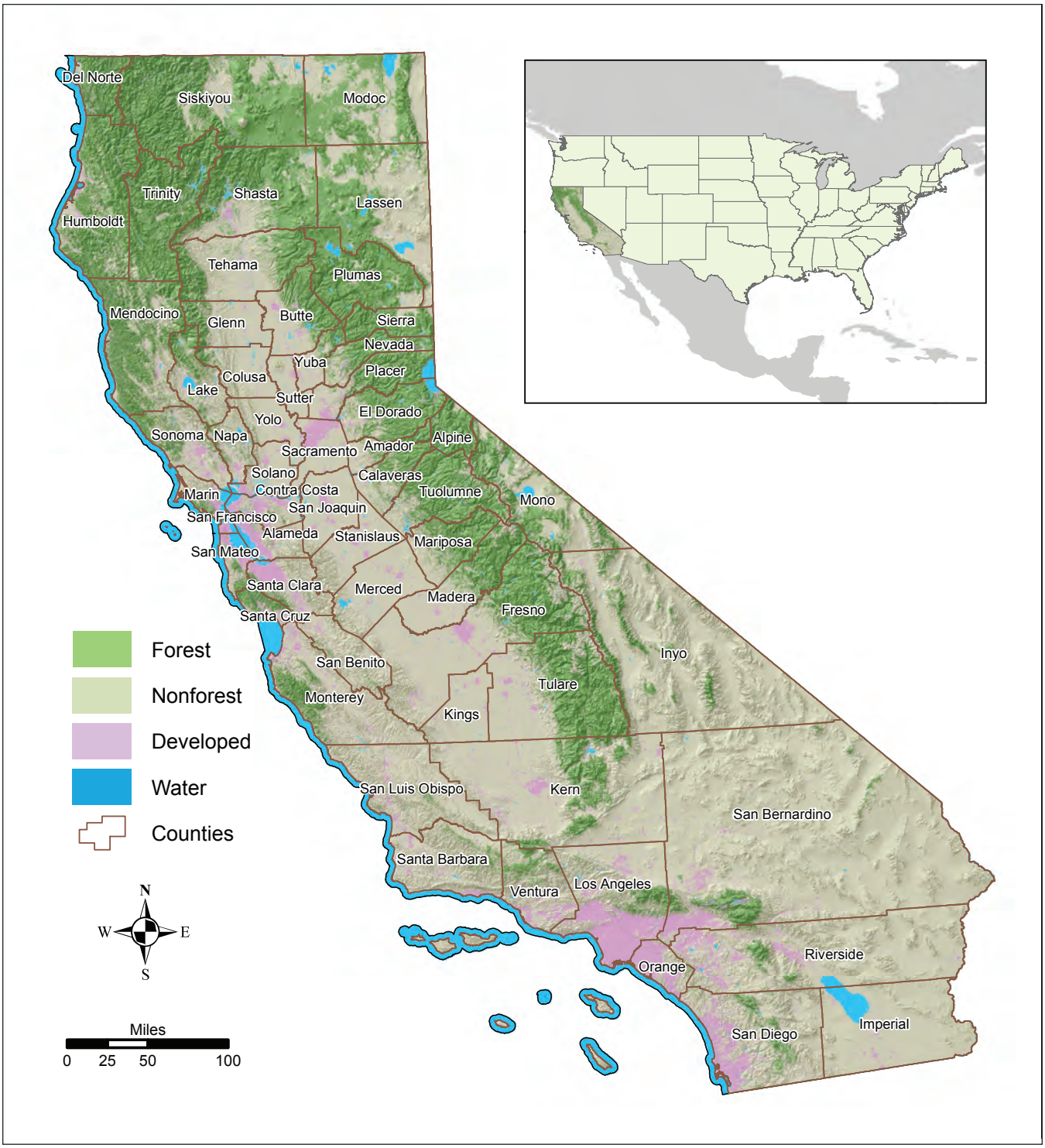
Glenn Christensen

Figure 5—Yosemite National Park is just one of 26 national parks enjoyed by millions of visitors annually throughout the state.

Where Are California's Forests?

Almost a third of California is forested. The total land area is about 100 million acres, with 33 million forested acres. **Forest land** is defined as land that is at least 10 percent stocked by forest trees of any size, or land formerly having such tree cover and not currently developed for a nonforest use (see "Glossary" for a detailed definition). Most of the forests are found in the mountainous areas such as the Klamath, Sierra Nevada, and Coast ranges, and in the cool, mesic fog belt along the state's north and central coasts (fig. 6). The Klamath Mountains ecosection has the highest percentage of forested land in the state (90 percent), followed by the Southern Cascades and Sierra Nevada ecosections, each being about 75 percent forested (figs. 7 and 8).

By county, Trinity has the most forest. Just over 90 percent of this county is forested. Alpine, Plumas, and Sierra Counties also rank highly, with over 80 percent of their land area covered by forest.



J. Chase

Figure 6—California land cover and counties (forest/nonforest geographic information system layer: Blackard et al. 2008; landcover layer: U.S. Geological Survey (USGS) Multi-Resolution Land Characteristics Consortium National Land Cover Dataset, Homer et al. 2007; relief layer: USGS National Elevation Dataset, Gesch et al. 2002).

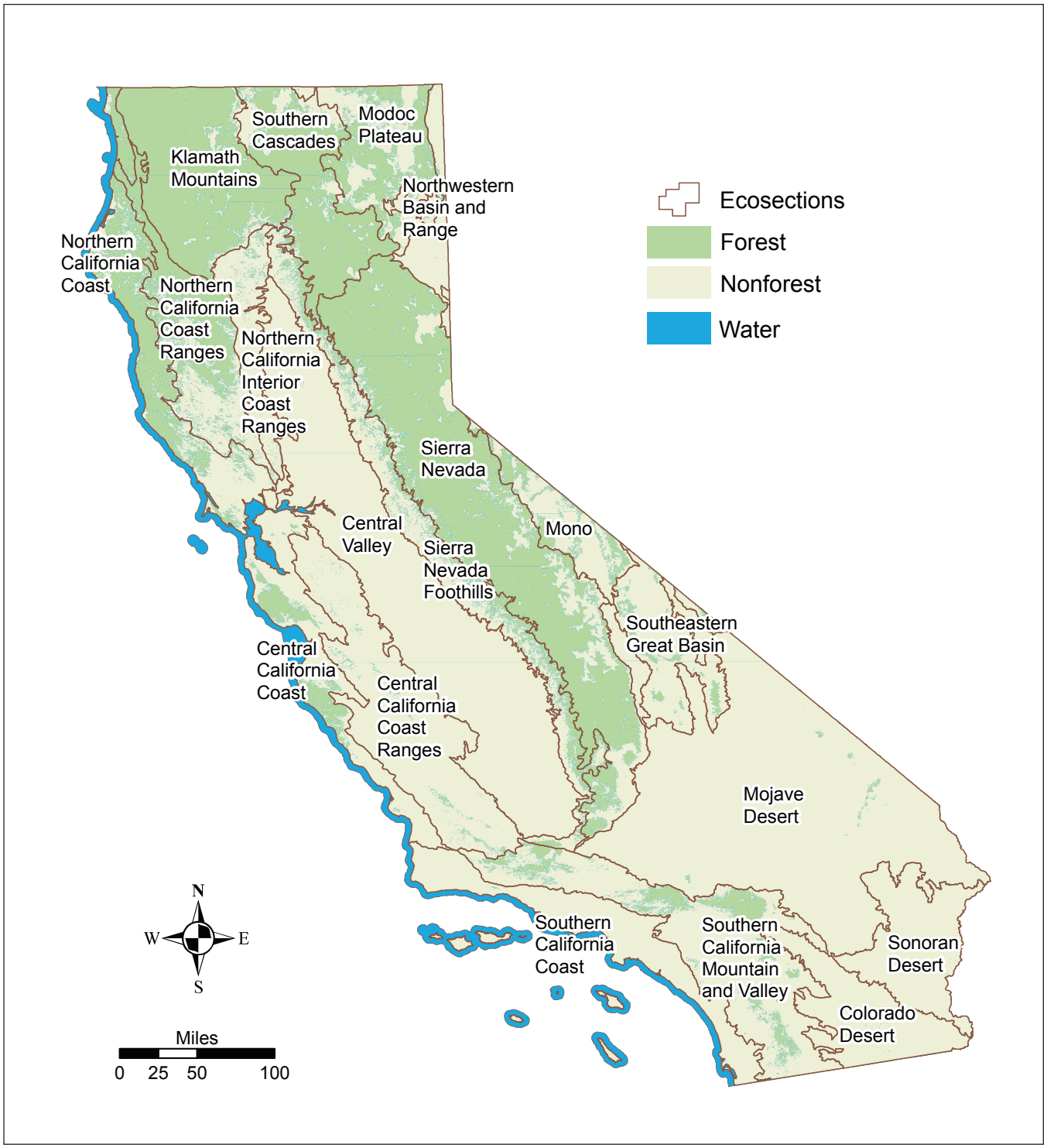


Figure 7—California ecosections (ecosection geographic information system [GIS] layer: McNab et al. 2005; forest/nonforest GIS layer: Blackard et al. 2008).

S. Kraft

Figure 8—Counties in the northern part of the state have the majority of forested area such as Siskiyou County as shown here.

What Types of Forest Grow in California?

The environment and vegetation along the Pacific coast are among the most diverse in North America, and California's distinct combinations of climate, elevation, and soil types create a unique mix of ecoregions and forest types. Forest Inventory and Analysis field crews identified 86 tree species in California. About 58 percent of California's forests are dominated by coniferous forest types—predominantly the California mixed-conifer group covering 7.8 million acres (24 percent of all forested land area), ponderosa pine covering 2.2 million acres (7 percent), and other western softwoods groups covering about 2 million acres (6 percent) (fig. 9). A forest type group is a combination of forest types that share closely associated species and similar productivity characteristics. The mixed-conifer group may be composed of several western conifers including Douglas-fir, ponderosa pine, sugar pine, Jeffrey pine, incense cedar, white fir, red fir, and other true fir species (see "Common and Scientific Plant Names").

Hardwood forest types cover an additional 13 million acres (40 percent of forested land area). The major hardwood forest types are western oak (9.5 million acres), tanoak/laurel (2 million acres), and other hardwoods (608,000 acres) (figs. 10 and 11). The remaining 2 percent of forested land is classified as nonstocked (less than 10 percent stocked by trees, see "Glossary" for detailed definition).

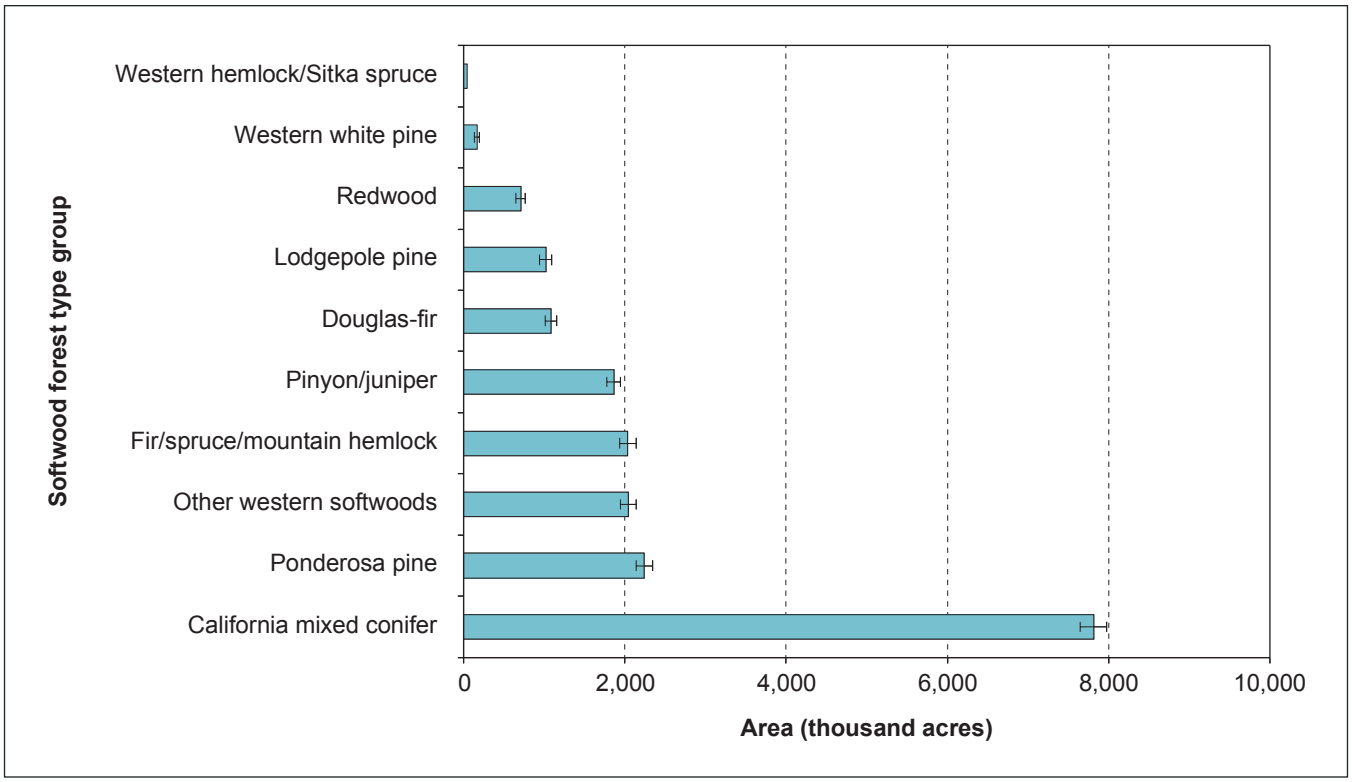


Figure 9—Area of softwood forest type groups on forest land in California, 2001–2010.

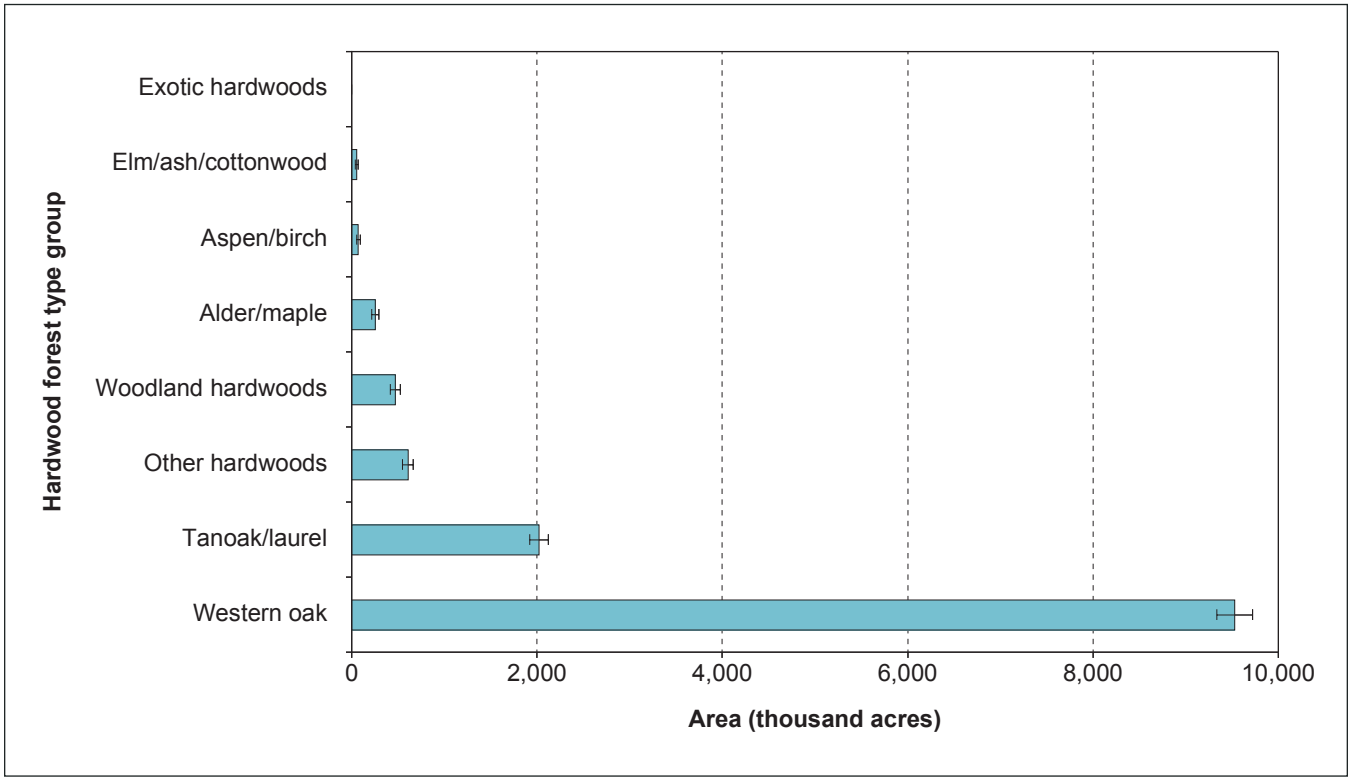


Figure 10—Area of hardwood forest type groups on forest land in California, 2001–2010.

Gerad Dean

Figure 11—An example of oak woodland forest type found in Fresno County.

How Much Volume, Biomass, and Carbon Are Stored in California's Forests?

The volume of wood in California's forests is an indicator of forest productivity, vigor, and structure. Biomass, carbon storage, and capacity for production of wood products can all be estimated from current volume. California has about 100 billion net cubic feet (465 billion Scribner board feet) of wood volume on forest land.

The greatest proportion of wood volume is found in three softwood tree species groups—Douglas-fir, true firs, and pines—which collectively make up 65 percent of all live-tree volume on California forest land; the remaining 35 percent is in softwood species such as redwood and incense cedar, or hardwood species such as oaks and tanoaks. The majority (55 percent) of live-tree volume is on Forest Service land, followed by individual private owners (18 percent) and corporate (14 percent) owners (figs. 12 and 13). State and federal forest land tends to have more volume per acre, on average, than privately owned forest land. By diameter class, state and federal forests tend to accumulate a greater proportion of total volume in larger diameter classes while private ownerships tend to concentrate relatively more volume in smaller diameter classes (fig. 14).

It is important to note that estimates of volume in standing dead trees are derived from gross cubic foot volume which, by definition and because it is calculated from total, not actual, height, includes rotten and form defect and missing bole volume. Missing volume in dead trees can be considerable. For example, for a previously harvested or broken topped tree for which a stump or snag remnant taller than 6 feet remains, the volume calculation uses estimated total height of an unharvested, unbroken tree. The resulting bias in dead tree volume estimates precludes meaningful comparison of standing dead and live tree volume, as live tree calculations use net volume which omits cull and missing portions of tree boles.

Forest biomass and carbon accumulate in live trees, snags, and down wood in a complex pattern across California (fig. 15). Biomass estimates from comprehensive forest inventories are essential for quantifying the amount and distribution of carbon stocks, evaluating sources of sustainable fuel, and tracking net primary productivity. Total estimated biomass in live trees and dead wood across California is 2.5 billion tons. Forest biomass represents the aboveground woody biomass of trees in tons per acre. This biomass is the accumulated oven-dry weight of the stem, bark, stump, top, and live woody branches. The biomass of

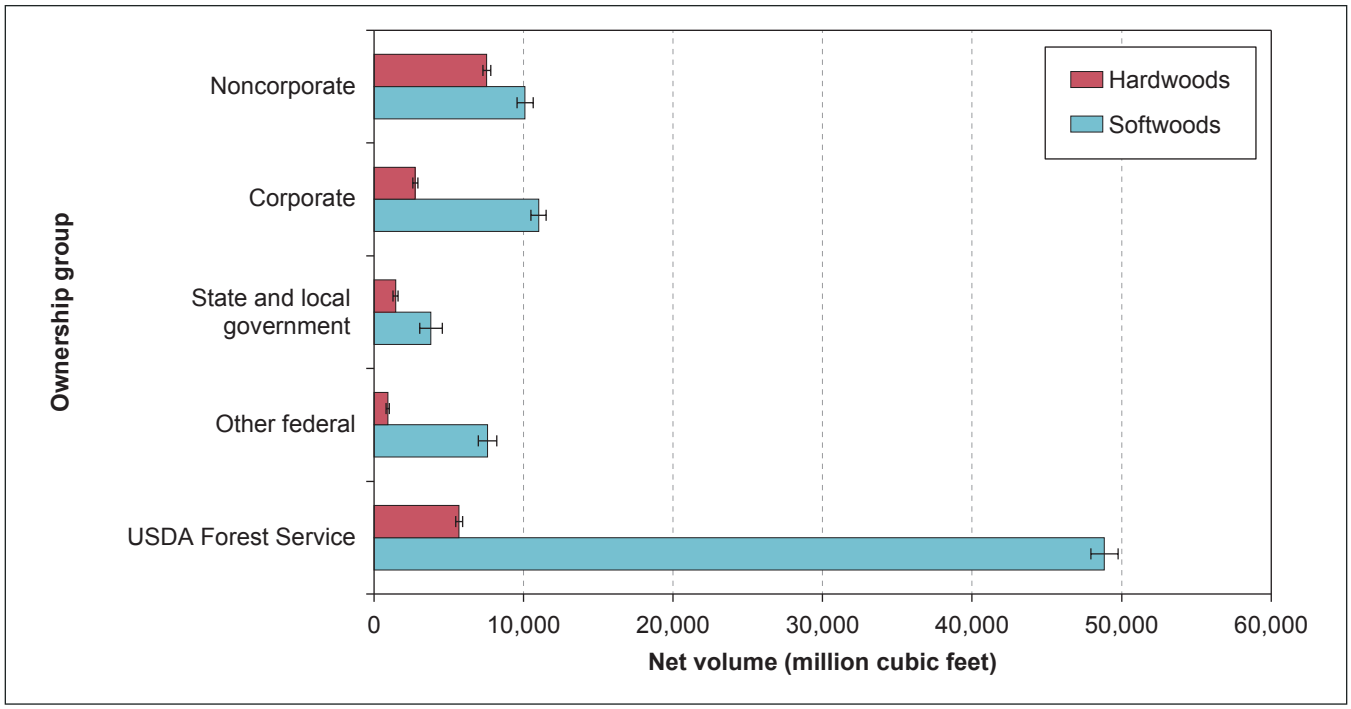


Figure 12—Net cubic volume of all live trees by ownership group on forest land in California, 2001–2010.

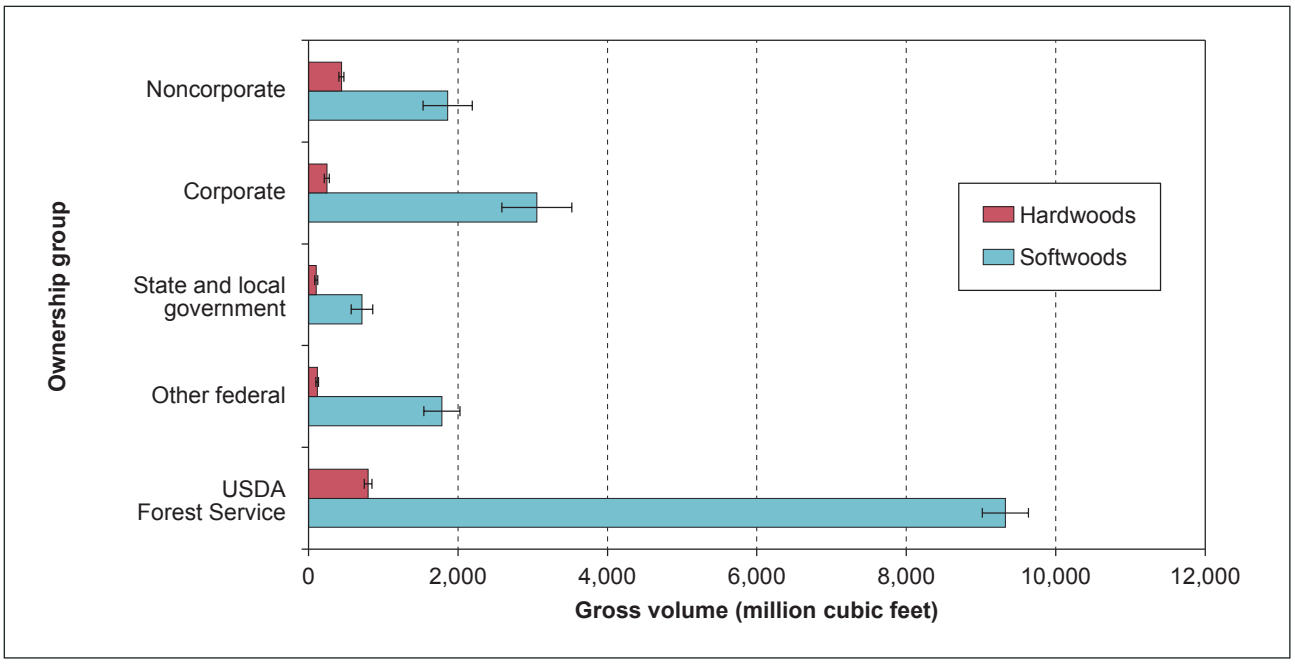


Figure 13—Gross cubic volume of all dead trees by ownership group on forest land in California, 2001–2010.

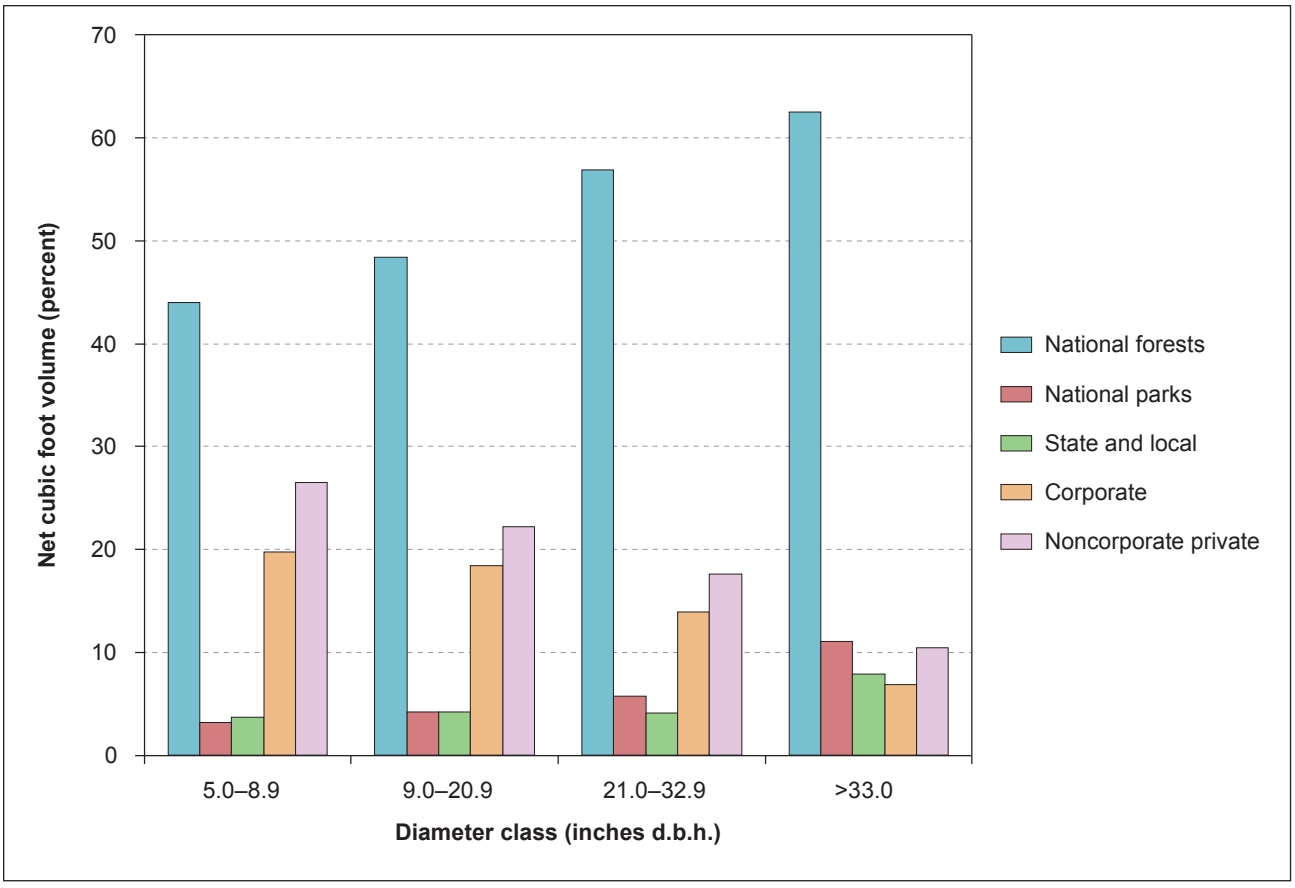


Figure 14—Percentage of volume by diameter class and ownership group on forest land in California, 2001–2010.

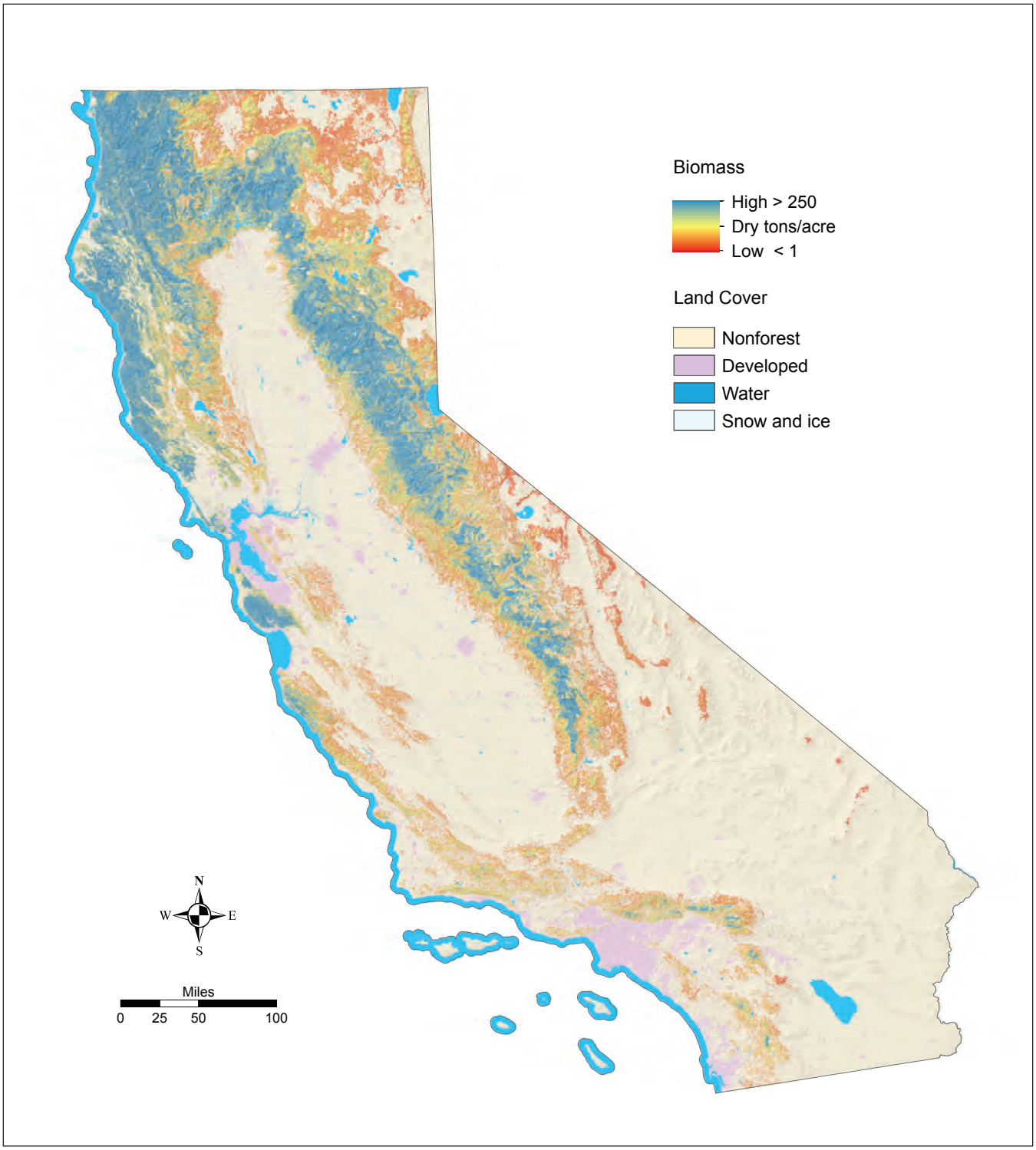
foliage, cones, fruits, and roots was not calculated and is not included in this estimate of aboveground biomass.

There is nearly 10 times as much biomass in live trees compared to dead trees. Over 2 billion tons of biomass and about 1 billion megagrams of carbon have accumulated in live trees ≥1 inch diameter at breast height (d.b.h.), primarily on unreserved forest land (fig. 16). The majority of this biomass (53 percent) is on land managed by the Forest Service. Reserved forest land, such as wilderness areas and national parks, contains about 22 percent of California's live-tree biomass. Statewide, softwood forest types have more than double the amount of biomass and carbon as hardwood types.

Oaks are the most abundant tree species in California; however, Douglas-fir contributes the most to total live-tree biomass and carbon storage. The more than 461 million tons of Douglas-fir biomass represent about 209 million megagrams of carbon sequestered in live trees. Live biomass is heavily concentrated in large softwood trees (>21 inches d.b.h.). In contrast, most of the biomass in hardwood species is contained in smaller trees (5 to 17 inches d.b.h.).

J.Terzibashian

Figure 15—Biomass and carbon accumulate in standing live trees as well as overall contributions from dead trees still standing or fallen to the forest floor.



J. Chase

Figure 16—Estimated live-tree biomass (dry/tons per acre) in California, 2001–2010 (forest/nonforest geographic information system layer: Blackard et al. 2008; landcover layer: U.S. Geological Survey (USGS) Multi-Resolution Land Characteristiccs Consortium National Land Cover Dataset, Homer et al. 2007; relief layer: USGS National Elevation Dataset, Gesch et al. 2002). Forest biomass represents the aboveground woody biomass of trees in tons per acre. This biomass is the accumulated oven-dry weight of the stem, bark, stump, top, and live woody branches. The biomass of foliage, cones, fruits, and roots was not calculated and is not included in this estimate of aboveground biomass.

Research Application—Accurate Forest Carbon Standards Prove Elusive[1]

Recent interest in obtaining accurate estimates of forest carbon stocks and stock change has been intense, driven in large part by forest carbon offset markets and those who trade in them. Measuring forest carbon flux as assessed by change in carbon stocks, relative to a baseline or "business as usual" scenario, is an oft-sought metric but is not yet standardized. For tracking flux at broad (state and regional) scales and for generating baseline reference values, comprehensive forest inventories like Forest Inventory and Analysis that are based on remeasured, permanent sample plots have the potential to provide the most accurate estimates. However, converting these measurements into carbon stock and flux introduces several distinct types of uncertainty: measurement, sampling, model, and model-selection error. Rigorous quality control can minimize measurement error, and large samples are the antidote to sampling error. Model error, the uncertainty not explained by the variables included in a model, can be accounted for when model creators provide error information, but model-selection error, which arises from the availability of multiple potentially suitable models, can introduce substantial bias (inaccuracy) and is not easily resolved.

Model-selection error arises from the need to estimate aboveground carbon stores for each tree by selecting from among what, for a common commercially important species like Douglas-fir, can be thousands of alternative computation pathways. Under the most optimistic scenario of a sensitivity analysis of live-tree carbon stores in northwest Oregon, model-selection error, defined as half the prediction range (56 to 119 teragrams of carbon [Tg C]) expressed as a percentage of the prediction envelope midpoint, was 37 percent (Melson et al. 2011). When models are applied to tree measurements (e.g., height and diameter) that lie outside the range of data from which models were developed, which is all but unavoidable when seeking estimates for large trees or less common species, model-selection error can be far greater. Given that sampling error for the northwest Oregon analysis implied a 95 percent confidence interval of 6 percent, and that measurement error is consistently far smaller, model selection accounts for most of the uncertainty in live-tree carbon stores.

Despite these limitations, forest carbon estimates can be extremely helpful to understanding forest carbon dynamics and the net climate implications of forest management, disturbance, and utilization, for example. However, the accuracy and applicability of the carbon models available today are difficult to establish and, as such, these models are limited as tools for monetizing the impacts of carbon-offset projects. Potential exists for a model with substantial bias or significant errors to be selected from the mélange available, on a less than objective basis, to support a particular offset transaction.

Citation

Melson, S.L.; Harmon, M.E.; Fried, J.S.; Domingo, J.B. 2011. Estimates of live-tree carbon stores in the Pacific Northwest are sensitive to model selection. Carbon Balance and Management 6(2). http://www.treesearch.fs.fed.us/pubs/39998.

[1] Author: Jeremy Fried.

How Old Are the Trees in California?

The FIA field crews estimate stand age from the average age of predominant overstory trees, derived from field counts of annual rings in increment cores. There are notable exceptions of older stands in the state (figs. 17 and 18), but overall the stand ages tend to be younger, with nearly half of the state's forests being less than 80 years old (47 percent). Almost 75 percent of the stands are less than 120 years old (fig. 19). Older stands are more commonly softwood forest types (fig. 20).

Fifteen percent (4.3 million acres) of forest stands across California are older than 160 years, and about 9 percent (2.5 million acres) are older than 200 years. California mixed-conifer stands older than 160 years account for 7 percent of total forest acreage and 3 percent of the acreage in stands older than 200 years. The remaining combined forest types with stand ages in excess of 160 years make up 10 percent of total forest area. The vast majority of older forests are California mixed-conifer on publicly owned land in national forests and national parks.

Western white pine forest types have a large proportion of their acreage in older stands: 62 percent of California's white pine is older than 160 years, about 104,000 acres. Lodgepole pine forests also tend to be older, with 40 percent of these stands older than 160 years, about 404,000 acres. California mixed-conifer is the most common softwood forest type in terms of acreage, however only 21 percent of these forests are older than 160 years, about 1.6 million acres. Western oaks are the most common hardwood forest type by acreage, and only about 5 percent are older than 160 years, about 323,000 acres (fig. 21).

Who Owns California's Forests?

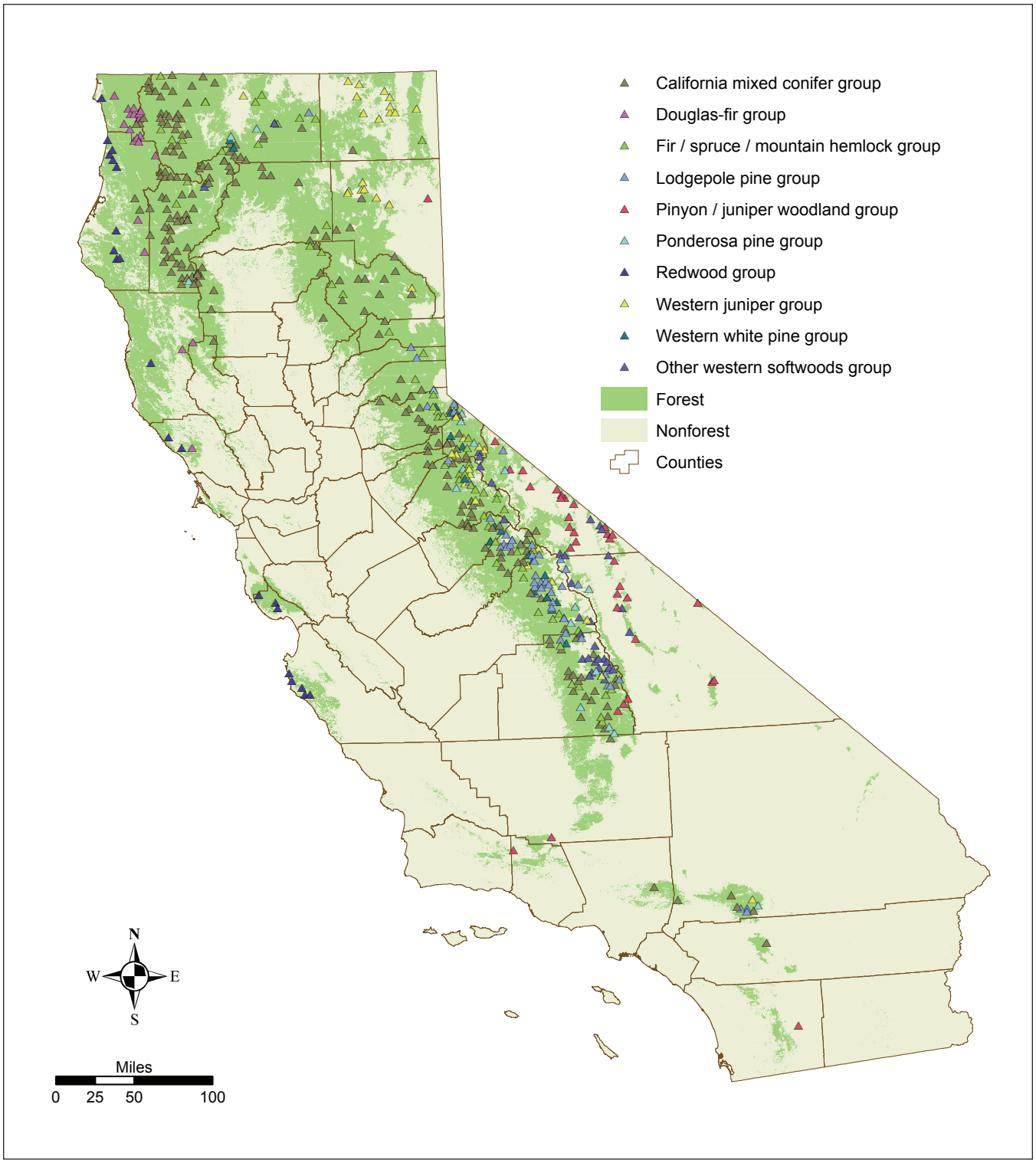
Ownership has a strong influence on how forests are managed and used. Federal owners must consider multiple management objectives including water resources, wildlife, recreation, conservation, biological diversity, and wood products. Corporate and other private owners often focus on more specific outcomes, such as aesthetics, wood production, or real estate investment, within state and federal regulations and incentives.

Federal agencies such as the Forest Service, Bureau of Land Management (BLM), and the National Park Service (NPS) manage more than half the forested land in California, about 57 percent (fig. 22). Federal lands tend to be at higher elevations and contain older forests, and therefore contain bigger trees on less productive sites. About 3 percent of federal forest land is considered highly productive, while 9 percent of private lands fall into that category. Federal lands comprise the vast majority of the 5.9 million acres of reserved forest lands (those withdrawn by law from production of wood products).

Other publicly owned forest lands include state and county forests and those administered by other federal agencies, such as the U.S. Fish and Wildlife Service, the Department of Defense, and the Department of Energy. California's state-owned forest lands, managed by multiple agencies, encompass 730,000 acres. Forest lands managed by state and local governments (about 3 percent of California's forests) include a considerable area of highly productive redwood forests, as well as a great proportion of low-productivity forests that are managed primarily for habitat and watershed protection objectives. About 10 percent of the area is on high-productivity sites with about 57 percent on low-productivity sites.

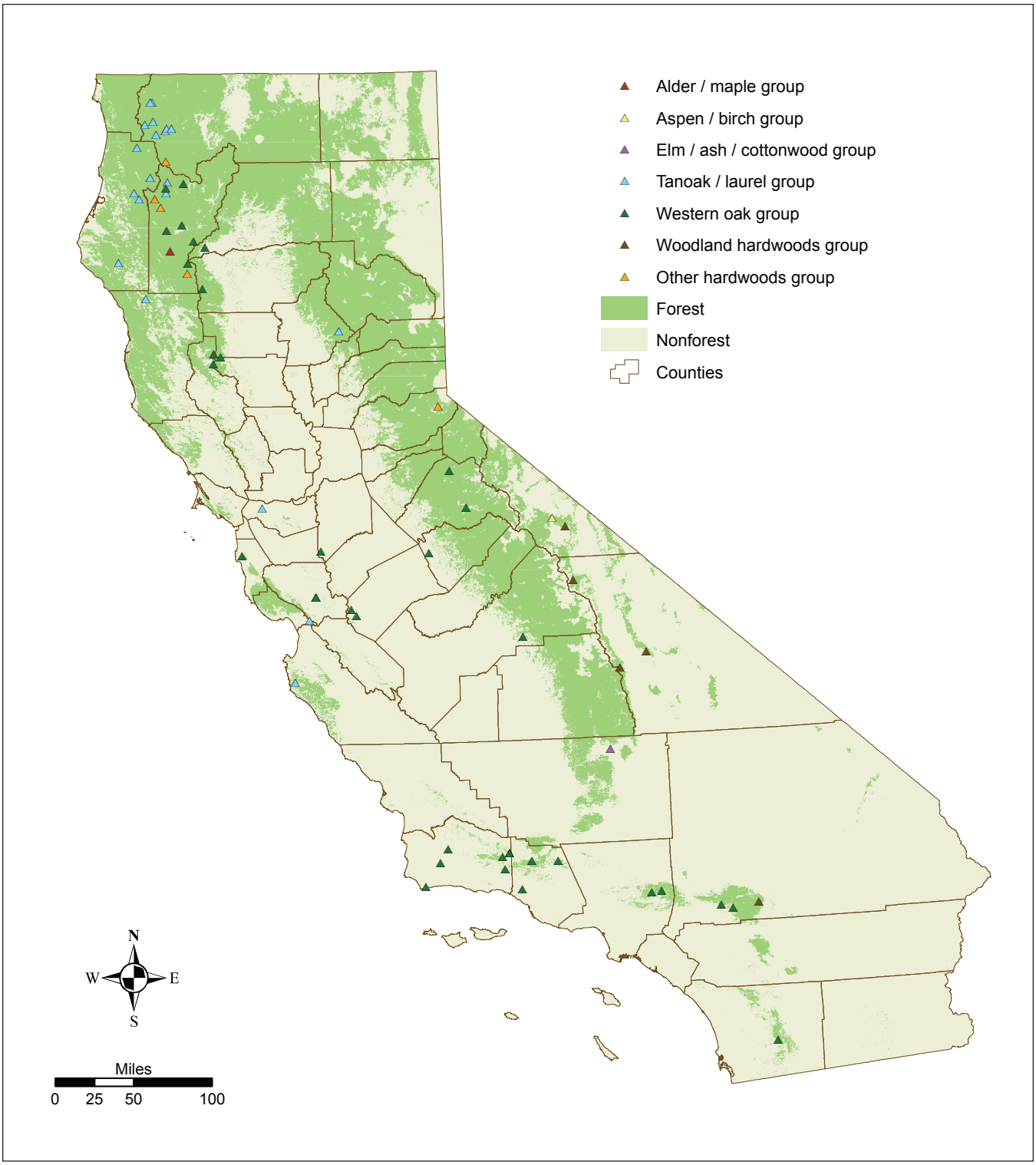
Accounting for about 39 percent of the forested land, private ownership (corporate and noncorporate) is distributed throughout the state (figs. 23 and 24). Private owners include families, individuals, conservation and natural resource organizations, unincorporated partnerships, associations, clubs, corporations, and Native American tribes. Private lands tend to contain a higher proportion of productive land, and its forests tend to be in younger age classes. The vast majority of private owners (about 99 percent) own parcels of 500 acres or fewer, making up 40 percent of the area of privately owned forest land.

Corporations manage 14 percent of California's forests. Recently, some large, publicly owned timber companies reorganized into real estate investment trusts (REIT) and timberland investment management organizations (TIMO). The REITs directly own forest land, whereas TIMOs manage lands owned by investors. The REITs and TIMOs own forest land as investment vehicles that compete with and complement alternative investments; these entities may or may not own wood-processing facilities.



J. Thompson

Figure 17—Distribution of softwood stands >200 years old in California, 2001–2010 (forest/nonforest geographic information system layer: Blackard et al. 2008).



J. Thompson

Figure 18—Distribution of hardwood stands >200 years old in California, 2001–2010 (forest/nonforest geographic information system layer: Blackard et al. 2008).

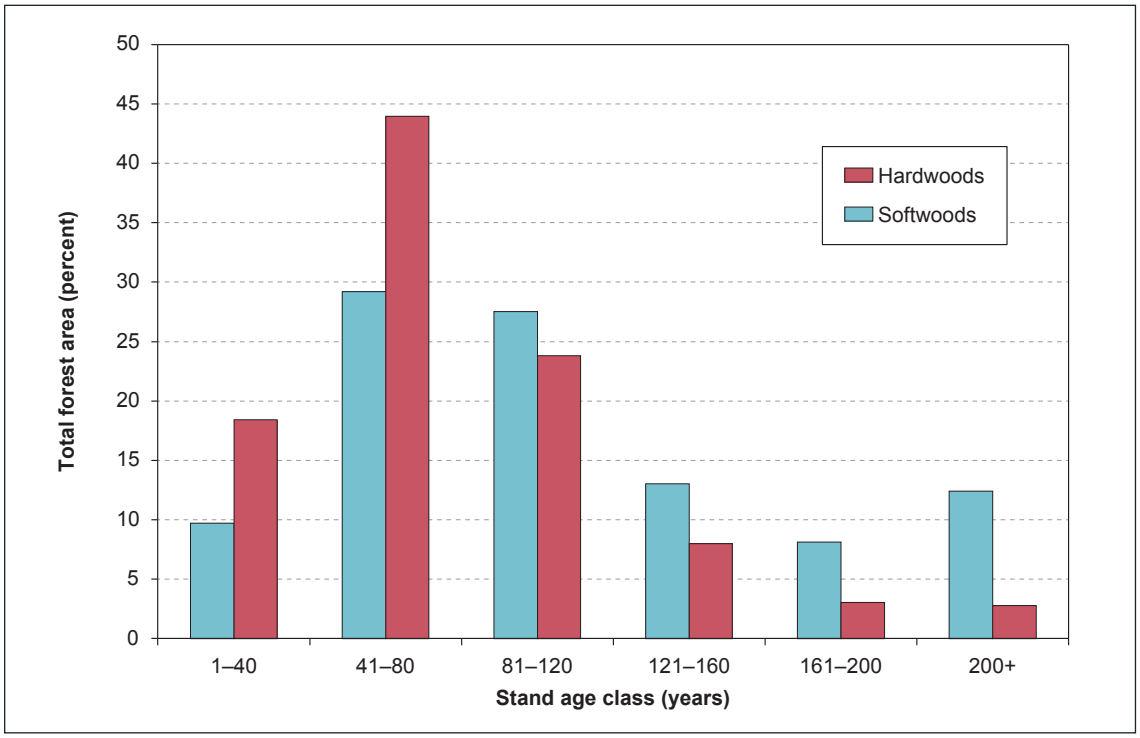
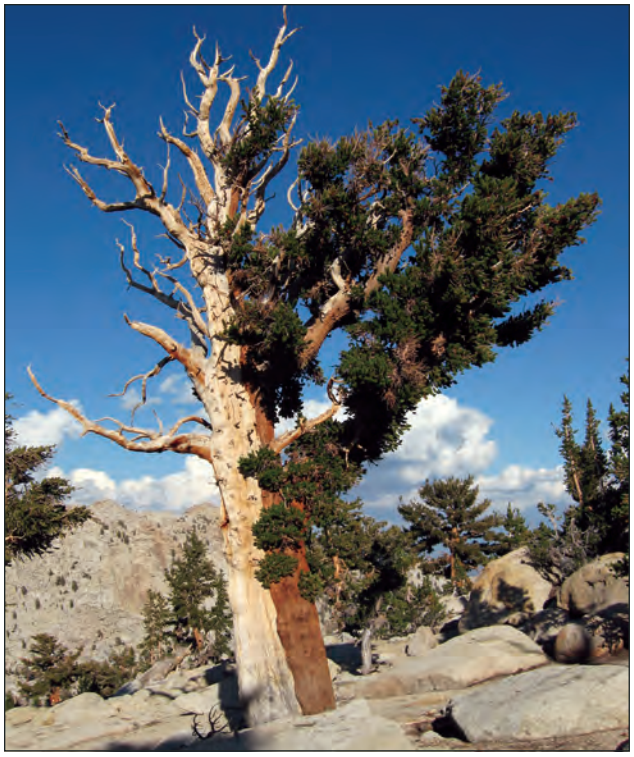


Figure 19—Percentage of forest area by stand age class for softwood and hardwood forest types in California, 2001–2010.



J. Feinberg

Figure 20—Endemic to California and closely related to bristlecone pine, the foxtail pine can exceed 1,000 years of age.

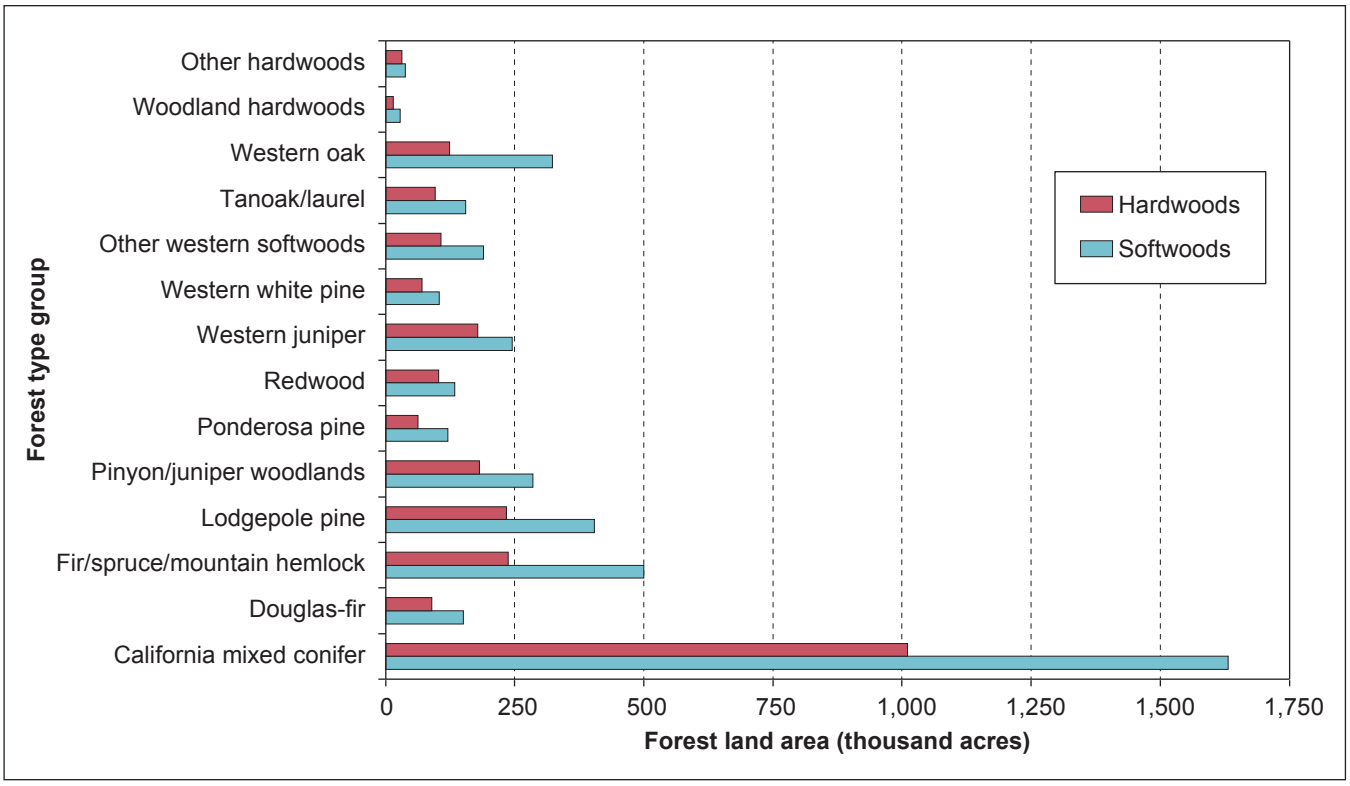


Figure 21—Total forest area by forest type group for stands 160+ and 200+ years old in California, 2001–2010.

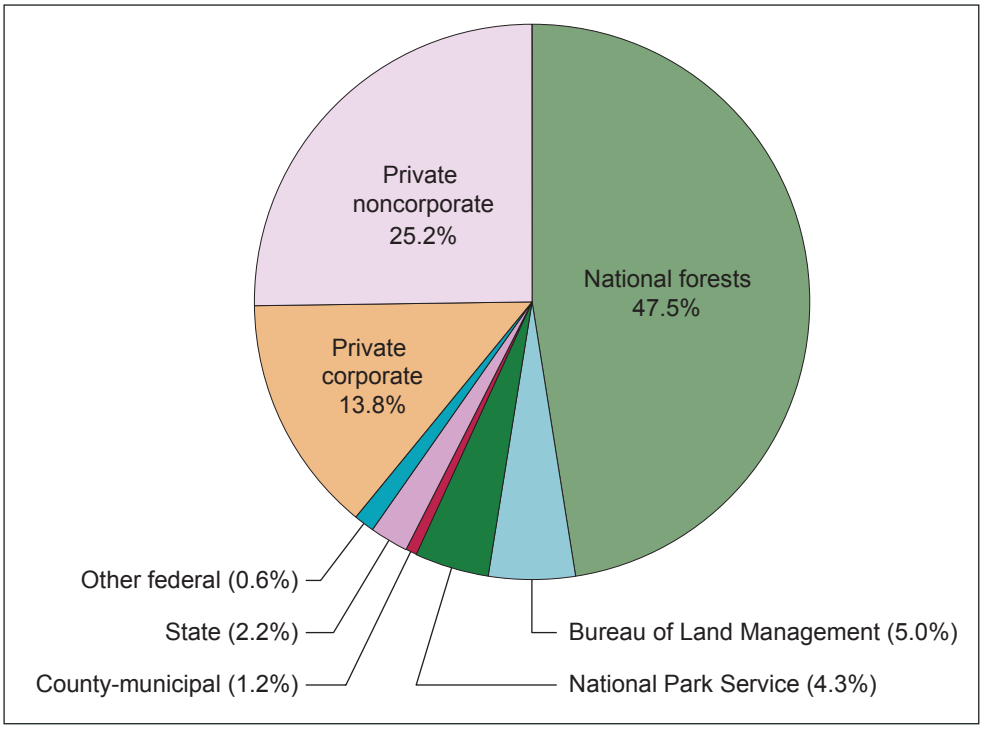
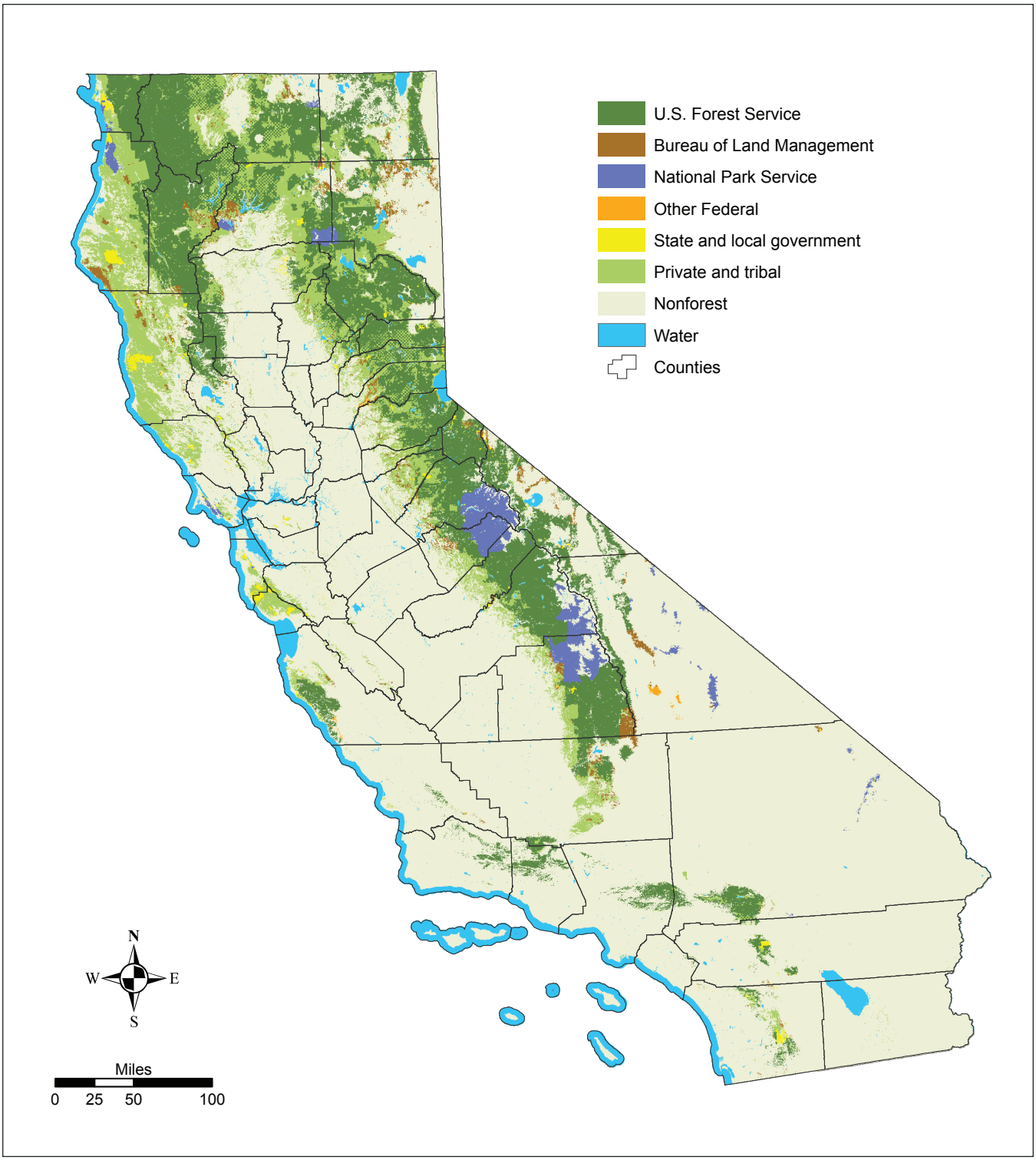


Figure 22—Percentage of forest land by owner group in California, 2001–2010.

M. Gasser

Figure 23—About 39 percent of California's forest land is owned by private individuals or corporations.



J. Thompson

Figure 24—California forest ownership categories (forest/nonforest geographic information system layer: Blackard et al. 2008; ownership layer courtesy CAL FIRE).

National Woodland Owner Survey

The National Woodland Owner Survey, a mail-in questionnaire-based survey conducted by FIA, provides some insight into private family forest owners and their concerns, current forest management, and future intentions (Butler et al. 2005). Between 2011 and 2013, there were 166 responses to these surveys in California. About 98 percent of family owners surveyed (those with ownerships at least 10 acres in size) own parcels of 500 acres or less, making up 61 percent of the area of family-owned forest land (fig. 25). About 5 percent of the owners surveyed had written management plans. Wildfire ranked as the leading concern of respondents along with trespassing/poaching, passing the land intact to heirs, and property taxes. Of the 25 percent that had harvested trees within the last 5 years, the leading reason was to reduce fire hazard (38 percent). Reducing fire hazard was also the leading reason they will likely harvest trees in the next 5 years (31 percent). Family woodland owners are also concerned about invasive plants. Removing invasive plants was the second leading reason landowners would likely harvest trees in the next 5 years. Keeping forests as forests ranked high among small woodland owners. When asked if they would rather keep their woodland as forest or sell if offered a reasonable price, 70 percent of respondents indicated they would choose to keep their land as forest. The ownership survey revealed the following demographics for California family forest landowners:

- The majority of primary owners are male (80 percent).
- Diversity among primary owners is low (89 percent are Caucasian).
- Primary ownership is aging, with 55 percent of the primary owners being older than 65 years.
- Only 24 percent of the primary owners are younger than 55 years.
- Most owners are retired (58 percent).
- Most owners are well educated: 63 percent of the primary owners have earned a bachelor's or graduate degree.
- Only 19 percent have owned their land for more than 25 years.
- 38 percent use their land as part of their primary residence.

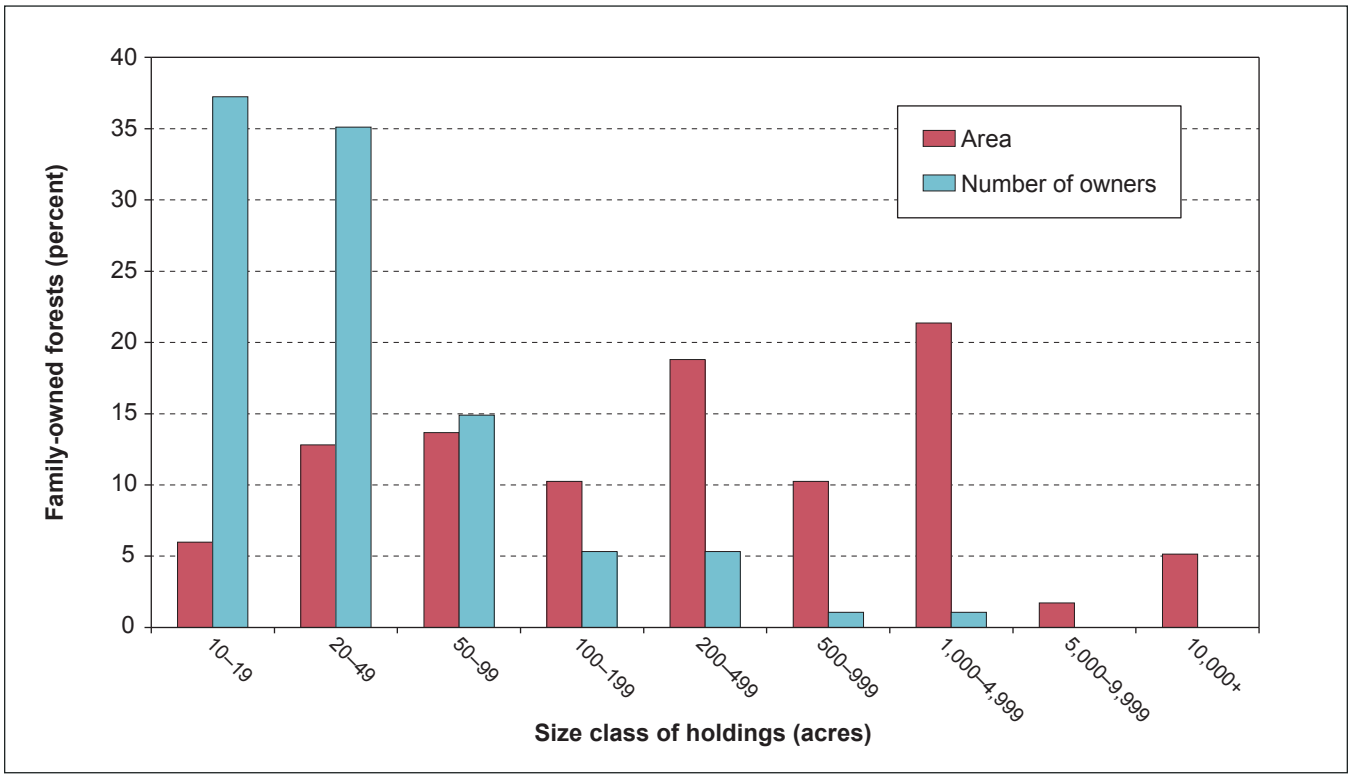


Figure 25—Percentage of area and percentage of number of family-owned forest holdings by size class in California, 2011–2013.

How Much of California's Forest Land Is Available for Harvest?

About 17 million of the 33 million forested acres in California can be considered timberland. Forest is considered timberland if it is growing on ground capable of significant annual tree growth and considered available for timber management. This is land potentially available for production of wood products and does not include acreages locally withdrawn from timber harvest or other active management. About 18 percent, nearly 6 million acres, of California's forests are unavailable for timber production (fig. 26).

The majority of timberland in California is publicly owned, about 56 percent. The Forest Service alone administers over 9 million acres. State and local governments manage the smallest fraction of public timberland in the state at less than 1 percent. Private ownership, both corporate and individual owners, covers about 7.5 million acres of timberland (fig. 27).

By tree species group, most of the wood volume found on timberland is in conifer species, about 92 percent. The primary conifer species found on California's timberlands is Douglas-fir (fig. 28). By volume, this species has about 32 percent of all board-foot volume, over 103 billion Scribner board feet (about 17.6 billion cubic feet). Tanoak and oak species groups make up the majority of the wood volume found in hardwood species. There is about 24 billion Scribner board feet (about 5 billion cubic feet) found in all hardwood tree species (fig. 29).

The average harvestable volume per acre on timberland for the state is about 19,000 Scribner board feet (3,419 cubic feet per acre). Harvestable volume is wood volume found in sawtimber trees (live commercial species at least 9.0 inches d.b.h. for softwoods and 11.0 inches d.b.h. for hardwoods) on timberland. Despite managing the least amount of acreage in timberland, state and local governments have some of the greatest volumes per acre with the average being about 29,000 Scribner board feet per acre (5,122 cubic feet per acre) (fig. 30). Private ownerships (corporate and individual owners) tend to manage their timberland with less volume per acre on average, about 16,000 Scribner board feet per acre (2,914 cubic feet per acre).

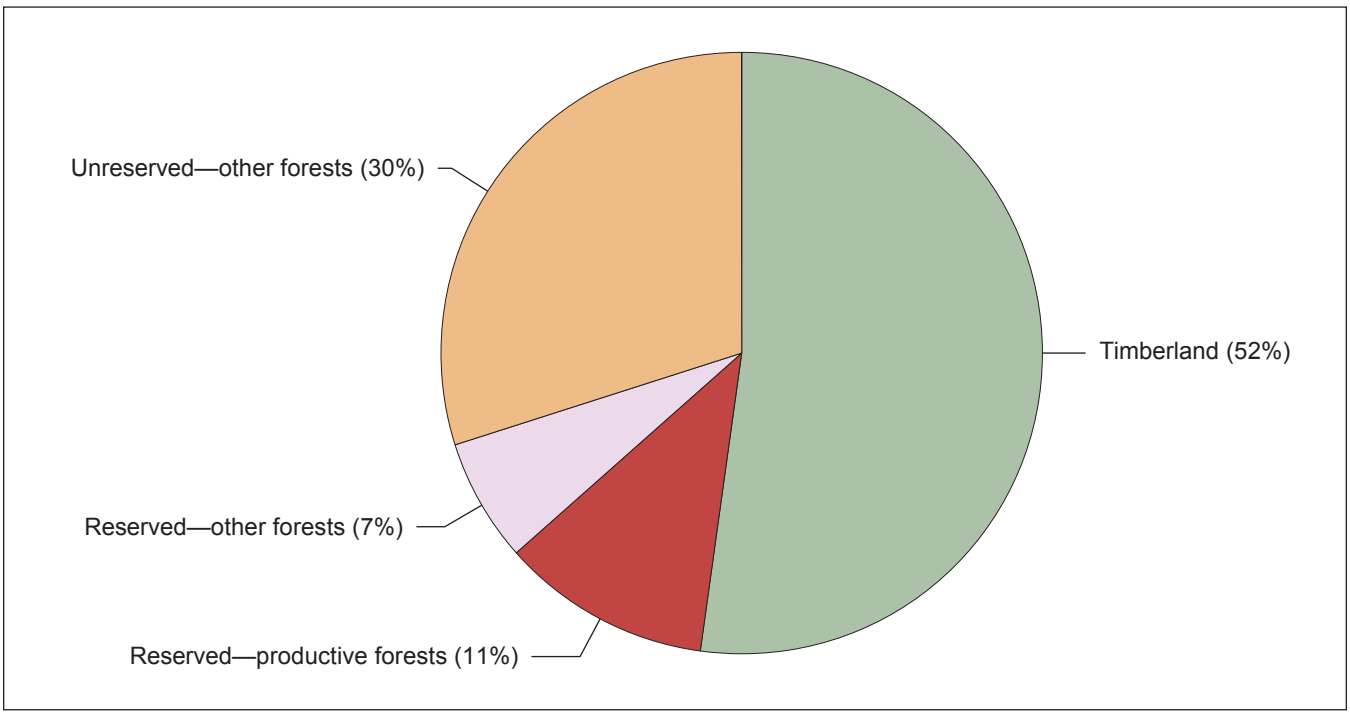


Figure 26—Proportion of forest land area by current land status in California, 2001–2010.

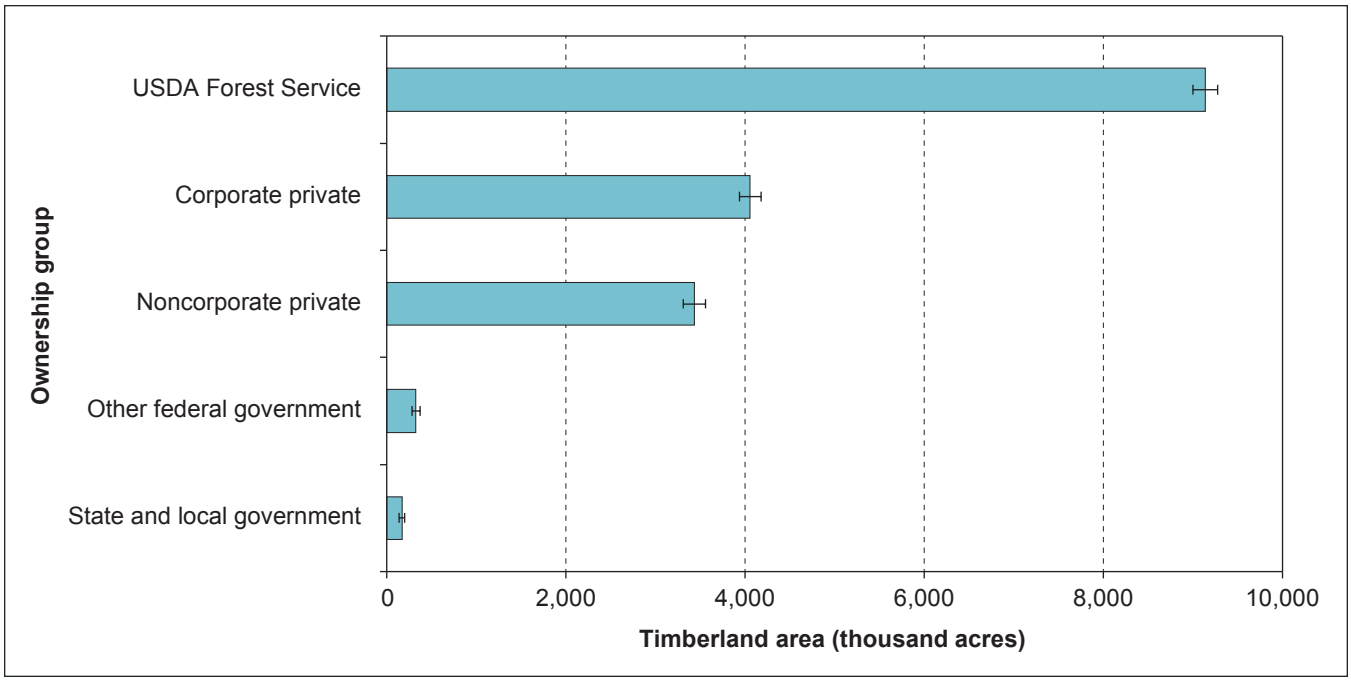


Figure 27—Timberland area by ownership in, California 2001–2010.

Glenn Christensen

Figure 28—Douglas-fir is the primary conifer species found on California's timberlands.

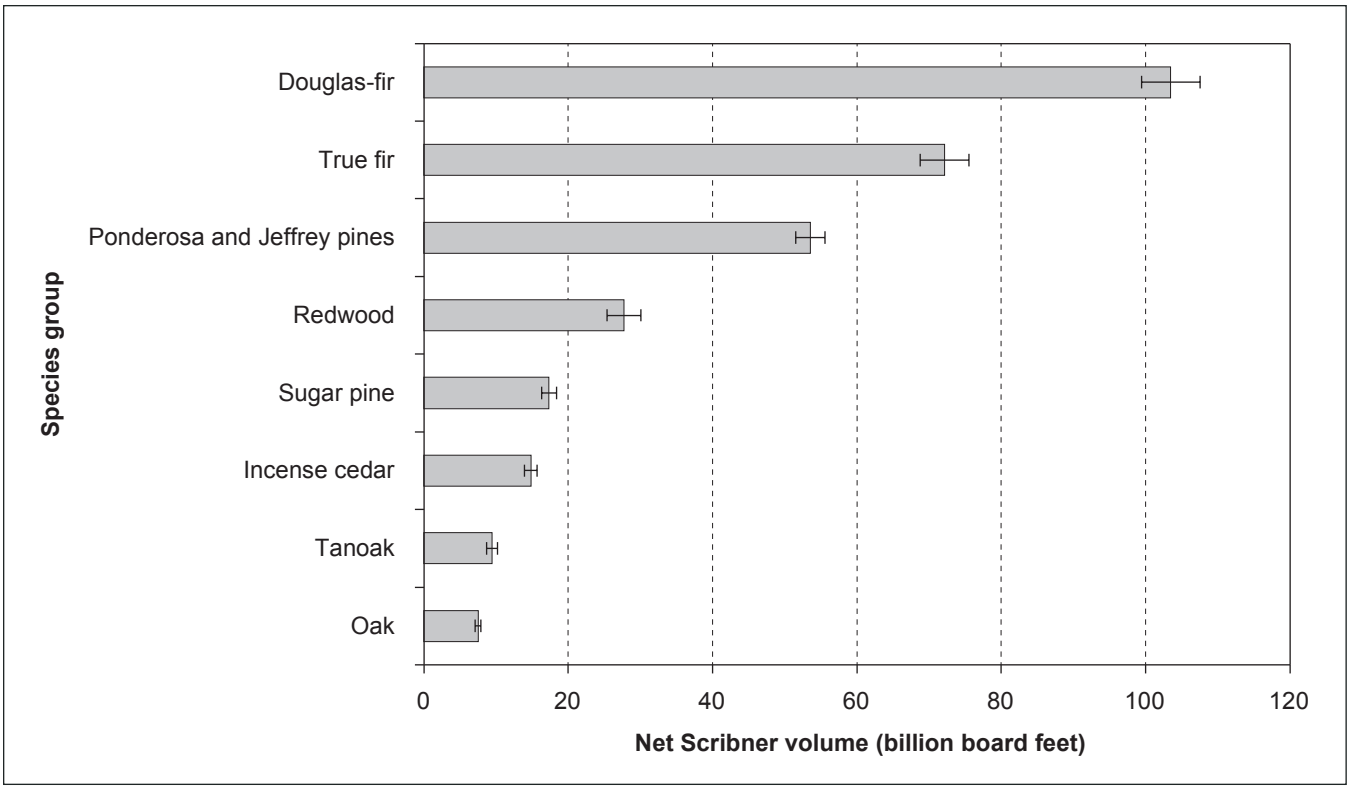


Figure 29—Scribner board-foot volume found on timberland by species group (those contributing at least 2 percent of total volume) in California, 2001–2010.

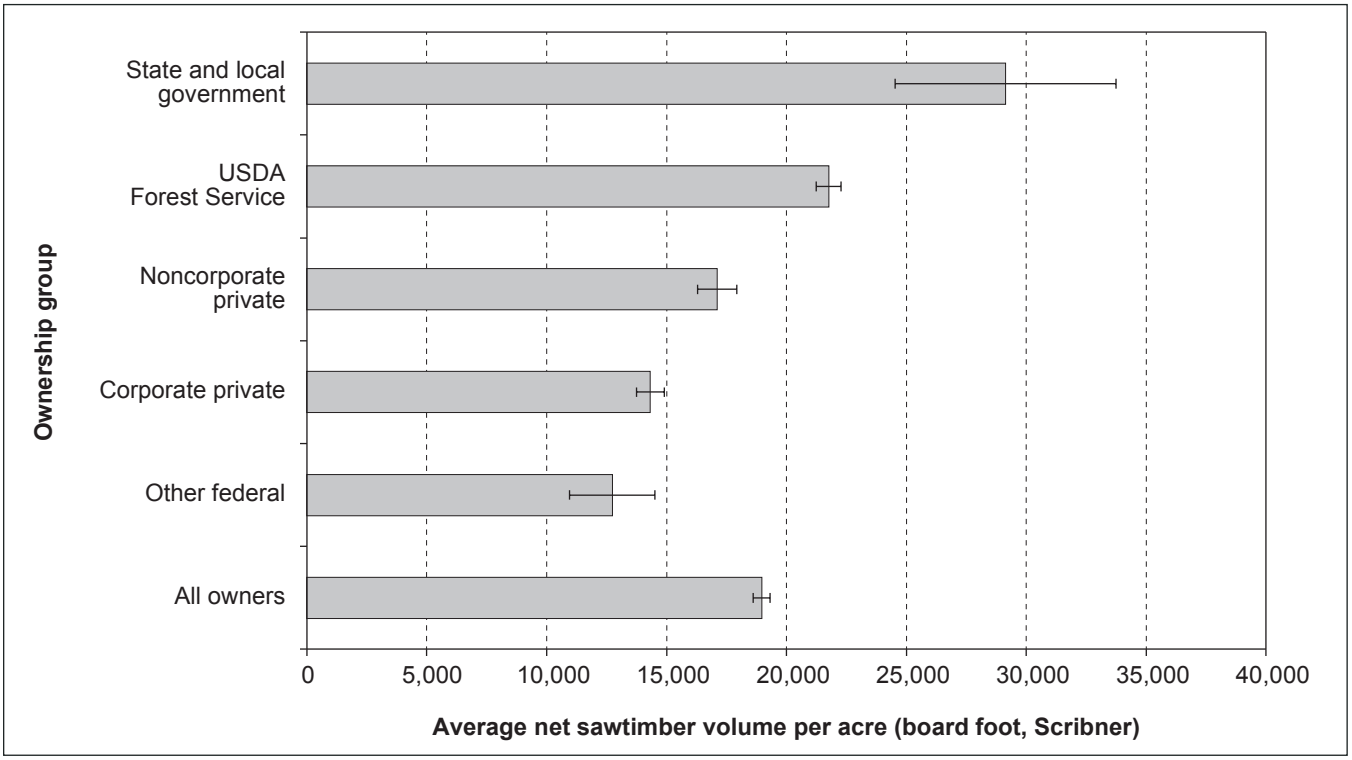


Figure 30—Average sawtimber tree volume per acre by ownership group (net board feet, Scribner) in California, 2001–2010.

Annual Tree Growth, Removals, and Mortality in California[2]

Changes in wood volume over time are an indicator of sustainability and can be explained by examining tree growth, removals (harvesting), and mortality. These components are key factors in understanding how management, ecology, and climate change interact across the landscape. It is important to take into account that private forests are distinctly different from Forest Service forests in management practice as well as vegetation type, productivity, and topographic location. For example, the Forest Service manages vast areas of wilderness and other reserved land that cannot be compared directly with privately owned forests managed for production of wood products.

When the sum of all tree removals and mortality exceeds growth, total tree volume declines. In small areas, removals undertaken to reduce fire hazard or deter pest infestations may sometimes exceed growth in the short run. This trend, however, may be reversed in the long run by protecting against catastrophic mortality (fig. 31). Conversely, widespread mortality caused by bark beetles, for example, may offset growth gains and thus prevent or delay attainment of a stand's desired future condition and reduce the production of ecological benefits such as sequestration of carbon or economic benefits such as forest products.

Previously, FIA conducted a forest inventory between 1991 and 1994 on private, state, and local government timberland in California. Owing to numerous differences between the current inventory and those prior measurements, comparing current volume estimates with those published from previous inventories will not produce valid change estimates. Differences include, for example, sampling different areas (forest land vs. timberland, with or without reserved land) and using different definitions (e.g., growing stock). To estimate volume change despite these differences, we estimated net change based on revisited

M. Palmer

Figure 31—Growth of trees is offset by harvesting and mortality. Tree mortality shown here was caused by wildfire.

[2] Author: Olaf Kuegler.

plots, relying on the algorithms and definitions of today's annual inventory. Between 2007 and 2010, FIA remeasured a subset of the 1991–1994 inventory (280 plots). The remeasurement period ranged from 13 to 19 years with an average of 16.3 years. We estimated tree growth, removals, and mortality using a subset of remeasured trees that were alive in 1991–1994 and 5 inches or more d.b.h. from the remeasured plots.

To calculate volume and biomass changes on forest land managed by the Forest Service, we relied on remeasured plots under the current FIA field design, which included all forest land (1,627 plots). These plots were first measured between 2001 and 2006 and remeasured about 5 years later between 2006 and 2010. Because timberland is a subset of forest land, we were able to estimate changes for timberland as well as for Forest Service lands. Additional information on timber harvest removals supporting California's primary forest products industry can be found in Morgan et al. (2012).

Privately Owned Timberland: Change Between 1991–1994 and 2007–2010

Annual volume growth on noncorporate privately owned timberland significantly exceeds removals and mortality in California, currently estimated at 45.5 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$ (fig. 32). On corporate privately owned timberland, volume growth also exceeded removals and mortality, currently estimated at 8.6 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$; however, the difference is not statistically significant from zero. Overall, we found annual volume growth on private timberland (noncorporate and corporate) significantly exceeded removals and mortality by 24.4 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$. While net annual volume growth (annual growth minus annual mortality) is similar on corporate and noncorporate timberland (currently estimated at 74.9 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$ versus 69.7 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$), removals on corporate timberland are about two and a half times as high as on noncorporate timberland (66.3 ft^3 versus 24.2 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$).

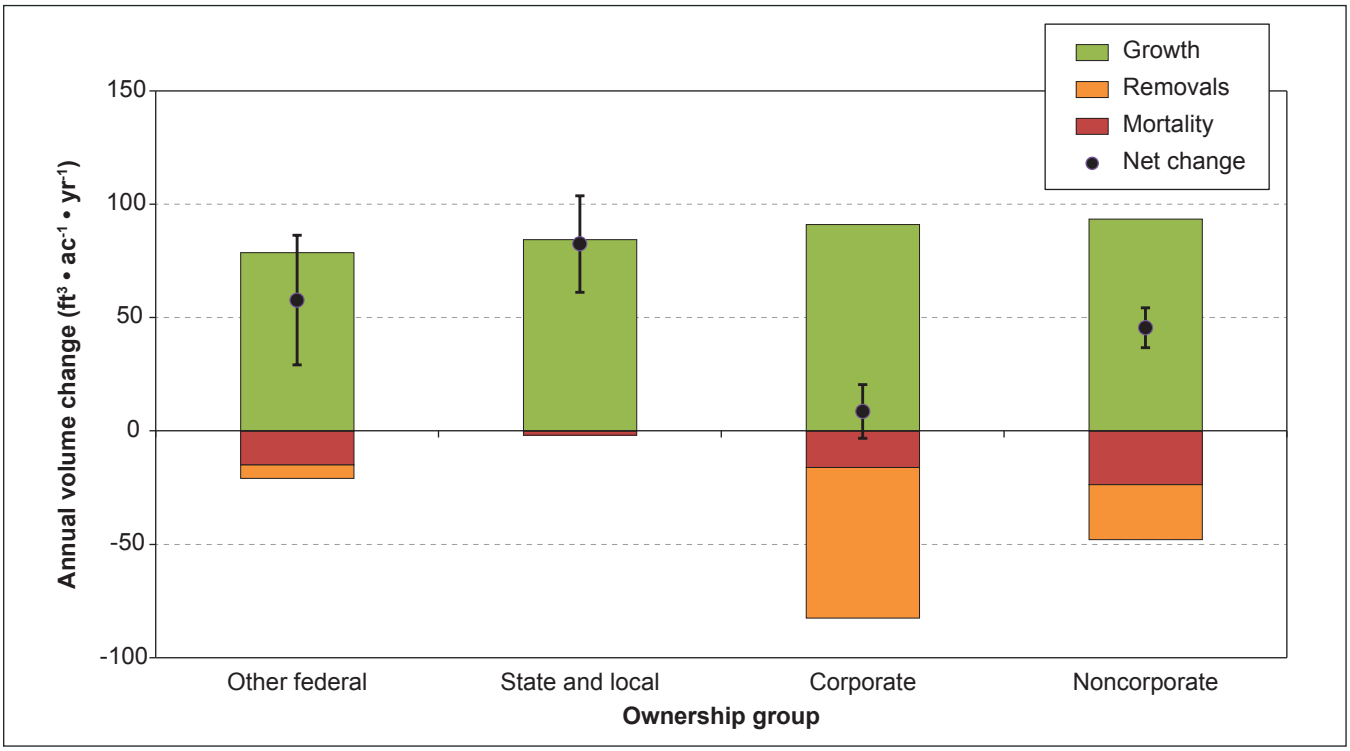


Figure 32—Average annual change in volume (cubic feet) growth, removals and mortality per acre per year on non-national forest timberland between 1991–1994 and 2007–2010 by ownership in California (error bars represent sampling error).

State And Local Government Timberland: Change Between 1991–1994 and 2007–2010

On timberland managed by state agencies and local municipalities, annual volume growth significantly exceeded mortality and harvest by 82.5 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$. Annual mortality was very low on timberland within these ownerships, currently estimated at 1.9 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$, and no harvested trees were found on these remeasured plots (tables 1 through 4).

National Forest System (NFS) Forest Land: Change Between 2001–2006 and 2006–2010

Across all NFS forest land, annual volume growth significantly exceeded mortality and removals by about 11.3 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$ (fig. 33). Average annual mortality rates on NFS land, estimated at 46.0 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$, were relatively high compared to private ownerships (fig. 34). However, the timeframe for assessment of change between NFS and private ownerships is vastly different and therefore cannot be compared directly. Removal of tree volume is very low on NFS forest land, currently estimated at 2.3 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$.

Although not statistically significant, average annual cubic feet volume loss through tree mortality exceeded growth on reserved forest land (64.2 versus 46.8 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$). However, biomass mortality was significantly less than growth. Over the long term, growth should equal mortality if no trees are being harvested. However, over shorter periods, volume loss through disturbances such as fire or insect infestations can cause overall tree mortality to be higher than growth. For example, California experienced large wildfires during the measurement period, especially in 2008. For that year, we estimate about 11.3 percent (SE 3.2 percent) of the tree volume on reserved land being affected (but not necessarily killed) by fire compared to an average of 0.9 percent (SE 0.2 percent) of tree volume per year during the period 1995 to 2007 (tables 5 through 8).

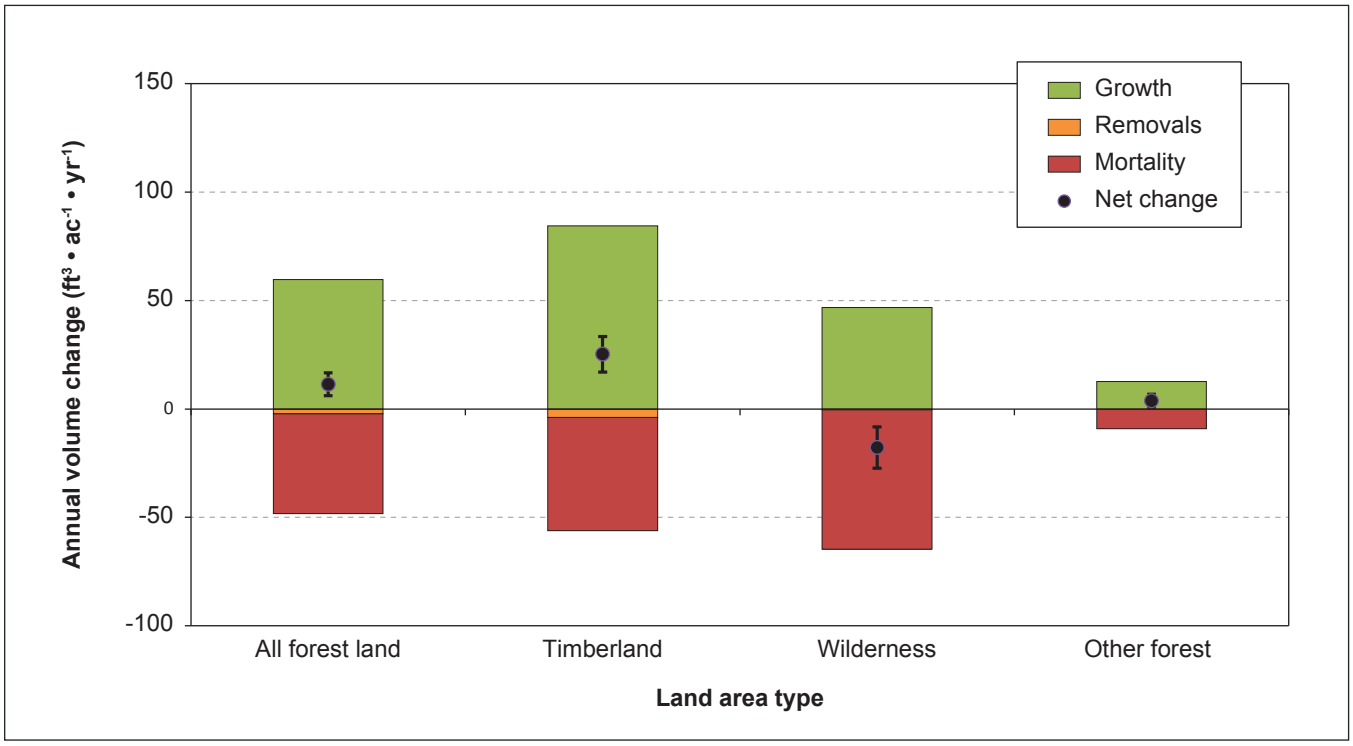


Figure 33—Average annual change in volume (cubic feet) growth, removals, and mortality per year on national forest land between 2001–2006 and 2006–2010 by land status in California (error bars represent sampling error).

Table 1—Average annual volume growth, removals, and mortality per acre per year on non-national forest timberland between 1991–1994 and 2007–2010 in California

	Other federal		State and local		Private					
					Corporate		Noncorporate		Total private	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre per year									
Growth	78.52	25.10	84.33	21.77	91.05	6.28	93.36	7.85	92.04	4.87
Mortality	14.96	5.95	1.85	0.49	16.18	3.06	23.64	3.50	19.37	2.30
Removals	5.90	6.17	—	—	66.28	8.73	24.21	4.05	48.32	5.30
Change	57.67[a]	28.62	82.48[a]	21.28	8.59	11.81	45.51[a]	8.73	24.35[a]	7.65

— = not available.
[a] Estimate is significant, different from zero at the 95 percent significance level.

Table 2—Average annual volume (cubic feet) growth, removals, and mortality per year on non-national forest timberland between 1991–1994 and 2007–2010 in California

	Other federal		State and local		Private					
					Corporate		Noncorporate		Total private	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand cubic feet per year									
Growth	13,313	6,652	6,023	3,995	392,152	29,935	299,613	28,465	691,765	38,368
Mortality	2,536	1,429	132	88	69,693	13,417	75,870	12,105	145,564	17,602
Removals	1,000	1,075	—	—	285,460	38,060	77,697	13,757	363,157	39,858
Change	9,777	6,179	5,891	3,907	36,998	50,921	146,046[a]	28,148	183,044[a]	57,697

— = not available.
[a] Estimate is significant, different from zero at the 95 percent significance level.

Table 3—Average annual biomass (tons) growth, removals, and mortality per acre per year on non-national forest timberland between 1991–1994 and 2007–2010 in California

	Other federal		State and local		Private					
					Corporate		Noncorporate		Total private	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Short tons per acre per year									
Growth	1.48	0.46	1.68	0.44	1.86	0.13	1.88	0.16	1.87	0.10
Mortality	0.33	0.14	0.06	0.02	0.36	0.06	0.50	0.07	0.42	0.05
Removals	0.13	0.13	—	—	1.32	0.17	0.47	0.08	0.96	0.11
Change	1.02[a]	0.52	1.62[a]	0.42	0.17	0.24	0.90[a]	0.17	0.49[a]	0.15

— = not available.
[a] Estimate is significant, different from zero at the 95 percent significance level.

Table 4—Average annual biomass (tons) growth, removals, and mortality per year on non-national forest timberland between 1991–1994 and 2007–2010 in California

	Other federal		State and local		Private					
					Corporate		Noncorporate		Total private	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand short tons per year									
Growth	250	125	120	80	7,990	608	6,033	572	14,023	776
Mortality	57	32	4	3	1,552	281	1,609	241	3,161	360
Removals	21	23	—	—	5,689	757	1,520	270	7,209	792
Change	172	113	116	77	749	1,030	2,903[a]	552	3,653[a]	1,159

— = not available.
[a] Estimate is significant, different from zero at the 95 percent significance level.

Table 5—Average annual volume (cubic feet) growth, removals, and mortality per acre per year on National Forest System land between 2001–2006 and 2006–2010

	Forest land		Timberland		Reserved forest land		Low-productivity forest land	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre per year							
Growth	59.61	2.72	81.43	4.40	46.82	3.98	12.69	1.58
Mortality	45.98	4.46	52.29	6.79	64.24	9.20	9.07	2.74
Removals	2.31	0.85	3.91	1.48	0.41	0.47	—	—
Change	11.32[a]	5.26	25.23[a]	8.22	-17.82	9.47	3.63	3.21

— = not available.
[a] Estimate is significant, different from zero at the 95 percent significance level.

Table 6—Average annual volume (cubic feet) growth, removals, and mortality per year on National Forest System land between 2001–2006 and 2006–2010

	Forest land		Timberland		Reserved forest land		Low-productivity forest land	
	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand cubic feet per year							
Growth	928,584	42,363	719,786	41,695	169,363	16,808	53,985	7,090
Mortality	716,207	69,518	462,173	60,670	232,369	35,298	38,568	11,762
Removals	36,026	13,168	34,560	13,113	1,466	1,686	—	—
Change	176,352[a]	81,908	223,053[a]	72,834	-64,472	34,389	15,417	13,667

— = not available.
[a] Estimate is significant, different from zero at the 95 percent significance level.

Table 7—Average annual biomass (tons) growth, removals, and mortality per acre per year on National Forest System land between 2001–2006 and 2006–2010

	Forest land		Timberland		Reserved forest land		Low-productivity forest land	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Short tons per acre per year							
Growth	1.13	0.05	1.52	0.08	0.90	0.07	0.29	0.03
Mortality	0.97	0.09	1.09	0.14	1.35	0.20	0.23	0.08
Removals	0.04	0.02	0.08	0.03	0.01	0.01	—	—
Change	0.12	0.10	0.36[a]	0.16	-0.45[a]	0.20	0.06	0.09

— = not available.
[a] Estimate is significant, different from zero at the 95 percent significance level.

Table 8—Average annual biomass (tons) growth, removals, and mortality per year on National Forest System land between 2001–2006 and 2006–2010.

	Forest land		Timberland		Reserved forest land		Low-productivity forest land	
	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand short tons per year							
Growth	17,576	788	13,456	779	3,258	306	1,215	155
Mortality	15,051	1,433	9,594	1,229	4,870	750	977	329
Removals	698	247	669	246	29	34	—	—
Change	1,827	1,631	3,193[a]	1,419	-1,642[a]	725	238	362

— = not available.
[a] Estimate is significant, different from zero at the 95 percent significance level.

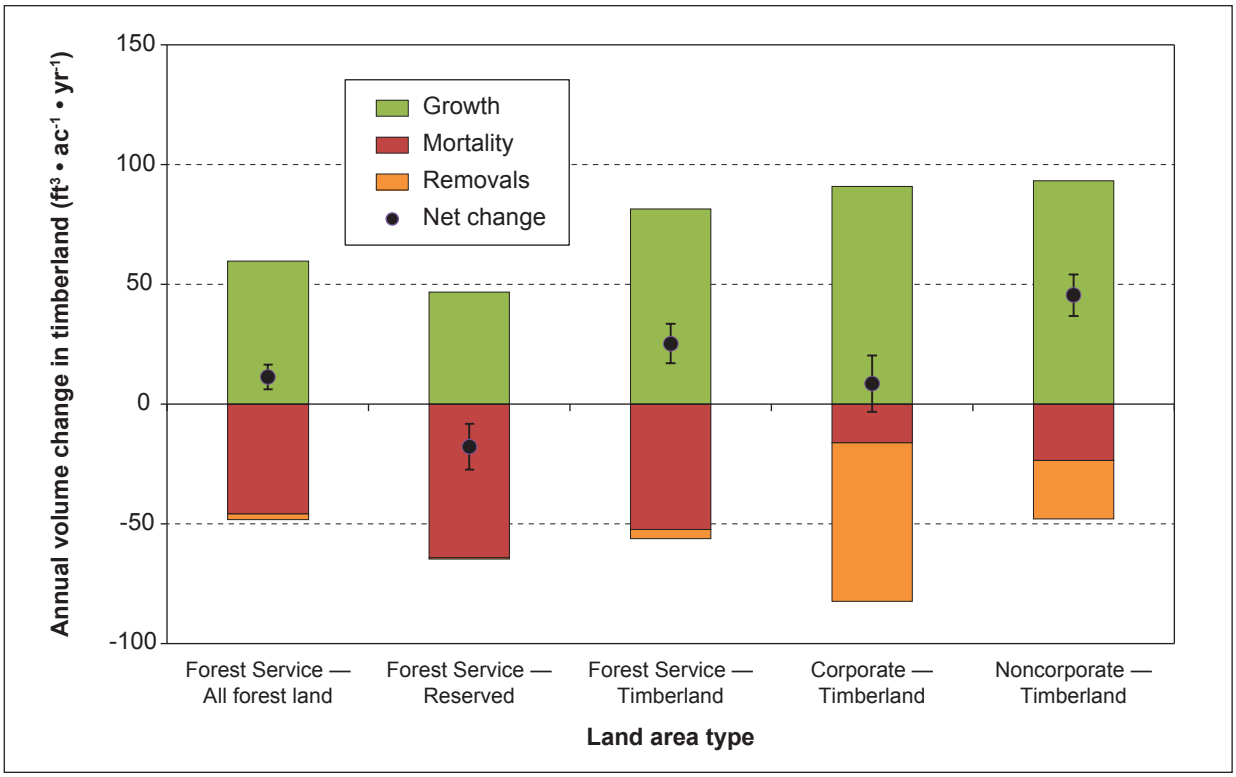


Figure 34—Combined average annual change in volume (cubic feet) growth, removals, and mortality per acre per year on national forest land between 2001–2006 and 2006–2010 by land status compared to privately owned timberland between 1991–1994 and 2007–2010 in California (error bars represent sampling error). Although volume changes are on an annual per-acre basis, it is important to note that Forest Service estimates of change cover a different timeframe than private timberland.

How Many Trees Show Signs of Damaging Agents?

Detecting damage to trees is a critical means to assess overall forest health in terms of resiliency, diversity, function, and resource sustainability. Mortality and disturbance resulting from damage inflicted by native insects, disease, or abiotic stressors such as fire and weather events are agents of natural succession, promoting growth, regeneration, and diversity in California's forests. Natural disturbance resulting from these damages can affect ecosystem structure, composition, and function. Forest Inventory and Analysis crews collect data on damaging agents for each measured live tree.

Overall, about 19 percent of all live trees ≥1 inch d.b.h. were affected by one or more damaging agents. Recorded agents included damage from animals, bark beetles, cankers, insect defoliators, dwarf mistletoe, leafy mistletoe, foliage diseases, stem decays, root disease, and weather-related injury. Physical damage or injury was most commonly recorded, affecting about 68 percent of damaged trees. Stem decays were recorded on about 19 percent of the affected tree volume (fig. 35). Dwarf mistletoe and root diseases each affected about 11 percent of the tree volume (fig. 36). All other recorded damage agents individually contributed less than 3 percent of the affected tree volume. Thirteen percent of the most commonly found conifer species in California (Douglas-fir) had some form of damage. White fir, the next most common conifer, had about a 28 percent incident rate. For hardwood species, tanoak, the most common hardwood species, had about an 11 percent damage rate. Canyon live oak, the next most common hardwood species, had a damage rate of about 15 percent.

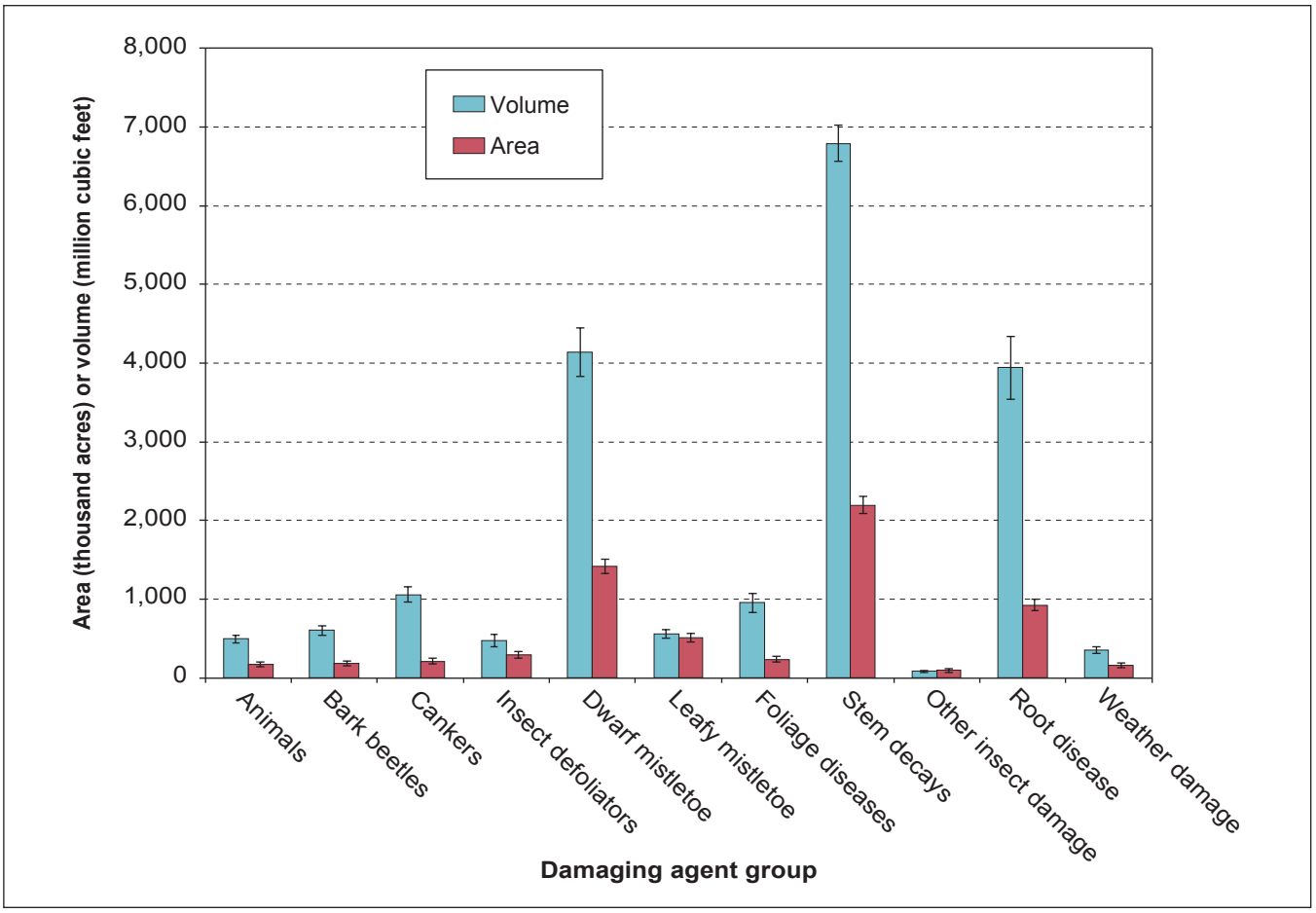


Figure 35—Area and volume of live trees affected by one or more agents on forest land in California, 2001–2010; volume is gross volume of live trees >5 inches diameter at breast height; acres are those with >25 percent of the basal area with damage.

M. Gasser

Figure 36—Grand fir branch showing mistletoe infection.

What Types of Understory Vegetation Are Most Common in California's Forests?

Understory vegetation is an important structural component in all forest ecosystems. The life-form type and density of cover from bare soil up into the tree crowns influences wildlife habitat, wildfire behavior, and competition between native and nonnative plants. Forest Inventory and Analysis crews sampled understory vegetation on each subplot on forest land (fig 37). Total cover was estimated for tree seedlings and saplings <5 inches d.b.h., shrubs, forbs, and graminoids. Total cover of all four of these life forms and of bare mineral soil was estimated.

Cover of understory vegetation in California was greater in hardwood forest types than softwood types. Within each cover type, hardwood forests tended to have greater vegetation cover in both shrub and graminoid cover types and the least area of bare soil (fig. 38). The most shrub cover within hardwood forests is found within the moist forest types, the elm/ash/cottonwood group, and the alder/maple group (fig. 39). Each of these forest types tended to have an average shrub cover of more than 30 percent. The greatest cover of seedlings and saplings within hardwood forests was in aspen/birch forest types and averaged about 13 percent cover. For softwoods, Douglas-fir forests tended to have the greatest cover of seedlings and saplings but at

US Forest Service

Figure 37—Bracken fern, as outlined in this shadow, is a common understory plant found throughout the state.

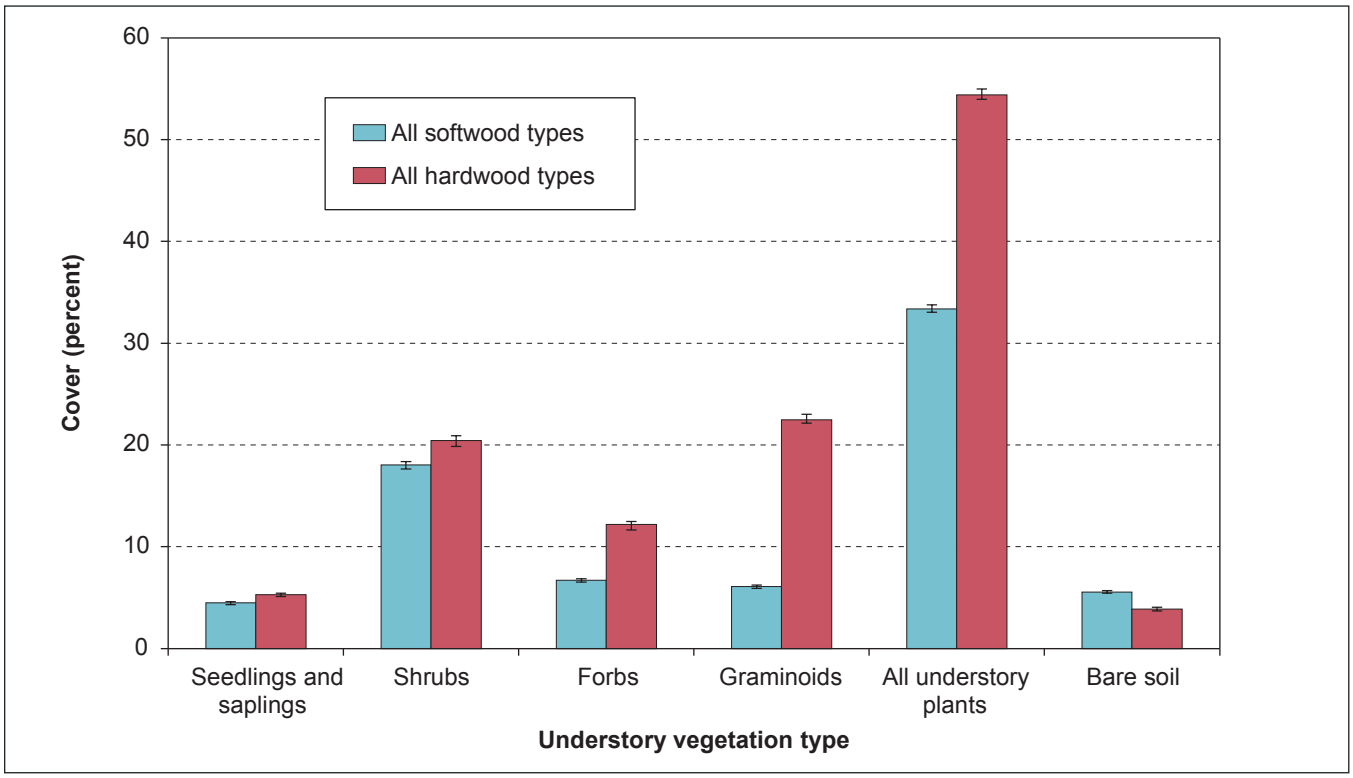


Figure 38—Cover of vegetation life forms and bare soil by softwood and hardwood forests on forest land in California, 2001–2010.

only about 9 percent cover. For all understory life forms within the softwood forests, redwood and hemlock/Sitka spruce forests had the densest cover; each averaged more than 50 percent cover of understory vegetation. Average percentage of cover was the greatest for all understory life forms in younger forests ranging from 0 to 39 years old (fig. 40). Average cover for all understory plants tended to decline with increasing forest age.

J. Feinberg

Figure 39—Native to California and found in the understory typically where it is cool and moist, thimbleberry is related to the cultivated red raspberry.

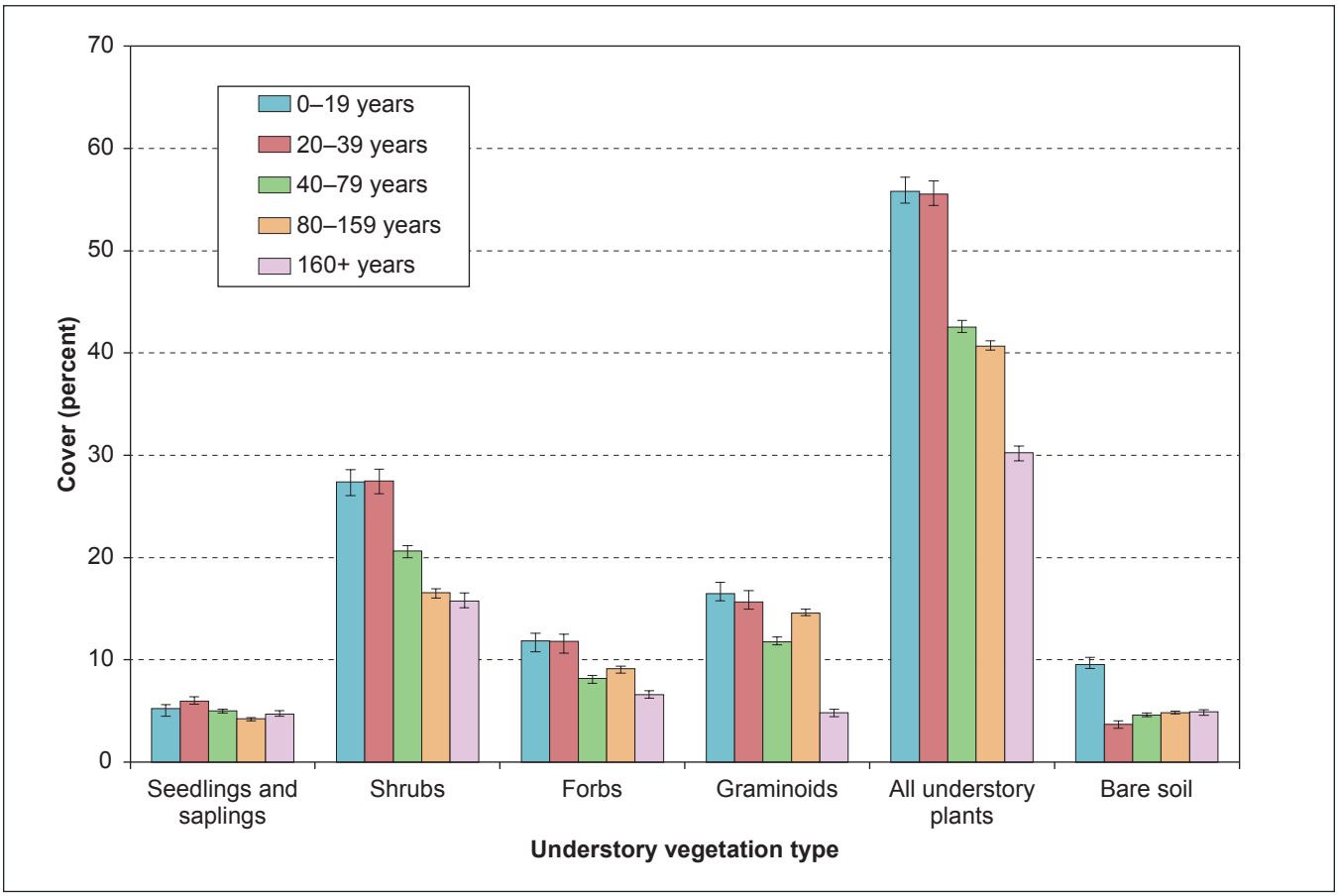


Figure 40—Cover of vegetation life forms and bare soil by forest age class on forest land in California, 2001–2010.

What Nonnative Invasive Plants Are Found in California's Forests?

Invasive nonnative plant species pose a threat to native forests throughout California. The aggressive spread of introduced species to forested areas formerly occupied by native plants changes the composition, structure, and function in both natural and managed ecosystems. Because they directly compete for habitat with native species, including those desired for their ecological and potential economic benefits to the state, considerable efforts to contain their undesirable effects must be expended. While most local effects from nonnative species are easier to quantify, without a statewide sampling effort such as the FIA plots, it would be very difficult to understand the extent of these species across all forested landscapes and ownerships. Forest Inventory and Analysis crews estimate the cover of the three plant species with the highest cover in each of three life forms; shrub, forb, and graminoid—as well as of any other species with ≥3 percent cover. Because the definition of "invasive" is subjective, all readily identifiable species that were listed as nonnative to the United States (USDA NRCS 2000) were selected for analysis.

Twenty-five different nonnative species were recorded on 5,575 forested plots. Cheatgrass was found on 11 percent of all sampled plots and was the most commonly recorded nonnative species (see "Scientific and Common Plant Names"). Cheatgrass also affects the largest area, about 185,000 acres (figs. 41 and 42). Of the forb species, spreading hedgeparsley is the most commonly found and is estimated to cover about 88,000 acres of forest land. Himalayan blackberry is the most abundant nonnative shrub species found in California's forests. We estimated this species to cover about 42,000 acres of forest land.

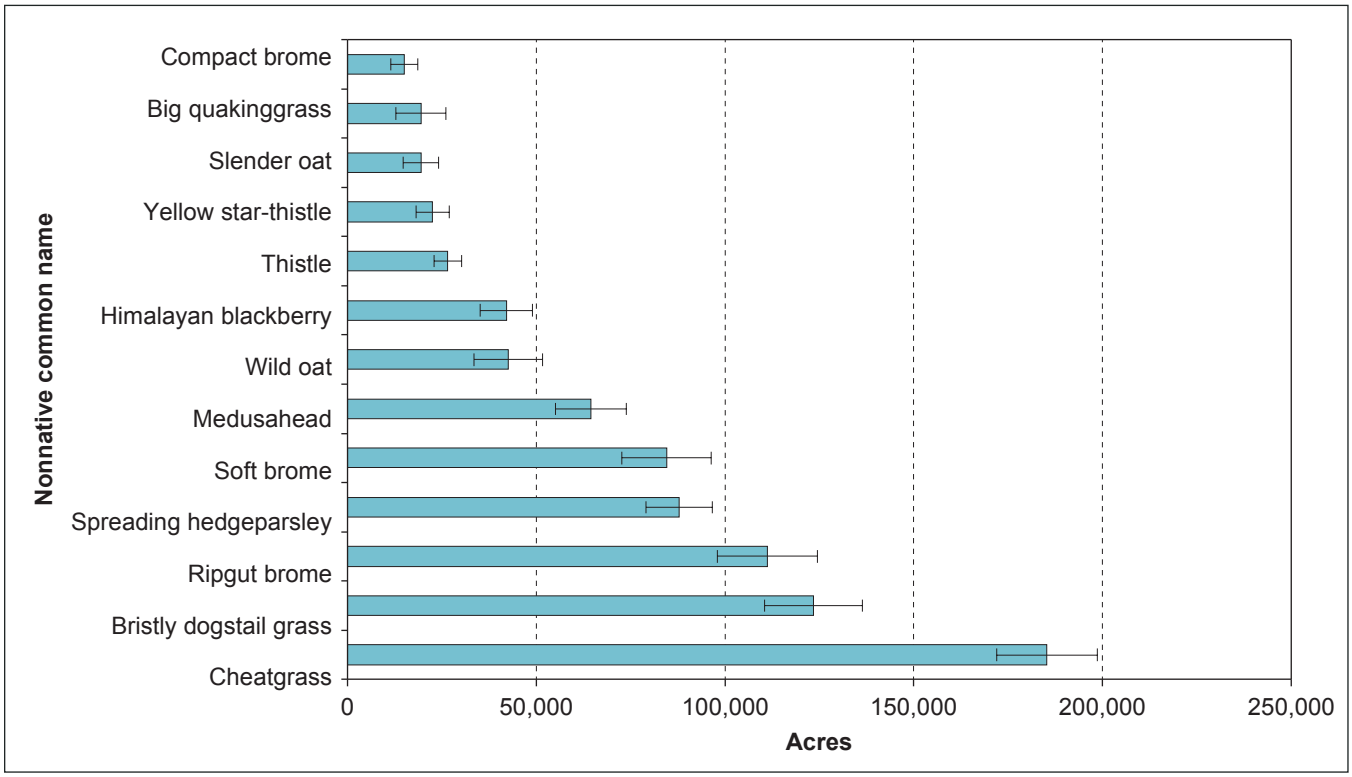


Figure 41—Most frequently found nonnative invasive species on forest land in California, 2001–2010. Only those nonnative species estimated to cover at least 10,000 acres are shown.

J. Feinberg

Figure 42—Cheatgrass is the most common nonnative invasive species found on forest land in the state. It uses "hitchhiking" as one mode of seed transport.

Research Application—Nonnative Invasive plants of the Pacific Coast[3]

Nonnative plants affect the composition and function of natural and managed forests and have large economic costs through degraded land use and eradication expense. Nevertheless, we don't have much comprehensive information on the abundance, distribution, and impact of nonnative invasive plants. The first step to assessing the problem and then dealing with it is to be able to identify the most problematic species from among the thousands of plant species found in California's forests. In collaboration with the University of Washington, the Institute of Applied Ecology, and botanical experts across the west coast, FIA developed a prioritized list of nonnative invasive plants affecting forest lands in the Pacific coastal states of California, Oregon, and Washington, and provided enough detail in nontechnical language, along with photos of different stages of plant development, to allow reliable identification in the field (Gray et al. 2011). The final list of 56 species was designed to capture species believed to be most prevalent or problematic for use by strategic forest inventories and novice botanists.

Citation

Gray, A.N.; Barndt, K.; Reichard, S.H. 2011. Nonnative invasive plants of Pacific coast forests: a field guide for identification. Gen. Tech. Rep. PNW-GTR-817. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 91 p.

[3] Author: Andrew Gray.

Research Application—
Lichen-Based Indicators of Nitrogen Pollution in California's Forests[4]

Nitrogen (N) is the most common chemical element in living tissues after oxygen, carbon, and hydrogen. Most terrestrial and marine systems are naturally N-limited, making N a fundamental driver of ecosystem productivity. For this reason, excess N from anthropogenic sources (e.g., motor vehicle exhaust, crop fertilizers, emissions from livestock) can profoundly reshape forest structure and function (Pardo et al. 2011). Species decline or increase depending on their capacity to utilize the new N and remain competitive. In parts of Mediterranean California, N alters the fire cycle by increasing fuel buildup of fast-growing understory plants and leaf senescence of negatively impacted species (Fenn et al. 2010). Lichens have become the canaries in the coal mine for mapping N because even small N increases cause the replacement of native lichen floras by "weedy" eutrophic lichen species (Jovan et al. 2012; fig. 43). Our recent research demonstrates the accuracy of lichen-based N estimates by comparing lichen metrics with N pollutant measurements.

Lichens were first recognized as "health meters for the air" in 1866 by Finnish botanist William Nylander. Today large-scale monitoring programs commonly use lichens as a budget-friendly supplement to instrumented air quality monitors, which may cost $10,000 or more to operate annually. The FIA program monitors tree-dwelling lichens at a subset of grid sites, amounting to over 5,500 observations made nationwide since 1998. Continually improving accuracy has increased the utilization and benefit of lichen-based estimates of pollution to policymakers and managers tasked with deciding on allowable pollutant emissions.

The San Bernardino Mountains (SBM) in particular have become a natural laboratory for studying lichen indicators for N and refining techniques. Excess N is a key air quality and ecological issue here; the SBM form the leeward boundary of the Los Angeles Basin and include forests receiving the highest N levels recorded for North America, up to 70 kg N per hectare per year at one site (as compared to natural background levels of 1 to 2 kg N per hectare per year). Lichen and instrument-based monitoring began in the 1970s (Sigal and Nash 1983, Temple et al. 2005) along an east-west transect of N deposition (Fenn et al. 2010).

Scientists from the U.S. Forest Service monitor an unprecedented array of air pollutants along the transect, allowing us to challenge some widely held assumptions about how lichens respond to N. We found that eutrophs increase on tree trunks as a function of total N deposition (i.e., the totality of N pollutants washed from the atmosphere in wet and dry deposition; fig. 44). The high correlation between eutrophs and total N ($r^2 = 0.94$) demonstrates how eutroph abundance may be used for high-accuracy N mapping. Additionally, lichen metrics are a better representation of N deposition than ammonia measurements, especially in the SBM where the N regime is dominated by oxidized N pollutants. Cost-effective tools like this greatly

Sarah Jovan

Figure 43—At one nitrogen (N)-affected site, the sunburst lichen (orange) thrives while the less N-tolerant camouflage lichen (green and bleached white) appears stressed.

[4] Author: Sarah Jovan.

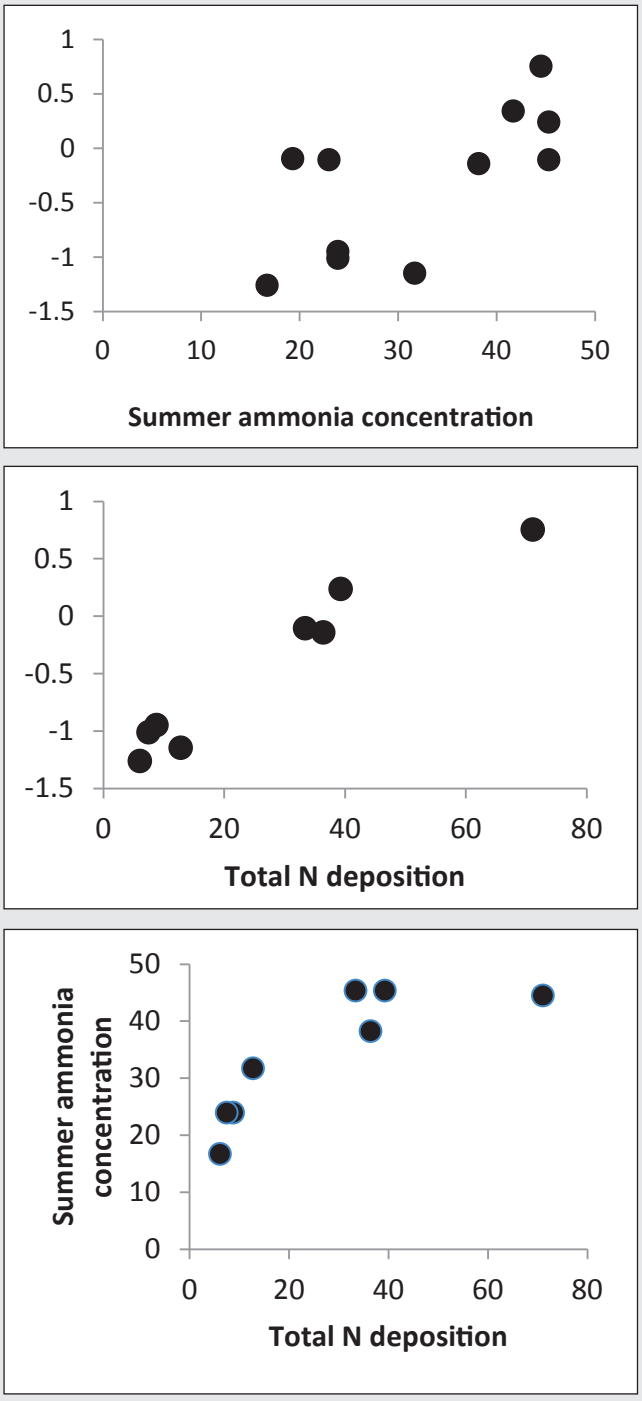


Figure 44—Scatterplots showing a strong correlation between an index of eutroph lichens and total nitrogen (N) as measured in throughfall under a *Pinus ponderosa* canopy (A). The eutroph index was moderately correlated with summer ammonia concentrations (B), one component of total N. Oxidized forms of N (i.e., NO_x) are prevalent at high N sites, lessening the relationship between total N and ammonia.

increase the scope and intensity of information available to managers on the distribution of N inputs across the landscape, leading to more informed decisions. This is critical for California where N-compromised ecosystems are commonly reported (Fenn et al. 2010) and widely spaced instrumented networks can't capture the variability in N. For more information, see Jovan et al. 2012.

Citations

Fenn, M.E.; Allen, E.B.; Weiss, S.B.; Jovan, S.; Geiser, L.H.; Tonnesen,G.S.; Johnson,R.F.; Rao, L.E.; Gimeno, B.S.; Yuan, F.; Meixner, T.; Bytnerowicz, A. 2010. Nitrogen critical loads and management alternatives for N-impacted ecosystems in California. Journal of Environmental Management. 91(12): 2404–2423.

Jovan, S.; Riddell, J.; Padgett, P.E.; Nash, T.H., III; 2012. Eutrophic lichens respond to multiple forms of N: implications for critical levels and critical loads research. Ecological Applications. 22(7): 1910–1922.

Pardo, L.H.; Fenn, M.E.; Goodale, C.L.; Geiser, L.H.; Driscoll, C.T.; Allen, E.; Baron, J.S.; Bobbink, R.; Bowman, W.D.; Clark, C.M.; Emmett, B.; Gilliam, F.S.; Greaver, T.L.; Hall, S.J.; Lilleskov, E.A.; Liu, L.; Lynch, J.A.; Nadelhoffer, K.J.; Perakis, S.S.; Robin-Abbott, M.J.; Stoddard, J.L.; Weathers, K.C.; Dennis, R.L. 2011. Effects of nitrogen deposition and empirical nitrogen critical loads for ecoregions of the United States. Ecological Applications. 21(8): 3049–3082.

Sigal, L.L.; Nash, T.H., III 1983. Lichen communities on conifers in southern California mountains: an ecological survey relative to oxidant air pollution. Ecology. 64: 1343–1354.

Temple, P.J.; Bytnerowicz, A.; Fenn, M.E.; Poth, M.A. 2005. Air pollution impacts in the mixed conifer forests of southern California. In: Kus, B.E.; Beyers, J.L., tech. coords. Planning for biodiversity: bringing research and management together. Gen. Tech. Rep. PSW-GTR-195. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 145–164.

How Has Fire Influenced California's Forests?

Wildland fire plays a significant role in shaping California's forests (fig. 45). As the population continues to grow, we increase our reliance on healthy forests and the ecosystem services they provide, such as clean water, wildlife habitat, carbon sequestration, wood products, and recreation. Understanding how to manage wildland fire hazards to threatened resources and forest land becomes ever more critical. To measure the overall impact of wildfire on forest land across the state, FIA crews estimate evidence of surface and crown fire that occurred since the previous plot visit, usually 5 to 10 years earlier. Compiling these disturbance estimates for all visited plots allows us to determine the average forest area and percentage of forest land burned each year in California.

Between 1995 and 2008, the estimated average annual forested area that burned was 0.75 percent, or about 249,000 acres (SE: 16,159 acres) across the state. By region, there is high variability from year to year. In 2008, the northern interior region had a record fire year where over 800,000 acres of forest land burned, pushing the statewide total to over 1 million acres that year. Following a prolonged drought, these mostly lightning-caused fires started early in the season in rugged inaccessible terrain, allowing them to burn an unprecedented area of forest land. This estimate of total area burned for 2008 parallels the 1.37 million acres reported by the California Department of Forestry and Fire Protection (2010), which also includes nonforested areas such as range and grasslands not currently measured by FIA. No clear annual statistical trends are found between regions, except for the jump in acres burned in 2008, owing to high regional variability (fig. 46).

Because fire is a relatively rare event at a single point on the landscape, the number of plots where evidence of fire is observed is small, and, in some years, crews have recorded no fire-damaged plots in an entire region such as the north coast. Also, since 2001 when FIA started measuring 10 percent of all plots annually, the sample size basis for any given year changes. For example, a 2000 fire incident could be recorded on any plot because all plots were installed between 2001 and 2010. However, a fire incident from 2009 can only be observed on plots measured in 2010. Thus, estimates for 2009 fire incidents have a higher sampling error because the sampling intensity is only about 1/10 as compared to the 2000 fire incident estimate. Because of the changing sample size, the estimates of error also change. The most recent estimates, which are based on the smallest sample sizes, also tend to have the largest estimated error.

Gerad Dean

Figure 45—Late-summer smoke from multiple wildfires that can be seen burning in the forests of Siskiyou County.

Research Application—Modeling Fuel Treatment Opportunities and Outcomes[5]

Owing to factors such as fire exclusion and reduced management activity on public lands due to declining resources, most dry mixed-conifer forests across the West rate high in fire hazard and low in resilience. While there is great interest in restoring the health and resilience of these forests, there is considerable variation in how these forests respond to mechanical fuel treatment and in the associated costs.

To gauge the likely success and economic viability of landscape-scale fuels management designed to restore health and resiliency to historically harvested and burned forests, we used BioSum (FIA's tool for Bioregional Inventory Originated Simulation Under Management)* to model effectiveness and costs of a handful of "generic" mechanical treatment prescriptions applied to 5,000 FIA inventory plots that provide a spatially balanced and statistically representative sample of dry mixed-conifer forests in California, Oregon, Washington, Idaho, Montana, and Utah (Jain et al. 2012) (fig. 47). We found that for up to a third of the forest area, implementing the locally most effective generic treatment led to more resilient forests over time as gauged by crown fire potential and surface flame length, lower forest carbon emissions, and greater retention of the live trees that constitute an important component of wildlife habitat.

In Douglas-fir, true fir, pine, and larch forests, modeling revealed that mechanical fuel treatments can recover, on average, 1,000 to 2,000 $ft^3 \cdot ac^{-1}$ of merchantable wood and earn net revenue of over $1,000 per acre, even after covering $1,000 to $2,000 per acre in onsite treatment cost. Sales of energy wood—the tops and limbs of all harvested trees as well as the entirety of nonmerchantable trees—account for about a fifth of the total product value, so while somewhat helpful in achieving feasibility, bioenergy has limited potential for making a significant difference in financing fuel treatment at the broad scale. Work is ongoing to test other kinds of mechanical treatments and hybrid treatments that also involve fire and animals to explore cost effectiveness of fuels management in these forests.

Glenn Christensen

Figure 47—Data collected at Forest Inventory and Analysis plots are used in models that simulate mechanical fuel treatments, similar to this mechanized thinning, as the basis of research to evaluate the likely success and economic viability of landscape-scale fuels management.

Citation

Jain, T.; Battaglia, M.; Han-Sup, H.; Graham, R.; Keyes, C.; Fried, J.; Sandquist, J. 2012. A comprehensive guide to fuels management practices for dry mixed-conifer forests in the northwestern United States. Gen. Tech. Rep. RMRS-GTR-292. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 331 p. http://www.treesearch.fs.fed.us/pubs/42150.

[5] Author: Jeremy Fried

* http://biosum.info

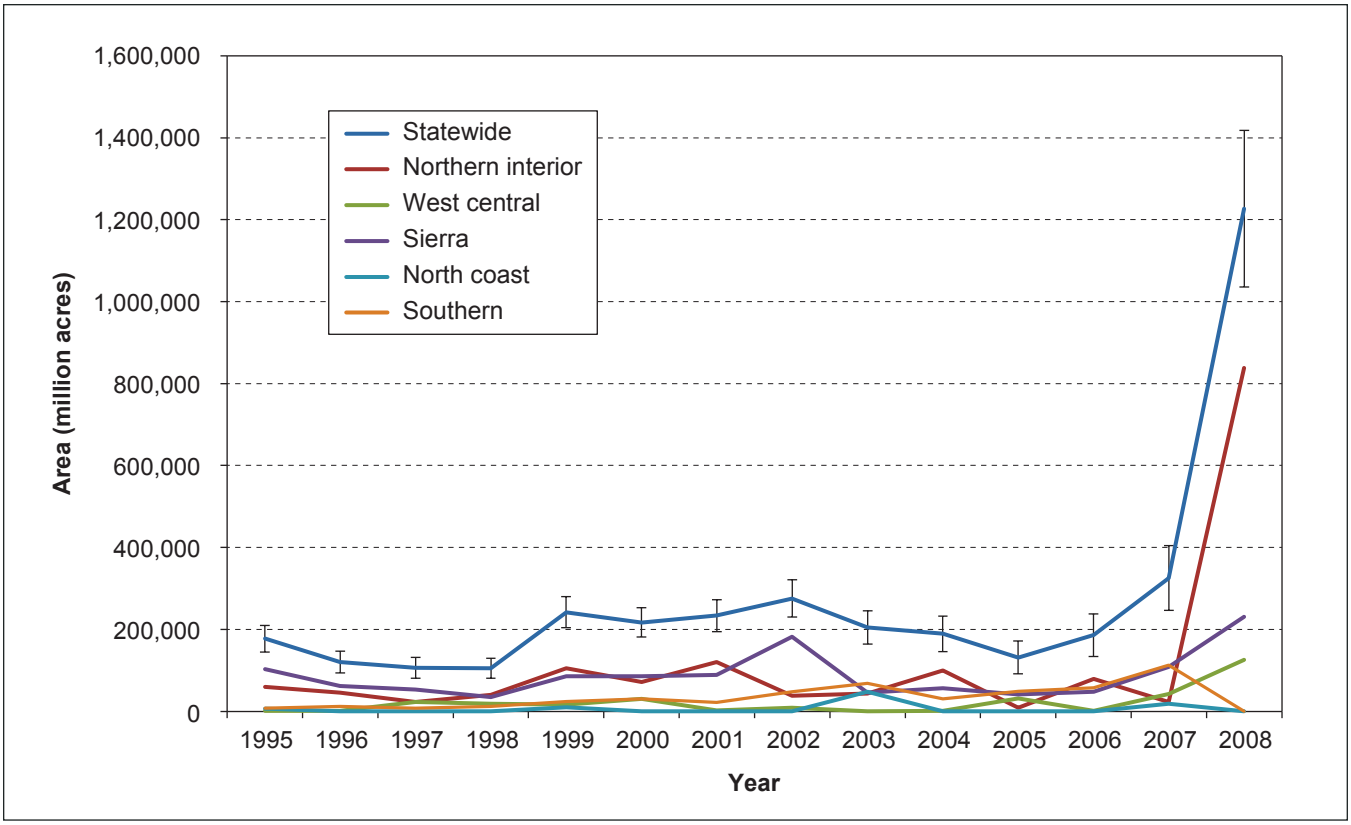


Figure 46—Area of forest burned by ecosection group (see fig. 7) on forest land in California, 1995–2008. Note: 2009 is not included in the chart because it is too small of a sample size and includes only a single year of plot measurements from 2010 (10 percent of all plots in the 10-year cycle), when no crew reported a plot affected by fire the previous year.

How Productive Are California's Forests?

California's Timberlands

Productivity is measured by site class, an indicator of a forest's potential annual growth that can be used to describe the overall potential of timberland to produce wood. Most of California's timberland grows on moderately productive sites, classified here as 85 to 164 cubic feet per acre per year of volume. About 54 percent (9.3 million acres) of the state's timberland area falls into this category. The most productive sites, those with a potential growth rate of more than 164 cubic feet per acre per year, occupy nearly 10 percent (1.7 million acres) of the timberland area.

California mixed conifer, the prevalent forest type in the state, has about 64 percent of its area in the moderate site class (fig. 48). Of the softwood forest types, the redwood group has the greatest proportion of its timberland area in the most productive classes, about 64 percent (fig. 49). For the least productive sites (20 to 84 cubic feet per acre per year), western juniper has the greatest proportion of its acreage in these classes, over 90 percent. Most of the timberland area for hardwood forest types is in the moderately productive site classes, about 55 percent.

Timberland managed by the Forest Service is mostly on moderately productive site classes: about 51 percent is found on site classes between 85 to 164 cubic feet per acre per year (fig. 50). However, a large portion, about 44 percent, of Forest Service-managed timberland is found on the lowest site classes. Private ownerships also are primarily found on moderately productive sites, about 48 percent. Private ownerships tend to have a greater proportion of timberland in the highest classes, nearly 13 percent of all private timberland. Together these timberlands contribute to the state's total timber harvest, which was 1.7 billion board feet in 2006 (Morgan et al. 2012). Total sales value was about $1.5 billion in 2006, with lumber accounting for 64 percent of the total (Morgan et al. 2012).

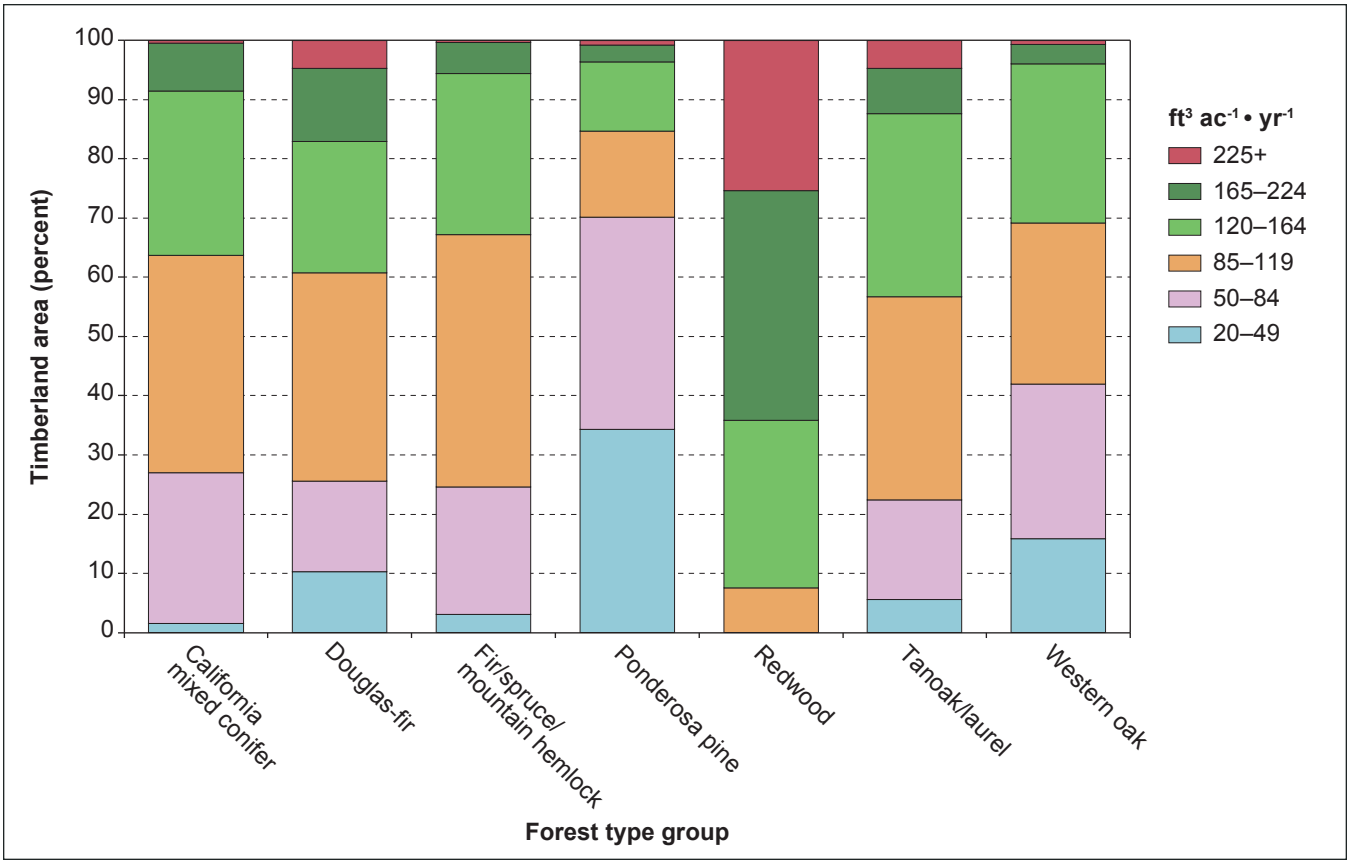


Figure 48—Percentage of timberland area by major forest type groups and site class in California, 2001–2010.

Gerad Dean

Figure 49–The redwood forest type, as seen here in Humboldt County, has the greatest proportion of timberland area in the most productive site class.

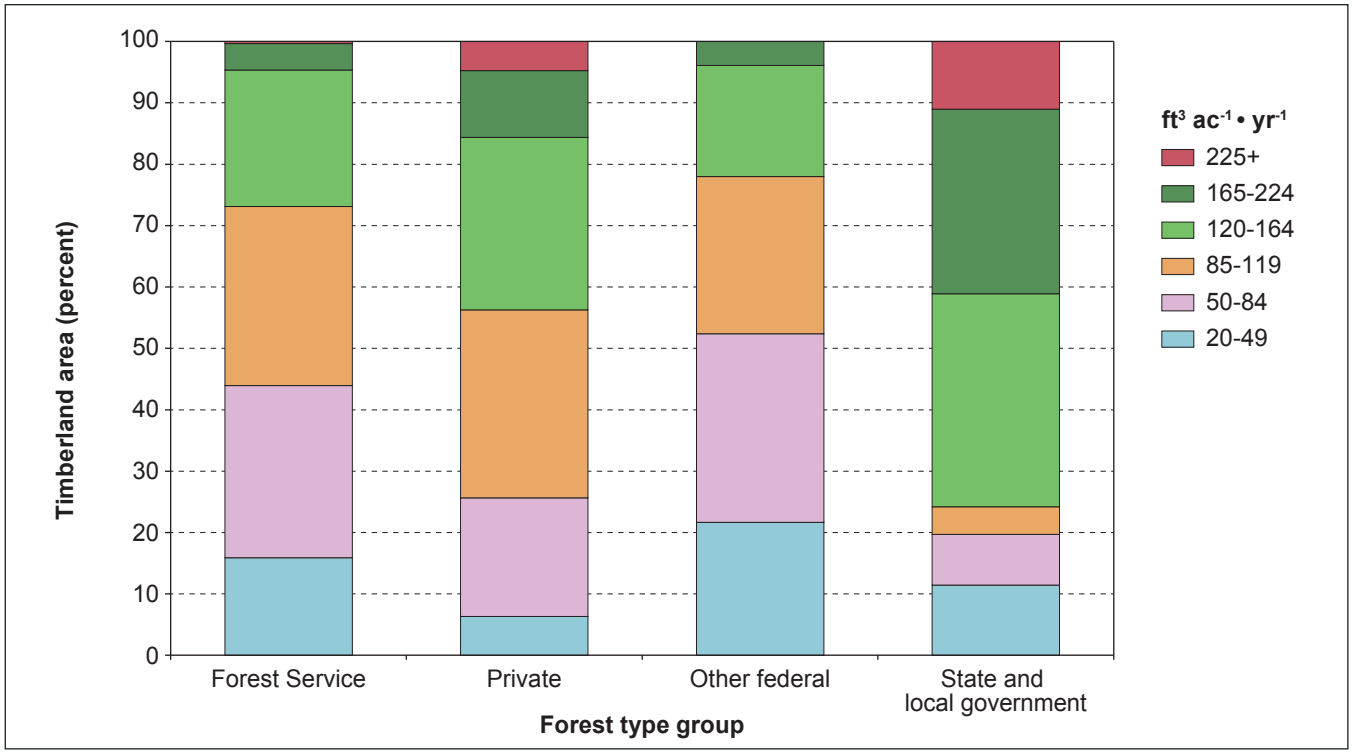


Figure 50—Percentage of timberland area by ownership group and site class in California, 2001–2010.

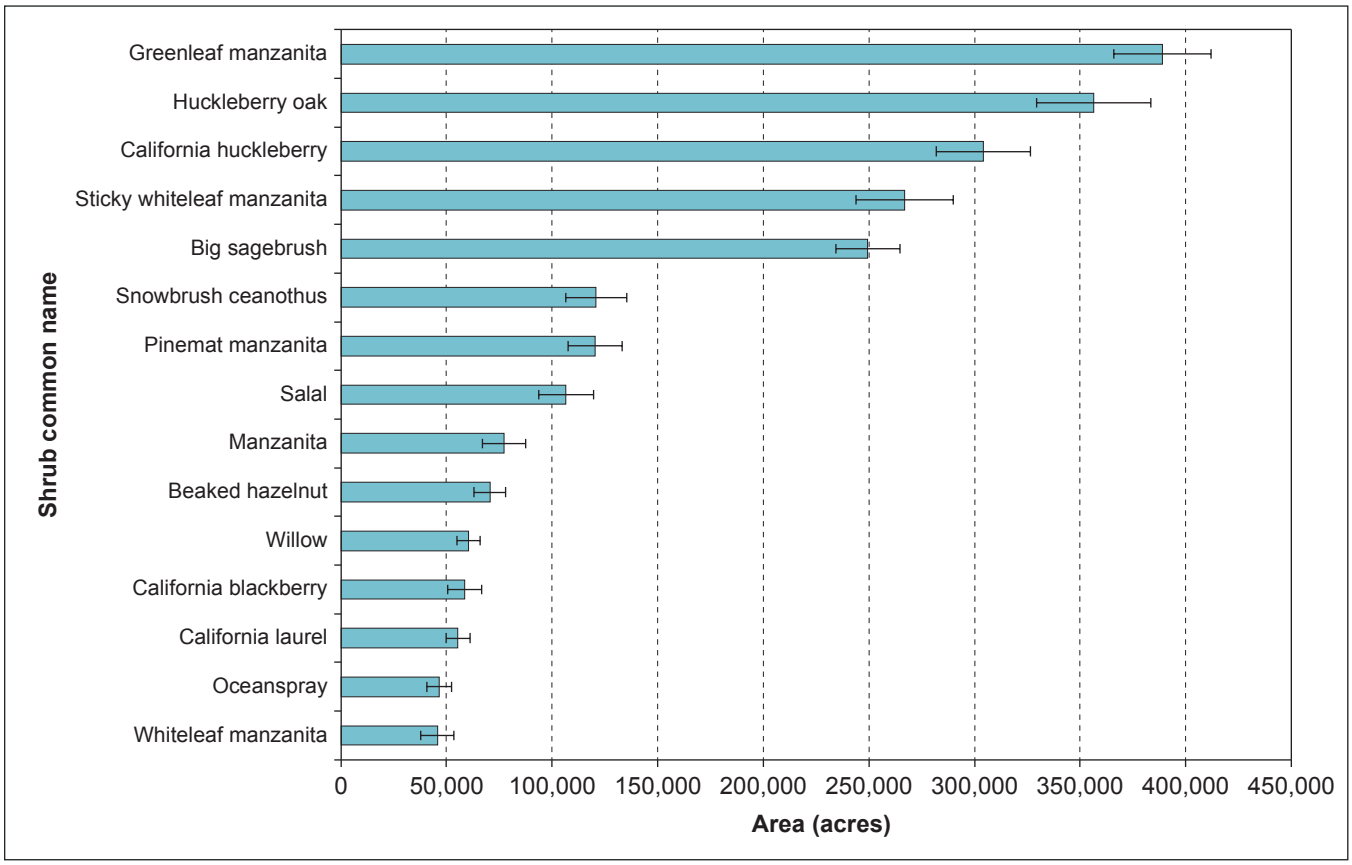


Figure 51—Total shrub cover (acres) of forest land by selected species used in nontimber forest products in California, 2001–2010.

Nontimber Forest Product Species

Nontimber forest products (NTFP) are those forest products not traditionally included as timber-based products, but still economically and ecologically important to the state. The NTFPs are derived from many species ranging from tree seedlings and saplings to shrubs and herbs.

Swordfern is the herbaceous species with the greatest cover (235,000 acres [SE: 19,000 acres]). The next most common herb species is brackenfern, which covers about 138,000 acres (SE: 10,000). Together, these two species occupy about 70 percent of the forested area covered by herbs in California. The shrubs with the greatest cover were greenleaf manzanita, covering about 389,000 acres (SE: 23,000), and huckleberry oak, which covers about 356,000 acres (SE: 27,000; fig. 51). Tanoak seedlings and saplings were the most abundant of the NTFP species, covering about 315,000 acres (SE: 17,000).

What Is the Extent of Dead Wood in California's Forests?

Dead wood, standing as snags or fallen on the forest floor, is an important component of forest structure and wildlife habitat. Forest Inventory and Analysis plot measurements are well suited to estimate dead wood throughout all forest types and ownerships across the state. Just as the FIA data are used to help describe plant biodiversity in California's forests, including characteristics of special habitat types such as old forests and riparian corridors, and status of forest components such as tree crowns, soils, and understory vegetation, the collected information can also describe the extent of dead wood in California's forests.

Dead trees fill many ecologically important roles in forests. Dead wood in a forest provides habitat for wildlife and fungi, improves soil fertility through nutrient cycling and moisture retention, adds to fuel loads, and is a key structural element in mature forests. Large-scale disturbances from fire and insect outbreaks can have a profound effect on the total dead wood present, which is an important parameter for forest managers. Dead wood resources are complex and must be assessed from a variety of perspectives—too much can be viewed as a fire hazard, and too little can be viewed as a loss of habitat. Forest Inventory and Analysis provides estimates of the amount of both standing dead trees (snags) and down wood (logs) (fig. 52).

There are approximately 498 million tons of dead wood biomass on forest land across California, about 233 million tons of standing snags and another 265 million tons of down wood. By comparison, there are about 2.2 billion tons of live tree biomass found on these forests, nearly 10 times more biomass. The majority of dead wood is found on forest land managed by the Forest Service: about 57 percent of all dead wood biomass in the state is found on this ownership (fig. 53). Private ownerships, both corporate and individual noncorporate, account for about 30 percent of the dead wood biomass. Together, other federal and state/local governments make up the remaining 13 percent of deadwood. On a per-acre basis, Forest Service lands average about 18 snags per acre and about 16 tons of down wood biomass per acre (fig. 54). This is in contrast to private ownerships, which average about 10 snags per acre but average similar amounts of down wood biomass, about 14 tons per acre. By stand age, maximum total biomass per acre in standing dead trees occurs in stands 161 to 200 years old for softwood forest types at about 30 tons per acre (fig. 55).

Gevad Dean

Figure 52—Large down logs, such as this massive log from a fallen redwood tree in Humboldt County, contribute to key habitat and structural elements in mature forests of the region.

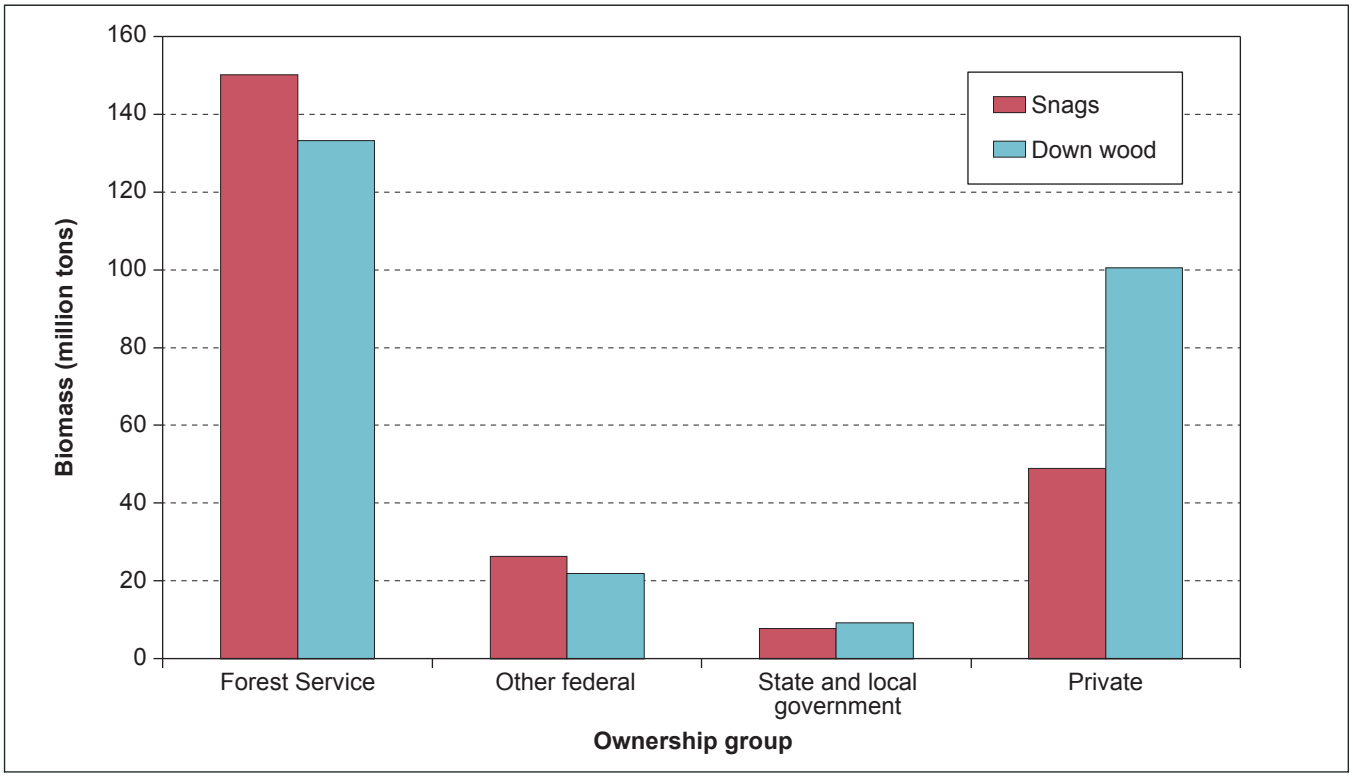


Figure 53—Total biomass (million tons) in standing dead trees (snags) and down wood by ownership group in California, 2001–2010.

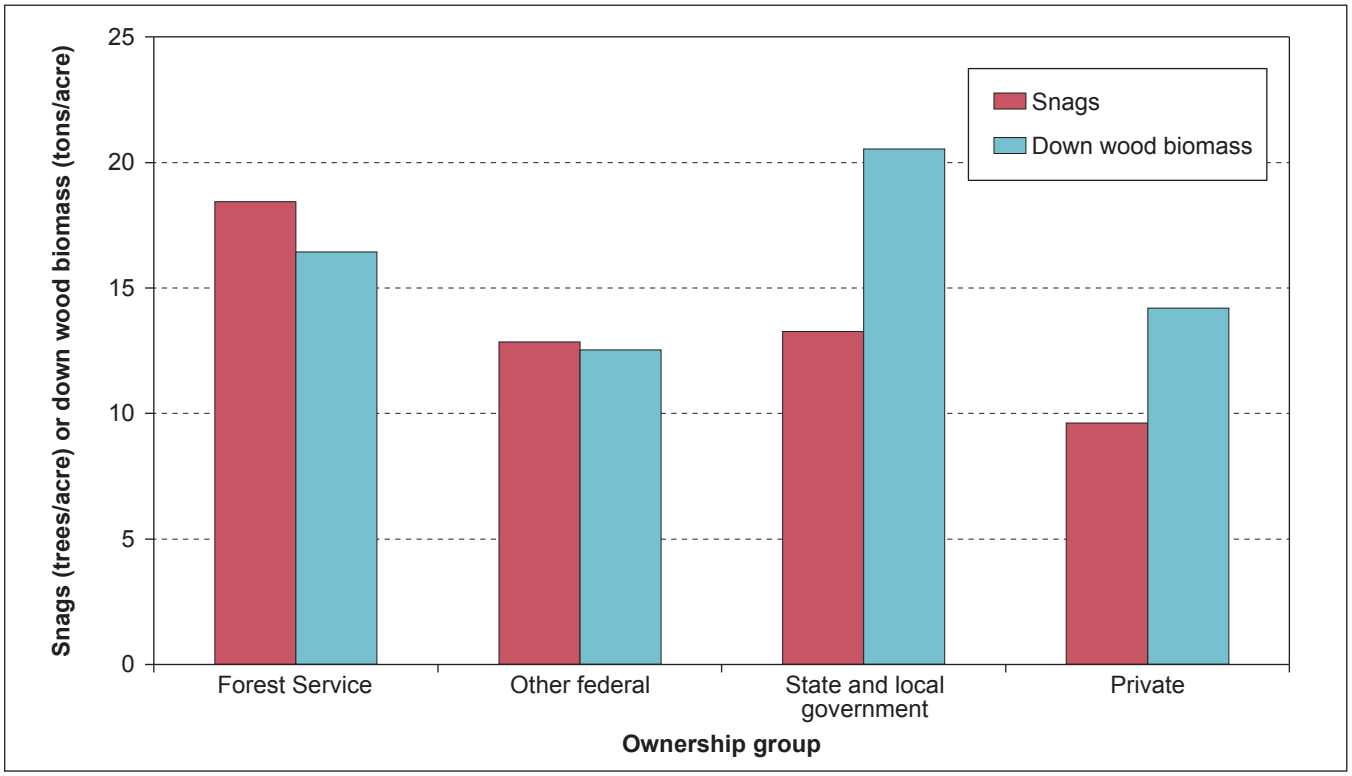


Figure 54— Average number of standing dead trees (snags) per acre and down wood biomass (tons) per acre by ownership group in California, 2001–2010.

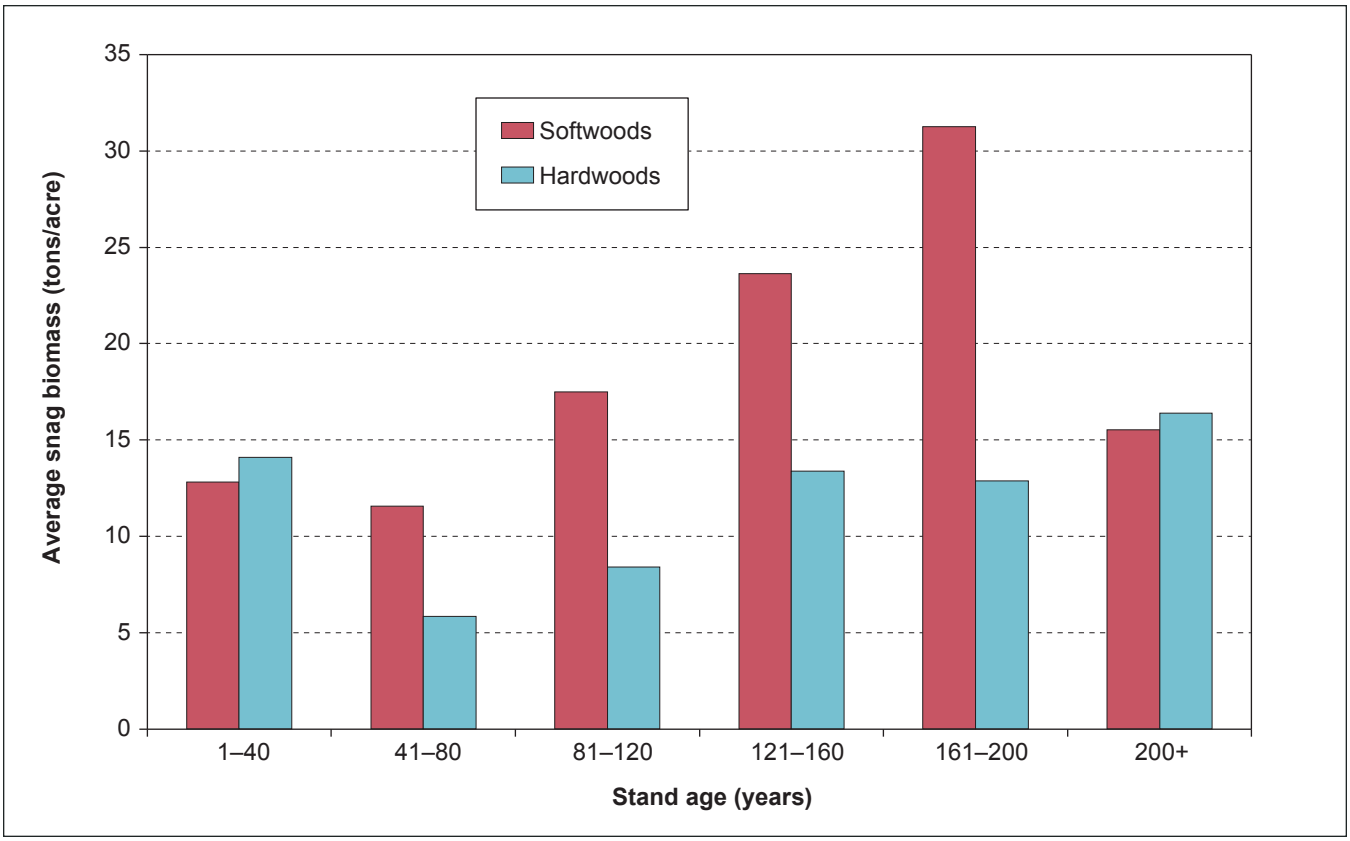


Figure 55—Average dead tree (snag) biomass (tons) per acre by stand age for softwood and hardwood forest types in California, 2001–2010.

Research Application—Monitoring Fisher Habitat[6]

Every species of forest wildlife has unique features it seeks out to make its home. The systematic sample of all forest lands by Forest Inventory and Analysis (FIA) provides powerful opportunities to identify what kinds of forests those species are selecting. The fisher (*Martes pennanti*) is a forest carnivore in the weasel family that is rare in California (fig. 56). In a collaboration between the Pacific Southwest Research Station, Humboldt State University, and FIA, the forests that fishers used for "resting" (refuge for prolonged periods) in northern California were identified by following the locations of several individuals that had been captured and fitted with radio collars. Plots were installed at those fisher resting sites that exactly matched the FIA inventory protocols. We then compared the characteristics of plots that fishers used to the characteristics of plots in the surrounding landscape.

We found that fishers were selecting forests with high canopy closure, older trees, high basal area, large down wood, and abundant hardwoods. These fisher habitat preferences in the north coast were similar to those found in a study for the Sierra Nevada, suggesting general features that managers could conserve or promote on the landscape to maintain future populations of fishers, in combination with other key attributes affecting fishers like abundance of food, predators, and pathogens. The habitat models, tied to the national FIA plot design, will allow us to monitor future changes in fisher habitat as FIA inventories are remeasured.

Citation

Zielinski, W.J.; Dunk, J.R.; Gray, A.N. 2012. Estimating habitat value using forest inventory data: the fisher (*Martes pennanti*) in northwestern California. Forest Ecology and Management. 275: 35–42. http://www.treesearch.fs.fed.us/pubs/41478.

[6] Author: Andrew Gray.

Zane Miller; Pacific Southwest Research Station

Figure 56—A fisher (*Martes pennanti*) in trees.

Conclusion

This report presents an updated overview of California's forest resources, highlighting information that is new as well as confirming previously known information. We expect some readers will be eager to see more indepth research and analysis on selected topics to fully understand current status, change, and relationships in California's forests. We want to stress that the data in this report are not independent from those published in a previous report that covered the period 2001–2005 (Christensen et al. 2008). The values presented here cannot be compared to the previous report or that data set to assess change in forest resources over the last decade; these data are a continuation of the full 10-year cycle. The first 10-year cycle is now complete for all forested plots measured from 2001 to 2010. All future measurements are remeasurements assessing the change that occurred during the 10 years between visits. Remeasured plots tell us everything from impacts of disturbances such as wildfire and changes in land use, to specifically how much each tree has grown. Armed with these data, we can begin quantifying trends in California's forests at multiple scales. From assessing change in the growth and survival of understory seedlings to large, landscape-level changes facing forests from future challenges like a growing population and a changing climate.

The annual FIA inventory will continue into the future provided funding and support for it are maintained. As directed by the 1998 Farm Bill (Section 253[c] of the Agriculture Research, Extension, and Education Reform Act of 1998), findings from the inventory will be published no more frequently than every 5 years.

Common and Scientific Plant Names

Life form	Common name	Scientific name
Trees:	Alder	*Alnus* spp.
	Ash	*Fraxinus* spp.
	Aspen, quaking aspen	*Populus tremuloides* Michx.
	Bigcone Douglas-fir	*Pseudotsuga macrocarpa* (Vasey) Mayr
	Bigleaf maple	*Acer macrophyllum* Pursh
	Birch	*Betula* spp.
	Bishop pine	*Pinus muricata* D. Don
	Bitter cherry	*Prunus emarginata* (Dougl. ex Hook.) D. Dietr.
	Black cottonwood	*Populus balsamifera* L. ssp. *trichocarpa* (Torr. & A. Gray ex Hook.) Brayshaw
	Blue oak	*Quercus douglasii* Hook. & Arn.
	Boxelder	*Acer negundo* L.
	Brewer spruce	*Picea breweriana* S. Wats.
	Bristlecone pine	*Pinus aristata* Engelm.
	California black oak	*Quercus kelloggii* Newberry
	California buckeye	*Aesculus californica* (Spach) Nutt.
	California juniper	*Juniperus californica* Carr.
	California nutmeg, California torreya	*Torreya californica* Torr.
	California red fir	*Abies magnifica* A. Murr.
	California sycamore	*Platanus racemosa* Nutt.
	California white oak	*Quercus lobata* Née
	California-laurel	*Umbellularia californica* (Hook. & Arn.) Nutt.
	Canyon live oak	*Quercus chrysolepis* Liebm.
	Cedar	*Thuja* spp.
	Cherry and plum species	*Prunus* spp.
	Chinkapin oak	*Quercus muehlenbergii* Engelm.
	Coast live oak, California live oak	*Quercus agrifolia* Née
	Chokecherry	*Prunus virginiana* L.
	Cottonwood	*Populus* spp.
	Coulter pine	*Pinus coulteri* D. Don
	Curl-leaf mountain mahogany	*Cercocarpus ledifolius* Nutt.
	Cypress	*Cupressus* spp.
	Desert ironwood, tesota, Arizona ironwood	*Olneya tesota* A. Gray
	Douglas-fir	*Pseudotsuga menziesii* (Mirbel) Franco
	Elm	*Ulmus* spp.
	Engelmann oak	*Quercus engelmannii* Greene
	Engelmann spruce	*Picea engelmannii* Parry ex Engelm.
	Eucalyptus	*Eucalyptus* spp.
	Foxtail pine	*Pinus balfouriana* Grev. & Balf.
	Fremont cottonwood	*Populus fremontii* S. Wats.

Life form	Common name	Scientific name
	Giant chinguapin, golden chinguapin	*Chrysolepis chrysophylla* (Dougl. ex Hook.) Hjelmqvist
	Giant sequoia	*Sequoiadendron giganteum* (Lindl.) Buchh.
	Grand fir	*Abies grandis* (Dougl. ex D. Don) Lindl.
	Gray pine, ghost pine	*Pinus sabiniana* Dougl. ex Dougl.
	Great Basin bristlecone pine	*Pinus longaeva* D.K. Bailey
	Hawthorn	*Crataegus* spp.
	Hemlock	*Tsuga* spp.
	Honey mesquite	*Prosopis glandulosa* Torr.
	Incense cedar	*Calocedrus decurrens* (Torr.) Florin
	Interior live oak	*Quercus wislizeni* A. DC.
	Jeffrey pine	*Pinus jeffreyi* Grev. & Balf.
	Knobcone pine	*Pinus attenuata* Lemmon
	Limber pine	*Pinus flexilis* James
	Lodgepole pine	*Pinus contorta* Dougl. ex Loud.
	Maple	*Acer* spp.
	Mesquite	*Prosopis* spp.
	Modoc cypress, Baker cypress	*Cupressus bakeri* Jeps.
	Monterey cypress	*Cupressus macrocarpa* Hartw. ex Gord.
	Monterey pine	*Pinus radiata* D. Don
	Mountain hemlock	*Tsuga mertensiana* (Bong.) Carr.
	Noble fir	*Abies procera* Rehd.
	Northern California black walnut	*Juglans hindsii* Jeps. ex R. E. Sm.
	Oak	*Quercus* spp.
	Oregon ash	*Fraxinus latifolia* Benth.
	Oregon crabapple	*Malus fusca* (Raf.) Schneid.
	Oregon white oak	*Quercus garryana* Dougl. ex Hook.
	Pacific dogwood	*Cornus nuttallii* Audubon ex Torr. & Gray
	Pacific madrone	*Arbutus menziesii* Pursh
	Pacific silver fir	*Abies amabilis* (Dougl. ex Loud.) Dougl. ex Forbes
	Pacific yew	*Taxus brevifolia* Nutt.
	Pine, pinyon	*Pinus* spp.
	Ponderosa pine	*Pinus ponderosa* P.& C. Lawson
	Port Orford cedar	*Chamaecyparis lawsoniana* (A. Murr.) Parl.
	Red alder	*Alnus rubra* Bong.
	Redcedar, juniper	*Juniperus* spp.
	Redwood, coast redwood	*Sequoia sempervirens* (Lamb. ex D. Don) Endl.
	Rocky mountain maple	*Acer glabrum* Torr.
	Russian olive	*Elaeagnus angustifolia* L.
	Sargent's cypress	*Cupressus sargentii* Jepson
	Screwbean mesquite	*Prosopis pubescens* Benth.
	Shasta red fir	*Abies magnifica* A. Murr. var. *shastensis* Lemmon

Life form	Common name	Scientific name
	Singleleaf pinyon	*Pinus monophylla* Torr. & Frém.
	Sitka spruce	*Picea sitchensis* (Bong.) Carr.
	Southern California black walnut	*Juglans californica* S. Watson
	Spruce	*Picea* spp.
	Subalpine fir	*Abies lasiocarpa* (Hook.) Nutt.
	Sugar pine	*Pinus lambertiana* Dougl.
	Sweetgum	*Liquidambar styraciflua* L.
	Tanoak	*Lithocarpus densiflorus* (Hook. & Arn.) Rehd.
	Tasmanian bluegum	*Eucalyptus globulus* Labill.
	True fir species	*Abies* spp.
	Twoneedle pinyon, Colorado pinyon	*Pinus edulis* Engelm.
	Utah juniper	*Juniperus osteosperma* (Torr.) Little
	Walnut	*Juglans* spp.
	Washoe pine	*Pinus washoensis* Mason & Stockwell
	Western hemlock	*Tsuga heterophylla* (Raf.) Sarg.
	Western honey mesquite	*Prosopis glandulosa* Torr.
	Western juniper	*Juniperus occidentalis* Hook.
	Western larch	*Larix occidentalis* Nutt.
	Western redcedar	*Thuja plicata* Donn ex D. Don
	Western white pine	*Pinus monticola* Dougl. ex D. Don
	White alder	*Alnus rhombifolia* Nutt.
	White fir	*Abies concolor* (Gord. & Glend.) Lindl. ex Hildebr.
	Whitebark pine	*Pinus albicaulis* Engelm.
Shrubs:	Blue elderberry	*Sambucus nigra* L. ssp. *cerulea* (Raf.) R. Bolli
	California huckleberry	*Vaccinium ovatum* Pursh
	California yerba santa	*Eriodictyon californicum* (Hook. & Arn.) Torr.
	Chamise	*Adenostoma fasciculatum* Hook. & Arn.
	Creeping barberry	*Mahonia repens* (Lindl.) G. Don
	Currant spp.	*Ribes* spp.
	Cutleaf blackberry	*Rubus laciniatus* Willd.
	Dwarf mistletoe	*Arceuthobium* spp.
	Dwarf Oregon grape	*Mahonia nervosa* (Pursh) Nutt.
	English holly	*Ilex aquifolium* L.
	English ivy	*Hedera helix* L.
	European black elderberry	*Sambucus nigra* L.
	Greanleaf manzanita	*Arctostaphylos patula* Greene
	Hairy manzanita	*Arctostaphylos columbiana* Piper
	Himalayan blackberry	*Rubus discolor* Weihe & Nees
	Kinnikinnick	*Arctostaphylos uva-ursi* (L.) Spreng.
	Manzanita	*Arctostaphylos* spp.

Life form	Common name	Scientific name
	Oregon boxleaf	*Paxistima myrsinites* (Pursh) Raf.
	Oregon grape	*Mahonia aquifolium* (Pursh) Nutt.
	Pacific ninebark	*Physocarpus capitatus* (Pursh) Kuntze
	Pinemat manzanita	*Arctostaphylos nevadensis* Gray
	Pipsissewa	*Chimaphila umbellata* (L.) W. Bart.
	Pursh's buckthorn	*Frangula purshiana* (DC.) Cooper
	Red elderberry	*Sambucus racemosa* L.
	Rose	*Rosa* spp.
	Salal	*Gaultheria shallon* Pursh
	Scotch broom	*Cytisus scoparius* (L.) Link
	Scouler's willow	*Salix scouleriana* Barratt ex Hook.
	Skunkbush	*Rhus trilobata* Nutt.
	Snowberry	*Symphoricarpos* spp.
	Snowbrush ceanothus	*Ceanothus velutinus* Dougl. ex Hook.
	Sticky whiteleaf manzanita	*Arctostaphylos viscida* Parry
	Thinleaf huckleberry	*Vaccinium membranaceum* Dougl. ex Torr.
	Vine maple	*Acer circinatum* Pursh
	Willow	*Salix* spp.
Forbs:	Brackenfern	*Pteridium aquilinum* (L.) Kuhn
	British Columbia wildginger	*Asarum caudatum* Lindl.
	Bull thistle	*Cirsium vulgare* (Savi) Ten.
	Canada thistle	*Cirsium arvense* (L.) Scop.
	Common beargrass	*Xerophyllum tenax* (Pursh) Nutt.
	Common yarrow	*Achillea millefolium* L.
	Hairy cat's ear	*Hypochaeris radicata* L.
	Heartleaf arnica	*Arnica cordifolia* Hook.
	Horsetail	*Equisetum* spp.
	Mugwort	*Artemisia douglasiana* Bess.
	Pacific trillium	*Trillium ovatum* Pursh
	Purple foxglove	*Digitalis purpurea* L.
	Spreading hedgeparsley	*Torilis arvensis* (Huds.) Link
	St. John's wort	*Hypericum perforatum* L.
	Stinging nettle	*Urtica dioica* L.
	Swordfern	*Polystichum munitum* (Kaulfuss) K. Presl
	Thistle	*Cirsium* spp.
	Western pearly everlasting	*Anaphalis margaritacea* (L.) Benth.
	Western wormwood	*Artemisia ludoviciana* Nutt.
	Yellow star-thistle	*Centaurea solstitialis* L.

Life form	Common name	Scientific name
Graminoids:	Bristly dogstail grass	*Cynosurus echinatus* L.
	Cheatgrass	*Bromus tectorum* L.
	Common velvetgrass	*Holcus lanatus* L.
	Compact brome	*Bromus madritensis* L.
	False brome	*Brachypodium sylvaticum* (Huds.) Beauv.
	Medusahead	*Taeniatherum caput-medusae* (L.) Nevski
	Orchardgrass	*Dactylis glomerata* L.
	Ripgut brome	*Bromus diandrus* Roth
	Silver hairgrass	*Aira caryophyllea* L.
	Slender oat	*Avena barbata* Pott ex Link
	Soft brome	*Bromus hordeaceus* L.
	Wild oat	*Avena fatua* L.
Lichens:	Beard lichen	*Usnea hirta* (L.) F.H. Wigg.
	Beard lichens	*Usnea* spp.
	Brown-eyed sunshine lichen	*Vulpicida canadensis* (Rasanen) J. E. Mattsson & M.J. Lai
	Crottle	*Parmelia saxatilis* (L.) Ach.
	Lace lichen	*Ramalina menziesii* Taylor
	Lungwort lichen	*Lobaria pulmonaria* (L.) Hoffm.
	Old man's beard	*Bryoria fremontii* (Tuck.) Brodo & D. Hawksw.
	Orange wall lichen	*Xanthoria polycarpa* (Hoffm.) Rieber
	Rosette lichen	*Physcia adscendens* (Fr.) H. Olivier
	Witch's hair lichen	*Alectoria sarmentosa* (Ach.) Ach.
	Wolf lichen	*Letharia vulpina* (L.) Hue

Acknowledgments

The authors wish to thank all FIA crew members operating in California during the 2001–2010 field seasons for their hard work, significant input to improved protocol, and persistent attention to data quality throughout 10 years of plot measurements. We would also like to thank members of the Information Management team for compiling the California raw plot measurements into meaningful data for analysis. Like the field measurements, it's also this team's commitment to data quality that made this report possible. Additionally, thanks are due to the reviewers of this manuscript for their invaluable comments.

Metric and English Equivalents

When you know:	Multiply by:	To find:
Inches	2.54	Centimeters
Feet	0.3048	Meters
Miles	1.609	Kilometers
Acres	0.405	Hectares
Board feet	0.0024	Cubic meters
Cubic feet	0.0283	Cubic meters
Cubic feet per acre	0.06997	Cubic meters per hectare
Square feet	0.0929	Square meters
Square feet per acre	0.229	Square meters per hectare
Ounce	28349.5	Milligrams
Pounds	0.453	Kilograms
Pounds per cubic foot	16.018	Kilograms per cubic meter
Tons per acre	2.24	Megagrams per hectare
Degrees Fahrenheit	(°F – 32)/1.8	Degrees Celsius
British thermal units (Btu)	0.000293	Kilowatt hours
Pounds per cubic foot	0.016	Grams per cubic centimeter

Literature Cited

Air and Waste Management Association. 1998. Recognition of air pollution injury to vegetation: a pictorial atlas. 2nd ed. Sec. 2.0—Ozone. Pittsburgh, PA.

Azuma, D.L.; Dunham, P.A.; Hiserote, B.A.; Veneklase, C.F. 2004. Timber resource statistics for eastern Oregon, 1999. Resour. Bull. PNW-RB-238. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 42 p.

Bechtold, W.A.; Patterson, P.L. 2005. The enhanced Forest Inventory and Analysis Program—national sampling design and estimation procedures. Gen. Tech. Rep. GTR-SRS-80. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 85 p.

Blackard, J.; Finco, M.; Helmer, E.; Holden, G.; Hoppus, M.; Jacobs, D.; Lister, A.; Moisen, G.; Nelson, M.; Riemann, R.; Ruefenacht, B.; Salajanu, D.; Weyermann, D.; Winterberger, K.; Brandeis, T.; Czaplewski, R.; McRoberts, R.; Patterson, P.; Tymcio, R. 2008. Mapping U.S. forest biomass using nationwide forest inventory data and moderate resolution information. Remote Sensing of Environment. 112(4): 1658–1677.

Butler, B.J.; Leatherberry, E.C.; Williams, M.S. 2005. Design, implementation, and analysis methods for the national woodland owner survery. Gen. Tech. Rep. NE-GTR-336. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 43 p.

California Department of Forestry and Fire Protection, Fire and Resource Assessment Program [FRAP)]. 2010. California's forests and rangelands: 2010 strategy report. 2010. http://frap.fire.ca.gov/data/assessment2010/pdfs/Strategyreport7-157FINAL.pdf. (5 January 2015).

Campbell, S.J.; Wanek, R.; Coulston, J.W. 2007. Ozone injury in west coast forests: results of 6 years of monitoring. Gen. Tech. Rep. PNW-GTR-722. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 53 p.

Christensen, G.A.; Campbell, S.J.; Fried, J.S., tech. eds. 2008. California's forest resources, 2001–2005: five-year Forest Inventory and Analysis report. Gen. Tech. Rep. PNW-GTR-763. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 183 p.

Cleland, D.T.; Avers, P.E.; McNab, W.H.; Jensen, M.E.; Bailey, R.G.; King, T.; Russell, W.E. 1997. National hierarchical framework of ecological units. In: Boyce, M.S.; Haney, A., eds. Ecosystem management: applications for sustainable forest and wildlife resources. New Haven, CT: Yale University Press: 181–200.

Franklin, J.F.; Hall, F.; Laudenslayer, W. 1986. Interim definitions for old-growth Douglas-fir and mixed conifer forests in the Pacific Northwest and California. Res. Note. PNW-RN-447. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 15 p.

Gesch, D.; Oimoen, M.; Greenlee, S.; Nelson, C.; Steuck, M.; Tyler, D. 2002. The National Elevation Dataset. Photogrammetric Engineering and Remote Sensing. 68: 5–11.

Goheen, E.M.; Willhite, E.A. 2006. Field guide to common diseases and insect pests of Oregon and Washington conifers. R6-NR-FID-PR-01-06. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Region. 327 p.

Harrington, C.A., comp. 2003. The 1930s survey of forest resources in Washington and Oregon. Gen. Tech. Rep. PNW-GTR-584. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 123 p.

Helms, J.A., ed. 1998. The dictionary of forestry. Bethesda, MD: Society of American Foresters. 210 p.

Homer, C.; Dewitz, J.; Fry, J.; Coan, M.; Hossain, N.; Larson, C.; Herold, N.; McKerrow, A.; VanDriel, J.N.; Wickham, J. 2007. Completion of the 2001 National Land Cover Database for the conterminous United States. Photogrammetric Engineering and Remote Sensing. 73: 337–341.

McNab, W.H.; Cleland, D.T.; Freeouf, J.A.; Keys, J.E. Jr.; Nowacki, G.J.; Carpenter, C.A., comps. 2005. Description of ecological subregions: sections of the conterminous United States. [CD-ROM]. Washington, DC: U.S. Department of Agriculture, Forest Service. 80 p.

Moore, D.S.; McCabe, G.P. 1989. Introduction to the practice of statistics. New York: W.H. Freeman and Co. 790 p.

Morgan, T.; Brandt, J.; Songster, K.; Keegan, C.; Christensen, G. 2012. California's forest products industry and timber harvest, 2006. PNW-GTR-866. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 48 p.

National Park Service Website. http://www.nps.gov. (5 January 2015).

Smith, W.B.; Miles, P.D.; Vissage, J.S.; Pugh, S.A. 2004. Forest resources of the United States, 2002. Gen. Tech. Rep. NC-GTR-241. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 137 p.

U.S. Department of Agriculture, Forest Service [USDA FS]. 2006. Forest Inventory and Analysis glossary. On file with: Pacific Northwest Forest Inventory and Analysis Program, 620 SW Main Street, Suite 400, Portland, OR 97205.

U.S. Department of Agriculture, Forest Service [USDA FS]. 2007. Forest Inventory and Analysis Program: field instructions for the annual inventory of Washington, Oregon, and California. Portland, OR: Pacific Northwest Research Station.

U.S. Department of Agriculture, Natural Resources Conservation Service [USDA NRCS]. 2000. The PLANTS database. Baton Rouge, LA: National Plant Data Center. http://plants.usda.gov. (5 January 2015).

Glossary

abiotic—Pertaining to nonliving factors such as temperature, moisture, and wind.

aerial photography—Imagery acquired from an aerial platform (typically aircraft or helicopter) by means of a specialized large-format camera with well-defined optical characteristics. The geometry of the aircraft orientation at the time of image acquisition is also recorded. The resultant photograph will be of known scale, positional accuracy, and precision. Aerial photography for natural resource use is usually either natural color or color-infrared, and is film-based or acquired using digital electronic sensors.

air quality index—Value or set of values derived from a multivariate model that examines the composition of lichen communities at each plot to provide a relative estimate of air quality.

artificial regeneration—An artificially regenerated stand is established by planting or artificial seeding.

aspect—Compass direction that a slope faces.

basal area—The cross-sectional area of a tree's trunk.

biodiversity—Variety and variability among living organisms and the ecological complexes in which they occur. Diversity can be defined as the number of different items and their relative frequencies. http://www.epa.gov/OCEPAterms/bterms.html. (5 January 2015).

bioenergy—Renewable energy made available from materials derived from biological sources. http://en.wikipedia.org/wiki/Bioenergy. (5 January 2015).

biomass—The aboveground weight of wood and bark in live trees 1.0 inch diameter at breast height (d.b.h.) and larger from the ground to the tip of the tree, excluding all foliage. The weight of wood and bark in lateral limbs, secondary limbs, and twigs under 0.5 inch in diameter at the point of occurrence on sapling-size trees is included in the measure, but on poletimber- and sawtimber-sized trees this material is excluded. Biomass is typically expressed as green or oven-dry weight in tons (USDA FS 2006).

biosite index, ozone—A value calculated from the amount and severity of ozone injury at a site (biosite) that reflects local air quality and plant response and therefore potential risk of ozone impact in the area represented by that biosite (Campbell et al. 2007).

board foot—A volume measure of lumber 1 foot wide, 1 foot long, and 1 inch thick (12 in × 12 in x 1 in = 144 cubic inches).

bole—Trunk or main stem of a tree.

carbon mass—The estimated weight of carbon stored within wood tissues. On average, carbon mass values are about half of biomass values for trees, and are summarized as thousand tons or mean tons per acre.

carbon sequestration—Incorporation of carbon dioxide into permanent plant tissues.

coarse woody material—Down dead tree and shrub boles, large limbs, and other woody pieces that are severed from their original source of growth. Coarse woody material also includes dead trees that are supported by roots, severed from roots, or uprooted, and leaning >45 degrees from vertical (USDA FS 2006).

corporate forest land—An ownership class of private forest lands owned by a company, corporation, legal partnership, investment firm, bank, timberland investment management organization (TIMO), or real estate investment trust (REIT).

crown—The part of a tree or woody plant bearing live branches or foliage.

crown dieback—Recent mortality of branches with fine twigs, which begins at the terminal portion of a branch and proceeds toward the trunk. Dieback is only considered when it occurs in the upper and outer portions of the tree (USDA FS 2006).

crown fire—Fire that spreads across the tops of trees or shrubs more or less independently of a surface fire. Crown fires are sometimes classed as running (independent or active) or dependent (passive) to distinguish the degree of independence from the surface fire (Helms 1998).

current gross annual growth—The total growth of a given stand of trees, within a defined area, over the period of 1 year.

cyanolichen—Lichen species containing cyanobacteria, which fixes atmospheric nitrogen into a form that plants can use.

damage—Damage to trees caused by biotic agents such as insects, diseases, and animals or abiotic agents such as weather, fire, or mechanical equipment.

defoliation—Premature removal of foliage.

diameter at breast height (d.b.h.)—The diameter of a tree stem, located at 4.5 feet above the ground (breast height) on the uphill side of a tree. The point of diameter measurement may vary on abnormally formed trees (USDA FS 2006).

diameter at root collar (d.r.c.)—The diameter of a tree (usually a woodland species), measured outside of the bark at the ground line or stem root collar (USDA FS 2006).

dieback—Progressive dying from the extremity of any part of the plant. Dieback may or may not result in death of the entire plant (Helms 1998).

disturbance—Any relatively discrete event in time that disrupts ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment (Helms 1998).

down woody material (DWM)—Dead material on the ground in various stages of decay, including coarse and fine woody material. Previously named down woody debris (DWD). The DWM indicator for Forest Inventory and Analysis includes measurements of depth of duff layer, litter layer, and overall fuelbed; fuel loading on the microplot; and residue piles (USDA FS 2006).

ecological region—A top-level scale in a hierarchical classification of ecological units subdivided on the basis of global, continental, and regional climatic regimes and broad physiography. Ecological regions (ecoregions) are further subdivided into domains, divisions, and provinces. The next level down in the hierarchy, subregion, is divided into ecological sections (ecosections) and subsections (Cleland et al. 1997).

ecosection—A level in a hierarchical classification of ecological units for a geographic area delineated on the basis of similar climate, geomorphic processes, stratigraphy, geologic origin, topography, and drainage systems (Cleland et al. 1997).

ecosystem—A spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and components of the abiotic environment within its boundaries. An ecosystem can be of any size: a log, a pond, a field, a forest, or the Earth's biosphere (Helms 1998).

elevation—Height above a fixed reference point, often the mean sea level.

erosion—The wearing away of the land surface by running water, wind, ice, or other geological agents.

federal forest land—An ownership class of public lands owned by the U.S. government (USDA FS 2006).

fine woody material (FWM)—Down dead branches, twigs, and small tree or shrub boles <3 inches in diameter not attached to a living or standing dead source (USDA FS 2006).

fire regime—The characteristic frequency, extent, intensity, severity, and seasonality of fires within an ecosystem (Helms 1998).

fixed-radius plot—A circular sampled area with a specified radius in which all trees of a given size, shrubs, and other items are tallied (USDA FS 2006).

forb—A broad-leaved herbaceous plant, as distinguished from grasses, shrubs, and trees (USDA FS 2006).

forest industry land—An ownership class of private lands owned by a company or an individual(s) operating a primary wood-processing plant (USDA FS 2006).

forest land—Land that is at least 10 percent stocked by forest trees of any size, or land formerly having such tree cover, and not currently developed for a nonforest use. The minimum area for classification as forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must be at least 120 feet wide to qualify as forest land (USDA FS 2006).

forest type—A classification of forest land based on and named for the tree species that forms the plurality of live-tree stocking (USDA FS 2006).

forest type group—A combination of forest types that share closely associated species or site requirements (USDA FS 2006).

fuel treatment—Any manipulation or removal of wildland fuels to reduce the likelihood of ignition or to lessen potential fire damage and resistance to control; e.g., lopping, chipping, crushing, piling, and burning. Synonym: fuel modification, hazard reduction (Helms 1998).

fuelwood—Wood salvaged from mill waste, cull logs, branches, etc., and used to fuel fires in a boiler or furnace.

fungus—Member of a group of saprophytic and parasitic organisms that lack chlorophyll, have cell walls made of chitin, and reproduce by spores; includes molds, rusts, mildews, smuts, and mushrooms. Fungi absorb nutrients from the organic matter in which they live. Not classified as plants; instead fungi are placed in the Kingdom: Fungi (Goheen and Willhite 2006).

geospatial—The combination of spatial software and analytical methods with terrestrial or geographic data sets. Often used in conjunction with geographic information systems and geomatics.

graminoid—Grasses (family Gramineae or Poaceae) and grasslike plants such as sedges (family Cyperaceae) and rushes (family Juncaceae).

grassland—Land on which the vegetation is dominated by grasses, grasslike plants, or forbs.

greenhouse gas—A gas, such as carbon dioxide or methane, that contributes to potential climate change. http://www.epa.gov/OCEPAterms/gterms.html. (5 January 2015).

gross volume—Represents the total volume of wood within the bole of a tree and includes rotten, missing and form cull (volume loss due to rotten, missing, and form cull defect has not been deducted). Including estimated missing bole sections may substantially increase gross volume of some trees with significant breakage or previous harvest (USDA Forest Service 2006).

growing-stock—All live trees 5 inches d.b.h or larger that are considered merchantable in terms of saw-log length and grade; excludes rough and rotten cull trees (USDA FS 2006).

hardwood—Tree species belonging to the botanical subdivision Angiospermae, class Dicotyledonous, usually broad-leaved and deciduous (USDA FS 2006).

increment borer—An auger-like instrument with a hollow bit and an extractor, used to extract thin radial cylinders of wood (increment cores) from trees having annual growth rings, to determine increment or age (Helms 1998).

interpolation—A method of reallocating attribute data from one spatial representation to another. Kriging is a more complex example that allocates data from sample points to a surface.

invasive plant—A plant that is not native to the ecosystem under consideration and that causes or is likely to cause economic or environmental harm or harm to human, animal, or plant health. http://www.invasivespeciesinfo.gov/docs/council/isacdef.pdf. (5 January 2015).

ladder fuel—Combustible material that provides vertical continuity between vegetation strata and allows fire to climb into the crowns of trees or shrubs with relative ease. Ladder fuels help initiate and ensure the continuation of a crown fire (Helms 1998).

lichen—An organism consisting of a fungus and an alga or cyanobacterium living in symbiotic association. Lichens look like masses of small, leafy, tufted or crust-like plants (USDA FS 2006).

live trees—All living trees, including all size classes, all tree classes, and both commercial and noncommercial species listed in the FIA field manual (USDA FS 2006).

mean annual increment (MAI) at culmination—A measure of the productivity of forest land expressed as the average increase in cubic feet of wood volume per acre per year. For a given species and site index, the mean is based on the age at which the MAI culminates for fully stocked natural stands. The MAI is based on the site index of the plot (Azuma et al. 2004).

mensuration—Determination of dimensions, form, weight, growth, volume, and age of trees, individually, or collectively, and of the dimensions of their products (Helms 1998).

mesic—Describes sites or habitats characterized by intermediate moisture conditions; i.e., neither decidedly wet nor dry.

microclimate—The climate of a small area, such as that under a plant or other cover, differing in extremes of temperature and moisture from the larger climate outside (Helms 1998).

MMBF—A million board feet of wood in logs or lumber.

model—(1) An abstract representation of objects and events from the real world for the purpose of simulating a process, predicting an outcome, or characterizing a phenomenon. (2) Geographic information system (GIS) data representative of reality (e.g., spatial data models), including the arc-node, georelational model, rasters or grids, polygon, and triangular irregular networks (Helms 1998).

mortality—The death of trees from natural causes, or subsequent to incidents such as storms, wildfire, or insect and disease epidemics (Helms 1998).

municipal land—Land owned by municipalities or land leased by them for more than 50 years (USDA FS 2006).

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 U.S. Department of Agriculture, Forest Service, including experimental areas and Bankhead-Jones Title III lands (Azuma et al. 2004).

Native American lands—Tribal lands and allotted lands held in trust by the federal government. Native American lands are grouped with farmer-owned and miscellaneous private lands as other private lands (Azuma et al. 2004).

native species—Plant species that were native to an American region prior to Euro-American settlement. For vascular plants, they are the species that are not present on the USDA Natural Resources Conservation Service (NRCS) (2000) list of nonnative species (see **nonnative species**) (USDA NRCS 2000).

net primary production (NPP)—NPP represents the amount of chemical energy that is available to consumers in an ecosystem. It is the remaining energy from gross primary productivity discounting the loss of energy required by primary producers for respiration.

net volume—Gross volume less deductions for sound and rotten defects. Growing-stock net volume is gross volume (in cubic feet) less deductions for rot and missing bole sections on poletimber and sawtimber growing-stock trees. Sawtimber net volume is gross volume (in board feet) less deductions for rot, sweep, crook, missing bole sections, and other defects that affect the use of sawtimber trees for lumber (Azuma et al. 2004).

noncensus water—Lakes, reservoirs, ponds, and similar bodies of water 1.0 to 4.5 acres; and rivers, streams, canals, etc., 30.0 to 200 feet wide.

noncorporate forest land—Private forest land owned by nongovernmental conservation or natural resource organizations; unincorporated partnerships, associations, or clubs; individuals or families; or Native Americans.

nonforest inclusion—An area that is not forested, is less than 1.0 acre, and does not qualify as its own condition class (USDA FS 2006).

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, cottonwood plantations, improved pasture, residential areas, city parks, constructed roads, operating railroads and their right-of-way clearings, and powerline and pipeline clearings. The area must be at least 1.0 acre and 120.0 feet wide.

nonnative species—Plant species that were introduced to America subsequent to Euro-American settlement. Nonnative vascular plants are present on the USDA Natural Resources Conservation Service list of nonnative species (USDA NRCS 2000).

nonstocked areas—Timberland that is less than 10 percent stocked with live trees. Recent clearcuts scheduled for planting are classified as nonstocked area (Azuma et al. 2004).

nontimber forest products (NTFP)—Species harvested from forests for reasons other than production of timber commodities. Vascular plants, lichens, and fungi are the primary organisms included in NTFPs.

old-growth forest—Old-growth forest is differentiated from younger forest by its structure and composition, and often by its function. Old-growth stands are typified by the presence of large older trees; variety in tree species, sizes, and spacing; multiple canopy layers; high amounts of standing and down dead wood; and broken, deformed, or rotting tops, trunks, and roots (Franklin et al. 1986).

other forest—Forest land that is unproductive (land not capable of producing more than 20 cubic feet of wood per acre per year). In tables in which reserved and unreserved forest land are not broken out, "other forest" includes all reserved forest land as well as unproductive forest land.

other private forest lands—Lands in private ownership and not reported separately. These may include coal companies, land trusts, and other corporate private landowners (USDA FS 2006).

overrun—Difference between the log scale of a shipment of timber and the actual volume of lumber obtained from it. http://forestry.about.com/library/glossary/blforglo.htm. (5 January 2015).

overstory—That portion of the trees, in a forest of more than one story, forming the uppermost canopy layer (Helms 1998).

owner class—A variable that classifies land into categories of ownership. Current ownership classes are listed in the FIA field manual (USDA FS 2006).

owner group—A variable that combines owner classes into the following groups: Forest Service, other federal agency, state and local government, and private. Differing categories of owner group on a plot require different conditions (USDA FS 2006).

ownership—A legal entity having an ownership interest in land, regardless of the number of people involved. An ownership may be an individual; a combination of persons; a legal entity such as corporation, partnership, club, or trust; or a public agency. An ownership has control of a parcel or group of parcels of land (USDA FS 2006).

ozone (O_3), tropospheric—A regional, gaseous air pollutant produced primarily through sunlight-driven chemical reactions

of nitrogen oxide (NO_2) and hydrocarbons in the troposphere (the lowest layer of the atmosphere). Ozone plays a significant role in greenhouse warming and urban smog and causes foliar injury to deciduous trees, conifers, shrubs, and herbaceous species (Air and Waste Management Association 1998).

pathogen—Parasitic organism directly capable of causing disease.

photointerpretation (aerial photography)—A process where points or areas of interest on an aerial photograph are studied to determine information about land cover. The FIA program uses photointerpretation to determine whether field plots are forested or not, and the possible forest type and size class, and to analyze land cover and land use changes.

prescribed burn—Deliberate burning of wildland fuels in either their natural or their modified state and under specified environmental conditions, usually to make the site less susceptible to severe wildfire. Synonym: controlled burn, prescribed fire (adapted from Helms 1998).

productive forest land—Forest land that is producing or capable of producing in excess of 20 cubic feet per acre per year of wood at culmination of mean annual increment (MAI) without regard to reserved status (USDA FS 2006).

public land—An ownership group that includes all federal, state, county, and municipal lands (USDA FS 2006).

quadrat—The basic 3.28-square foot sampling unit for the Phase 3 Vegetation Indicator (USDA FS 2006).

rangeland—Expansive, mostly unimproved lands on which a significant proportion of the natural vegetation is native grasses, grass-like plants, forbs, and shrubs. Rangelands include natural grasslands, savannas, shrublands, many deserts, tundra, alpine communities, coastal marshes, and wet meadows. http://en.wikipedia.org/wiki/Rangeland. (5 January 2015).

regeneration (artificial and natural)—The established progeny from a parent plant, seedlings or saplings existing in a stand, or the act of renewing tree cover by establishing young trees naturally or artificially. May be artificial (direct seeding or planting) or natural (natural seeding, coppice, or root suckers) (adapted from Helms 1998).

remote sensing—Capture of information about the Earth from a distant vantage point. The term is often associated with satellite imagery but also applies to aerial photography, airborne digital sensors, ground-based detectors, and other devices.

reserved forest land—Land permanently reserved from wood products utilization through statute or administrative designation. Examples include national forest wilderness areas and national parks and monuments (USDA FS 2006).

richness—The number of different species in a given area, often referred to at the plot scale as alpha diversity and at the region scale as gamma diversity (USDA NRCS 2000).

riparian—Related to, living in, or associated with a wetland, such as the bank of a river or stream or the edge of a lake or tidewater. The riparian biotic community significantly influences and is influenced by the neighboring body of water (Helms 1998).

sampling error—Difference between a population value and a sample estimate that is attributable to the sample, as distinct from errors due to bias in estimation, errors in observation, etc. Sampling error is measured as the standard error of the sample estimate (Helms 1998).

sapling—A live tree 1.0 to 4.9 inches in diameter (USDA FS 2006).

saw log—A log meeting minimum standards of diameter, length, and defect for manufacture into lumber or plywood. The definition includes logs with a minimum diameter outside bark for softwoods of 7 inches (9 inches for hardwoods) (Azuma et al. 2004).

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 (Azuma et al. 2004).

Scribner rule—The common board-foot log rule used to determine sawtimber volume. Scribner volume is estimated in terms of 32-foot logs for softwoods and 16-foot logs for hardwoods.

seedlings—Live trees <1.0 inch d.b.h. and at least 6 inches in height (softwoods) or 12 inches in height (hardwoods) (USDA FS 2006).

shrub—Perennial, multistemmed woody plant, usually less than 13 to 16 feet in height, although under certain environmental conditions shrubs may be single-stemmed or taller than 16 feet. Includes succulents (e.g., cacti) (USDA FS 2007).

shrubland—A shrub-dominated vegetation type that does not qualify as forest.

slope—Measure of change in surface value over distance, expressed in degrees or as a percentage (Helms 1998).

snag—Standing dead tree ≥5 inches d.b.h. and ≥4.5 feet in length, with a lean of <45 degrees. Dead trees leaning more than 45 degrees are considered to be DWM. Standing dead material shorter than 4.5 feet are considered stumps (USDA FS 2007).

species group—A collection of species used for reporting purposes (USDA FS 2006).

species turnover—A measure of difference in species composition among plots within an area (e.g., ecological section). Also known as beta diversity. Species turnover is calculated by dividing the total number of species in an area by the mean number of species per plot (USDA NRCS 2000).

specific gravity constants—Ratio of the density (weight per unit volume) of an object (such as wood) to the density of water at 4 °C (39.2 °F) (Helms 1998).

stand age—Average age of the live dominant and codominant trees in the predominant stand size class (USDA FS 2006).

stand-size class—A classification of stands based on tree size. Large-diameter stands have the majority of trees at least 11.0 inches d.b.h. for hardwoods and 9.0 inches d.b.h. for softwoods; medium-diameter stands have the majority of trees at least 5.0 inches d.b.h. but not as large as large-diameter trees; and small-diameter stands have the majority of trees less than 5.0 inches d.b.h.

state land—An ownership class of public lands owned by states or lands leased by states for more than 50 years (USDA FS 2006).

stocked/nonstocked—In the FIA program, a minimum stocking value of 10 percent live trees is required for accessible forest land (USDA FS 2007).

stocking—(1) At the tree level, the density value assigned to a sampled tree (usually in terms of numbers of trees or basal area per acre), expressed as a percentage of the total tree density required to fully use the growth potential of the land. (2) At the stand level, the sum of the stocking values of all trees sampled (Bechtold and Patterson 2005).

stratification—A statistical tool used to reduce the variance of the attributes of interest by partitioning the population into homogenous strata (Bechtold and Patterson 2005).

succession—The gradual supplanting of one community of plants by another (Helms 1998).

surface fire—A fire that burns only surface fuels, such as litter, loose debris, and small vegetation (Helms 1998).

sustainability—The capacity of forests, ranging from stands to ecoregions, to maintain their health, productivity, diversity, and overall integrity in the long run, in the context of human activity and use (Helms 1998).

terrestrial—Of or relating to the Earth or its inhabitants; of or relating to land as distinct from air or water. http://www.merriam-webster.com/dictionary/terrestrial. (5 January 2015).

timberland—Forest land that is producing or capable of producing >20 cubic feet per acre per year of wood at culmination of mean annual increment (MAI). Timberland excludes reserved forest lands (USDA FS 2006).

transect—A narrow sample strip or a measured line laid out through vegetation chosen for study (Helms 1998).

tree—A woody perennial plant, typically large, with a single well-defined stem carrying a more or less definite crown; sometimes defined as attaining a minimum diameter of 3 inches and a minimum height of 15 feet at maturity. For FIA, any plant on the tree list in the current field manual is measured as a tree (USDA FS 2006).

understory—All forest vegetation growing under an overstory (Helms 1998).

unproductive forest land—Forest land that is not capable of producing in excess of 20 cubic feet per acre per year of wood at culmination of MAI without regard to reserved status (USDA FS 2006).

unreserved forest land—Forest land that is not withdrawn from harvest by statute or administrative regulation. Includes forest lands that are not capable of producing in excess of 20 cubic feet per acre per year of industrial wood in natural stands (Smith et al. 2004).

vascular plant—A plant possessing a well-developed system of conducting tissue to transport water, mineral salts, and sugars. http://www.biology-online.org/dictionary/Vascular_plant. (5 January 2015).

wilderness—(1) According to the Wilderness Act of 1964, "a wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." (2) A roadless land legally classified as a component area of the National Wilderness Preservation System and managed to protect its qualities of naturalness, solitude, and opportunity for primitive recreation. Wilderness areas are usually of sufficient size to make maintenance in such a state feasible (Helms 1998).

wildfire—Any uncontained fire, other than prescribed fire, occurring on wildland. Synonym: wildland fire (adapted from Helms 1998).

wildland—Land other than that dedicated for uses such as agriculture, urban, mining, or parks (Helms 1998).

wildland forest—A large continuous tract of forest with few or no developed structures on it. Delineated on aerial imagery for the purpose of detecting land use change. The PNW-FIA program and the Oregon Department of Forestry jointly use a minimum of 640 acres with fewer than five developed structures to designate wildland forest.

Appendix 1—Inventory Design and Methods

Field Design and Sampling Method

The Pacific Northwest Research Station's Forest Inventory and Analysis (PNW-FIA) unit implemented the new annual inventory across all ownerships in California in 2001. The overall sampling design was a significant change from that of previous periodic inventories; the differences will be discussed more fully below.

In the annual inventory system for the Pacific Northwest (Alaska, Washington, Oregon, and California), the objective is to measure approximately 10 percent of the annual plots across an entire state each year. This annual subsample is referred to as a panel. The plots measured in a single panel are selected to ensure systematic coverage within each county, spanning both publicly and privately owned forests, and including lands reserved from industrial wood production such as national parks, wilderness areas, and natural areas. Estimates of forest attributes can be derived from measurements of a single panel for areas as small as a survey unit or ecosection; however, such estimates are often imprecise because one panel represents only 10 percent of the full inventory sample. More precise statistics are obtained by combining data from multiple panels. Estimates from sampled plots in the 10 panels measured 2001–2010 were combined to produce the statistics in this report. After all panels are initially measured (2010), from 2011 forward each panel is remeasured approximately every 10 years.

The FIA program collects information in three phases. In phase 1, a sample of points is interpreted from remotely sensed imagery, either aerial photos or satellite data, and the landscape is stratified into meaningful groupings, such as forested and nonforested areas, ecologically similar regions, and forest types. In phase 2, field plots are measured for a variety of indicators that describe forest composition, structure, and the physical geography of the landscape. Phase 2 plots are spaced at approximate 3-mile intervals on a hexagonal grid throughout the forest. In phase 3, a 1/16 sample of phase 2 plots is measured to assess forest health/ecosystem indicators. Phase 3 is currently being modified to be a more flexible system incorporating different levels of effort in response to client needs and budget.

Phase 1

The goal of phase 1 is to reduce the variance associated with estimates of forest land area and volume by dividing samples into similar groups. Digital imagery collected by remote-sensing satellites is classed into a few similar strata (such as forest or nonforest) by means of standard techniques for image classification, and the total area of each of these strata is used to assign a representative acreage to each sample plot. Source data were derived from digitized 1940s survey maps (Harrington 2003) as well as percentage of tree canopy density derived from Landsat Thematic Mapper (30-m resolution) imagery collected in 2001 (Homer et al. 2007). The resulting classes, or strata (ranging from entirely forested to entirely nonforested, for example), are combined with other forest attributes likely to improve stratification effectiveness, such as owner class. For this report, separate strata are defined for national forest lands outside wilderness that were sampled at a greater density of plots than the FIA standard of 1 plot per 6,000 acres. The resulting strata are collapsed as necessary to ensure that at least 10 plots are in each stratum. Stratified estimation is applied by assigning each plot to one of these collapsed strata and by calculating the area of each collapsed stratum in each estimation unit. The estimates from stratified data are usually more precise than those from unstratified estimates.

Phase 2

The nationally standardized plot installed at each forested phase 2 location is a cluster of four subplots spaced 120 feet apart (fig. 57). Subplot 1 is in the center, with subplots 2 through 4 uniformly distributed radially around it. Each point serves as the center of a 1/24-acre circular subplot used to sample all trees at least 5.0 inches in diameter at breast height (d.b.h.). A 1/300-acre microplot, with its center located just east of each subplot center, is used to sample trees 1.0 to 4.9 inches d.b.h., as well as seedlings (trees less than 1.0 inch d.b.h.). On all lands in California , a ¼-acre "macroplot" (58.9-foot radius) around each subplot center is used to tally trees larger than 24 inches d.b.h. On national forests in California, a hectare plot (a 185.1-foot fixed-radius plot centered on subplot 1) is also established to tally

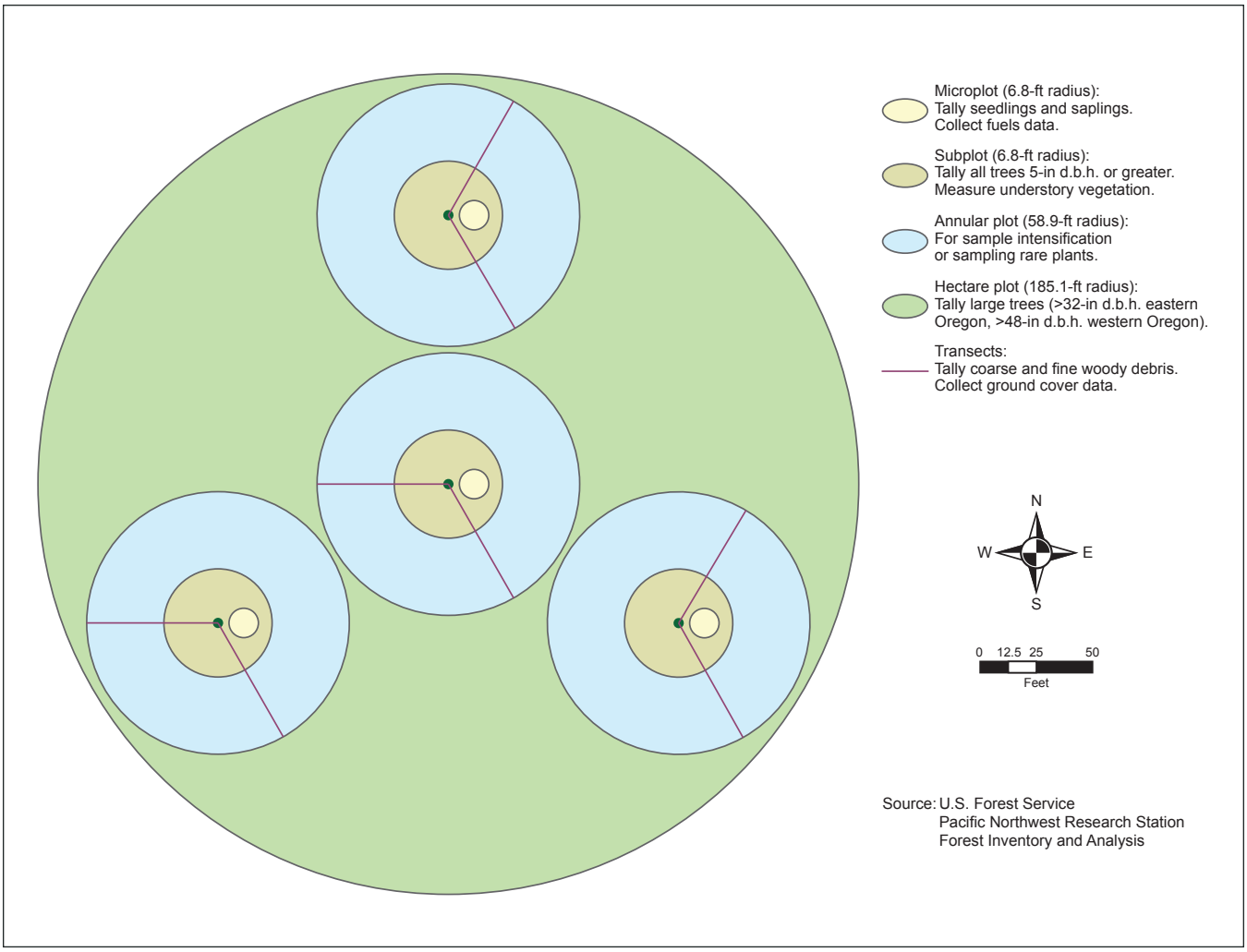


Figure 57—The Forest Inventory and Analysis plot design used in California, 2001–2010. D.b.h. = diameter at breast height.

trees larger than 32 inches d.b.h. in the eastern part of the Northwest Forest Plan area and larger than 48 inches d.b.h. in the western part of the Northwest Forest Plan area.

All phase 2 plots classified by aerial photography as possibly being forested are established in the field without regard to land use or land cover. Field crews delineate areas within the plot that are comparatively less heterogeneous than the plot as a whole with regard to reserved status, owner group, forest type, stand size class, regeneration status, and tree density; these areas are described as condition classes. The process of delineating these condition classes on a fixed-radius plot is called mapping. All measured trees are assigned to the mapped condition class in which they are located.

On phase 2 plots, crews assess physical characteristics such as slope, aspect, and elevation; stand characteristics such as age, size class, forest type, disturbance, site productivity, and regeneration status; and tree characteristics such as tree species, diameter, height, damages, decay, and vertical crown dimensions. They also collect general descriptive information such as soil depth, proximity to water and roads, and the geographic position of the plot in the larger landscape. In California, crews also assess regional variables: height and cover of understory species, the structure of live and dead fuels, and the structure and composition of down wood (see "Core, Core-Optional, and Regional Variables" section below).

The FIA program sampled 5,575 forested phase 2 plots in California between 2001 and 2010 on the standard national plot grid. Estimates of timber volume and other forest attributes were derived from tree measurements and classifications made at each plot. Volumes for individual tally trees were computed with equations for each of the major species in California. Estimates of growth, removals, and mortality for non-national-forest timberland were determined from the remeasurement of 280 forested sample plots established in previous inventories. Estimates of growth, removals, and mortality for national forest land were determined from the remeasurement of 1,627 forested sample plots first measured by the Pacific Southwest Region of the National Forest System (Region 5) between 2001 and 2006 with the annual FIA design, then remeasured between 2006 and 2010.

Phase 3 Ecosystem Indicators

More extensive forest health measurements were collected in a 16-week period during the growing season (when most plants are in full leaf and many are flowering) on a subset (1/16) of phase 2 sample locations. At these phase 3 plots, measurements were taken on tree crowns, soils, lichens, down woody material, and (in some years) understory vegetation in addition to the phase 2 variables. One forest health measurement, ozone injury, was conducted on a separate grid with all 65 ozone plots measured annually.

The FIA program sampled 2,513 phase 3 plots in California between 2000 and 2010. The relatively small number of phase 3 samples is intended to serve as a broad-scale detection monitoring system for forest health problems. Budget uncertainties in 2011 resulted in the cessation of phase 3 data collection nationally. Forest Inventory and Analysis units and clients across the Nation have expressed interest in reevaluating our Forest Health program and working together to shape future directions. Therefore, the phase 3 protocols are evolving into a more flexible system that is more fully integrated with the FIA core program.

Core, Core-Optional, and Regional Variables

The majority of FIA variables collected in California are identical to those collected by FIA elsewhere in the United States—these are national "core" or "core optional" variables (as the name suggests, collection of core optional variables is optional, but, if collected, they must be collected in the same way everywhere). A number of other variables are unique to PNW-FIA. These are "regional" variables and include such items as down woody material and understory vegetation on Phase 2 plots (not to be confused with down woody and understory vegetation on phase 3 plots, which are measured using a slightly different protocol), as well as insect and disease damage, a record of previous disturbance on the plot, and measurements for special studies.

Data Processing

The data used for this report are stored in the FIA National Information Management System (NIMS). The NIMS provides a means to input, edit, process, manage, and distribute FIA data. It includes a process for data loading, a national set of edit checks to ensure data consistency, an error-correction process, approved equations and algorithms, code to compile and calculate attributes, a table report generator, and routines to populate the presentation database. It applies numerous algorithms and equations to calculate, for example, stocking, forest type, stand size, volume, and biomass. The NIMS also generates estimates and associated statistics based on county areas and stratum weights developed outside of NIMS. Additional FIA statistical design and estimation techniques are further reviewed in Bechtold and Patterson (2005).

Statistical Estimates

Throughout this report, we have published sampling errors (SE) for most of our estimates. These SEs account for the fact that we measured only a small sample of the forest (thereby producing a sample-based estimate) and not the entire forest (which is the population parameter of interest). Because of small sample sizes or high variability within the population, some estimates can be very imprecise. The reader is encouraged to take the SE into account when drawing any inference. One way to consider this type of uncertainty is to construct confidence intervals. Customarily, 66- or 95-percent confidence intervals are used. A 95-percent confidence interval means that one can be 95 percent confident that the interval contains the true population parameter of interest. For more details about confidence

intervals, please consult Moore and McCabe (1989) or other statistical literature.

It is relatively easy to construct approximate 66- or 95-percent confidence intervals by multiplying the SE by 1.0 (for 66-percent confidence intervals) or 1.96 (for 95-percent confidence intervals) and subtracting and adding this to the estimate itself. For example, in table A2 of appendix 2, we estimated the total timberland in California to be 17,128,100 acres with an SE of 185,700. A 95-percent confidence interval for the total timberland area ranges from 16,764,100 to 17,492,100 acres.

The reader may want to assess whether or not two estimates are significantly different from each other. The statistically correct way to address this is to estimate the SE of the difference of two estimates, and either construct a confidence interval or use the equivalent z-test. However, this requires the original inventory data. It is often reasonable to assume that two estimates are nearly uncorrelated. For example, plots usually belong to one and only one owner. The correlation between estimates for different owners will be very small. If both estimates can be assumed to be nearly uncorrelated, the SE of the difference can be estimated by

$$SE_{Difference} = \sqrt{SE^2_{\text{Estimate 1}} + SE^2_{\text{Estimate 2}}}$$

Using the SE of the difference, a confidence interval of the difference can be constructed with this method.

If two estimates are based on data that occur on the same plot at the same time, the above equation should not be used. For example, appendix 2 table A36 contains estimates of tree volume by diameter class. If the reader wants to compare the volume of trees in the diameter class 9.0 to 10.9 d.b.h. (5.16 billion cubic feet) with that of trees in the diameter class 21.0 to 22.9 d.b.h. (5.73 billion cubic feet), the covariance between the estimates is not zero and this equation should not be used.

There are two other approaches the reader could possibly consider, but we do not recommend them. The first is to construct a confidence interval for **one** estimate and evaluate whether the other estimate falls within the interval. The problem is that unless both estimates are **highly positively** correlated, this approach will lead to a too-small confidence interval. The second approach is to construct confidence intervals for **both** estimates and determine whether or not they overlap. The problem here is that unless both estimates are highly negatively correlated, this approach will be very conservative. For more complex and indepth analysis, the reader may contact the PNW-FIA unit.

All estimates—means, totals, and their associated SE—are based on the poststratification methods described by Bechtold and Patterson (2005).

Access Denied, Hazardous, or Inaccessible Plots

Although every effort was made to visit all field plots that were entirely or partially forested, some were not sampled for a variety of reasons. Field crews may have been unable to obtain permission from the landowner to access the plot ("denied access"), and there were some plots that were impossible for crews to safely reach or access ("hazardous/inaccessible"). Some private landowners deny access to their land, but privately owned plots usually are not as hazardous or inaccessible as plots on public lands. Although permission to visit public lands is almost always granted, some public land lies in higher elevation areas that can be very dangerous or impossible to reach.

This kind of missing data can introduce bias into the estimates if the nonsampled plots tend to be different from the entire population. Plots that are obviously nonforested (based on aerial photos) are rarely visited, and therefore the proportion of denied-access, hazardous, or inaccessible plots is significantly smaller than it is for forested plots.

The poststratification approach outlined in Bechtold and Patterson (2005) removes nonsampled plots from the sample. Estimates are adjusted for plots that are partially nonsampled by increasing the estimates by the nonsampled proportion within each stratum. To reduce the possible bias introduced by nonsampled plots, we delineated five broad strata groups: census water, forested public land, nonforested public land, forested private land, and nonforested private land. Some of these five broad strata groups were further divided into smaller strata to reduce the variance. Percentage of denied-access and hazardous/inaccessible plots for each of the five broad strata groups for California 2001–2010, are shown in the following tabulation:

Strata group	Total plots	Denied access	Hazardous/ inaccessible	Other nonsampled
			Percent	
Census water	833	0.12	0	0
Private forest	2,267	17.15	1.71	0.62
Private nonforest	5,977	4.88	0.15	0.13
Public forest	3,183	0.66	3.40	0.13
Public nonforest	5,381	0.33	1.29	0.06
Total	17,641	4.08	1.28	0.16

Timber Products Output Survey

The timber products information presented in this report was based on a census of California's timber processors and out-of-state processors that use California timber. The census was conducted by the University of Montana's Bureau of Business and Economic Research in cooperation with PNW-FIA (Morgan et al. 2012). Through a written questionnaire or a phone interview, forest products manufacturers provided the following information for each of their facilities: plant production capacity and employment; volume of raw material received, by county and ownership; species of timber received; finished product volumes, types, sales value, and market locations; and utilization and marketing of manufacturing residue. This survey is designed to determine the size and composition of California's timber harvest and forest products industry, the industry's use of forest resources, and the generation and disposition of wood residues.

National Woodland Owner Survey

This survey of private forest owners (Butler et al. 2005) is conducted annually by the USDA Forest Service FIA Program to increase our understanding of private woodland owners. Questionnaires are mailed to individuals and private groups who own woodlands in which FIA has established forest inventory plots. Nationally, 20 percent of these owners (about 50,000) are contacted each year, and questionnaires with more detail are sent to coincide with national census, inventory, and assessment programs. For California, 432 private noncorporate woodland owners were sent questionnaires, and the 166 that were returned provide the data that were summarized and presented in this report.

Periodic Versus Annual Inventories

The PNW-FIA program began fieldwork for the fifth inventory of California in 2001. This was the first inventory that used the annual inventory system, in which 1/10 of all forested plots (referred to as one panel) were visited each year. The first statewide panel of field plots was completed in 2001. By 2010, all field plots in the state had been measured, prompting production of another congressionally mandated 5-year analysis of California's forest resources as an update to the previous report (Christensen et al. 2008).

Data from new inventories are often compared with those from earlier inventories to determine trends in forest resources. However, for the comparisons to be valid, the procedures used in the two inventories should ideally be identical. Previous inventories of California's forest resources were completed in 1974, 1983, and 1994. These were periodic inventories in which all timberland plots in the state (outside of national forests and reserved areas such as national parks) were visited within a 2- or 3-year window. The last periodic inventory on national forests was completed in 1999.

As a result of our ongoing efforts to improve the efficiency and reliability of the inventory and to conform to the national annual inventory design adopted by all FIA units, several changes in procedures and definitions have been made since the last California inventory in 1994. These changes included an increase in plot density of about 18 percent, a new plot footprint (changing from a five-subplot configuration, in which about 2.5 acres were sampled, to a four-subplot configuration in which less than 1 acre is sampled) (fig. 58), a new set of nationally consistent measurement protocols, a plot visitation schedule that calls for

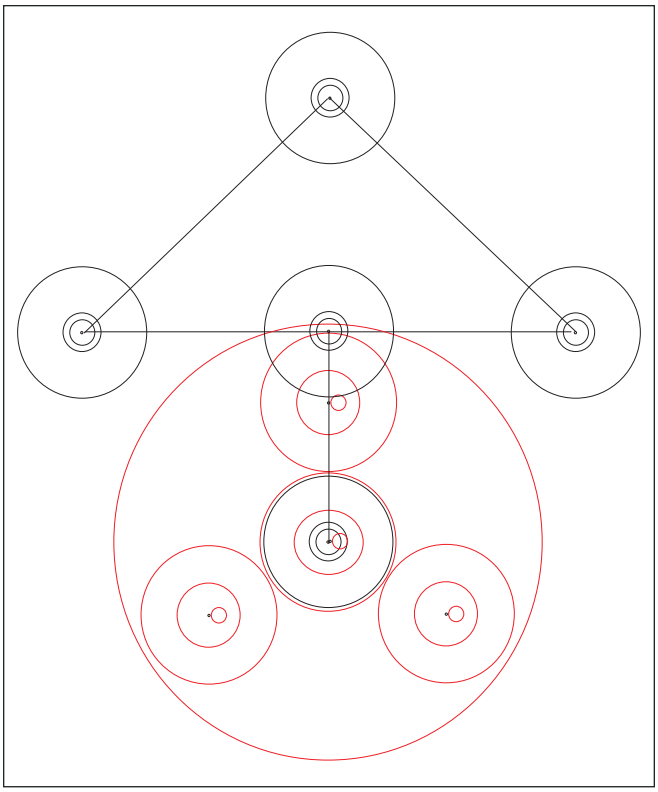


Figure 58—Relationship of periodic (upper, black figure) and annual (lower, red figure) inventory plot designs. Note that only one subplot center overlaps for both designs.

sampling of 10 percent of all forested plots in the state each year, and changes in timberland classification protocols. Although these changes will have little impact on statewide estimates of forest area, timber volume, and tree biomass, they have significantly affected estimates of timberland area (see below) and may affect plot classification variables such as forest type and stand size class, especially for estimates at the county level.

Disparities in timberland area estimates for California between periodic and annual inventories resulted from protocol changes for gathering site index data at each plot. Estimates of timberland area from the annual inventory are noticeably larger than timberland estimates reported from periodic inventories in California. One reason for this is a significant change in the procedures used to classify forest land as either productive timberland or unproductive forest land. In the periodic inventory of the mid 1990s, forest land was often classified using aerial photos or stratified map layers, before plots were assessed in the field. Classifications were based on a number of factors such as species present, density/cover of trees, and geographic location. Timberland was defined as forests capable of producing at least 20 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$ of continuous crops of commercial trees, where "commercial" was defined in terms of size and quality of roundwood suitable for lumber or other manufactured products. All other forests (those not classified as timberland via aerial photos or field assessment) were assigned one of the "unproductive" forest land labels (oak woodland or pinyon-juniper, for example). Site trees were used to determine site index and the associated productivity index (mean annual increment, MAI) on all timberland plots. In some cases, the calculated MAI fell below the 20 $ft^3 \cdot ac^{-1} \cdot yr^{-1}$ threshold, resulting in several plots being reclassified as unproductive forest.

With the intent of developing a more objective approach to classifying forest land after the advent of annual inventory (which began in California in 2001), FIA began collecting site trees on all forest land, including unproductive land. As before, MAI is the basis for assigning a site class to every forest condition on the plot, which, in turn, is used to determine whether forest land is timberland or unproductive forest. Because there are a limited number of site index equations available for each species, and there can be difficulty in locating a representative site tree on some poor sites, the calculated MAI is sometimes unrepresentative of actual productivity. Thus, FIA now also uses certain tree species as indicators for low-productivity sites similar to what had been done during the periodic inventory.

Appendix 2—Summary Data Tables

The following tables contain basic information about the forest resources of California as they relate to the discussions of current forest issues and basic resource information presented in this report. These tables aggregate data to a variety of levels, including county, ecosection, owner group, and forest type, allowing Pacific Northwest Research Station Forest Inventory and Analysis (FIA) inventory results to be applied at various scales and used for various analyses. Many other tables could be generated from the California annual data, but space limits us to just the key ones. Data are also available for download in nonsummarized form at www.fia.fs.fed.us.

The national FIA web site (http://www.fia.fs.fed.us/tools-data/default.asp) contains a tool for querying the California annual data and generating custom tables or maps. Some of the tables in this appendix contain summaries of regional variables; data for regional variables currently are not included in the national FIA database (FIADB). Additional information on regional variables, field manuals, and local contact information is available at: http://www.fs.fed.us/pnw/rma/index.php.

Note that information in the tables presented and in those generated from the FIADB may differ. As new data are added each year to FIADB, any tables generated from it will be based on the current full set of data in FIADB (e.g., 2002–2011, 2003–2012, etc.), whereas tables in this publication contain data from only 2001–2010. The user can take a snapshot of data from FIADB by selecting the desired years and generating tables that are similar, but probably not identical, to those presented here owing to quality assurance updates.

Number of Plots

Table A2-1—Number of Forest Inventory and Analysis plots measured in California from 2001 through 2010, by sample status, land class, and ownership group

Area

Table A2-2—Area of sampled land and water, by land status and ownership group, California, 2001–2010

Table A2-3—Area of forest land, by county and land status, California, 2001–2010

Table A2-4—Area of forest land, by county and ownership group, California, 2001–2010

Table A2-5—Area of forest land, by ownership and land status, California, 2001–2010

Table A2-6—Area of forest land, by forest type group and land status, California, 2001–2010

Table A2-7—Area of forest land, by forest type group and site productivity class, California, 2001–2010

Table A2-8—Area of forest land, by forest type group, ownership group, and land status, California, 2001–2010

Table A2-9—Area of forest land, by forest type group and stand size class, California, 2001–2010

Table A2-10—Area of forest land, by forest type group and stand age class, California, 2001–2010

Table A2-11—Area of forest land by ecological section and land status, California, 2001–2010

Table A2-12—Area of forest land, by forest type group and stand origin, California, 2001–2010

Table A2-13—Area of timberland, by forest type group and stand size class, California, 2001–2010

Number of Live Trees

Table A2-14—Number of live trees on forest land, by county and land status, California, 2001–2010

Table A2-15—Number of dead trees on forest land, by county and land status, California, 2001–2010

Table A2-16—Number of live trees on forest land, by county and broad species group, California, 2001–2010

Table A2-17—Number of dead trees on forest land, by county and broad species group, California, 2001–2010

Table A2-18—Number of live trees on forest land, by species group and diameter class, California, 2001–2010

Table A2-19—Number of dead trees on forest land, by species group and diameter class, California, 2001–2010

Table A2-20—Number of live trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-21—Number of dead trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-22—Average number of live trees per acre on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-23—Average number of dead trees per acre on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-24—Number of growing-stock trees on timberland, by species group and diameter class, California, 2001–2010

Tree Volume

Table A2-25—Net volume of live trees on forest land, by ownership and land status, California, 2001–2010

Table A2-26—Gross volume of dead trees on forest land, by ownership and land status, California, 2001–2010

Table A2-27—Net volume of live trees on forest land, by county and land status, California, 2001–2010

Table A2-28—Gross volume of dead trees on forest land, by county and land status, California, 2001–2010

Table A2-29—Net cubic volume of live trees on forest land, by county and broad species group, California, 2001–2010

Table A2-30—Net volume of live trees on forest land, by forest type group and stand size class, California, 2001–2010

Table A2-31—Gross volume of dead trees on forest land, by forest type group and stand size class, California, 2001–2010

Table A2-32—Net volume of live trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-33—Gross volume of dead trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-34—Net volume of live trees on forest land, by species group and ownership group, California, 2001–2010

Table A2-35—Gross volume of dead trees on forest land, by species group and ownership group, California, 2001–2010

Table A2-36—Net volume of live trees on forest land, by species group and diameter class, California, 2001–2010

Table A2-37—Gross volume of dead trees on forest land, by species group and diameter class, California, 2001–2010

Table A2-38—Net volume of live trees on forest land, by forest type group and stand origin, California, 2001–2010

Table A2-39—Gross volume of dead trees on forest land, by forest type group and stand origin, California, 2001–2010

Table A2-40—Net volume of live trees on forest land, by forest type group and stand age class, California, 2001–2010

Biomass

Table A2-64—Aboveground biomass of dead trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-65—Aboveground biomass of live trees on forest land, by forest type group and stand size class, California, 2001–2010

Table A2-66—Aboveground biomass of dead trees on forest land, by forest type group and stand size class, California, 2001–2010

Table A2-67—Aboveground biomass of live trees on forest land, by forest type group and stand age class, California, 2001–2010

Table A2-68—Aboveground biomass of dead trees on forest land, by forest type group and stand age class, California, 2001–2010

Table A2-69—Aboveground biomass of live trees on forest land, by species group and diameter class, California, 2001–2010

Table A2-70—Aboveground biomass of dead trees on forest land, by species group and diameter class, California, 2001–2010

Table A2-71—Aboveground green biomass of live trees on forest land, by ownership and land status, California, 2001–2010

Table A2-72—Aboveground green biomass of live trees on forest land, by species group and diameter class, California, 2001–2010

Table A2-73—Average aboveground biomass per acre of live trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-74—Average aboveground biomass per acre of dead trees on forest land by forest type group and ownership group, California, 2001–2010

Table A2-75—Average aboveground biomass per acre of live trees on forest land, by forest type group and stand size class, California, 2001–2010

Table A2-76—Average aboveground biomass per acre of dead trees on forest land, by forest type group and stand size class, California, 2001–2010

Table A2-77—Average aboveground biomass per acre of live trees on forest land, by forest type group and stand age class, California, 2001–2010

Table A2-78—Average aboveground biomass per acre of dead trees on forest land, by forest type group and stand age class, California, 2001–2010

Carbon

Table A2-79—Aboveground carbon mass of live trees on forest land, by ownership and land status, California, 2001–2010

Table A2-80—Aboveground carbon mass of dead trees on forest land, by ownership and land status, California, 2001–2010

Table A2-81—Aboveground carbon mass of live trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-82—Aboveground carbon mass of dead trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-83—Aboveground carbon mass of live trees on forest land, by forest type group and stand size class, California, 2001–2010

Table A2-84—Aboveground carbon mass of dead trees on forest land, by forest type group and stand size class, California, 2001–2010

Table A2-85—Aboveground carbon mass of live trees on forest land, by species group and diameter class, California, 2001–2010

Table A2-86—Aboveground carbon mass of dead trees on forest land, by species group and diameter class, California, 2001–2010

Table A2-87—Average aboveground carbon mass per hectare of live trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-88—Average aboveground carbon mass per hectare of dead trees on forest land, by forest type group and ownership group, California, 2001–2010

Table A2-89—Average aboveground carbon mass per hectare of live trees on forest land, by forest type group and stand size class, California, 2001–2010

Table A2-90—Average aboveground carbon mass per hectare of dead trees on forest land, by forest type group and stand size class, California, 2001–2010

Down Wood

Table A2-91—Volume of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

Table A2-92—Biomass of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

Table A2-93—Carbon mass of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

Table A2-94—Number of pieces of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

Table A2-95—Biomass of down wood on forest land, by forest type group, ownership group, and land status, California, 2001–2010

Table A2-96—Carbon mass of down wood on forest land, by forest type group, ownership group, and land status, California, 2001–2010

Table A2-97—Biomass of down wood on forest land, by county and land status, California, 2001–2010

Table A2-98—Carbon mass of down wood on forest land, by county and land status, California, 2001–2010

Table A2-99—Average volume per acre of down wood on forest land by, forest type group and down wood diameter class, California, 2001–2010

Table A2-100—Average biomass per acre of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

Table A2-101—Average carbon mass per hectare of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

Table A2-102—Average number of pieces per acre of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

Table A2-103—Average biomass per acre of down wood on forest land, by forest type group, ownership group, and land status, California, 2001–2010

Table A2-104—Average biomass per acre of down wood on forest land, by ownership and land status, California, 2001–2010

Table A2-105—Average biomass per acre of down wood on forest land, by county and land status, California, 2001–2010

Combined Live Trees and Dead Wood (Standing Dead Trees and Down Wood)

Table A2-106—Average biomass per acre of all dead wood (dead trees and down wood) on forest land, by county and land status, California, 2001–2010

Table A2-107—Volume of live trees, dead trees, and down wood on forest land, by stand age class, California, 2001–2010

Table A2-108—Biomass of live trees, dead trees, and down wood on forest land, by stand age class, California, 2001–2010

Table A2-109—Carbon mass of live trees, dead trees and down wood on forest land, by stand age class, California, 2001–2010

Table A2-110—Average volume per acre of live trees, dead trees, and down wood on forest land, by stand age class, California, 2001–2010

Table A2-111—Average biomass per acre of live trees, dead trees, and down wood on forest land, by stand age class, California, 2001–2010

Table A2-112—Average carbon mass per hectare of live trees, dead trees, and down wood on forest land, by stand age class, California, 2001–2010

National Forest

Table A2-113—Area of forest land, by national forest and land status, California, 2001–2010

Table A2-114—Net volume of live trees on forest land, by national forest and land status, California, 2001–2010

Table A2-115—Aboveground biomass of live trees on forest land, by national forest and land status, California, 2001–2010

Table A2-116—Aboveground carbon mass of live trees on forest land, by national forest and land status, California, 2001–2010

Table A2-117—Biomass of down wood on forest land, by national forest and down wood diameter class, California, 2001–2010

Table A2-118—Average net volume per acre of live trees on forest land, by national forest and land status, California, 2001–2010

Table A2-119—Average aboveground biomass per acre of live trees on forest land, by national forest and land status, California, 2001–2010

Table A2-120—Average aboveground carbon mass per hectare of live trees on forest land, by national forest and land status, California, 2001–2010

Table A2-121—Average biomass per acre of down wood on forest land, by national forest and down wood diameter class, California, 2001–2010

Tree Damage

Table A2-122—Number of live trees with damage on forest land, by species and type of damage, California, 2001–2010

Table A2-123—Gross volume of live trees with damage on forest land, by species and type of damage, California, 2001–2010

Table A2-124—Area of forest land with more than 25 percent of basal area damaged, by forest type and type of damage, California, 2001–2010

Timber Products Output and Removals

Table A2-125—Total roundwood output by product, species group, and source of material, California, 2006

Table A2-126—Volume of timber removals by type of removal, source of material, species group, California, 2006

Nontimber Forest Products

Table A2-127—Estimated area of forest land covered by the most abundant vascular plant nontimber forest products, by plant group and species, California, 2001–2010

Table A2-128—Percentage of forested plots with selected lichen nontimber forest products present, by species, California, 2001–2005

Tree Crowns

Table A2-129—Estimated mean crown density and other statistics for live trees on forest land, by species group, California, 2001–2010

Table A2-130—Estimated mean foliage transparency and other statistics for live trees on forest land, by species group, California, 2001–2010

Table A2-131—Estimated mean crown dieback and other statistics for live trees on forest land, by species group, California, 2001–2010

Understory Vegetation

Table A2-132—Estimated area of forest land covered by selected nonnative vascular plant species and number of sample plots, by life form and species, California, 2001–2010

Table A2-133—Mean cover of understory vegetation on forest land, by forest type group and life form, California 2001–2010

Table A2-134—Mean of understory vegetation by forest type class, age class group, and life form, California 2001–2010

Lichens

Table A2-135—Summary of lichen community indicator species richness on forest land, by location, California, 1998–2001, 2003

Table A2-136—Summary of lichen community indicator climate index parameters on forest land, for the moisture gradient of Jovan and McCune's (2004) model, California, 1998–2001, 2003

Table A2-137—Summary of lichen community indicator climate index parameters on forest land, for the temperature gradient of Jovan and McCune's (2004) model. California, 1998–2001, 2003

Table A2-138—Summary of lichen community indicator air quality index parameters on forest land, by type of parameter, Greater Central Valley, California, 1998–2001, 2003

Table A2-139—Summary of lichen community indicator air quality index parameters on forest land, by type of parameter, Greater Sierra Nevada, California, 1998–2001, 2003

Ozone Injury

Table A2-140—Ozone injury summary information from ozone biomonitoring plots, by year, California, 2000–2009

Evidence of Fire

Table A2-141—Forest land area on which evidence of fire was observed, by year and ecosection group, California, 1995–2009

Table A2-1—Number of Forest Inventory and Analysis plots measured in California from 2001 through 2010, by sample status, land class, and ownership group

Sampled status and land class	National forest	Other public	Private	Total
		Number of plots		
Sampled plots:				
Forest land plots:				
Softwood types	2,040	468	868	3,331
Hardwood types	708	330	1,257	2,280
Nonstocked	115	18	37	170
Total	2,759	799	2,090	5,575
Nonforest land plots	1,074	4,512	6,196	11,742
Unsampled plots:				
Denied access	26	13	714	753
Hazardous	207	78	90	375
Total	234	95	828	1,156
All plots	3,555	5,183	8,282	16,837

Note: Totals are not additive because one plot can contain more than one forest type, land class, and sample status.

Table A2-2—Area of sampled land and water, by land status and ownership group, California, 2001–2010

	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
Land status	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres													
Unreserved forest land:														
Timberland	9,140.5	138.6	326.4	43.7	168.3	30.6	4,057.8	120.7	3,435.1	123.1	7,492.9	125.7	17,128.1	185.7
Other forest land	2,945.9	109.7	1,227.1	77.2	318.4	41.6	485.0	52.1	4,845.1	138.3	5,330.1	141.9	9,821.4	195.0
Total	12,086.4	146.4	1,553.5	85.4	486.6	51.4	4,542.8	129.2	8,280.1	170.6	12,823.0	157.7	26,949.5	220.5
Reserved forest land:														
Productive forest land	2,390.7	105.7	989.4	60.0	318.2	41.3	—	—	—	—	—	—	3,698.3	127.0
Other forest land	1,109.4	75.5	736.4	59.6	322.0	42.6	—	—	—	—	—	—	2,167.8	104.2
Total	3,500.0	124.3	1,725.8	73.8	640.2	58.2	—	—	—	—	—	—	5,866.0	153.5
All forest land	15,586.4	110.4	3,279.3	103.9	1,126.8	75.3	4,542.8	129.2	8,280.1	170.6	12,823.0	157.7	32,815.5	201.0
Nonforest land and water:														
Nonforest land	4,940.7	104.7	23,081.7	157.9	2,790.7	125.6	923.5	69.7	35,093.8	182.5	36,017.3	175.9	66,830.5	208.4
Noncensus water	6.4	4.0	6.4	3.3	3.7	2.3	7.3	6.2	62.5	18.4	69.8	19.4	86.3	20.2
Census water	169.5	29.6	563.7	56.5	3,957.3	80.6	69.0	19.7	273.3	38.8	342.4	43.3	5,032.9	63.0
Total	5,116.6	107.4	23,651.8	166.8	6,751.8	147.4	999.8	72.9	35,429.7	184.2	36,429.5	178.3	71,949.7	201.2
All sampled area	20,703.0	60.2	26,931.1	164.1	7,878.6	166.1	5,542.6	150.0	43,709.8	193.8	49,252.4	147.4	104,765.2	33.2

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-3—Area of forest land, by county and land status, California, 2001–2010

County	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres													
Alameda	6.4	5.9	80.1	21.7	86.6	22.5	—	—	19.7	10.8	19.7	10.8	106.2	24.9
Alpine	117.9	25.8	70.0	20.0	188.0	33.2	157.1	30.2	59.8	18.8	216.9	35.2	404.9	47.5
Amador	124.1	26.4	77.7	20.9	201.9	33.2	16.2	9.6	6.1	6.2	22.3	11.4	224.1	35.0
Butte	388.2	47.0	130.5	27.1	518.7	53.8	—	—	12.4	8.7	12.4	8.7	531.2	54.5
Calaveras	201.9	32.8	227.8	35.3	429.7	47.2	6.2	6.3	—	—	6.2	6.3	435.8	47.6
Colusa	48.6	17.5	162.2	30.8	210.8	35.1	—	—	6.7	6.4	6.7	6.4	217.5	35.7
Contra Costa	—	—	23.9	10.9	23.9	10.9	5.5	6.0	13.8	8.1	19.3	10.0	43.2	14.8
Del Norte	483.8	50.2	49.7	17.3	533.5	52.1	89.8	22.9	4.0	5.1	93.8	23.4	627.3	54.9
El Dorado	640.7	57.9	124.3	26.0	765.1	62.9	51.3	17.6	26.1	11.8	77.4	20.8	842.5	65.4
Fresno	279.5	38.9	341.3	43.2	620.8	58.0	388.7	45.6	257.3	38.4	646.0	58.5	1,266.8	78.9
Glenn	99.2	24.7	94.7	22.8	193.8	33.6	5.9	6.2	—	—	5.9	6.2	199.7	34.0
Humboldt	1,511.5	82.6	90.2	23.1	1,601.7	84.8	198.8	33.0	—	—	198.8	33.0	1,800.5	87.7
Imperial	—	—	54.0	18.5	54.0	18.5	—	—	4.3	4.4	4.3	4.4	58.3	19.0
Inyo	16.9	10.0	274.9	33.9	291.8	35.5	12.6	8.8	271.7	36.4	284.2	37.4	576.0	46.5
Kern	157.9	30.6	566.8	56.5	724.7	64.1	—	—	72.7	21.0	72.7	21.0	797.4	67.0
Lake	192.0	32.7	162.5	29.9	354.6	44.0	10.9	7.4	18.3	10.5	29.2	12.9	383.8	45.6
Lassen	854.0	66.9	489.9	49.4	1,343.9	82.0	36.6	14.6	—	—	36.6	14.6	1,380.6	83.0
Los Angeles	61.4	18.1	149.9	27.8	211.4	32.6	11.0	7.7	26.3	12.6	37.3	14.8	248.7	35.3
Madera	223.3	35.3	316.7	42.5	540.0	55.3	146.9	29.6	36.2	13.8	183.0	32.5	723.0	63.7
Marin	23.7	11.8	34.7	13.3	58.4	17.8	18.8	11.1	11.2	7.8	30.0	13.4	88.4	22.2
Mariposa	149.9	29.7	255.1	38.7	405.0	48.4	196.2	32.6	42.6	16.1	238.9	35.1	643.9	59.7
Mendocino	1,302.9	75.0	361.1	43.6	1,664.0	82.9	25.3	12.8	30.4	13.9	55.7	18.8	1,719.7	84.6
Merced	—	—	24.9	11.1	24.9	11.1	—	—	6.9	6.6	6.9	6.6	31.8	12.9
Modoc	690.0	60.9	667.1	57.0	1,357.1	80.7	33.1	13.8	12.2	8.6	45.4	16.2	1,402.5	81.8
Mono	205.6	33.6	552.1	52.7	757.7	60.6	24.3	12.3	69.0	19.8	93.3	23.2	851.0	63.4
Monterey	32.0	13.7	360.6	43.1	392.6	44.9	33.0	13.4	103.6	22.5	136.6	25.9	529.2	51.6
Napa	59.1	17.9	113.2	24.8	172.4	29.6	—	—	7.5	6.4	7.5	6.4	179.9	30.3
Nevada	344.7	44.2	60.5	17.8	405.3	47.4	2.7	2.8	8.1	7.4	10.8	7.9	416.1	48.1
Orange	—	—	11.1	7.4	11.1	7.4	—	—	2.8	2.0	2.8	2.0	13.9	7.6

Table A2-3—Area of forest land, by county and land status, California, 2001–2010 (continued)

County	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres													
Placer	467.6	49.7	115.4	24.9	583.0	55.5	38.2	15.2	11.6	8.1	49.8	17.1	632.8	57.7
Plumas	1,337.6	77.9	48.6	15.4	1,386.2	79.1	36.2	15.1	—	—	36.2	15.1	1,422.5	80.0
Riverside	15.2	8.7	50.2	16.9	65.4	19.0	23.8	11.9	42.9	16.1	66.7	20.0	132.1	27.6
Sacramento	0.1	0.1	9.6	7.1	9.7	7.1	—	—	—	—	—	—	9.7	7.1
San Benito	9.5	7.3	140.7	28.4	150.2	29.3	—	—	—	—	—	—	150.2	29.3
San Bernardino	94.0	23.6	239.3	36.7	333.3	43.2	37.9	15.1	157.7	30.1	195.5	33.6	528.8	53.4
San Diego	14.2	9.4	79.8	19.7	94.1	21.8	12.6	8.9	40.5	14.8	53.1	17.3	147.1	27.8
San Joaquin	17.3	10.7	7.3	5.2	24.6	11.9	—	—	—	—	—	—	24.6	11.9
San Luis Obispo	11.8	8.0	257.4	35.4	269.1	36.1	—	—	28.9	13.1	28.9	13.1	298.0	38.2
San Mateo	45.6	16.0	19.4	10.1	65.0	18.9	14.4	9.2	4.9	5.0	19.3	10.4	84.3	21.4
Santa Barbara	21.4	10.6	210.2	33.3	231.6	35.1	19.3	10.2	57.9	18.5	77.2	21.0	308.8	40.4
Santa Clara	28.5	11.7	185.6	31.7	214.1	33.6	—	—	65.9	19.2	65.9	19.2	280.0	38.5
Santa Cruz	120.9	21.6	9.7	6.9	130.6	22.7	43.4	16.3	6.2	6.3	49.6	17.4	180.2	28.6
Shasta	1,245.8	78.7	444.8	49.0	1,690.6	90.8	137.2	27.3	51.5	16.2	188.7	30.7	1,879.3	93.6
Sierra	467.0	50.4	9.5	6.7	476.5	50.9	4.6	4.7	—	—	4.6	4.7	481.1	51.3
Siskiyou	2,241.4	100.4	458.4	50.4	2,699.9	109.9	366.9	45.1	35.2	12.9	402.0	46.9	3,101.9	113.0
Solano	—	—	26.5	11.8	26.5	11.8	—	—	1.5	1.5	1.5	1.5	28.0	11.9
Sonoma	319.7	42.0	118.5	24.9	438.2	47.5	21.0	11.7	25.4	12.2	46.4	16.9	484.6	49.9
Stanislaus	—	—	85.8	21.0	85.8	21.0	—	—	17.7	10.1	17.7	10.1	103.6	23.3
Sutter	—	—	27.5	11.9	27.5	11.9	—	—	—	—	—	—	27.5	11.9
Tehama	456.5	50.8	440.6	46.7	897.1	68.2	50.6	17.2	34.2	14.3	84.8	22.3	981.9	71.3
Trinity	1,207.1	78.5	133.7	27.4	1,340.7	82.5	465.8	49.5	60.9	18.4	526.7	52.7	1,867.5	92.2
Tulare	198.7	34.0	301.5	41.9	500.2	53.6	582.2	56.7	292.5	39.8	874.6	67.0	1,374.8	82.2
Tuolumne	464.1	50.4	177.9	31.8	642.0	59.0	336.2	42.1	44.5	16.2	380.7	44.5	1,022.7	73.4
Ventura	12.0	8.4	167.5	24.3	179.5	25.7	37.0	14.8	51.2	16.7	88.1	22.2	267.6	30.9
Yolo	—	—	66.6	19.5	66.6	19.5	—	—	—	—	—	—	66.6	19.5
Yuba	116.7	25.8	61.7	18.6	178.4	31.7	—	—	7.2	6.3	7.2	6.3	185.5	32.3
All counties	17,128.1	185.7	9,821.4	195.0	26,949.5	220.5	3,698.3	127.0	2,167.8	104.2	5,866.0	153.5	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-4—Area of forest land, by county and ownership group, California, 2001–2010

	Ownership group									
	National forest		Other federal		State and local government		Private		Total	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
					Thousand acres					
Alameda	—	—	—	—	61.5	19.1	44.7	16.2	106.2	24.9
Alpine	373.1	45.3	6.3	6.3	18.3	10.8	7.2	6.6	404.9	47.5
Amador	51.8	17.1	6.2	6.3	1.4	1.1	164.8	29.5	224.1	35.0
Butte	162.4	30.2	12.4	8.9	17.1	9.7	339.3	43.4	531.2	54.5
Calaveras	54.3	17.8	18.9	10.8	26.4	12.9	336.3	40.9	435.8	47.6
Colusa	63.3	19.5	18.0	9.9	—	—	136.2	28.3	217.5	35.7
Contra Costa	—	—	5.5	6.0	14.3	8.1	23.4	10.9	43.2	14.8
Del Norte	421.3	41.9	9.9	8.0	36.3	15.3	159.7	31.2	627.3	54.9
El Dorado	497.9	48.9	10.8	7.9	28.1	12.9	305.6	40.9	842.5	65.4
Fresno	831.6	61.9	183.9	32.3	—	—	251.3	36.9	1,266.8	78.9
Glenn	146.1	29.5	—	—	4.6	4.6	49.0	16.4	199.7	34.0
Humboldt	319.3	35.9	139.8	28.6	82.1	21.7	1,259.2	75.5	1,800.5	87.7
Imperial	—	—	48.0	17.4	10.3	7.6	—	—	58.3	19.0
Inyo	323.0	32.6	245.3	32.4	7.7	7.0	—	—	576.0	46.5
Kern	312.1	41.4	128.4	27.8	7.7	7.0	349.2	44.2	797.4	67.0
Lake	191.3	32.2	41.7	15.3	11.4	8.1	139.4	27.4	383.8	45.6
Lassen	581.8	54.5	342.7	39.3	—	—	456.1	49.4	1,380.6	83.0
Los Angeles	196.2	31.0	6.2	6.3	18.4	9.8	27.8	12.2	248.7	35.3
Madera	361.7	44.3	64.9	19.6	6.3	6.3	290.2	40.5	723.0	63.7
Marin	—	—	30.0	13.4	27.5	11.7	30.9	13.4	88.4	22.2
Mariposa	150.3	29.3	256.8	36.4	—	—	236.8	37.2	643.9	59.7
Mendocino	165.5	30.0	35.9	14.9	96.9	24.5	1,421.4	74.2	1,719.7	84.6
Merced	—	—	0.2	0.2	9.0	6.8	22.6	11.0	31.8	12.9
Modoc	970.0	65.5	82.0	22.2	—	—	350.5	43.4	1,402.5	81.8
Mono	685.1	55.2	118.1	26.7	29.1	13.4	18.7	10.8	851.0	63.4
Monterey	170.5	29.0	65.6	18.4	20.3	10.0	272.9	36.8	529.2	51.6
Napa	—	—	1.4	1.4	16.4	9.4	162.1	28.8	179.9	30.3
Nevada	170.6	31.1	9.3	7.2	13.9	8.3	222.4	34.8	416.1	48.1
Orange	1.4	1.3	—	—	2.8	2.0	9.8	7.3	13.9	7.6
Placer	336.9	42.7	29.7	13.2	55.4	17.9	210.7	33.3	632.8	57.7
Plumas	1,042.8	67.5	24.0	12.2	6.2	6.3	349.5	42.0	1,422.5	80.0
Riverside	40.8	15.2	43.6	16.4	25.2	12.3	22.5	10.6	132.1	27.6
Sacramento	—	—	—	—	—	—	9.7	7.1	9.7	7.1
San Benito	—	—	37.6	15.5	—	—	112.6	24.9	150.2	29.3
San Bernardino	244.3	36.5	173.5	30.5	—	—	111.0	25.3	528.8	53.4
San Diego	11.6	7.0	5.0	4.0	68.3	19.7	62.2	17.8	147.1	27.8

Table A2-4—Area of forest land, by county and ownership group, California, 2001–2010 (continued)

	Ownership group									
	National forest		Other federal		State and local government		Private		Total	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
					Thousand acres					
San Joaquin	—	—	—	—	—	—	24.6	11.9	24.6	11.9
San Luis Obispo	40.9	14.5	29.4	12.7	22.1	11.1	205.7	31.2	298.0	38.2
San Mateo	—	—	4.9	5.0	40.6	14.9	38.7	14.8	84.3	21.4
Santa Barbara	172.5	30.3	—	—	6.6	6.7	129.8	25.9	308.8	40.4
Santa Clara	—	—	—	—	110.3	24.9	169.7	30.2	280.0	38.5
Santa Cruz	—	—	—	—	57.7	18.6	122.6	22.5	180.2	28.6
Shasta	692.7	57.5	188.0	32.0	20.0	11.4	978.5	66.9	1,879.3	93.6
Sierra	394.9	45.9	—	—	4.6	4.7	81.6	21.6	481.1	51.3
Siskiyou	2,148.1	89.7	56.6	18.5	17.2	10.1	879.9	65.7	3,101.9	113.0
Solano	—	—	—	—	5.2	3.6	22.8	10.2	28.0	11.9
Sonoma	—	—	8.7	7.1	55.3	18.0	420.6	46.5	484.6	49.9
Stanislaus	—	—	—	—	17.7	10.1	85.8	21.0	103.6	23.3
Sutter	—	—	—	—	—	—	27.5	11.9	27.5	11.9
Tehama	328.7	42.1	23.2	11.6	20.9	11.2	609.0	55.4	981.9	71.3
Trinity	1,374.9	77.1	92.3	23.4	—	—	400.3	45.7	1,867.5	92.2
Tulare	762.4	61.8	356.7	39.6	6.2	6.3	249.6	38.0	1,374.8	82.2
Tuolumne	493.0	50.0	312.9	40.3	6.5	6.3	210.4	34.5	1,022.7	73.4
Ventura	246.9	30.1	2.1	1.8	—	—	18.6	9.8	267.6	30.9
Yolo	—	—	—	—	—	—	66.6	19.5	66.6	19.5
Yuba	54.7	18.1	3.1	3.1	12.9	8.4	114.8	25.4	185.5	32.3
All counties	15,586.4	110.4	3,279.3	103.9	1,126.8	75.3	12,823.0	157.7	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-5—Area of forest land, by ownership and land status, California, 2001–2010

Ownership	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres													
USDA Forest Service:														
National forest	9,140.5	138.6	2,945.9	109.7	12,086.4	146.4	2,390.7	105.7	1,109.4	75.5	3,500.0	124.3	15,586.4	110.4
Total	9,140.5	138.6	2,945.9	109.7	12,086.4	146.4	2,390.7	105.7	1,109.4	75.5	3,500.0	124.3	15,586.4	110.4
Other federal government:														
Bureau of Land Management	320.5	43.2	1,054.4	71.8	1,374.9	80.8	30.1	13.8	246.6	34.9	276.7	36.9	1,651.6	86.1
Departments of Defense or Energy	6.0	6.5	75.1	20.2	81.1	21.2	—	—	—	—	—	—	81.1	21.2
National Park Service	—	—	—	—	—	—	942.3	58.1	472.1	49.2	1,414.5	65.4	1,414.5	65.4
U.S. Fish and Wildlife Service	—	—	—	—	—	—	4.5	5.5	3.1	3.2	7.6	6.4	7.6	6.4
Other federal:	—	—	97.5	23.5	97.5	23.5	12.4	8.9	14.6	9.3	27.0	12.8	124.5	26.8
Total	326.4	43.7	1,227.1	77.2	1,553.5	85.4	989.4	60.0	736.4	59.6	1,725.8	73.8	3,279.3	103.9
State and local government:														
Local	61.7	18.2	209.1	33.6	270.9	38.2	14.4	9.2	80.2	20.7	94.6	22.6	365.5	44.2
State	106.5	24.7	101.1	24.1	207.6	34.4	297.0	39.9	229.7	36.5	526.7	53.0	734.4	61.1
Other public	—	—	8.1	7.0	8.1	7.0	6.8	6.1	12.0	8.9	18.8	10.8	27.0	12.9
Total	168.3	30.6	318.4	41.6	486.6	51.4	318.2	41.3	322.0	42.6	640.2	58.2	1,126.8	75.3
Corporate private	4,057.8	120.7	485.0	52.1	4,542.8	129.2	—	—	—	—	—	—	4,542.8	129.2
Noncorporate private:														
Nongovernmental conservation or natural resource organizations	304.9	42.5	86.8	22.6	391.7	48.1	—	—	—	—	—	—	391.7	48.1
Unicorporated partnerships, associations, or clubs	94.8	24.1	39.3	13.4	134.0	28.0	—	—	—	—	—	—	134.0	28.0
Native American	150.9	30.0	56.5	18.7	207.5	34.6	—	—	—	—	—	—	207.5	34.6
Individual	2,884.5	114.3	4,662.4	135.8	7,546.9	163.9	—	—	—	—	—	—	7,546.9	163.9
Total	3,435.1	123.1	4,845.1	138.3	8,280.1	170.6	—	—	—	—	—	—	8,280.1	170.6
All private	7,492.9	125.7	5,330.1	141.9	12,823.0	157.7	—	—	—	—	—	—	12,823.0	157.7
All owners	17,128.1	185.7	9,821.4	195.0	26,949.5	220.5	3,698.3	127.0	2,167.8	104.2	5,866.0	153.5	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-6—Area of forest land, by forest type group and land status, California, 2001–2010

Forest type group	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres													
Softwoods:														
California mixed conifer	6,359.9	153.1	17.7	9.1	6,377.6	153.3	1,412.4	85.9	13.1	9.1	1,425.5	86.2	7,803.1	164.7
Douglas-fir	942.6	66.9	18.8	10.7	961.4	67.7	122.4	26.9	4.0	5.1	126.4	27.4	1,087.9	71.4
Fir/spruce/mountain hemlock	1,407.8	87.1	32.9	13.3	1,440.7	88.0	543.6	54.7	53.6	17.9	597.2	57.2	2,037.9	102.9
Lodgepole pine	319.3	43.0	83.5	22.1	402.8	48.2	438.8	48.9	177.9	32.0	616.7	57.2	1,019.5	73.5
Pinyon/juniper woodlands	19.1	10.5	1,242.4	76.4	1,261.4	76.9	5.5	6.0	595.0	53.4	600.5	53.7	1,861.9	85.6
Ponderosa pine	1,946.7	98.0	65.9	19.3	2,012.6	99.6	199.8	34.1	29.3	12.4	229.1	36.2	2,241.7	105.3
Redwood	592.2	54.1	—	—	592.2	54.1	111.4	23.1	6.1	5.1	117.5	23.6	709.7	58.7
Western juniper	194.9	33.0	1,209.4	73.3	1,404.3	78.0	69.2	20.3	61.1	18.9	130.3	27.6	1,534.6	82.6
Western white pine	42.1	15.6	23.7	12.1	65.8	19.7	56.6	17.9	44.2	16.0	100.8	23.9	166.6	30.9
Other western softwoods	123.8	27.1	141.6	28.6	265.4	39.4	34.0	13.7	256.8	37.2	290.8	39.2	556.3	55.2
Total	11,948.3	181.3	2,836.0	112.6	14,784.3	202.9	2,993.7	114.7	1,241.1	78.6	4,234.9	131.2	19,019.2	204.8
Hardwoods:														
Alder/maple	170.6	30.3	32.5	11.2	203.1	32.3	44.6	16.1	7.3	5.0	51.9	16.9	255.0	36.3
Aspen/birch	34.2	13.1	17.5	8.5	51.8	15.6	5.6	4.7	17.4	9.8	23.0	10.9	74.8	19.0
Elm/ash/cottonwood	18.5	10.7	29.9	11.5	48.4	15.7	—	—	5.5	4.5	5.5	4.5	53.9	16.3
Tanoak/laurel	1,623.8	87.3	170.8	31.5	1,794.6	91.2	164.3	31.6	64.4	18.9	228.7	36.7	2,023.3	97.0
Western oak	2,435.7	114.3	6,094.5	155.5	8,530.3	182.8	305.7	42.1	688.6	60.9	994.3	73.1	9,524.6	190.8
Woodland hardwoods	87.8	21.8	317.1	41.7	404.9	47.4	6.3	6.2	60.4	18.3	66.7	19.4	471.6	51.1
Other hardwoods	286.2	40.3	227.7	35.4	513.9	53.5	68.8	20.7	27.4	12.4	96.1	24.1	610.0	58.4
Total	4,656.9	145.6	6,890.0	165.3	11,546.9	202.7	595.3	59.0	871.1	68.2	1,466.3	88.7	13,013.2	211.0
Nonstocked	522.9	52.7	95.4	22.6	618.3	57.3	109.2	24.6	55.6	17.5	164.8	30.1	783.1	64.4
All forest types	17,128.1	185.7	9,821.4	195.0	26,949.5	220.5	3,698.3	127.0	2,167.8	104.2	5,866.0	153.5	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-7—Area of forest land, by forest type group and site productivity class, California, 2001–2010

Forest type group	Site productivity class ($ft^3 \cdot ac^{-1} \cdot yr^{-1}$)														All classes	
	0–19		20–49		50–84		85–119		120–164		165–224		225+			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres															
Softwoods:																
California mixed conifer	30.8	12.8	217.0	35.3	2,095.4	105.8	2,735.0	117.5	2,116.8	104.3	570.0	57.6	38.3	14.7	7,803.1	164.7
Douglas-fir	22.9	11.9	102.7	24.5	161.6	29.1	351.1	43.8	282.3	40.4	116.2	26.0	51.1	18.0	1,087.9	71.4
Fir/spruce/mountain hemlock	86.5	22.3	122.7	26.1	415.2	48.3	775.4	66.9	510.1	53.7	116.6	26.9	11.4	8.5	2,037.9	102.9
Lodgepole pine	261.4	38.5	543.2	55.3	111.4	25.4	21.4	11.0	69.6	20.3	12.4	8.8	—	—	1,019.5	73.5
Pinyon/juniper woodlands	1,837.4	85.1	23.1	12.0	—	—	—	—	1.5	1.5	—	—	—	—	1,861.9	85.6
Ponderosa pine	95.3	22.9	761.6	64.6	740.0	63.2	333.6	42.5	240.2	37.2	55.5	17.5	15.7	9.5	2,241.7	105.3
Redwood	6.1	5.1	—	—	13.7	9.4	50.8	17.6	215.4	34.4	248.2	37.7	175.5	32.2	709.7	58.7
Western juniper	1,270.5	75.7	171.2	31.0	63.4	19.4	12.0	8.7	17.5	10.0	—	—	—	—	1,534.6	82.6
Western white pine	67.9	20.1	58.1	18.3	18.9	10.5	3.0	2.7	18.7	10.6	—	—	—	—	166.6	30.9
Other western softwoods	398.5	46.6	61.6	18.9	10.8	6.8	26.8	12.9	14.4	9.0	15.6	9.5	28.5	13.5	556.3	55.2
Total	4,077.2	129.8	2,061.1	103.2	3,630.4	132.3	4,309.1	143.4	3,486.3	131.5	1,134.5	80.5	320.5	43.1	19,019.2	204.8
Hardwoods:																
Alder/maple	39.8	12.3	5.3	4.3	19.4	9.3	43.8	15.7	77.4	20.9	33.2	13.9	36.1	14.6	255.0	36.3
Aspen/birch	35.0	12.9	6.0	4.0	15.4	9.1	6.4	5.1	12.0	8.4	—	—	—	—	74.8	19.0
Elm/ash/cottonwood	35.4	12.3	0.6	0.6	0.5	0.5	—	—	17.3	10.7	—	—	—	—	53.9	16.3
Tanoak/laurel	235.2	36.7	99.3	24.4	317.8	42.8	609.2	59.2	554.7	56.0	130.7	27.9	76.5	21.8	2,023.3	97.0
Western oak	6,783.1	163.3	498.6	54.2	753.0	65.2	690.7	63.6	702.8	63.5	78.0	21.6	18.3	10.6	9,524.6	190.8
Woodland hardwoods	377.5	45.5	60.9	18.4	33.2	13.3	—	—	—	—	—	—	—	—	471.6	51.1
Other hardwoods	255.0	37.3	43.5	16.0	77.4	21.2	80.6	21.8	104.4	24.5	39.4	15.7	9.7	7.2	610.0	58.4
Total	7,761.0	174.0	714.2	64.2	1,216.8	82.1	1,430.7	89.6	1,468.5	90.7	281.3	40.9	140.7	29.3	13,013.2	211.0
Nonstocked	151.0	28.5	200.3	34.1	223.8	34.3	87.8	21.4	105.9	24.2	6.5	6.3	7.9	5.0	783.1	64.4
All forest types	11,989.2	209.7	2,975.7	123.8	5,071.0	154.9	5,827.6	164.0	5,060.7	156.0	1,422.3	89.6	469.1	52.1	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-8—Area of forest land, by forest type group, ownership group, and land status, California, 2001–2010

Forest type group	Ownership group and land status																					
	USDA Forest Service				Other federal				State and local government				Private corporate				Private noncorporate				All owners	
	Timberland		Other forest land		Timberland		Other forest land		Timberland		Other forest land		Timberland		Other forest land		Timberland		Other forest land			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres																					
Softwoods:																						
California mixed conifer	4,185.5	124.7	990.9	72.6	71.5	20.5	382.1	43.4	20.4	10.5	65.6	19.0	1,449.3	79.9	1.8	1.7	633.2	58.4	2.8	2.5	7,803.1	164.7
Douglas-fir	259.9	33.7	83.7	21.8	6.8	6.3	36.9	15.3	34.0	14.2	24.7	12.5	330.5	42.5	—	—	311.4	40.7	—	—	1,087.9	71.4
Fir/spruce/mountain hemlock	1,073.7	75.5	443.1	49.4	5.9	6.0	175.8	30.7	6.2	6.3	11.2	8.1	238.9	36.9	—	—	83.1	22.2	—	—	2,037.9	102.9
Lodgepole pine	234.1	36.7	465.3	50.0	—	—	234.9	34.5	16.2	10.3	—	—	25.7	12.6	—	—	43.3	16.2	—	—	1,019.5	73.5
Pinyon/juniper woodlands	16.3	9.7	830.4	53.0	1.5	1.5	731.5	56.9	—	—	75.1	20.8	—	—	20.9	11.5	1.3	1.3	185.0	32.3	1,861.9	85.6
Ponderosa pine	1,166.1	75.6	218.7	35.3	37.8	14.6	50.0	17.2	3.1	2.7	12.5	8.0	361.3	44.0	7.6	6.5	378.3	44.6	6.2	5.0	2,241.7	105.3
Redwood	—	—	13.7	8.3	—	—	37.9	15.1	21.0	11.7	65.9	18.8	351.4	43.2	—	—	219.7	34.3	—	—	709.7	58.7
Western juniper	123.2	26.3	697.4	56.2	25.4	12.1	337.5	40.7	—	—	11.5	8.6	—	—	24.9	11.3	46.3	15.8	268.3	35.3	1,534.6	82.6
Western white pine	35.4	14.1	108.4	25.1	—	—	16.1	9.4	—	—	—	—	6.7	6.6	—	—	—	—	—	—	166.6	30.9
Other western softwoods	40.0	15.0	262.5	37.3	1.5	1.6	140.8	27.6	—	—	14.4	9.1	44.1	16.5	—	—	38.1	15.4	14.7	9.5	556.3	55.2
Total	7,134.3	138.1	4,113.9	124.4	150.4	29.4	2,143.6	86.6	100.8	24.1	281.1	39.1	2,808.0	105.9	55.3	17.4	1,754.7	92.9	477.1	49.1	19,019.2	204.8
Hardwoods:																						
Alder/maple	24.5	10.6	31.5	11.8	9.6	6.5	21.7	11.5	3.6	2.6	13.0	8.7	79.3	21.5	2.2	1.5	53.5	17.3	16.0	7.8	255.0	36.3
Aspen/birch	20.1	9.9	30.4	12.0	—	—	9.0	6.7	—	—	1.2	1.2	3.1	3.3	—	—	11.0	7.9	—	—	74.8	19.0
Elm/ash/cottonwood	—	—	5.1	5.3	0.5	0.5	—	—	—	—	10.1	6.4	0.6	0.6	1.6	1.4	17.3	10.7	18.7	9.0	53.9	16.3
Tanoak/laurel	379.6	43.4	125.5	26.5	35.3	14.3	39.5	15.2	29.1	11.9	124.9	27.8	582.4	56.1	7.6	7.0	597.5	57.1	102.1	24.2	2,023.3	97.0
Western oak	1,046.0	74.6	1,644.3	85.3	110.3	25.4	530.7	52.7	25.1	11.3	454.1	49.3	413.9	49.3	415.8	48.4	840.4	69.0	4,044.0	126.7	9,524.6	190.8
Woodland hardwoods	76.1	20.5	208.6	33.1	—	—	104.0	24.5	—	—	19.7	10.9	6.7	5.8	—	—	5.0	4.9	51.5	16.9	471.6	51.1
Other hardwoods	94.8	23.0	114.0	24.9	6.2	6.3	38.3	15.1	9.6	7.4	48.4	17.3	54.6	17.1	2.6	2.6	121.0	26.6	120.6	25.9	610.0	58.4
Total	1,641.1	90.3	2,159.2	96.5	162.0	31.0	743.2	62.8	67.4	18.9	671.3	60.3	1,140.6	77.6	429.7	49.2	1,645.8	92.1	4,352.8	130.6	13,013.2	211.0
Nonstocked	365.1	44.4	172.8	30.7	14.1	9.0	66.0	19.1	—	—	6.2	6.3	109.2	23.8	—	—	34.6	13.0	15.2	7.7	783.1	64.4
All forest types	9,140.5	138.6	6,445.9	145.8	326.4	43.7	2,952.9	98.8	168.3	30.6	958.6	70.6	4,057.8	120.7	485.0	52.1	3,435.1	123.1	4,845.1	138.3	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-9—Area of forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres							
Softwoods:								
California mixed conifer	7,270.3	161.0	178.0	31.2	354.8	44.2	7,803.1	164.7
Douglas-fir	943.3	66.5	55.4	17.4	89.2	22.5	1,087.9	71.4
Fir/spruce/mountain hemlock	1,900.4	99.5	22.7	10.4	114.7	24.8	2,037.9	102.9
Lodgepole pine	933.7	70.2	42.1	15.0	43.7	15.0	1,019.5	73.5
Pinyon/juniper woodlands	1,527.9	80.7	197.6	33.9	136.4	28.5	1,861.9	85.6
Ponderosa pine	1,914.2	98.5	176.4	30.2	151.2	28.2	2,241.7	105.3
Redwood	659.9	57.1	21.6	11.3	28.2	11.1	709.7	58.7
Western juniper	1,277.0	78.1	120.1	25.9	137.5	29.0	1,534.6	82.6
Western white pine	127.8	26.8	7.3	6.3	31.4	13.9	166.6	30.9
Other western softwoods	373.8	45.1	72.5	20.4	110.0	25.1	556.3	55.2
Total	16,928.3	201.7	893.7	69.8	1,197.2	80.7	19,019.2	204.8
Hardwoods:								
Alder/maple	157.4	28.9	67.9	18.4	29.7	12.4	255.0	36.3
Aspen/birch	14.1	8.3	15.3	7.1	45.4	15.6	74.8	19.0
Elm/ash/cottonwood	42.8	14.7	2.8	1.8	8.2	6.9	53.9	16.3
Tanoak/laurel	1,316.8	81.8	453.3	50.8	253.2	36.9	2,023.3	97.0
Western oak	4,873.7	150.9	3,357.1	128.7	1,293.8	84.5	9,524.6	190.8
Woodland hardwoods	384.0	46.6	60.9	18.0	26.7	10.8	471.6	51.1
Other hardwoods	217.1	34.6	162.2	30.6	230.7	36.1	610.0	58.4
Total	7,005.9	175.5	4,119.5	141.3	1,887.8	100.7	13,013.2	211.0
Nonstocked	—	—	—	—	—	—	783.1	64.4
All forest types	23,934.2	222.7	5,013.2	156.0	3,085.0	126.3	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-10—Area of forest land, by forest type group and stand age class, California, 2001–2010

	Stand age class (years)													
	1–20		21–40		41–60		61–80		81–100		101–120		121–140	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres													
Softwoods:														
California mixed conifer	274.5	38.7	235.0	36.8	659.5	61.0	1,535.5	91.0	1,561.5	91.7	770.9	66.3	519.1	54.4
Douglas-fir	65.2	18.4	229.7	36.4	282.5	40.0	141.7	28.3	93.8	22.7	31.8	14.1	30.5	13.5
Fir/spruce/mountain hemlock	57.4	17.4	29.0	11.6	168.9	31.2	357.8	45.6	352.4	45.2	212.6	34.2	175.6	31.7
Lodgepole pine	17.1	9.1	19.6	9.5	40.8	15.1	101.1	23.9	140.9	28.7	89.1	23.1	89.1	22.8
Pinyon/juniper woodlands	29.7	13.2	32.7	14.5	108.2	25.7	227.3	36.3	300.3	42.3	91.4	23.4	106.7	25.3
Ponderosa pine	212.9	33.2	287.5	39.6	232.3	36.3	474.4	51.3	551.1	54.9	167.9	30.9	91.2	22.6
Redwood	60.1	17.9	85.7	22.9	129.9	27.5	122.8	26.3	109.5	25.3	38.5	15.6	23.1	10.9
Western juniper	39.4	15.2	44.1	16.6	180.1	32.7	458.8	49.6	284.5	39.7	130.7	27.0	61.0	19.4
Western white pine	6.7	6.6	—	—	7.1	6.1	6.7	6.4	16.3	9.2	6.4	6.3	6.6	6.2
Other western softwoods	25.6	12.3	35.2	14.7	63.4	19.4	59.0	17.5	83.9	21.0	18.4	10.3	12.0	7.9
Total	788.5	64.3	998.5	74.8	1,872.7	101.4	3,485.2	133.4	3,494.1	133.6	1,557.6	92.6	1,114.6	79.4
Hardwoods:														
Alder/maple	28.3	11.0	88.6	22.1	56.4	18.2	28.9	12.1	21.4	11.0	4.7	4.6	3.7	3.6
Aspen/birch	8.5	4.5	16.1	8.9	8.4	4.8	8.7	6.8	4.2	4.2	—	—	4.4	4.6
Elm/ash/cottonwood	0.6	0.6	10.2	7.3	—	—	1.9	1.7	—	—	—	—	—	—
Tanoak/laurel	134.9	27.5	438.1	50.4	494.3	51.8	340.7	44.8	163.8	30.5	54.1	18.1	35.6	14.6
Western oak	446.2	49.5	428.2	49.1	1,345.4	86.4	1,643.5	95.4	1,411.5	88.9	451.9	51.1	284.4	39.9
Woodland hardwoods	—	—	16.0	9.1	44.3	15.1	119.4	25.6	66.9	20.0	29.0	13.2	6.5	6.3
Other hardwoods	83.6	22.0	81.2	21.2	72.4	20.2	86.3	22.5	69.1	20.0	24.1	11.3	21.7	11.2
Total	702.2	61.4	1,078.5	77.3	2,021.1	103.9	2,229.3	110.2	1,736.8	98.5	563.8	57.0	356.4	44.6
Nonstocked	—	—	—	—	—	—	—	—	—	—	—	—	—	—
All forest types	1,490.6	87.8	2,077.0	105.1	3,893.7	141.0	5,714.5	168.2	5,230.9	162.2	2,121.5	107.8	1,471.0	90.7

Table A2-10—Area of forest land, by forest type group and stand age class, California, 2001–2010 (continued)

Forest type group	Stand age class (years)								Unknown		All classes	
	141–160		161–180		181–200		201+					
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres											
Softwoods:												
California mixed conifer	600.5	58.4	312.9	43.2	308.2	42.6	1,010.2	73.7	15.4	9.3	7,803.1	164.7
Douglas-fir	56.9	18.6	36.0	14.5	25.6	11.1	89.3	21.7	4.9	4.2	1,087.9	71.4
Fir/spruce/mountain hemlock	184.4	33.0	112.0	25.3	150.0	29.9	237.9	37.4	—	—	2,037.9	102.9
Lodgepole pine	117.6	25.9	82.4	22.4	87.3	22.9	234.5	37.0	—	—	1,019.5	73.5
Pinyon/juniper woodlands	120.9	26.8	60.1	18.6	42.6	16.3	182.2	32.5	559.8	55.8	1,861.9	85.6
Ponderosa pine	98.1	23.2	21.2	10.7	36.4	14.6	63.1	19.0	5.8	5.9	2,241.7	105.3
Redwood	6.6	6.6	13.4	8.7	17.3	10.6	103.0	23.7	—	—	709.7	58.7
Western juniper	46.2	16.4	24.3	12.2	42.7	16.3	178.4	32.2	44.5	16.5	1,534.6	82.6
Western white pine	12.7	8.8	12.7	8.2	21.0	11.0	70.2	20.2	—	—	166.6	30.9
Other western softwoods	32.0	14.1	23.6	11.4	58.0	18.5	107.8	24.0	37.4	14.5	556.3	55.2
Total	1,275.9	84.6	698.8	63.2	789.1	67.0	2,276.5	108.1	667.8	60.8	19,019.2	204.8
Hardwoods:												
Alder/maple	5.0	5.5	—	—	4.6	4.6	—	—	13.4	6.9	255.0	36.3
Aspen/birch	—	—	6.2	6.4	5.5	5.5	—	—	12.8	9.0	74.8	19.0
Elm/ash/cottonwood	0.4	0.3	—	—	—	—	0.4	0.4	40.4	14.5	53.9	16.3
Tanoak/laurel	88.9	22.9	25.5	12.6	33.4	14.2	96.4	23.5	117.7	25.6	2,023.3	97.0
Western oak	281.0	40.0	104.7	24.9	95.1	23.6	123.7	26.5	2,908.9	117.3	9,524.6	190.8
Woodland hardwoods	26.2	11.9	—	—	13.1	9.1	14.7	8.7	135.5	27.1	471.6	51.1
Other hardwoods	14.9	9.4	6.2	6.2	—	—	32.1	13.9	118.5	25.4	610.0	58.4
Total	416.4	48.8	142.5	29.2	151.7	29.9	267.3	38.9	3,347.3	125.9	13,013.2	211.0
Nonstocked	—	—	—	—	—	—	—	—	783.1	64.4	783.1	64.4
All forest types	1,692.3	97.1	841.3	69.4	940.7	73.0	2,543.9	113.5	4,798.2	152.4	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-11—Area of forest land by ecological section and land status, California, 2001–2010

Ecological section	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Unproductive		Total		Productive		Unproductive		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres													
Central California Coast	229.0	27.7	373.9	42.4	602.9	49.0	96.4	23.7	138.2	26.3	234.6	35.1	837.6	58.5
Central California Coast Ranges	25.7	11.4	908.6	65.8	934.2	66.3	4.7	4.7	142.6	28.8	147.3	29.1	1,081.5	71.5
Colorado Desert	—	—	48.5	17.5	48.5	17.5	—	—	—	—	—	—	48.5	17.5
Great Valley	17.4	10.7	116.9	25.0	134.3	27.2	—	—	0.6	0.6	0.6	0.6	134.9	27.2
Klamath Mountains	3,401.3	114.7	513.0	53.4	3,914.4	121.1	893.9	66.8	125.5	25.7	1,019.4	71.0	4,933.7	121.0
Modoc Plateau	877.4	67.5	1,051.4	69.1	1,928.8	92.9	33.1	13.8	12.2	8.6	45.4	16.2	1,974.2	93.7
Mojave Desert	—	—	66.4	19.6	66.4	19.6	—	—	124.1	26.4	124.1	26.4	190.5	32.5
Mono	157.7	29.5	521.8	51.1	679.5	57.2	24.3	12.3	12.3	8.7	36.6	15.0	716.1	58.6
Northern California Coast	2,325.2	81.9	264.0	37.3	2,589.2	85.0	219.7	34.7	52.0	17.3	271.7	38.6	2,860.9	89.5
Northern California Coast Ranges	1,529.9	91.3	724.0	62.6	2,253.8	106.8	184.8	32.8	70.9	20.5	255.7	38.7	2,509.6	112.1
Northern California Interior Coast Ranges	10.2	7.5	668.1	55.2	678.3	55.5	—	—	1.4	1.4	1.4	1.4	679.7	55.5
Northwestern Basin and Range	7.1	6.8	54.1	18.4	61.2	19.5	—	—	—	—	—	—	61.2	19.5
Sierra Nevada	5,438.7	125.0	1,255.0	82.4	6,693.7	141.9	1,956.8	87.9	942.0	69.5	2,898.8	99.4	9,592.6	145.8
Sierra Nevada Foothills	149.8	29.7	1,896.5	91.2	2,046.3	94.0	8.5	6.7	82.1	22.0	90.6	22.8	2,136.9	95.9
Sonoran Desert	—	—	36.2	15.1	36.2	15.1	—	—	4.3	4.4	4.3	4.4	40.5	15.7
Southeastern Great Basin	—	—	127.3	26.8	127.3	26.8	—	—	194.6	31.5	194.6	31.5	321.9	38.6
Southern California Coast	11.6	8.1	122.5	25.0	134.1	26.2	—	—	10.5	7.3	10.5	7.3	144.6	27.2
Southern California Mountain and Valley	219.2	33.9	637.2	55.3	856.4	63.3	136.8	28.1	245.5	37.3	382.3	46.2	1,238.7	74.3
Southern Cascades	2,727.9	110.3	435.9	49.4	3,163.8	118.6	139.3	28.6	8.9	6.8	148.3	29.4	3,312.1	121.2
Total	17,128.1	185.7	9,821.4	195.0	26,949.5	220.5	3,698.3	127.0	2,167.8	104.2	5,866.0	153.5	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-12—Area of forest land, by forest type group and stand origin, California, 2001–2010

	Stand origin					
	Natural stands		Artificial regeneration		Total	
Forest type group	Total	SE	Total	SE	Total	SE
			Thousand acres			
Softwoods:						
California mixed conifer	7,413.4	161.7	389.7	46.8	7,803.1	164.7
Douglas-fir	1,022.3	69.8	65.6	19.1	1,087.9	71.4
Fir/spruce/mountain hemlock	1,988.6	101.7	49.3	16.8	2,037.9	102.9
Lodgepole pine	1,012.9	73.1	6.6	5.3	1,019.5	73.5
Pinyon/juniper woodlands	1,855.3	85.6	6.6	6.5	1,861.9	85.6
Ponderosa pine	1,761.0	94.6	480.7	51.1	2,241.7	105.3
Redwood	683.3	57.8	26.5	13.1	709.7	58.7
Western juniper	1,510.6	82.2	24.0	11.8	1,534.6	82.6
Western white pine	159.9	30.2	6.7	6.6	166.6	30.9
Other western softwoods	556.3	55.2	—	—	556.3	55.2
Total	17,963.5	205.7	1,055.7	75.3	19,019.2	204.8
Hardwoods:						
Alder/maple	240.7	35.1	14.3	9.1	255.0	36.3
Aspen/birch	74.8	19.0	—	—	74.8	19.0
Elm/ash/cottonwood	53.3	16.3	0.5	0.5	53.9	16.3
Tanoak/laurel	1,858.9	93.7	164.4	30.9	2,023.3	97.0
Western oak	9,407.6	189.9	117.0	25.2	9,524.6	190.8
Woodland hardwoods	470.0	51.1	1.6	1.6	471.6	51.1
Other hardwoods	568.1	56.4	41.9	15.3	610.0	58.4
Total	12,673.5	210.0	339.7	43.3	13,013.2	211.0
Nonstocked	678.3	60.2	104.8	23.8	783.1	64.4
All forest types	31,315.3	212.9	1,500.2	88.6	32,815.5	201.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-13—Area of timberland, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres							
Softwoods:								
California mixed conifer	5,846.9	148.7	178.0	31.2	335.1	43.0	6,359.9	153.1
Douglas-fir	818.6	62.5	43.0	15.0	81.0	21.6	942.6	66.9
Fir/spruce/mountain hemlock	1,328.6	84.5	20.0	10.2	59.1	17.5	1,407.8	87.1
Lodgepole pine	270.2	39.4	27.3	12.7	21.7	10.2	319.3	43.0
Pinyon/juniper woodlands	19.1	10.5	—	—	—	—	19.1	10.5
Ponderosa pine	1,635.1	90.9	161.9	28.9	149.7	28.1	1,946.7	98.0
Redwood	542.4	52.4	21.6	11.3	28.2	11.1	592.2	54.1
Western juniper	154.8	29.4	8.3	4.5	31.7	13.8	194.9	33.0
Western white pine	16.7	9.3	6.3	6.2	19.1	10.9	42.1	15.6
Other western softwoods	105.7	24.5	—	—	18.1	9.9	123.8	27.1
Total	10,738.2	176.2	466.4	49.6	743.7	62.7	11,948.3	181.3
Hardwoods:								
Alder/maple	115.0	24.7	42.1	14.8	13.5	9.3	170.6	30.3
Aspen/birch	9.7	6.9	9.9	6.2	14.7	9.3	34.2	13.1
Elm/ash/cottonwood	17.3	10.7	0.5	0.5	0.6	0.6	18.5	10.7
Tanoak/laurel	1,096.0	74.5	347.1	44.8	180.7	31.5	1,623.8	87.3
Western oak	1,507.6	91.8	625.3	59.4	302.8	40.9	2,435.7	114.3
Woodland hardwoods	64.1	18.9	16.9	9.4	6.9	5.9	87.8	21.8
Other hardwoods	142.3	28.1	44.7	16.2	99.2	23.5	286.2	40.3
Total	2,951.9	120.9	1,086.5	77.5	618.4	58.0	4,656.9	145.6
Nonstocked	—	—	—	—	—	—	522.9	52.7
All forest types	13,690.1	185.3	1,553.0	91.2	1,362.1	83.7	17,128.1	185.7

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-14—Number of live trees[a] on forest land, by county and land status, California, 2001–2010

County	Land status													
	Unreserved forests						Reserved forests						All forest land	
	Timberland		Other forest		Total		Productive		Other forest		Total			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees													
Alameda	1,372.7	1,531.3	14,713.1	4,883.8	16,085.8	5,117.7	—	—	1,991.2	1,323.6	1,991.2	1,323.6	18,077.0	5,286.0
Alpine	29,103.2	9,467.2	13,159.8	7,371.4	42,263.1	12,128.4	27,362.2	6,715.2	10,187.4	5,667.7	37,549.6	8,772.1	79,812.6	14,850.4
Amador	38,312.1	12,067.4	17,592.3	6,708.1	55,904.4	13,770.3	7,121.4	5,059.9	293.9	297.0	7,415.3	5,068.7	63,319.7	14,672.7
Butte	242,407.1	39,768.5	62,209.4	17,973.7	304,616.6	43,493.4	—	—	1,269.2	934.7	1,269.2	934.7	305,885.8	43,503.0
Calaveras	85,875.9	19,822.4	49,161.1	12,889.6	135,037.0	23,307.7	1,095.2	1,115.8	—	—	1,095.2	1,115.8	136,132.2	23,331.7
Colusa	25,204.2	13,292.1	34,440.0	11,451.7	59,644.2	17,498.5	—	—	486.8	464.1	486.8	464.1	60,131.0	17,500.4
Contra Costa	—	—	5,377.3	2,626.6	5,377.3	2,626.6	486.2	523.6	4,958.8	4,245.3	5,445.0	4,273.5	10,822.3	5,011.8
Del Norte	305,380.2	41,585.1	30,314.6	12,797.4	335,694.8	43,044.9	19,253.4	6,111.8	125.3	158.5	19,378.6	6,113.6	355,073.5	43,036.3
El Dorado	256,455.6	31,802.0	53,123.9	19,186.7	309,579.6	36,830.2	18,012.8	8,600.6	13,384.2	8,013.0	31,397.0	11,754.5	340,976.5	38,426.8
Fresno	74,660.7	15,018.9	72,637.6	18,551.0	147,298.3	23,918.2	94,167.1	15,568.2	62,794.5	17,188.2	156,961.7	23,006.5	304,260.0	32,402.5
Glenn	29,116.2	8,728.3	38,146.0	13,136.1	67,262.2	15,731.8	5,143.7	5,404.3	—	—	5,143.7	5,404.3	72,405.9	16,554.7
Humboldt	971,869.9	76,779.2	30,934.8	9,706.5	1,002,804.7	77,106.7	97,907.9	21,242.4	—	—	97,907.9	21,242.4	1,100,712.6	79,195.1
Imperial	—	—	469.5	211.1	469.5	211.1	—	—	650.3	667.1	650.3	667.1	1,119.9	699.6
Inyo	5,436.2	3,791.4	36,633.5	7,081.0	42,069.7	8,196.2	446.8	333.9	43,475.7	10,049.1	43,922.6	10,054.2	85,992.3	12,497.3
Kern	34,376.7	10,259.4	112,380.4	21,198.8	146,757.2	23,433.1	—	—	13,272.7	5,757.1	13,272.7	5,757.1	160,029.8	24,076.5
Lake	76,919.8	17,891.7	86,781.0	26,597.8	163,700.8	31,984.9	5,438.9	5,119.7	7,901.0	5,371.5	13,339.9	7,420.5	177,040.7	32,755.1
Lassen	257,653.9	29,828.8	60,210.2	13,739.9	317,864.2	32,805.3	13,871.5	7,115.1	—	—	13,871.5	7,115.1	331,735.7	33,501.8
Los Angeles	13,856.5	8,340.8	58,919.4	22,314.0	72,775.9	23,752.9	5,781.3	5,567.3	21,399.8	18,527.8	27,181.1	19,346.0	99,957.0	30,513.0
Madera	76,990.3	17,600.9	58,705.2	17,696.4	135,695.4	24,934.8	40,850.0	11,352.7	6,177.1	3,534.4	47,027.0	11,858.4	182,722.5	27,436.0
Marin	5,917.3	3,654.6	7,142.8	2,770.1	13,060.1	4,579.1	2,340.3	1,488.3	3,655.2	2,594.9	5,995.6	2,943.0	19,055.7	5,437.7
Mariposa	58,357.3	22,050.0	74,477.6	19,532.2	132,835.0	29,400.9	49,878.9	10,659.9	11,060.6	5,250.9	60,939.6	11,661.8	193,774.5	31,625.5
Mendocino	762,375.7	58,051.8	135,180.2	25,179.0	897,555.9	61,977.5	15,769.1	8,990.2	17,674.7	9,386.5	33,443.8	12,973.9	930,999.7	63,116.7
Merced	—	—	2,770.1	1,920.5	2,770.1	1,920.5	—	—	160.0	164.3	160.0	164.3	2,930.1	1,927.5
Modoc	139,979.1	17,374.0	57,583.1	9,175.9	197,562.2	19,634.8	6,120.0	3,434.3	3,995.8	2,840.6	10,115.8	4,455.9	207,678.0	20,053.3
Mono	76,872.5	22,574.5	109,349.5	20,178.9	186,222.0	30,092.4	5,775.1	4,232.7	15,247.8	5,136.1	21,022.9	6,644.8	207,244.9	30,684.5
Monterey	9,034.1	5,308.6	97,975.6	26,178.3	107,009.6	26,640.1	2,436.1	1,218.6	60,451.8	31,999.7	62,888.0	32,020.1	169,897.6	41,509.4
Napa	27,882.2	11,608.3	32,029.8	11,010.4	59,912.0	15,551.4	—	—	4,582.2	4,410.7	4,582.2	4,410.7	64,494.2	16,164.7
Nevada	103,730.3	17,262.1	29,955.4	11,433.7	133,685.7	20,502.2	3,209.4	3,269.8	1,508.9	1,373.4	4,718.3	3,546.5	138,404.0	21,513.4
Orange	—	—	1,564.2	1,289.1	1,564.2	1,289.1	—	—	49.1	44.2	49.1	44.2	1,613.3	1,289.8
Placer	209,894.2	35,420.5	43,746.0	11,201.2	253,640.2	37,056.7	8,819.0	4,905.0	1,749.4	1,681.9	10,568.4	5,179.7	264,208.6	37,381.7

Table A2-14—Number of live trees[a] on forest land, by county and land status, California, 2001–2010 (continued)

County	Land status													
	Unreserved forests						Reserved forests						All forest land	
	Timberland		Other forest		Total		Productive		Other forest		Total			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees													
Plumas	513,475.2	45,831.8	6,844.3	2,857.0	520,319.6	45,896.1	8,225.4	3,952.5	—	—	8,225.4	3,952.5	528,544.9	45,992.3
Riverside	1,560.9	957.7	2,817.6	1,806.6	4,378.5	2,044.6	19,609.6	13,395.8	1,385.3	804.4	20,994.9	13,419.9	25,373.4	13,570.7
Sacramento	—	—	528.7	421.2	528.7	421.2	—	—	—	—	—	—	528.7	421.2
San Benito	4,748.8	3,783.2	15,352.3	3,897.7	20,101.0	5,430.7	—	—	—	—	—	—	20,101.0	5,430.7
San Bernardino	23,769.2	8,902.8	67,002.6	19,827.5	90,771.8	21,677.3	5,079.6	3,310.3	9,236.3	2,773.1	14,315.9	4,307.0	105,087.6	22,048.7
San Diego	559.5	373.6	12,297.3	6,418.9	12,856.7	6,429.5	1,828.9	1,858.8	5,863.3	4,016.0	7,692.2	4,425.2	20,548.9	7,802.6
San Joaquin	3,188.3	1,966.2	30.9	25.8	3,219.3	1,966.4	—	—	—	—	—	—	3,219.3	1,966.4
San Luis Obispo	1,680.6	1,480.2	31,826.5	8,002.0	33,507.0	8,122.2	—	—	2,071.0	1,066.4	2,071.0	1,066.4	35,578.0	8,168.6
San Mateo	13,040.7	5,864.5	2,602.8	1,881.9	15,643.5	6,159.0	5,306.5	3,494.1	2,243.2	2,278.2	7,549.7	4,171.2	23,193.2	7,351.3
Santa Barbara	2,508.4	1,579.8	24,343.8	6,363.4	26,852.2	6,571.6	6,569.6	3,986.5	21,840.0	11,927.7	28,409.6	12,551.0	55,261.8	14,125.9
Santa Clara	10,491.4	5,607.1	42,610.7	9,299.8	53,102.1	10,853.6	—	—	27,592.6	17,948.6	27,592.6	17,948.6	80,694.7	20,873.2
Santa Cruz	37,920.1	8,596.0	1,885.6	1,267.0	39,805.7	8,684.4	24,513.4	13,547.1	1,708.4	1,740.5	26,221.8	13,649.3	66,027.6	16,174.3
Shasta	530,442.1	48,711.6	140,580.9	27,165.9	671,023.1	55,039.2	59,488.7	16,028.9	19,709.9	8,108.2	79,198.6	17,768.4	750,221.6	57,260.9
Sierra	163,246.6	24,671.7	—	—	163,246.6	24,671.7	105.1	107.1	—	—	105.1	107.1	163,351.7	24,672.2
Siskiyou	853,127.8	56,512.0	110,317.4	22,668.8	963,445.1	60,270.7	101,017.3	17,846.5	5,990.0	3,264.1	107,007.3	18,296.3	1,070,452.4	61,555.7
Solano	—	—	3,572.1	1,817.3	3,572.1	1,817.3	—	—	—	—	—	—	3,572.1	1,817.3
Sonoma	161,449.8	27,297.5	27,114.3	7,952.7	188,564.1	28,194.0	4,726.1	2,921.9	6,285.3	3,533.1	11,011.4	4,583.5	199,575.5	28,465.8
Stanislaus	—	—	19,990.2	8,826.7	19,990.2	8,826.7	—	—	2,934.9	2,632.3	2,934.9	2,632.3	22,925.2	9,210.8
Sutter	—	—	32,308.4	18,805.2	32,308.4	18,805.2	—	—	—	—	—	—	32,308.4	18,805.2
Tehama	157,561.3	22,473.7	116,071.9	20,621.6	273,633.2	30,380.5	10,253.3	4,873.9	6,527.0	3,034.5	16,780.4	5,737.3	290,413.6	30,815.7
Trinity	507,246.6	44,558.2	53,173.7	16,314.9	560,420.3	47,249.6	133,672.0	20,382.8	40,468.0	17,318.0	174,140.0	26,651.2	734,560.3	52,760.7
Tulare	26,180.6	6,806.3	42,205.3	9,055.8	68,385.9	11,087.3	152,949.9	32,308.9	58,340.7	11,375.3	211,290.5	33,406.4	279,676.4	34,627.7
Tuolumne	139,317.6	20,863.1	36,055.1	9,695.2	175,372.8	22,865.1	88,794.1	15,345.2	5,865.3	2,469.8	94,659.4	15,475.2	270,032.2	27,495.3
Ventura	1,995.7	1,925.0	42,717.9	19,229.2	44,713.6	19,321.8	2,446.4	1,345.7	12,791.3	8,310.3	15,237.7	8,416.6	59,951.3	20,967.4
Yolo	—	—	5,637.8	1,885.2	5,637.8	1,885.2	—	—	—	—	—	—	5,637.8	1,885.2
Yuba	53,862.4	14,728.5	13,931.0	4,992.4	67,793.5	15,559.4	—	—	559.1	524.4	559.1	524.4	68,352.6	15,568.2
All counties	7,126,407.4	148,435.4	2,279,502.8	97,539.3	9,405,910.3	167,979.4	1,055,872.2	61,885.0	539,915.2	56,516.3	1,595,787.5	82,230.6	11,001,697.7	177,889.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-15—Number of dead trees[a] on forest land, by county and land status, California, 2001–2010

County	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees													
Alameda	—	—	647.0	262.4	647.0	262.4	—	—	—	—	—	—	647.0	262.4
Alpine	1,469.8	588.3	408.7	267.5	1,878.5	645.9	1,454.6	391.3	239.1	135.6	1,693.7	413.7	3,572.2	764.6
Amador	1,435.0	561.4	285.5	121.0	1,720.5	573.9	468.8	373.2	—	—	468.8	373.2	2,189.3	684.4
Butte	9,044.1	1,781.5	673.3	233.9	9,717.5	1,795.5	—	—	71.7	52.8	71.7	52.8	9,789.2	1,796.2
Calaveras	2,230.9	574.7	1,372.7	392.3	3,603.6	693.3	222.9	227.1	—	—	222.9	227.1	3,826.5	729.4
Colusa	404.0	238.1	1,131.8	452.7	1,535.7	511.1	—	—	—	—	—	—	1,535.7	511.1
Contra Costa	—	—	36.5	37.3	36.5	37.3	33.3	35.8	—	—	33.3	35.8	69.7	51.7
Del Norte	10,244.3	1,474.1	693.1	289.2	10,937.4	1,491.5	2,060.4	719.5	48.5	61.4	2,108.9	721.9	13,046.3	1,626.7
El Dorado	11,955.1	1,722.4	747.6	316.2	12,702.7	1,748.2	2,198.3	1,468.0	766.8	523.7	2,965.1	1,558.6	15,667.8	2,322.4
Fresno	3,869.1	829.5	1,181.7	343.9	5,050.8	894.3	5,060.9	956.7	1,494.4	424.2	6,555.3	1,039.6	11,606.2	1,332.7
Glenn	1,777.9	760.3	533.4	213.0	2,311.4	787.3	17.6	18.5	—	—	17.6	18.5	2,329.0	787.4
Humboldt	31,919.7	4,459.4	1,111.4	411.9	33,031.1	4,474.8	6,022.6	1,612.3	—	—	6,022.6	1,612.3	39,053.7	4,724.9
Imperial	—	—	84.3	61.7	84.3	61.7	—	—	72.3	74.1	72.3	74.1	156.5	96.4
Inyo	219.3	159.9	1,602.5	404.6	1,821.7	434.5	151.0	149.4	1,372.2	423.7	1,523.2	448.9	3,344.9	616.8
Kern	2,201.6	1,038.6	4,748.9	1,933.1	6,950.5	2,182.6	—	—	778.6	591.0	778.6	591.0	7,729.1	2,259.6
Lake	2,736.9	802.2	1,656.9	663.8	4,393.8	1,034.4	39.2	39.1	128.4	116.1	167.7	122.5	4,561.4	1,040.1
Lassen	10,785.2	1,591.4	3,830.7	1,173.5	14,615.9	1,971.2	923.2	464.2	—	—	923.2	464.2	15,539.1	2,019.9
Los Angeles	807.7	428.3	491.1	156.3	1,298.8	455.2	6.5	6.3	675.3	505.4	681.8	505.4	1,980.5	678.4
Madera	2,580.7	592.8	923.8	349.3	3,504.6	687.0	1,867.8	548.3	153.6	86.9	2,021.5	554.4	5,526.0	876.0
Marin	1,529.0	779.1	352.8	183.0	1,881.8	800.2	788.1	688.1	—	—	788.1	688.1	2,669.9	1,055.4
Mariposa	1,976.2	656.4	1,511.7	541.4	3,487.9	849.4	4,584.9	1,020.7	332.9	243.5	4,917.8	1,040.6	8,405.7	1,339.4
Mendocino	18,593.9	2,220.6	2,460.9	623.9	21,054.8	2,301.3	1,220.9	865.4	777.5	469.7	1,998.4	983.8	23,053.2	2,499.7
Modoc	8,755.8	1,593.6	1,696.2	449.7	10,452.0	1,655.8	1,287.7	792.0	474.9	476.9	1,762.6	922.9	12,214.5	1,891.2
Mono	1,257.5	502.7	8,179.7	1,896.3	9,437.3	1,953.6	290.9	290.1	512.0	355.3	802.9	458.6	10,240.2	2,004.6
Monterey	642.4	421.2	1,479.4	481.6	2,121.8	639.2	167.6	154.8	1,884.9	1,117.9	2,052.5	1,128.3	4,174.3	1,296.0
Napa	585.4	347.5	438.2	200.4	1,023.6	399.5	—	—	111.4	84.5	111.4	84.5	1,135.0	408.3
Nevada	5,225.3	1,025.6	237.0	181.3	5,462.3	1,041.4	—	—	48.7	44.4	48.7	44.4	5,511.1	1,042.3
Orange	—	—	46.5	42.3	46.5	42.3	—	—	—	—	—	—	46.5	42.3
Placer	10,349.4	2,275.9	1,260.4	433.2	11,609.9	2,314.5	407.6	177.3	77.7	54.1	485.3	185.1	12,095.1	2,319.4

Table A2-15—Number of dead trees[a] on forest land, by county and land status, California, 2001–2010 (continued)

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	total	SE	Total	SE
	Thousand trees													
Plumas	33,606.7	4,466.6	621.4	289.7	34,228.1	4,481.6	1,436.5	861.6	—	—	1,436.5	861.6	35,664.6	4,547.5
Riverside	7.7	7.0	383.8	209.8	391.6	210.0	49.4	44.4	289.0	216.1	338.4	220.6	730.0	304.5
San Benito	—	—	376.1	136.1	376.1	136.1	—	—	—	—	—	—	376.1	136.1
San Bernardino	2,648.7	1,018.1	4,248.2	1,161.9	6,896.9	1,537.3	774.3	443.6	1,956.7	611.4	2,730.9	754.5	9,627.9	1,697.8
San Diego	1,287.7	1,071.4	874.3	391.5	2,162.0	1,138.7	742.6	610.1	530.3	268.8	1,273.0	666.0	3,435.0	1,319.1
San Luis Obispo	—	—	979.3	331.3	979.3	331.3	—	—	8.0	7.1	8.0	7.1	987.3	331.3
San Mateo	658.1	378.9	—	—	658.1	378.9	190.5	136.3	237.2	240.9	427.7	276.8	1,085.8	461.6
Santa Barbara	40.3	38.7	1,949.6	829.5	1,990.0	833.9	119.6	118.3	386.0	191.7	505.6	224.7	2,495.6	861.7
Santa Clara	261.3	204.8	1,025.3	338.6	1,286.6	392.4	—	—	288.2	119.8	288.2	119.8	1,574.8	409.0
Santa Cruz	1,335.9	419.7	—	—	1,335.9	419.7	506.2	266.1	—	—	506.2	266.1	1,842.1	496.8
Shasta	17,259.4	2,636.2	3,205.4	870.7	20,464.7	2,767.1	4,299.8	1,939.3	195.4	146.9	4,495.2	1,940.6	24,959.9	3,362.2
Sierra	11,677.7	2,280.8	1,379.3	1,315.1	13,057.0	2,622.0	—	—	—	—	—	—	13,057.0	2,622.0
Siskiyou	35,517.7	3,084.5	2,380.3	565.1	37,898.0	3,126.1	9,925.4	1,856.4	293.2	130.3	10,218.6	1,861.5	48,116.6	3,517.4
Solano	—	—	193.1	171.9	193.1	171.9	—	—	—	—	—	—	193.1	171.9
Sonoma	3,061.4	600.9	768.7	315.4	3,830.0	671.6	616.4	424.3	173.8	131.7	790.1	444.2	4,620.1	802.3
Stanislaus	—	—	166.9	127.6	166.9	127.6	—	—	117.2	113.7	117.2	113.7	284.1	170.9
Tehama	6,770.1	1,185.2	2,105.3	1,001.2	8,875.4	1,546.3	1,288.6	664.6	164.6	97.4	1,453.2	671.3	10,328.6	1,676.9
Trinity	19,069.9	2,243.9	1,494.6	499.4	20,564.4	2,288.1	15,911.7	2,778.5	655.7	365.5	16,567.5	2,798.4	37,131.9	3,506.0
Tulare	6,089.3	3,101.1	4,610.9	1,979.6	10,700.2	3,678.7	10,165.3	1,915.9	6,125.3	2,411.9	16,290.6	3,053.1	26,990.8	4,712.6
Tuolumne	7,675.7	1,295.1	1,380.4	462.3	9,056.0	1,368.8	8,485.5	1,872.5	354.1	260.1	8,839.7	1,886.0	17,895.7	2,326.9
Ventura	—	—	988.7	329.8	988.7	329.8	1,307.3	1,095.2	321.6	279.3	1,628.9	1,128.5	2,617.6	1,172.8
Yolo	—	—	61.6	42.8	61.6	42.8	—	—	—	—	—	—	61.6	42.8
Yuba	1,430.0	497.4	274.4	120.5	1,704.3	511.5	—	—	—	—	—	—	1,704.3	511.5
All counties	290,993.6	9,695.2	69,291.4	4,736.7	360,285.0	10,626.3	85,093.9	5,755.1	22,117.5	3,146.5	107,211.4	6,492.6	467,496.4	11,945.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-16—Number of live trees[a] on forest land, by county and broad species group, California, 2001–2010

County	Broad species group				All species groups	
	Softwood species		Hardwood species			
	Total	SE	Total	SE	Total	SE
	Thousand trees					
Alameda	1,252.1	1,139.3	16,824.9	5,047.1	18,077.0	5,286.0
Alpine	68,235.7	12,937.0	11,576.9	6,909.6	79,812.6	14,850.4
Amador	29,999.4	9,606.4	33,320.3	10,441.8	63,319.7	14,672.7
Butte	145,729.2	26,797.2	160,156.6	27,657.0	305,885.8	43,503.0
Calaveras	63,411.1	15,192.1	72,721.1	17,097.3	136,132.2	23,331.7
Colusa	19,686.4	8,281.7	40,444.7	11,690.8	60,131.0	17,500.4
Contra Costa	619.2	541.8	10,203.1	4,869.5	10,822.3	5,011.8
Del Norte	143,226.7	21,054.8	211,846.8	32,453.6	355,073.5	43,036.3
El Dorado	238,320.3	28,623.7	102,656.2	22,775.1	340,976.5	38,426.8
Fresno	187,733.0	21,378.2	116,526.9	23,853.9	304,260.0	32,402.5
Glenn	21,576.8	6,434.6	50,829.0	14,307.4	72,405.9	16,554.7
Humboldt	429,646.5	40,207.3	671,066.1	58,106.2	1,100,712.6	79,195.1
Imperial	—	—	1,119.9	699.6	1,119.9	699.6
Inyo	62,557.9	8,937.2	23,434.4	8,645.1	85,992.3	12,497.3
Kern	38,708.3	6,285.0	121,321.5	21,891.4	160,029.8	24,076.5
Lake	64,632.3	16,294.9	112,408.5	25,968.4	177,040.7	32,755.1
Lassen	291,244.1	30,607.6	40,491.6	12,451.9	331,735.7	33,501.8
Los Angeles	4,976.6	1,339.4	94,980.3	30,372.4	99,957.0	30,513.0
Madera	105,544.7	18,369.4	77,177.8	18,778.2	182,722.5	27,436.0
Marin	3,624.4	1,777.7	15,431.3	4,656.2	19,055.7	5,437.7
Mariposa	77,346.5	13,648.8	116,428.0	26,074.2	193,774.5	31,625.5
Mendocino	325,315.1	26,841.1	605,684.6	48,300.9	930,999.7	63,116.7
Merced	—	—	2,930.1	1,927.5	2,930.1	1,927.5
Modoc	182,509.8	18,186.3	25,168.2	6,543.1	207,678.0	20,053.3
Mono	133,125.1	20,840.7	74,119.8	21,714.3	207,244.9	30,684.5
Monterey	11,963.1	3,976.1	157,934.5	41,054.3	169,897.6	41,509.4
Napa	11,244.5	3,068.6	53,249.7	14,320.8	64,494.2	16,164.7
Nevada	84,252.5	15,032.4	54,151.6	13,553.0	138,404.0	21,513.4
Orange	—	—	1,613.3	1,289.8	1,613.3	1,289.8
Placer	176,768.3	31,573.6	87,440.3	15,059.5	264,208.6	37,381.7
Plumas	436,925.3	37,861.1	91,619.6	22,139.1	528,544.9	45,992.3
Riverside	3,356.3	1,206.5	22,017.1	13,382.0	25,373.4	13,570.7
Sacramento	—	—	528.7	421.2	528.7	421.2
San Benito	2,633.5	1,182.4	17,467.5	5,168.4	20,101.0	5,430.7
San Bernardino	33,191.2	6,060.9	71,896.4	20,627.3	105,087.6	22,048.7
San Diego	3,155.0	1,754.9	17,393.9	7,475.5	20,548.9	7,802.6
San Joaquin	6.2	6.3	3,213.1	1,966.3	3,219.3	1,966.4

Table A2-16—Number of live trees[a] on forest land, by county and broad species group, California, 2001–2010 (continued)

County	Broad species group				All species groups	
	Softwood species		Hardwood species			
	Total	SE	Total	SE	Total	SE
	Thousand trees					
San Luis Obispo	3,268.6	1,188.4	32,309.4	7,989.2	35,578.0	8,168.6
San Mateo	6,011.6	2,677.6	17,181.5	5,690.4	23,193.2	7,351.3
Santa Barbara	4,935.2	2,043.2	50,326.6	13,788.4	55,261.8	14,125.9
Santa Clara	4,496.2	1,993.4	76,198.5	20,582.6	80,694.7	20,873.2
Santa Cruz	29,663.5	12,102.5	36,364.0	8,015.3	66,027.6	16,174.3
Shasta	407,304.7	35,959.9	342,916.9	40,313.7	750,221.6	57,260.9
Sierra	134,720.1	21,779.3	28,631.6	8,117.8	163,351.7	24,672.2
Siskiyou	658,274.0	42,471.0	412,178.4	42,350.7	1,070,452.4	61,555.7
Solano	—	—	3,572.1	1,817.3	3,572.1	1,817.3
Sonoma	69,346.4	14,122.0	130,229.1	19,746.7	199,575.5	28,465.8
Stanislaus	4,465.5	2,589.6	18,459.7	8,434.6	22,925.2	9,210.8
Sutter	—	—	32,308.4	18,805.2	32,308.4	18,805.2
Tehama	132,977.4	18,924.8	157,436.1	21,896.0	290,413.6	30,815.7
Trinity	420,118.6	35,583.3	314,441.7	32,216.7	734,560.3	52,760.7
Tulare	144,171.7	14,372.2	135,504.7	30,669.7	279,676.4	34,627.7
Tuolumne	185,427.6	19,312.0	84,604.6	17,791.0	270,032.2	27,495.3
Ventura	15,719.7	3,300.8	44,231.6	20,702.0	59,951.3	20,967.4
Yolo	698.5	357.4	4,939.4	1,662.9	5,637.8	1,885.2
Yuba	20,663.6	6,198.2	47,688.9	11,436.0	68,352.6	15,568.2
All counties	5,644,780.1	107,341.9	5,356,917.6	144,918.1	11,001,697.7	177,889.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-17—Number of dead trees[a] on forest land, by county and broad species group, California, 2001–2010

	Broad species groups					
	Softwood species		Hardwood species		All species groups	
County	Total	SE	Total	SE	Total	SE
			Thousand trees			
Alameda	—	—	647.0	262.4	647.0	262.4
Alpine	3,212.1	711.0	360.1	245.3	3,572.2	764.6
Amador	1,286.3	537.9	903.0	416.9	2,189.3	684.4
Butte	5,355.8	1,263.6	4,433.4	972.8	9,789.2	1,796.2
Calaveras	2,328.6	582.1	1,497.9	404.4	3,826.5	729.4
Colusa	614.4	301.2	921.3	325.6	1,535.7	511.1
Contra Costa	33.3	35.8	36.5	37.3	69.7	51.7
Del Norte	9,104.2	1,339.5	3,942.1	769.2	13,046.3	1,626.7
El Dorado	12,989.1	2,164.2	2,678.7	620.3	15,667.8	2,322.4
Fresno	9,946.7	1,253.7	1,659.5	382.5	11,606.2	1,332.7
Glenn	1,741.7	758.4	587.4	202.4	2,329.0	787.4
Humboldt	17,188.0	1,936.9	21,865.7	4,117.1	39,053.7	4,724.9
Imperial	—	—	156.5	96.4	156.5	96.4
Inyo	2,476.3	459.1	868.7	403.4	3,344.9	616.8
Kern	3,809.4	1,234.6	3,919.6	1,685.9	7,729.1	2,259.6
Lake	1,554.1	415.9	3,007.3	941.4	4,561.4	1,040.1
Lassen	11,416.1	1,613.8	4,123.1	1,184.7	15,539.1	2,019.9
Los Angeles	469.6	213.3	1,510.9	621.5	1,980.5	678.4
Madera	4,684.6	818.4	841.4	251.2	5,526.0	876.0
Marin	274.6	167.3	2,395.3	1,026.9	2,669.9	1,055.4
Mariposa	6,419.4	1,157.4	1,986.3	577.5	8,405.7	1,339.4
Mendocino	9,227.5	1,310.8	13,825.8	1,700.4	23,053.2	2,499.7
Modoc	9,128.0	1,534.9	3,086.6	919.4	12,214.5	1,891.2
Mono	6,337.7	1,465.7	3,902.5	1,120.1	10,240.2	2,004.6
Monterey	762.9	411.3	3,411.5	1,219.8	4,174.3	1,296.0
Napa	242.0	136.3	893.0	366.5	1,135.0	408.3
Orange	—	—	46.5	42.3	46.5	42.3
Placer	9,331.8	1,908.4	2,763.3	722.4	12,095.1	2,319.4
Plumas	30,649.0	3,933.6	5,015.6	1,598.2	35,664.6	4,547.5
Riverside	364.9	221.1	365.0	197.3	730.0	304.5
San Benito	82.9	63.2	293.2	118.9	376.1	136.1
San Bernardino	7,245.5	1,269.4	2,382.4	690.8	9,627.9	1,697.8
San Diego	1,110.8	574.6	2,324.2	1,135.4	3,435.0	1,319.1
San Luis Obispo	107.2	62.6	880.1	319.8	987.3	331.3
San Mateo	366.2	290.7	719.7	365.0	1,085.8	461.6
Santa Barbara	498.8	217.3	1,996.7	830.5	2,495.6	861.7
Santa Clara	218.3	112.9	1,356.5	369.6	1,574.8	409.0

Table A2-17—Number of dead trees[a] on forest land, by county and broad species group, California, 2001–2010 (continued)

	Broad species groups					
	Softwood species		Hardwood species		All species groups	
County	Total	SE	Total	SE	Total	SE
			Thousand trees			
Santa Cruz	591.5	215.6	1,250.6	432.3	1,842.1	496.8
Shasta	17,828.6	3,164.6	7,131.3	1,081.6	24,959.9	3,362.2
Sierra	10,601.9	2,222.3	2,455.0	1,292.4	13,057.0	2,622.0
Siskiyou	36,324.0	2,741.1	11,792.6	1,810.9	48,116.6	3,517.4
Solano	—	—	193.1	171.9	193.1	171.9
Sonoma	1,560.6	425.3	3,059.6	610.3	4,620.1	802.3
Stanislaus	129.5	121.9	154.6	119.8	284.1	170.9
Tehama	7,104.8	1,205.1	3,223.9	860.5	10,328.6	1,676.9
Trinity	22,613.4	2,362.2	14,518.5	2,225.9	37,131.9	3,506.0
Tulare	19,434.7	3,929.9	7,556.1	2,495.9	26,990.8	4,712.6
Tuolumne	14,928.3	2,075.4	2,967.4	724.2	17,895.7	2,326.9
Ventura	808.7	268.0	1,808.9	1,025.8	2,617.6	1,172.8
Yolo	23.9	18.1	37.7	38.8	61.6	42.8
Yuba	868.1	289.2	836.3	337.0	1,704.3	511.5
All counties	307,818.1	8,971.4	159,678.3	7,491.7	467,496.4	11,945.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-18—Number of live trees[a] on forest land, by species group and diameter class, California, 2001–2010

Species group	Diameter class (inches)											
	1.0–2.9		3.0–4.9		5.0–6.9		7.0–8.9		9.0–10.9		11.0–12.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees											
Softwoods:												
Douglas-fir	532,845.3	31,182.9	223,000.8	13,734.2	136,087.0	5,103.8	95,661.4	3,703.8	70,889.9	2,805.0	49,333.5	2,106.9
Incense cedar	258,260.5	24,422.2	123,668.4	10,867.5	68,395.2	3,811.1	42,658.8	2,476.7	29,271.2	1,795.1	18,995.6	1,249.8
Lodgepole pine	105,042.7	16,135.9	56,767.8	10,722.9	35,092.3	4,074.0	22,265.2	2,241.5	18,957.4	2,020.2	13,205.9	1,260.7
Ponderosa and Jeffrey pines	246,205.9	19,094.6	145,125.7	10,919.0	110,232.9	5,194.9	85,867.5	4,294.4	63,308.7	3,118.9	46,977.7	2,266.7
Redwood	146,146.5	19,969.3	35,593.6	6,141.6	31,031.6	2,988.9	22,046.5	2,010.6	16,802.8	1,588.7	17,134.5	1,662.3
Sitka spruce	1,372.9	822.4	959.5	971.0	621.5	255.0	698.6	286.4	443.4	196.6	417.6	235.5
Sugar pine	46,021.8	6,296.6	19,919.7	3,760.7	12,481.9	1,117.9	9,800.6	861.4	6,730.8	650.8	5,247.4	493.7
True fir	581,150.7	37,111.9	248,958.0	15,409.7	162,117.7	6,174.3	117,516.8	4,493.4	87,053.6	3,530.6	60,634.1	2,580.8
Western hemlock	13,785.3	5,295.6	4,952.4	2,349.0	1,712.8	705.5	1,245.4	265.9	1,035.0	304.9	570.6	179.9
Western juniper	29,244.8	4,569.1	22,362.1	4,492.9	17,638.1	1,537.0	14,225.0	1,189.5	11,176.7	961.6	7,925.0	724.3
Western white pine	19,895.6	4,557.5	9,827.2	2,492.3	6,331.8	847.4	3,997.8	573.0	3,044.7	471.2	1,764.0	300.5
Woodland softwoods	56,352.2	12,470.9	33,442.4	4,793.2	23,188.6	1,926.5	18,475.2	1,394.0	16,514.9	1,236.5	12,435.2	1,050.5
Other western softwoods	139,383.5	16,485.5	50,234.9	7,880.9	36,040.0	3,152.3	24,311.2	2,224.9	15,014.6	1,266.6	10,709.3	952.6
Total	2,175,707.8	70,266.8	974,812.6	31,400.7	640,971.4	12,392.0	458,770.1	8,668.8	340,243.7	6,459.0	245,350.3	4,843.4
Hardwoods:												
Cottonwood and aspen	63,026.4	17,124.5	13,064.1	6,140.3	3,478.0	1,192.2	1,472.2	428.6	1,013.6	314.5	792.5	301.2
Oak	1,209,676.7	76,869.6	575,881.0	34,146.4	392,412.0	13,003.7	250,437.6	7,796.4	147,637.4	4,634.3	80,324.9	2,807.3
Red alder	12,527.3	4,311.2	8,937.0	2,760.4	7,984.9	1,443.0	7,373.6	1,118.5	6,404.1	1,089.8	4,439.3	886.2
Tanoak	672,445.6	48,958.2	223,216.6	16,342.6	137,297.5	7,357.2	80,136.2	4,470.8	48,810.1	3,032.5	29,767.7	1,984.3
Woodland hardwoods	44,742.9	9,052.7	28,270.7	7,527.4	23,192.6	3,160.1	15,275.2	2,013.9	10,870.1	1,533.4	6,537.9	868.1
Other western hardwoods	600,501.9	47,850.4	197,744.8	19,588.8	93,418.8	4,729.1	56,229.7	3,041.5	34,224.1	1,847.9	21,080.5	1,329.6
Total	2,602,920.7	106,070.3	1,047,114.2	44,272.5	657,783.7	15,888.7	410,924.5	9,594.3	248,959.3	6,035.0	142,942.8	3,935.3
All species groups	4,778,628.5	127,930.6	2,021,926.8	54,382.2	1,298,755.1	19,576.8	869,694.6	12,403.0	589,202.9	8,487.7	388,293.1	6,073.7

Table A2-18—Number of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)											
	13.0–14.9		15.0–16.9		17.0–18.9		19.0–20.9		21.0–22.9		23.0–24.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees											
Softwoods:												
Douglas-fir	38,269.1	1,664.7	29,568.8	1,397.8	22,279.1	1,156.2	13,857.8	863.6	11,766.7	788.5	8,812.6	539.1
Incense cedar	12,707.0	985.1	10,237.9	788.8	7,676.9	677.1	5,574.9	537.4	4,138.6	475.0	3,238.7	338.7
Lodgepole pine	12,712.7	1,214.4	8,008.7	859.3	7,897.7	784.6	5,714.2	599.4	4,639.0	559.0	2,869.6	324.0
Ponderosa and Jeffrey pines	35,163.3	1,711.1	26,284.7	1,396.8	19,503.2	1,095.8	14,488.0	895.8	11,041.4	744.0	7,638.1	491.2
Redwood	11,186.3	1,137.3	8,888.0	902.2	6,464.5	746.2	5,860.8	684.5	5,193.6	575.7	3,704.9	435.8
Sitka spruce	419.6	203.2	325.7	211.3	372.2	239.0	185.0	103.8	193.2	109.1	30.4	18.6
Sugar pine	3,390.0	407.4	3,204.1	398.7	2,761.4	347.3	2,823.3	356.2	2,093.1	302.4	1,900.9	239.8
True fir	50,469.4	2,227.4	36,464.2	1,729.4	28,305.6	1,467.0	21,605.1	1,163.2	15,861.9	955.5	11,770.5	694.5
Western hemlock	709.0	252.8	340.5	130.1	322.6	109.5	187.2	107.3	91.1	84.1	12.8	9.0
Western juniper	5,327.9	563.2	3,670.2	431.2	3,509.1	428.9	1,839.0	281.9	1,435.3	241.1	1,092.2	176.7
Western white pine	1,715.0	290.0	1,181.0	255.4	1,210.5	295.3	728.9	193.3	599.5	158.1	515.1	108.5
Woodland softwoods	11,100.2	920.9	9,208.6	788.0	5,543.8	514.8	3,879.1	471.6	2,372.7	362.7	1,499.9	218.4
Other western softwoods	8,149.7	769.5	6,102.9	650.6	5,293.7	595.7	4,568.0	564.3	3,041.6	436.2	2,131.3	269.1
Total	191,319.1	3,883.1	143,485.3	3,122.8	111,140.3	2,633.7	81,311.3	2,134.3	62,467.7	1,827.2	45,217.0	1,269.3
Hardwoods:												
Cottonwood and aspen	635.0	224.2	640.1	209.8	381.4	200.3	469.4	187.6	256.5	99.3	145.8	49.6
Oak	50,616.4	1,979.6	32,722.1	1,436.6	21,180.2	1,061.8	12,749.4	794.5	8,883.3	644.1	5,860.7	444.7
Red alder	1,828.4	415.3	1,529.6	350.5	604.9	201.2	432.2	129.1	46.5	42.3	83.5	55.1
Tanoak	17,762.9	1,356.6	9,995.4	883.8	6,680.3	715.2	4,718.3	510.3	3,766.6	479.5	1,649.5	221.3
Woodland hardwoods	4,521.2	670.5	2,735.9	498.8	1,510.1	269.6	1,067.5	221.8	651.5	195.1	268.6	93.9
Other western hardwoods	13,598.4	968.9	8,736.1	779.2	6,092.1	587.4	2,727.7	339.8	2,448.2	343.7	1,640.1	211.6
Total	88,962.3	2,777.0	56,359.2	1,995.1	36,449.0	1,490.3	22,164.5	1,061.3	16,052.6	908.5	9,648.2	570.2
All species groups	280,281.5	4,646.7	199,844.4	3,620.1	147,589.3	2,979.9	103,475.8	2,357.1	78,520.3	2,018.3	54,865.2	1,385.6

Table A2-18—Number of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)											
	25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees											
Softwoods:												
Douglas-fir	7,398.4	324.1	5,366.5	257.3	4,710.0	231.3	3,912.3	209.6	3,366.5	183.7	2,714.8	165.1
Incense cedar	2,630.2	187.9	1,914.7	145.6	1,356.4	116.0	1,108.4	100.9	984.6	92.7	836.6	90.7
Lodgepole pine	2,488.7	235.0	1,736.3	177.9	1,428.3	165.9	827.1	107.0	541.2	83.9	405.0	59.6
Ponderosa and Jeffrey pines	5,568.6	264.6	4,738.6	239.4	3,636.0	202.6	2,905.8	180.7	2,156.8	145.3	1,570.8	123.0
Redwood	3,452.7	338.4	2,709.3	245.4	2,106.5	224.2	1,654.3	170.9	1,415.1	166.7	1,048.7	125.6
Sitka spruce	65.7	30.8	32.3	18.2	62.7	29.1	35.4	15.2	43.7	20.2	42.4	25.3
Sugar pine	1,530.1	119.1	1,408.2	122.5	1,106.9	96.8	1,016.9	100.3	872.0	86.9	732.0	78.6
True fir	9,385.3	454.4	7,938.3	388.8	6,104.1	324.5	4,760.5	267.5	3,502.5	223.0	3,083.7	203.7
Western hemlock	71.8	23.8	36.1	20.4	20.3	11.3	—	—	23.3	12.2	—	—
Western juniper	623.8	78.4	363.9	56.8	361.4	56.7	255.8	44.7	217.8	41.4	110.8	30.4
Western white pine	447.1	66.8	406.1	66.5	387.3	60.9	313.7	53.0	250.9	46.9	247.5	43.3
Woodland softwoods	965.0	106.7	510.3	71.2	248.5	43.2	265.7	50.9	161.2	36.3	128.0	30.5
Other western softwoods	1,535.5	166.7	1,197.2	135.0	914.8	127.0	722.7	99.4	486.5	75.2	413.7	70.6
Total	36,163.0	782.2	28,357.8	641.4	22,443.1	567.3	17,778.7	467.4	14,022.0	405.1	11,334.2	360.6
Hardwoods:												
Cottonwood and aspen	84.0	30.4	123.5	49.6	56.2	19.0	29.2	16.1	5.9	6.0	17.9	10.9
Oak	3,142.6	171.6	2,098.7	136.2	1,510.0	113.0	1,080.0	92.9	703.9	76.9	424.8	56.0
Red alder	18.5	10.8	16.8	10.5	20.6	11.4	9.9	8.0	—	—	—	—
Tanoak	966.3	110.9	669.4	86.2	505.3	80.6	160.4	33.8	132.6	30.3	161.3	42.9
Woodland hardwoods	182.9	44.5	91.2	31.4	48.0	17.3	6.0	6.2	6.0	6.2	12.4	8.9
Other western hardwoods	915.9	90.4	593.2	67.4	442.3	62.8	315.1	59.8	198.2	39.4	216.8	45.7
Total	5,310.0	238.3	3,592.8	188.8	2,582.4	158.7	1,600.5	117.3	1,046.6	92.8	833.3	86.6
All species groups	41,473.0	812.3	31,950.7	666.0	25,025.4	587.1	19,379.2	480.9	15,068.6	416.7	12,167.4	371.9

Table A2-18—Number of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0+			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees															
Softwoods:																
Douglas-fir	2,484.5	155.9	1,895.2	129.6	1,550.7	121.7	1,476.0	118.7	1,222.3	100.8	982.6	92.6	3,994.5	282.2	1,273,446.1	47,404.1
Incense cedar	663.8	74.5	473.7	61.0	384.8	56.2	356.2	48.3	202.9	38.3	138.3	31.7	663.7	86.1	596,538.2	35,953.4
Lodgepole pine	217.1	38.4	232.2	44.3	135.0	32.1	99.4	27.4	61.2	19.5	23.7	12.1	34.8	19.0	301,403.0	30,759.7
Ponderosa and Jeffrey pines	1,237.6	106.9	1,073.7	91.7	748.7	74.1	516.2	62.9	478.1	61.9	344.0	52.1	701.7	85.6	837,513.8	33,901.7
Redwood	823.9	120.1	745.2	102.8	519.0	76.5	391.9	67.4	294.3	55.3	228.7	44.4	1,918.4	308.7	327,361.8	30,087.1
Sitka spruce	22.6	12.1	19.3	11.3	23.2	15.7	24.4	12.6	—	—	6.4	6.5	34.0	23.5	6,451.7	2,335.5
Sugar pine	463.1	56.4	404.6	53.4	376.9	51.1	293.5	48.7	249.2	39.2	208.8	37.5	832.8	102.1	125,870.0	10,157.0
True fir	2,314.2	168.1	1,882.3	152.2	1,463.4	139.7	1,068.3	102.1	928.9	97.2	692.3	79.4	1,735.5	169.8	1,466,766.7	58,401.6
Western hemlock	8.7	7.6	—	—	6.2	6.3	—	—	17.4	10.3	—	—	24.7	25.1	25,173.0	7,818.2
Western juniper	196.9	40.8	101.3	29.1	93.2	23.9	39.9	15.9	75.5	24.9	41.1	16.2	175.4	44.9	122,102.3	9,802.2
Western white pine	309.7	51.2	206.0	38.2	101.3	26.4	144.5	32.4	61.6	19.5	109.5	27.5	275.5	53.7	54,071.6	7,157.0
Woodland softwoods	60.3	22.0	68.3	20.7	35.6	18.2	38.7	17.9	37.0	15.3	—	—	18.8	14.1	196,550.3	16,987.6
Other western softwoods	319.6	55.7	253.4	51.5	174.8	45.9	111.9	34.4	104.8	29.9	85.2	33.1	231.0	66.0	311,531.7	24,904.6
Total	9,122.0	308.8	7,355.1	267.1	5,612.5	239.1	4,560.9	207.0	3,733.2	178.9	2,860.6	156.6	10,640.6	534.8	5,644,780.1	107,341.9
Hardwoods:																
Cottonwood and aspen	23.9	18.1	—	—	—	—	—	—	—	—	—	—	6.2	6.3	85,721.8	22,226.7
Oak	301.9	46.0	245.8	40.8	189.4	39.0	47.1	17.3	87.7	23.7	55.0	18.7	128.6	28.6	2,798,396.9	106,865.8
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	52,257.0	8,050.5
Tanoak	56.1	18.9	20.5	11.5	47.8	21.3	10.6	8.5	31.9	18.6	16.8	10.6	16.9	10.5	1,239,042.8	68,575.6
Woodland hardwoods	—	—	—	—	6.0	6.2	6.2	6.3	—	—	—	—	—	—	140,002.9	20,005.1
Other western hardwoods	127.9	34.4	65.4	22.8	18.4	10.9	55.7	18.9	18.7	10.9	8.4	7.4	77.9	22.5	1,041,496.2	60,818.0
Total	509.8	63.3	331.7	49.1	261.7	46.0	119.6	27.5	138.2	32.1	80.2	22.7	229.7	38.2	5,356,917.6	144,918.1
All species groups	9,631.8	315.7	7,686.8	271.0	5,874.1	244.0	4,680.5	208.9	3,871.4	181.7	2,940.8	158.1	10,870.3	536.3	11,001,697.7	177,889.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes all live trees ≥1 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-19—Number of dead trees[a] on forest land, by species group and diameter class, California, 2001–2010

Species group	Diameter class (inches)															
	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	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees															
Softwoods:																
Douglas-fir	12,404.2	1,042.6	7,542.1	712.6	4,714.4	604.4	4,288.8	477.4	3,260.2	369.6	2,890.0	423.6	1,676.9	286.5	1,351.8	254.6
Incense cedar	7,656.6	796.6	4,569.1	513.2	2,486.3	387.4	2,136.5	339.3	1,336.1	241.0	777.5	184.8	783.0	171.9	432.0	137.3
Lodgepole pine	5,128.3	1,170.6	2,670.9	672.4	2,089.1	589.2	1,842.4	458.9	1,270.6	337.8	1,152.1	243.3	762.3	186.3	1,020.7	213.3
Ponderosa and Jeffrey pines	8,857.8	900.9	6,759.0	738.9	3,960.8	580.3	2,592.7	370.2	2,317.6	319.0	1,588.5	253.4	1,124.6	205.1	582.6	147.4
Redwood	2,939.4	569.1	1,349.2	288.6	1,240.4	258.2	594.5	162.6	118.6	67.7	413.5	148.0	483.8	155.2	222.9	93.4
Sitka spruce	93.0	59.8	63.9	50.8	63.9	50.8	—	—	—	—	—	—	—	—	46.5	42.3
Sugar pine	2,044.4	362.0	2,621.5	446.2	1,310.4	249.0	1,206.6	268.8	888.3	226.1	684.3	160.9	478.8	142.2	405.2	134.1
True fir	27,018.8	2,244.3	21,059.2	1,401.3	15,366.7	1,107.7	12,915.1	993.1	9,190.6	733.6	8,193.3	648.4	5,414.6	572.1	5,022.7	497.0
Western hemlock	—	—	45.5	42.1	155.8	78.6	36.0	39.5	—	—	36.0	39.5	—	—	—	—
Western juniper	709.8	222.3	824.9	197.9	396.4	119.6	272.5	116.5	238.2	94.5	220.6	91.1	148.0	74.3	151.7	75.6
Western white pine	1,128.0	319.0	503.2	181.0	632.7	219.7	322.9	121.7	345.9	148.8	112.6	64.8	102.1	61.8	296.5	140.5
Woodland softwoods	3,315.5	683.3	3,585.4	644.5	3,167.1	631.9	1,752.9	361.5	1,375.4	305.8	1,234.4	247.7	809.1	171.0	317.0	122.2
Other western softwoods	4,349.8	691.4	2,686.6	514.5	2,284.0	465.6	1,950.8	367.2	1,551.3	341.1	1,249.7	253.9	529.0	152.4	562.4	180.8
Total	75,645.5	3,368.8	54,280.5	2,262.3	37,868.1	1,831.3	29,911.7	1,465.4	21,892.9	1,132.3	18,552.5	959.4	12,312.2	791.9	10,412.1	704.7
Hardwoods:																
Cottonwood and aspen	904.0	444.4	300.0	153.1	210.7	88.4	134.2	99.6	134.6	85.2	31.4	34.2	—	—	—	—
Oak	41,852.1	3,112.4	18,938.2	1,547.4	9,407.3	909.5	4,648.4	488.4	2,700.8	353.3	1,891.3	290.3	1,232.0	223.7	705.0	170.9
Red alder	1,894.9	485.1	1,295.7	306.1	677.3	177.2	216.9	109.1	48.3	43.0	127.8	101.7	39.8	39.0	—	—
Tanoak	10,862.3	1,627.8	6,171.5	1,038.7	4,833.9	871.3	2,512.6	498.1	1,636.5	445.3	952.5	264.6	414.2	137.3	284.9	116.3
Woodland hardwoods	5,300.2	969.7	4,018.1	709.5	2,710.9	439.3	1,286.8	340.2	1,032.5	246.1	577.6	171.8	210.1	103.1	221.0	128.2
Other western hardwoods	12,544.4	1,233.2	5,976.0	726.0	3,105.2	428.0	1,659.0	274.5	1,067.1	211.0	712.9	177.1	417.9	125.9	222.2	91.7
Total	73,357.9	3,968.3	36,699.6	2,210.3	20,945.3	1,448.5	10,457.9	844.5	6,619.8	659.4	4,293.5	473.7	2,313.9	314.9	1,433.1	259.6
All species groups	149,003.5	5,305.2	90,980.1	3,227.1	58,813.4	2,356.8	40,369.6	1,700.6	28,512.7	1,316.5	22,846.0	1,071.4	14,626.1	854.3	11,845.2	749.2

Table A2-19—Number of dead trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)															
	21.0–22.9		23.0–24.9		25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees															
Softwoods:																
Douglas-fir	1,063.4	204.7	1,196.8	179.5	965.6	91.8	740.0	87.1	683.4	77.1	704.7	79.1	642.9	72.6	464.8	58.0
Incense cedar	612.0	150.6	285.5	81.7	198.9	43.5	159.9	32.7	267.8	45.0	164.3	34.0	147.4	32.7	88.2	25.2
Lodgepole pine	622.7	151.1	371.6	86.8	442.4	63.5	323.7	52.7	253.2	51.1	176.8	37.4	111.5	27.7	109.5	28.6
Ponderosa and Jeffrey pines	1,016.1	200.4	657.9	125.1	476.9	61.7	409.4	53.6	407.0	57.0	433.2	57.1	294.8	44.2	187.2	35.0
Redwood	320.8	146.8	296.4	106.6	94.7	24.6	166.7	37.3	180.1	42.5	124.1	29.2	178.8	36.5	217.0	43.3
Sitka spruce	—	—	—	—	16.8	10.5	—	—	—	—	—	—	—	—	—	—
Sugar pine	260.3	98.3	176.5	50.5	201.3	39.3	156.0	32.2	134.7	28.9	156.2	35.8	115.3	30.9	96.1	25.7
True fir	4,272.3	471.1	2,760.7	282.6	1,974.8	146.5	1,616.5	124.5	1,382.0	115.1	1,274.7	107.4	958.5	90.1	765.2	77.9
Western hemlock	52.3	45.6	—	—	—	—	—	—	—	—	—	—	—	—	6.2	6.3
Western juniper	37.8	37.4	115.9	61.5	32.4	14.1	17.9	10.6	12.3	8.7	19.2	11.1	10.4	8.1	11.3	12.0
Western white pine	149.2	75.1	35.4	14.9	88.5	23.2	78.1	23.3	53.5	18.3	55.7	18.6	34.3	14.6	35.2	14.8
Woodland softwoods	295.8	106.8	62.2	42.5	53.8	18.4	26.2	12.9	31.0	14.1	16.7	10.3	27.5	12.8	19.5	11.3
Other western softwoods	598.5	168.8	565.5	142.2	301.3	54.0	169.4	36.1	129.8	32.5	135.8	29.3	92.2	24.1	58.2	20.7
Total	9,301.1	667.0	6,524.3	426.4	4,847.4	213.1	3,864.0	185.7	3,534.8	176.1	3,261.5	165.5	2,613.6	141.9	2,058.6	122.8
Hardwoods:																
Cottonwood and aspen	—	—	11.8	8.7	—	—	—	—	—	—	—	—	5.9	6.1	—	—
Oak	848.5	180.0	371.2	88.0	246.6	42.6	199.0	35.7	118.5	27.3	115.2	28.2	75.3	22.0	53.4	18.4
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tanoak	268.1	102.2	141.0	68.8	55.4	20.7	61.7	19.9	29.0	13.6	15.7	10.1	14.9	9.8	12.4	8.8
Woodland hardwoods	110.4	64.6	10.6	8.2	—	—	17.8	10.5	—	—	11.1	8.3	—	—	—	—
Other western hardwoods	136.2	71.7	165.4	73.0	57.5	19.2	33.7	14.7	71.6	23.5	20.2	11.3	15.2	9.9	20.5	11.4
Total	1,363.4	228.2	700.0	135.8	359.5	53.3	312.2	45.4	219.2	38.3	162.2	33.1	111.3	26.6	86.3	23.3
All species groups	10,664.5	704.5	7,224.3	445.8	5,206.9	219.3	4,176.2	190.8	3,754.0	179.3	3,423.7	169.1	2,724.9	144.4	2,144.9	125.0

Table A2-19—Number of dead trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0+			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees															
Softwoods:																
Douglas-fir	318.9	47.1	270.5	44.8	344.7	49.6	279.3	48.7	248.0	40.9	181.0	36.8	787.8	87.7	47,020.0	2,680.3
Incense cedar	121.7	27.6	82.6	22.8	89.8	23.5	48.1	17.4	54.6	18.5	57.0	20.8	96.1	24.5	22,651.1	1,712.8
Lodgepole pine	87.4	25.0	51.6	18.0	42.8	16.4	24.3	12.2	13.7	9.3	12.7	8.9	12.6	9.0	18,592.8	3,081.9
Ponderosa and Jeffrey pines	208.7	37.8	121.4	27.7	127.1	28.2	94.1	24.3	62.1	21.8	82.9	24.1	160.7	33.9	32,523.1	2,330.9
Redwood	184.9	34.0	128.2	29.9	125.7	31.4	146.6	30.4	106.1	25.9	125.2	30.2	1,646.8	211.7	11,404.8	1,308.3
Sitka spruce	—	—	—	—	—	—	—	—	—	—	—	—	—	—	284.2	128.0
Sugar pine	90.2	26.5	127.7	30.7	62.5	19.7	85.0	24.5	43.8	16.6	29.9	13.6	251.1	44.9	11,626.0	1,269.3
True fir	550.7	64.1	511.8	63.9	449.0	61.8	382.8	51.9	334.8	51.2	211.7	37.8	882.5	99.2	122,508.8	6,141.7
Western hemlock	6.2	6.3	—	—	—	—	8.7	7.6	—	—	6.2	6.3	—	—	352.8	140.4
Western juniper	—	—	—	—	5.6	6.0	—	—	5.9	6.1	—	—	5.7	5.9	3,236.5	574.0
Western white pine	42.7	16.3	30.8	13.8	23.0	11.9	18.8	14.0	6.4	6.3	16.6	10.1	38.2	15.3	4,150.3	843.6
Woodland softwoods	6.4	6.4	—	—	—	—	—	—	6.7	6.4	—	—	—	—	16,102.7	2,406.2
Other western softwoods	25.2	12.7	16.6	10.1	31.6	14.1	18.7	11.0	12.5	12.4	6.5	6.3	39.4	15.8	17,365.0	2,011.0
Total	1,643.0	108.8	1,341.1	100.2	1,301.9	97.1	1,106.3	89.1	894.7	80.2	729.5	71.0	3,920.9	259.7	307,818.1	8,971.4
Hardwoods:																
Cottonwood and aspen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,732.6	587.4
Oak	76.4	23.5	25.0	12.6	37.4	15.3	5.9	6.0	—	—	4.2	5.1	5.8	6.0	83,557.8	5,079.5
Red alder	6.2	6.3	—	—	—	—	—	—	—	—	—	—	—	—	4,307.0	823.8
Tanoak	—	—	13.8	9.3	17.3	10.8	—	—	6.7	6.6	—	—	—	—	28,304.3	4,086.6
Woodland hardwoods	6.0	6.2	—	—	—	—	—	—	—	—	—	—	—	—	15,513.1	2,328.8
Other western hardwoods	7.7	7.0	—	—	—	—	7.7	7.0	10.6	8.5	—	—	12.4	8.9	26,263.5	2,140.8
Total	96.2	26.1	38.8	15.7	54.7	18.7	13.7	9.3	17.3	10.7	4.2	5.1	18.2	10.8	159,678.3	7,491.7
All species groups	1,739.3	111.7	1,379.9	102.3	1,356.6	98.9	1,120.0	89.5	912.0	80.9	733.7	71.2	3,939.1	259.8	467,496.4	11,945.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-20—Number of live trees[a] on forest land, by forest type group and ownership group, California, 2001–2010

Forest type group	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees													
Softwoods:														
California mixed conifer	1,910,549.1	73,982.2	138,774.8	23,769.5	25,553.1	8,279.4	569,128.2	43,228.3	302,696.4	38,172.7	871,824.6	54,163.9	2,946,701.5	94,539.7
Douglas-fir	148,883.9	22,734.9	15,044.4	9,014.9	31,269.2	12,163.7	231,452.6	39,070.1	137,811.5	23,611.7	369,264.1	44,100.1	564,461.6	51,767.0
Fir/spruce/mountain hemlock	464,732.0	39,035.5	38,994.9	8,312.7	11,192.9	7,439.3	84,099.0	23,813.4	18,041.4	6,391.5	102,140.3	24,595.1	617,060.1	47,418.5
Lodgepole pine	235,070.7	32,887.9	68,315.8	13,764.3	4,398.4	3,245.9	16,391.6	10,279.8	23,635.2	11,961.5	40,026.8	15,760.4	347,811.8	39,080.5
Pinyon/juniper woodlands	106,338.5	10,334.5	82,083.1	14,878.3	6,682.3	2,273.3	3,924.8	2,322.0	19,324.3	9,163.4	23,249.1	9,452.6	218,353.0	20,531.3
Ponderosa pine	275,449.1	25,546.5	12,595.6	4,901.1	691.3	412.6	83,448.8	14,627.4	101,017.9	18,268.7	184,466.7	23,069.8	473,202.6	34,719.3
Redwood	2,102.0	1,409.2	13,046.9	5,453.6	28,436.2	7,787.7	204,687.5	33,085.3	88,373.3	16,987.3	293,060.8	36,491.3	336,645.9	37,586.3
Western juniper	73,579.8	11,424.1	31,658.8	5,599.9	1,347.8	1,101.0	4,605.7	2,937.1	21,728.8	4,665.9	26,334.5	5,498.2	132,920.9	13,862.3
Western white pine	26,399.5	6,698.4	1,761.7	1,553.5	—	—	—	—	—	—	—	—	28,161.2	6,876.2
Other western softwoods	74,840.2	15,291.2	19,179.0	5,499.5	8,706.3	7,756.9	13,002.8	5,845.8	21,949.8	9,023.9	34,952.6	10,749.3	137,678.0	20,969.3
Total	3,317,944.8	86,679.0	421,454.8	33,332.8	118,277.5	19,670.0	1,210,740.8	70,987.1	734,578.8	53,610.6	1,945,319.6	82,799.2	5,802,996.6	124,656.7
Hardwoods:														
Alder/maple	31,003.7	9,858.8	22,761.3	11,543.5	6,132.7	3,206.1	39,195.2	12,488.8	36,115.9	12,423.2	75,311.1	17,579.0	135,208.8	23,373.9
Aspen/birch	40,275.1	15,565.7	1,496.5	1,119.1	2,536.3	2,584.0	12,302.1	13,091.7	4,211.0	3,073.3	16,513.1	13,447.6	60,821.0	20,760.9
Elm/ash/cottonwood	2,181.8	2,299.7	—	—	1,082.7	781.5	—	—	5,109.5	2,396.5	5,109.5	2,396.5	8,374.0	3,412.1
Tanoak/laurel	385,075.4	50,387.4	34,232.3	11,939.7	84,183.2	23,966.0	503,273.5	59,894.5	494,971.4	52,513.6	998,244.9	75,424.9	1,501,735.8	94,025.8
Western oak	1,216,073.2	82,146.0	289,266.3	47,852.8	93,878.3	14,268.1	330,420.2	42,359.8	1,201,505.2	64,939.7	1,531,925.3	76,056.7	3,131,143.2	122,141.2
Woodland hardwoods	70,747.8	14,716.8	9,774.5	3,399.4	7,305.8	5,430.4	16,504.9	14,343.5	12,097.5	4,765.5	28,602.4	15,114.4	116,430.4	22,054.4
Other hardwoods	72,703.8	22,290.3	7,972.4	6,251.3	31,086.0	14,661.0	31,834.7	14,822.9	89,439.9	18,531.1	121,274.6	23,585.8	233,036.8	36,130.6
Total	1,818,060.8	99,040.5	365,503.3	50,899.6	226,205.0	31,987.6	933,530.6	77,317.0	1,843,450.2	84,002.4	2,776,980.9	107,708.4	5,186,750.0	156,412.3
Nonstocked	7,225.0	1,498.9	903.7	682.4	—	—	3,531.4	1,499.4	291.0	131.8	3,822.4	1,505.0	11,951.1	2,230.8
All forest types	5,143,230.6	118,159.3	787,861.9	58,885.2	344,482.4	37,052.2	2,147,802.8	99,398.3	2,578,320.0	95,526.0	4,726,122.8	120,376.2	11,001,697.7	177,889.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

TableA2-21—Number of dead trees[a] on forest land, by forest type group and ownership group, California, 2001–2010

	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Thousand trees							
Softwoods:														
California mixed conifer	109,790.9	5,643.6	10,367.3	1,740.5	1,255.2	505.9	18,670.4	1,773.8	7,967.7	1,290.2	26,638.1	2,093.1	148,051.6	6,269.7
Douglas-fir	7,888.1	1,378.5	1,242.7	759.0	1,561.2	727.0	4,023.5	819.1	6,392.4	1,791.3	10,415.9	1,941.9	21,107.9	2,600.3
Fir/spruce/mountain hemlock	44,272.5	4,103.8	4,606.6	1,179.0	1,801.4	1,432.8	4,240.8	983.0	1,188.8	486.5	5,429.6	1,091.1	56,110.1	4,632.3
Lodgepole pine	8,583.7	1,290.8	2,964.9	742.8	162.9	106.5	778.4	443.0	974.2	381.0	1,752.6	581.1	13,464.2	1,600.7
Pinyon/juniper woodlands	5,860.5	903.3	5,545.5	1,638.2	476.6	248.5	32.6	35.2	1,911.9	698.9	1,944.4	699.8	13,826.9	2,003.9
Ponderosa pine	9,770.9	1,696.9	357.2	182.3	93.8	63.1	1,993.8	490.2	2,166.6	520.2	4,160.4	706.2	14,382.3	1,848.4
Redwood	13.1	9.1	743.1	358.0	995.1	358.6	4,718.5	777.5	3,819.3	931.3	8,537.9	1,194.1	10,289.2	1,288.2
Western juniper	3,809.9	1,204.7	1,152.2	389.6	55.5	56.6	85.7	57.3	824.9	258.5	910.6	264.6	5,928.4	1,294.6
Western white pine	1,917.0	679.5	50.8	34.9	—	—	6.8	6.7	—	—	6.8	6.7	1,974.6	680.5
Other western softwoods	4,208.7	1,334.7	1,119.8	413.9	334.3	216.9	1,151.0	565.6	880.6	467.5	2,031.6	733.3	7,694.4	1,592.9
Total	196,115.3	7,077.3	28,150.1	2,817.1	6,736.0	1,739.8	35,701.5	2,384.8	26,126.5	2,642.9	61,828.0	3,380.4	292,829.4	8,471.5
Hardwoods:														
Alder/maple	750.9	357.0	1,352.1	716.9	413.0	289.2	1,792.9	629.8	538.8	228.0	2,331.8	668.0	4,847.7	1,078.6
Aspen/birch	847.2	455.1	—	—	43.3	44.1	—	—	37.1	37.8	37.1	37.8	927.7	458.8
Elm/ash/cottonwood	175.6	185.1	—	—	72.3	74.1	—	—	114.6	85.0	114.6	85.0	362.5	216.8
Tanoak/laurel	13,027.3	2,459.0	2,477.5	1,547.0	3,926.7	1,290.5	12,521.2	3,441.0	6,858.3	919.9	19,379.5	3,517.0	38,811.0	4,732.1
Western oak	41,402.4	4,376.8	5,959.8	1,194.8	2,479.6	492.3	7,230.7	1,083.5	27,456.3	2,327.9	34,687.0	2,543.6	84,528.9	5,208.2
Woodland hardwoods	5,781.4	1,393.4	1,300.7	498.4	280.9	151.0	310.4	269.7	843.5	527.0	1,153.9	592.0	8,516.9	1,600.9
Other hardwoods	3,518.6	1,115.6	260.6	170.6	410.4	190.0	773.8	408.8	2,347.1	681.3	3,120.9	794.1	7,310.6	1,392.3
Total	65,503.5	5,295.2	11,350.8	2,133.3	7,626.2	1,426.7	22,629.0	3,642.8	38,195.8	2,625.3	60,824.8	4,403.8	145,305.2	7,313.3
Nonstocked	25,583.2	5,716.7	2,604.6	1,372.6	575.6	586.4	163.5	74.0	434.8	281.4	598.4	290.7	29,361.7	5,915.2
All forest types	287,201.9	9,884.7	42,105.5	3,696.0	14,937.7	2,292.6	58,494.0	4,281.0	64,757.2	3,661.5	123,251.2	5,340.8	467,496.4	11,945.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-22—Average number of live trees[a] per acre on forest land, by forest type group and ownership group, California, 2001–2010

Forest type group	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Number of trees per acre													
Softwoods:														
California mixed conifer	369.09	11.20	305.97	39.63	297.01	64.95	392.22	21.37	475.90	40.44	417.72	19.45	377.63	9.41
Douglas-fir	433.32	46.64	343.92	160.84	533.03	112.60	700.27	75.78	442.61	48.46	575.29	47.05	518.87	33.02
Fir/spruce/mountain hemlock	306.40	18.86	214.55	29.28	644.27	171.37	351.97	82.02	217.22	49.55	317.21	62.84	302.80	17.61
Lodgepole pine	336.10	36.41	290.77	39.85	272.12	96.50	638.36	230.87	545.87	190.34	580.30	148.08	341.16	28.95
Pinyon/juniper woodlands	125.59	10.27	111.99	18.58	88.96	16.82	187.98	39.94	103.72	45.59	112.21	41.41	117.27	9.86
Ponderosa pine	198.91	14.04	143.39	41.37	44.12	20.12	226.16	27.64	262.75	36.43	244.83	23.02	211.09	11.83
Redwood	153.59	37.01	343.79	42.86	327.19	46.10	582.41	60.64	402.18	46.30	513.07	42.45	474.33	35.42
Western juniper	89.66	12.32	87.24	12.72	117.08	37.15	184.66	67.65	69.06	12.26	77.55	13.22	86.62	7.82
Western white pine	183.67	29.74	109.26	89.19	—	—	—	—	—	—	—	—	169.08	28.40
Other western softwoods	247.39	37.98	134.77	28.84	602.63	337.85	294.53	84.76	415.49	91.04	360.43	65.46	247.51	28.08
Total	294.98	6.94	183.72	12.68	309.72	36.74	422.85	18.94	329.15	18.22	381.81	13.34	305.11	5.75
Hardwoods:														
Alder/maple	553.61	79.76	726.50	174.35	369.11	102.75	480.54	90.37	519.78	89.31	498.59	64.25	530.24	49.93
Aspen/birch	798.06	195.96	165.68	46.57	2,199.86	2,199.86	3,920.35	3,920.35	383.17	128.37	1,168.83	800.11	813.34	208.46
Elm/ash/cottonwood	431.94	431.94	—	—	107.67	22.77	—	—	141.89	25.12	133.61	25.28	155.45	32.69
Tanoak/laurel	762.49	67.64	457.82	115.00	546.77	118.16	853.05	59.94	707.50	42.32	774.09	36.06	742.21	30.60
Western oak	452.02	24.85	451.27	62.37	195.90	21.19	398.27	38.97	245.99	11.22	268.10	11.21	328.74	10.83
Woodland hardwoods	248.52	39.81	93.95	23.03	370.02	214.72	2,475.57	2,475.57	214.16	52.58	452.90	202.99	246.87	39.17
Other hardwoods	348.26	92.59	179.35	126.89	535.69	181.72	556.98	184.50	370.13	51.89	405.87	55.94	382.00	46.99
Total	478.40	21.39	403.80	47.49	306.19	34.82	594.46	35.66	307.31	11.52	366.89	11.94	398.58	10.14
Nonstocked	13.43	2.47	11.28	7.93	—	—	32.35	11.00	5.85	2.02	24.05	8.02	15.26	2.54
All forest types	329.98	7.36	240.25	16.33	305.71	26.03	472.79	17.40	311.39	9.62	368.57	8.72	335.26	5.23

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 0.005 trees per acre were estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-23—Average number of dead trees[a] per acre on forest land, by forest type group and ownership group, California, 2001–2010

	Ownership group													
	USDA Forest Service		Other federal		State and local government		Private						All owners	
							Corporate		Noncorporate		All private			
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Number of trees per acre													
Softwoods:														
California mixed conifer	21.21	0.98	22.86	3.08	14.59	4.54	12.87	1.01	12.53	1.67	12.76	0.87	18.97	0.72
Douglas-fir	22.96	3.18	28.41	13.53	26.61	9.54	12.17	1.91	20.53	5.00	16.23	2.65	19.40	2.02
Fir/spruce/mountain hemlock	29.19	2.09	25.35	4.78	103.69	53.30	17.75	3.04	14.31	4.54	16.86	2.55	27.53	1.79
Lodgepole pine	12.27	1.48	12.62	2.56	10.08	1.26	30.31	8.18	22.50	2.28	25.41	3.58	13.21	1.22
Pinyon/juniper woodlands	6.92	0.98	7.57	2.19	6.34	2.81	1.56	1.45	10.26	3.26	9.38	2.97	7.43	1.03
Ponderosa pine	7.06	1.15	4.07	1.83	5.99	2.67	5.40	1.13	5.64	1.22	5.52	0.83	6.42	0.77
Redwood	0.95	0.21	19.58	5.38	11.45	2.82	13.43	1.53	17.38	3.17	14.95	1.55	14.50	1.35
Western juniper	4.64	1.42	3.18	1.02	4.82	3.45	3.44	1.54	2.62	0.75	2.68	0.71	3.86	0.81
Western white pine	13.34	4.07	3.15	0.88	—	—	1.01	1.01	—	—	1.01	1.01	11.86	3.57
Other western softwoods	13.91	3.95	7.87	2.42	23.14	0.98	26.07	7.90	16.67	6.73	20.95	5.29	13.83	2.46
Total	17.44	0.60	12.27	1.17	17.64	4.04	12.47	0.70	11.71	1.04	12.13	0.60	15.40	0.42
Hardwoods:														
Alder/maple	13.41	5.00	43.16	12.38	24.86	9.93	21.98	4.42	7.76	2.37	15.44	3.02	19.01	3.04
Aspen/birch	16.79	7.53	—	—	37.57	37.57	—	—	3.38	2.95	2.63	2.34	12.41	5.41
Elm/ash/cottonwood	34.77	34.77	—	—	7.19	5.42	—	—	3.18	2.20	3.00	2.07	6.73	3.49
Tanoak/laurel	25.80	4.12	33.13	18.06	25.50	6.65	21.22	5.45	9.80	0.98	15.03	2.58	19.18	2.13
Western oak	15.39	1.50	9.30	1.65	5.17	0.85	8.72	1.08	5.62	0.45	6.07	0.41	8.87	0.51
Woodland hardwoods	20.31	3.98	12.50	3.83	14.23	2.70	46.56	46.56	14.93	7.77	18.27	7.42	18.06	2.76
Other hardwoods	16.85	4.56	5.86	3.11	7.07	2.30	13.54	6.29	9.71	2.33	10.44	2.23	11.98	1.97
Total	17.24	1.27	12.54	2.15	10.32	1.70	14.41	2.18	6.37	0.40	8.04	0.56	11.17	0.53
Nonstocked	47.56	9.28	32.52	14.71	93.20	93.20	1.50	0.63	8.74	5.49	3.77	1.79	37.49	6.76
All forest types	18.43	0.63	12.84	1.08	13.26	1.83	12.88	0.87	7.82	0.41	9.61	0.41	14.25	0.36

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 0.005 trees per acre were estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-24—Number of growing-stock trees[a] on timberland, by species group and diameter class, California, 2001–2010

Species group	Diameter class (inches)															
	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	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees															
Softwoods:																
Douglas-fir	123,490.7	4,925.1	86,556.6	3,597.0	63,305.6	2,703.2	44,124.2	1,993.0	34,670.8	1,602.5	26,564.2	1,348.5	19,768.5	1,109.4	12,381.0	822.4
Incense cedar	59,731.3	3,574.5	37,816.6	2,320.8	25,575.3	1,670.5	16,464.7	1,176.2	10,713.3	921.6	9,232.7	759.0	6,845.3	643.7	4,591.7	493.8
Lodgepole pine	15,419.7	3,324.3	9,139.3	1,560.8	6,881.1	1,127.2	4,636.4	720.6	4,274.4	651.1	2,192.3	389.9	2,228.5	397.4	1,597.5	313.4
Ponderosa and Jeffrey pines	99,400.2	5,008.6	77,494.0	4,158.3	55,975.6	2,951.8	41,949.9	2,166.4	30,817.9	1,616.4	22,881.3	1,326.4	17,098.8	1,023.8	12,146.2	837.9
Redwood	28,454.8	2,922.2	20,603.3	1,970.0	15,176.7	1,537.9	15,632.3	1,590.4	10,179.9	1,088.9	7,991.7	843.3	5,863.6	730.2	5,103.6	648.8
Sitka spruce	390.6	162.3	546.8	264.9	443.4	196.6	380.4	232.4	382.5	199.7	325.7	211.3	372.2	239.0	147.8	96.6
Sugar pine	11,007.5	1,072.8	8,404.8	797.5	5,699.9	590.9	4,439.0	448.7	2,825.0	357.8	2,704.3	360.4	2,450.0	326.2	2,257.8	321.9
True fir	131,742.7	5,711.8	92,264.7	4,099.9	71,233.2	3,298.9	48,703.3	2,378.9	40,454.0	2,051.8	27,903.8	1,543.1	22,503.2	1,340.4	16,385.0	1,031.2
Western hemlock	1,445.7	695.3	857.5	212.9	893.3	288.5	539.2	176.7	634.7	247.1	249.2	115.7	129.8	70.9	45.5	42.1
Western juniper	4,264.1	661.8	2,915.8	517.5	2,442.3	408.7	1,562.7	331.7	888.1	214.3	656.0	183.0	703.6	181.4	291.5	103.9
Western white pine	2,765.1	574.3	1,378.8	278.2	956.3	215.4	691.3	181.5	678.7	166.2	301.5	106.7	620.8	167.9	410.4	142.1
Other western softwoods	7,739.7	1,290.9	5,386.2	912.8	4,263.0	677.5	2,542.9	477.0	1,973.8	383.5	1,164.6	265.9	1,238.2	309.0	1,110.1	316.8
Total	485,852.2	11,393.0	343,364.4	7,959.7	252,845.7	5,833.9	181,666.4	4,371.8	138,493.2	3,425.0	102,167.2	2,723.3	79,822.6	2,334.6	56,468.0	1,841.0
Hardwoods:																
Cottonwood and aspen	2,415.2	1,135.9	959.0	367.0	679.8	254.6	225.5	92.9	280.5	113.9	386.0	161.0	—	—	286.6	140.2
Oak	133,668.1	6,885.4	86,662.3	4,457.3	50,306.6	2,560.5	30,333.9	1,789.4	16,649.3	1,128.7	11,778.2	871.5	7,146.0	604.9	4,732.4	476.9
Red alder	6,157.0	1,144.0	5,426.9	877.6	4,771.2	899.7	3,137.7	672.0	1,132.4	303.8	1,068.5	297.4	457.1	162.2	348.5	116.0
Tanoak	117,365.5	6,920.7	66,860.7	4,060.9	40,386.7	2,711.1	25,122.4	1,831.5	14,272.5	1,189.0	7,979.5	805.0	4,918.9	611.8	3,783.7	438.7
Other western hardwoods	51,531.3	3,245.1	31,607.5	2,273.8	20,958.5	1,420.3	15,029.4	1,118.7	9,368.5	809.3	6,070.1	633.4	4,129.8	464.1	1,746.1	275.0
Total	311,137.1	10,670.6	191,516.4	6,610.6	117,102.9	4,172.9	73,848.9	3,041.6	41,703.3	1,950.8	27,282.2	1,428.8	16,651.9	1,002.3	10,897.3	734.4
All species groups	796,989.4	16,042.1	534,880.9	10,503.0	369,948.6	7,191.7	255,515.3	5,339.4	180,196.5	3,938.9	129,449.4	3,056.4	96,474.4	2,540.6	67,365.3	1,979.2

Table A2-24—Number of growing-stock trees[a] on timberland, by species group and diameter class, California, 2001–2010 (continued)

	Diameter class (inches)															
	21.0–22.9		23.0–24.9		25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees															
Softwoods:																
Douglas-fir	10,059.2	739.9	7,859.6	517.8	6,191.9	297.2	4,363.3	230.0	3,891.5	211.6	3,140.6	185.0	2,697.3	170.3	2,242.9	156.0
Incense cedar	3,317.3	435.8	2,627.9	299.5	2,215.7	173.7	1,589.5	134.5	1,140.1	104.8	877.3	92.2	829.7	84.7	635.6	79.8
Lodgepole pine	973.2	224.8	745.2	170.8	503.6	102.5	301.2	66.2	257.9	69.4	123.6	36.6	66.5	20.4	47.5	18.9
Ponderosa and Jeffrey pines	9,150.4	680.8	6,284.8	453.9	4,564.1	245.3	3,756.3	219.4	2,790.1	174.7	2,199.0	157.3	1,557.9	126.5	1,080.6	104.6
Redwood	4,612.8	541.3	3,187.8	395.4	3,004.2	319.4	2,233.2	213.3	1,748.4	196.0	1,381.6	154.0	1,063.1	137.7	859.5	109.7
Sitka spruce	156.1	102.3	30.4	18.6	65.7	30.8	32.3	18.2	47.5	27.3	29.0	13.7	28.8	17.6	27.3	23.2
Sugar pine	1,609.3	255.2	1,574.0	209.1	1,321.2	110.8	1,131.7	111.0	913.8	87.5	731.6	81.9	675.5	76.6	544.5	67.5
True fir	11,643.6	810.0	8,457.9	586.3	6,634.3	379.7	5,364.5	316.1	3,939.5	257.3	3,234.5	223.2	2,141.9	170.1	1,833.3	154.0
Western hemlock	91.1	84.1	7.6	7.0	45.7	17.2	36.1	20.4	13.8	9.3	—	—	—	—	—	—
Western juniper	221.0	104.5	309.4	106.2	85.4	25.1	52.7	22.4	38.5	21.5	32.2	14.2	13.4	9.2	10.4	8.1
Western white pine	319.8	121.1	217.1	69.3	161.6	46.8	154.5	42.6	149.8	35.9	91.1	26.4	62.7	24.2	83.1	27.0
Other western softwoods	416.9	156.9	475.9	124.1	294.7	80.9	326.9	83.6	147.1	46.1	116.8	44.6	137.2	37.7	127.6	36.5
Total	42,570.8	1,528.7	31,777.4	1,085.0	25,088.2	683.5	19,342.2	545.9	15,078.0	468.4	11,957.3	397.7	9,274.1	338.5	7,492.3	305.7
Hardwoods:																
Cottonwood and aspen	145.1	75.2	75.6	29.7	47.8	23.2	88.0	44.8	38.2	15.7	29.2	16.1	5.9	6.0	5.9	6.0
Oak	3,370.6	387.3	2,413.5	266.2	1,328.5	110.8	1,006.1	89.8	639.8	69.7	502.9	63.0	290.1	55.1	167.4	34.1
Red alder	46.5	42.3	77.3	54.8	18.5	10.8	16.8	10.5	20.6	11.4	9.9	8.0	—	—	—	—
Tanoak	3,026.0	430.0	1,279.8	194.6	710.1	94.4	486.0	71.9	395.3	75.0	120.7	30.0	83.5	23.3	148.1	41.8
Other western hardwoods	1,719.3	283.2	1,064.5	173.8	658.5	77.1	362.2	52.2	341.8	54.7	249.2	55.6	138.4	33.2	151.3	40.2
Total	8,307.6	650.9	4,910.8	383.3	2,763.4	171.8	1,959.0	137.9	1,435.7	122.3	911.8	91.8	517.9	69.6	472.7	70.6
All species groups	50,878.4	1,656.9	36,688.2	1,150.7	27,851.6	706.0	21,301.2	566.1	16,513.7	484.9	12,869.1	409.1	9,792.0	348.3	7,965.1	316.1

Table A2-24—Number of growing-stock trees[a] on timberland, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0+			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees															
Softwoods:																
Douglas-fir	1,922.1	140.6	1,480.5	118.8	1,255.0	113.3	1,171.1	106.8	942.3	91.0	742.9	81.7	2,955.1	254.2	461,776.8	14,343.9
Incense cedar	492.9	64.4	318.9	50.7	308.3	50.4	259.8	41.0	140.6	31.4	90.5	24.9	497.0	76.2	186,312.0	9,237.7
Lodgepole pine	42.4	16.4	23.8	12.1	15.8	12.6	15.7	12.6	23.6	12.0	—	—	—	—	49,509.3	6,826.8
Ponderosa and Jeffrey pines	806.3	81.1	718.7	73.9	444.6	55.0	314.5	50.1	235.8	43.0	172.1	34.7	369.7	62.4	392,208.7	14,366.8
Redwood	629.3	104.8	582.3	93.5	376.8	64.9	300.4	60.1	179.6	43.0	148.4	34.2	756.5	134.1	130,069.8	9,460.3
Sitka spruce	7.7	7.0	10.6	8.5	23.2	15.7	24.4	12.6	—	—	—	—	15.5	14.1	3,487.9	1,506.9
Sugar pine	363.6	49.4	219.9	38.6	297.3	45.4	188.6	36.5	163.7	31.9	130.6	30.5	518.1	69.6	50,171.7	2,920.5
True fir	1,313.5	125.6	1,200.5	127.8	708.8	89.4	643.1	79.9	484.1	68.5	368.0	55.5	791.8	115.0	499,949.3	18,510.6
Western hemlock	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,989.5	1,441.2
Western juniper	38.3	21.7	19.2	13.9	12.5	8.7	—	—	—	—	—	—	24.9	19.5	14,581.7	1,881.0
Western white pine	71.9	22.6	33.7	16.6	24.0	12.1	43.3	16.5	12.4	8.7	11.9	8.6	44.5	18.4	9,284.1	1,297.3
Other western softwoods	68.4	25.5	44.9	16.7	16.9	10.3	24.7	12.3	10.9	8.2	—	—	32.8	14.3	27,660.3	3,475.1
Total	5,756.5	254.5	4,653.1	225.1	3,483.1	187.3	2,985.5	172.6	2,192.9	139.8	1,664.3	120.6	6,005.8	359.7	1,830,001.2	31,437.9
Hardwoods:																
Cottonwood and aspen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,668.4	1,779.7
Oak	146.7	32.4	85.5	23.3	77.5	25.3	12.7	9.1	29.6	13.9	11.6	8.6	68.9	20.9	351,428.4	14,663.7
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22,688.9	3,497.6
Tanoak	34.6	14.9	12.7	9.1	35.7	19.4	10.6	8.5	21.3	16.9	16.8	10.6	6.3	6.2	287,077.5	15,505.3
Other western hardwoods	90.0	26.2	52.3	18.5	12.1	9.0	37.0	15.4	18.7	10.9	—	—	57.4	19.3	145,394.0	7,615.1
Total	271.3	44.1	150.6	32.6	125.3	33.1	60.4	19.6	69.5	24.4	28.5	13.6	132.6	29.1	812,257.2	23,909.0
All species groups	6,027.8	260.1	4,803.6	227.5	3,608.5	190.6	3,045.9	174.0	2,262.4	142.0	1,692.7	121.3	6,138.4	361.3	2,642,258.4	40,260.5

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes live growing stock trees of commercial species that are ≥5 inches in diameter at breast height; excludes trees that are classified as rough or rotten cull.

Table A2-25—Net volume of live trees[a] on forest land, by ownership and land status, California, 2001–2010

Ownership	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
USDA Forest Service:														
National forest	39,131.5	933.0	2,631.2	190.6	41,762.6	926.4	11,478.6	683.2	1,305.4	148.5	12,784.0	693.9	54,546.7	932.6
Total	39,131.5	933.0	2,631.2	190.6	41,762.6	926.4	11,478.6	683.2	1,305.4	148.5	12,784.0	693.9	54,546.7	932.6
Other federal government:														
Bureau of Land Management	971.4	169.7	500.9	65.2	1,472.3	179.6	73.6	39.8	132.2	26.1	205.8	47.4	1,678.1	184.8
Departments of Defense or Energy	11.3	12.4	57.4	21.0	68.7	24.4	—	—	—	—	—	—	68.7	24.4
National Park Service	—	—	—	—	—	—	6,015.7	616.6	539.0	103.4	6,554.7	610.6	6,554.7	610.6
U.S. Fish and Wildlife Service	—	—	—	—	—	—	7.2	8.8	0.2	0.2	7.3	8.8	7.3	8.8
Other federal	—	—	52.2	23.7	52.2	23.7	129.2	93.6	35.1	32.5	164.3	98.9	216.4	101.7
Total	982.7	170.1	610.4	71.7	1,593.1	181.7	6,225.7	622.7	706.4	110.7	6,932.2	616.3	8,525.2	632.4
State and local government:														
Local	257.0	96.5	330.6	74.6	587.6	122.4	159.5	102.1	130.9	43.5	290.4	110.9	878.0	163.5
State	731.1	204.5	106.1	35.3	837.1	207.2	3,143.0	778.5	359.2	105.2	3,502.1	785.1	4,339.2	791.8
Other public	—	—	2.7	2.4	2.7	2.4	47.3	42.1	2.5	2.0	49.8	42.1	52.5	42.2
Total	988.1	224.8	439.4	82.4	1,427.4	239.0	3,349.8	785.9	492.5	113.7	3,842.3	793.3	5,269.8	807.8
Corporate private	13,266.6	566.7	505.7	69.6	13,772.2	569.4	—	—	—	—	—	—	13,772.2	569.4
Noncorporate private:														
Nongovernmental conservation or natural resource organizations	872.6	148.6	47.5	16.5	920.2	149.5	—	—	—	—	—	—	920.2	149.5
Unicorporated partnerships, associations, clubs	345.1	104.5	36.3	14.1	381.5	106.2	—	—	—	—	—	—	381.5	106.2
Native American	806.5	200.0	35.7	18.4	842.2	200.3	—	—	—	—	—	—	842.2	200.3
Individual	11,151.3	612.4	4,366.2	205.8	15,517.5	626.8	—	—	—	—	—	—	15,517.5	626.8
Total	13,175.6	652.8	4,485.8	207.2	17,661.4	665.2	—	—	—	—	—	—	17,661.4	665.2
All private	26,442.1	732.9	4,991.5	214.2	31,433.6	728.3	—	—	—	—	—	—	31,433.6	728.3
All owners	67,544.3	1,195.4	8,672.4	303.6	76,216.8	1,186.5	21,054.1	1,164.2	2,504.4	217.1	23,558.5	1,171.6	99,775.3	1,445.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-26—Gross volume of dead trees[a] on forest land, by ownership and land status, California, 2001–2010

Ownership	Land status													
	Unreserved forests						Reserved forests						All forest land	
	Timberland		Other forest		Total		Productive		Other forest		Total			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
USDA Forest Service:														
National forest	6,854.4	273.4	451.6	51.2	7,306.0	275.6	2,541.6	200.5	277.3	38.6	2,818.9	203.2	10,124.9	313.7
Total	6,854.4	273.4	451.6	51.2	7,306.0	275.6	2,541.6	200.5	277.3	38.6	2,818.9	203.2	10,124.9	313.7
Other federal government:														
Bureau of Land Management	112.4	33.5	95.4	18.9	207.8	38.3	20.1	15.2	15.9	4.9	36.0	16.0	243.9	41.3
Departments of Defense or Energy	—	—	4.2	3.1	4.2	3.1	—	—	—	—	—	—	4.2	3.1
National Park Service	—	—	—	—	—	—	1,504.3	241.3	104.4	22.9	1,608.7	240.3	1,608.7	240.3
Other federal	—	—	1.9	1.5	1.9	1.5	40.4	39.5	1.6	1.5	42.1	39.5	43.9	39.5
Total	112.4	33.5	101.5	19.2	213.9	38.5	1,564.8	243.9	122.0	23.4	1,686.8	242.9	1,900.7	244.2
State and local government:														
Local	31.7	16.0	15.3	6.4	47.1	17.2	36.8	25.3	2.9	1.6	39.7	25.4	86.8	30.5
State	157.8	71.6	7.3	3.9	165.1	71.7	528.0	131.0	38.5	12.9	566.5	131.3	731.6	145.6
Other public	—	—	—	—	—	—	1.2	1.1	0.2	0.2	1.4	1.1	1.4	1.1
Total	189.5	73.3	22.6	7.5	212.2	73.7	566.1	133.2	41.6	13.0	607.6	133.6	819.8	148.5
Corporate private	3,270.9	471.9	30.1	6.9	3,301.1	471.9	—	—	—	—	—	—	3,301.1	471.9
Noncorporate private:														
Nongovernmental conservation or natural resource organizations	75.9	24.3	1.2	0.8	77.1	24.3	—	—	—	—	—	—	77.1	24.3
Unicorporated partnerships, associations, or clubs	35.0	14.6	3.9	3.3	38.9	15.0	—	—	—	—	—	—	38.9	15.0
Native American	83.6	34.8	1.6	1.2	85.2	34.7	—	—	—	—	—	—	85.2	34.7
Individual	1,812.7	328.7	290.6	32.0	2,103.2	329.9	—	—	—	—	—	—	2,103.2	329.9
Total	2,007.2	331.2	297.2	32.2	2,304.4	332.4	—	—	—	—	—	—	2,304.4	332.4
All private	5,278.1	566.4	327.3	32.8	5,605.5	566.7	—	—	—	—	—	—	5,605.5	566.7
All owners	12,434.5	633.0	903.0	64.1	13,337.6	634.4	4,672.5	337.0	440.8	46.9	5,113.3	338.0	18,450.9	700.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-27—Net volume of live trees[a] on forest land, by county and land status, California, 2001–2010

County	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
Alameda	15.0	12.6	122.5	36.6	137.5	38.6	—	—	25.1	15.7	25.1	15.7	162.7	41.7
Alpine	331.0	91.6	72.0	28.7	403.0	96.0	589.0	140.6	70.9	26.8	659.9	142.7	1,063.0	170.2
Amador	433.8	133.7	90.1	26.7	523.9	136.1	50.4	33.8	2.6	2.6	53.0	33.9	576.9	140.2
Butte	1,715.5	258.5	194.0	55.0	1,909.4	263.8	—	—	19.5	14.4	19.5	14.4	1,928.9	264.2
Calaveras	900.1	179.7	205.1	41.8	1,105.2	183.7	67.7	69.0	—	—	67.7	69.0	1,173.0	196.2
Colusa	107.9	50.2	73.9	18.5	181.8	53.4	—	—	1.0	1.0	1.0	1.0	182.8	53.4
Contra Costa	—	—	41.8	18.7	41.8	18.7	0.6	0.7	23.9	16.0	24.6	16.0	66.4	24.5
Del Norte	2,312.9	298.7	52.6	29.3	2,365.5	299.7	1,436.7	690.0	0.9	1.1	1,437.6	690.0	3,803.0	743.5
El Dorado	2,908.7	326.4	201.8	56.0	3,110.5	329.5	257.4	140.8	40.0	19.1	297.3	142.1	3,407.8	352.7
Fresno	1,420.1	238.3	232.1	44.2	1,652.2	242.2	2,025.2	303.2	309.9	74.2	2,335.1	309.9	3,987.3	374.6
Glenn	384.5	125.6	137.1	48.0	521.7	133.9	6.4	6.8	—	—	6.4	6.8	528.1	134.0
Humboldt	7,693.5	547.2	328.1	103.9	8,021.6	553.0	2,415.3	568.8	—	—	2,415.3	568.8	10,437.0	743.7
Imperial	—	—	4.8	2.2	4.8	2.2	—	—	5.3	5.4	5.3	5.4	10.1	5.9
Inyo	39.3	26.8	127.9	27.0	167.3	37.6	16.3	11.5	176.9	31.7	193.2	33.7	360.5	48.5
Kern	315.5	74.1	360.3	57.1	675.8	93.5	—	—	51.2	21.8	51.2	21.8	727.0	95.6
Lake	606.0	127.7	101.4	28.6	707.4	130.6	31.3	24.0	15.5	12.4	46.8	27.0	754.3	133.3
Lassen	1,854.3	185.9	170.8	26.5	2,025.1	187.5	154.3	69.5	—	—	154.3	69.5	2,179.4	199.0
Los Angeles	92.3	37.8	99.3	27.8	191.6	46.6	7.4	6.6	13.7	6.7	21.0	9.4	212.6	47.4
Madera	1,338.0	249.9	206.6	39.3	1,544.6	252.5	948.4	230.4	40.4	23.1	988.8	231.4	2,533.5	336.9
Marin	182.7	113.4	39.8	16.3	222.5	114.5	176.1	108.7	18.4	11.8	194.5	109.2	417.0	158.2
Mariposa	449.6	131.0	234.1	53.1	683.6	140.9	1,160.3	226.8	39.1	20.6	1,199.3	226.7	1,883.0	266.9
Mendocino	5,622.5	448.6	769.8	119.2	6,392.2	460.0	170.6	86.7	164.3	97.6	334.8	130.4	6,727.1	476.5
Merced	—	—	19.3	12.5	19.3	12.5	—	—	2.2	2.2	2.2	2.2	21.5	12.7
Modoc	1,154.0	137.7	227.9	32.0	1,381.9	141.0	134.8	71.5	8.1	6.5	142.9	71.8	1,524.8	157.3
Mono	398.2	81.4	499.8	82.0	898.0	113.4	42.1	22.1	73.3	28.8	115.5	36.2	1,013.5	118.0
Monterey	203.9	117.9	365.1	67.5	569.0	135.6	238.3	173.2	154.1	76.0	392.4	192.8	961.4	235.4
Napa	238.4	83.6	178.7	53.1	417.1	95.6	—	—	8.6	7.5	8.6	7.5	425.7	95.9
Nevada	1,295.6	208.2	50.5	17.6	1,346.1	208.8	8.0	8.1	4.1	3.7	12.1	8.9	1,358.1	209.2
Orange	—	—	4.7	2.9	4.7	2.9	—	—	1.6	1.2	1.6	1.2	6.3	3.1
Placer	1,979.6	285.4	255.3	67.3	2,235.0	292.5	98.9	45.3	4.2	3.3	103.1	45.4	2,338.1	295.7
Plumas	5,022.4	389.6	34.4	13.9	5,056.8	390.0	246.5	116.7	—	—	246.5	116.7	5,303.3	402.2

Table A2-27—Net volume of live trees[a] on forest land, by county and land status, California, 2001–2010 (continued)

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Million cubic feet							
Riverside	61.3	34.9	13.6	6.9	74.9	35.5	41.4	23.6	2.4	1.2	43.8	23.6	118.7	42.6
Sacramento	—	—	5.5	5.0	5.5	5.0	—	—	—	—	—	—	5.5	5.0
San Benito	35.4	28.7	83.2	21.5	118.6	35.8	—	—	—	—	—	—	118.6	35.8
San Bernardino	240.0	73.5	134.8	33.3	374.8	80.2	94.1	42.5	46.7	20.8	140.8	47.2	515.6	91.7
San Diego	3.3	2.6	65.0	19.7	68.4	19.8	23.9	24.0	11.3	7.3	35.3	25.1	103.6	32.0
San Joaquin	79.4	49.0	1.8	1.3	81.2	49.0	—	—	—	—	—	—	81.2	49.0
San Luis Obispo	9.9	8.8	343.1	58.9	353.0	59.4	—	—	54.3	37.2	54.3	37.2	407.3	69.7
San Mateo	275.1	124.2	39.1	21.5	314.2	126.1	159.5	102.1	14.0	14.2	173.5	103.1	487.7	173.8
Santa Barbara	29.0	19.5	167.0	37.5	196.0	43.1	20.4	14.1	45.1	21.3	65.5	25.4	261.5	50.0
Santa Clara	121.5	67.2	242.0	46.5	363.5	79.6	—	—	83.8	26.8	83.8	26.8	447.3	84.2
Santa Cruz	932.9	198.9	14.4	9.9	947.2	199.1	490.2	202.9	27.4	27.9	517.6	204.6	1,464.8	285.4
Shasta	4,110.1	340.4	407.3	60.8	4,517.3	343.6	532.3	122.7	82.0	37.3	614.4	128.4	5,131.7	361.9
Sierra	1,898.7	279.9	—	—	1,898.7	279.9	7.0	7.1	—	—	7.0	7.1	1,905.7	280.0
Siskiyou	8,289.8	516.6	292.1	67.6	8,581.8	519.4	1,852.2	305.2	25.3	16.9	1,877.6	306.1	10,459.4	569.5
Solano	—	—	24.9	15.4	24.9	15.4	—	—	—	—	—	—	24.9	15.4
Sonoma	1,641.9	314.4	181.9	43.1	1,823.8	316.3	207.8	134.9	49.4	25.0	257.2	137.2	2,080.9	344.4
Stanislaus	—	—	50.0	13.8	50.0	13.8	—	—	9.4	7.4	9.4	7.4	59.4	15.7
Sutter	—	—	15.0	7.6	15.0	7.6	—	—	—	—	—	—	15.0	7.6
Tehama	1,762.7	263.2	259.8	37.5	2,022.5	265.4	231.8	95.7	25.9	13.2	257.7	96.6	2,280.2	280.2
Trinity	5,651.8	471.5	199.1	52.9	5,850.9	473.1	2,326.7	296.1	101.4	44.9	2,428.0	298.9	8,278.9	527.6
Tulare	689.1	153.0	185.6	38.3	874.7	157.3	2,938.3	375.1	543.1	107.2	3,481.3	384.8	4,356.1	407.6
Tuolumne	2,033.9	284.9	229.2	65.1	2,263.1	291.0	1,797.8	289.4	68.1	45.2	1,865.9	291.6	4,129.1	410.2
Ventura	5.3	4.0	91.8	23.1	97.1	23.4	48.4	27.7	27.7	13.7	76.2	30.9	173.3	38.2
Yolo	—	—	50.8	18.4	50.8	18.4	—	—	—	—	—	—	50.8	18.4
Yuba	657.8	184.8	73.8	30.9	731.6	187.6	—	—	12.4	9.4	12.4	9.4	744.0	187.8
All counties	67,544.3	1,195.4	8,672.4	303.6	76,216.8	1,186.5	21,054.1	1,164.2	2,504.4	217.1	23,558.5	1,171.6	99,775.3	1,445.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-28—Gross volume of dead trees[a] on forest land, by county and land status, California, 2001–2010

County	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
Alameda	—	—	10.1	5.4	10.1	5.4	—	—	—	—	—	—	10.1	5.4
Alpine	88.8	33.6	7.7	4.8	96.5	33.9	123.8	32.3	9.1	4.2	132.9	32.5	229.4	46.7
Amador	78.8	35.5	1.3	0.7	80.1	35.5	19.0	12.5	—	—	19.0	12.5	99.1	37.5
Butte	173.0	40.6	14.9	6.5	187.9	41.1	—	—	1.0	1.0	1.0	1.0	188.8	41.1
Calaveras	102.2	33.8	14.8	5.0	117.0	34.1	1.3	1.3	—	—	1.3	1.3	118.3	34.2
Colusa	12.3	6.4	10.3	4.3	22.6	7.7	—	—	—	—	—	—	22.6	7.7
Contra Costa	—	—	0.6	0.6	0.6	0.6	0.7	0.8	—	—	0.7	0.8	1.3	1.0
Del Norte	664.2	153.9	13.4	7.1	677.6	154.1	206.3	95.8	0.4	0.5	206.7	95.8	884.3	180.5
El Dorado	432.4	64.8	9.0	4.4	441.4	64.8	87.9	48.9	15.7	9.1	103.6	49.8	545.0	79.8
Fresno	203.8	46.7	33.7	19.8	237.5	50.6	305.7	51.5	52.8	14.7	358.5	53.2	596.0	71.3
Glenn	63.0	24.3	8.9	4.5	71.9	24.7	4.3	4.5	—	—	4.3	4.5	76.2	25.0
Humboldt	2,900.7	536.8	18.8	7.1	2,919.4	536.8	606.7	220.3	—	—	606.7	220.3	3,526.1	577.1
Imperial	—	—	4.6	3.5	4.6	3.5	—	—	0.3	0.3	0.3	0.3	4.9	3.6
Inyo	10.8	6.3	30.8	8.8	41.6	10.8	9.2	9.1	41.1	12.5	50.4	15.5	91.9	18.6
Kern	73.5	27.4	32.7	10.4	106.1	29.2	—	—	13.9	7.4	13.9	7.4	120.1	30.1
Lake	79.4	27.5	12.7	5.3	92.1	27.9	0.1	0.1	1.2	0.8	1.3	0.8	93.5	27.9
Lassen	239.9	39.7	41.7	14.0	281.6	42.0	41.7	24.7	—	—	41.7	24.7	323.4	48.7
Los Angeles	28.1	16.3	3.7	1.5	31.8	16.4	2.1	2.0	4.0	2.5	6.1	3.2	37.9	16.7
Madera	196.2	62.1	11.0	4.6	207.2	62.2	222.8	68.6	11.4	7.8	234.2	69.0	441.4	92.2
Marin	43.6	28.9	1.5	0.8	45.1	28.9	15.2	10.6	—	—	15.2	10.6	60.2	30.8
Mariposa	55.5	16.7	9.0	3.2	64.6	17.0	336.9	77.2	16.3	9.7	353.3	77.3	417.8	79.1
Mendocino	1,091.6	161.9	36.3	12.0	1,127.9	162.3	41.2	30.8	10.5	5.5	51.6	31.3	1,179.5	165.2
Modoc	182.5	37.2	15.1	4.0	197.7	37.4	37.3	23.9	1.7	1.7	39.0	24.0	236.6	44.2
Mono	47.5	16.1	123.4	27.8	170.9	31.7	14.2	13.5	8.4	4.8	22.6	14.4	193.5	34.8
Monterey	13.9	9.0	18.1	5.7	32.0	10.7	1.5	1.0	30.9	17.5	32.4	17.5	64.4	20.5
Napa	14.3	6.9	5.4	2.3	19.7	7.3	—	—	0.4	0.3	0.4	0.3	20.1	7.3
Nevada	158.1	38.0	1.5	1.3	159.6	38.0	—	—	0.5	0.4	0.5	0.4	160.1	38.0
Orange	—	—	1.4	1.3	1.4	1.3	—	—	—	—	—	—	1.4	1.3
Placer	303.0	54.8	21.9	10.3	324.9	55.7	23.9	12.8	0.9	0.8	24.8	12.8	349.7	57.0
Plumas	1,012.4	120.1	11.8	6.3	1,024.2	120.6	54.0	30.6	—	—	54.0	30.6	1,078.1	123.6

Table A2-28—Gross volume of dead trees[a] on forest land, by county and land status, California, 2001–2010 (continued)

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Million cubic feet							
Riverside	1.3	1.2	14.8	10.7	16.1	10.7	13.3	12.3	1.4	1.2	14.7	12.3	30.8	16.3
San Benito	—	—	7.2	3.7	7.2	3.7	—	—	—	—	—	—	7.2	3.7
San Bernardino	82.6	28.5	39.4	13.9	122.0	31.7	44.4	25.4	37.2	15.8	81.6	29.8	203.6	43.0
San Diego	9.4	8.3	14.7	5.8	24.1	10.1	26.6	21.7	18.7	11.1	45.3	24.3	69.4	26.3
San Luis Obispo	—	—	12.5	5.0	12.5	5.0	—	—	1.2	1.1	1.2	1.1	13.7	5.1
San Mateo	39.7	28.1	—	—	39.7	28.1	36.8	25.3	0.9	0.9	37.7	25.3	77.4	37.3
Santa Barbara	1.7	1.6	16.1	5.4	17.8	5.8	5.7	5.6	1.5	0.9	7.2	5.7	25.0	8.1
Santa Clara	14.4	11.9	17.7	7.3	32.1	14.0	—	—	4.6	2.5	4.6	2.5	36.6	14.2
Santa Cruz	119.4	48.1	—	—	119.4	48.1	32.3	16.6	—	—	32.3	16.6	151.7	50.9
Shasta	359.7	45.0	31.9	8.1	391.5	45.6	77.9	26.5	4.9	3.9	82.8	26.7	474.3	52.6
Sierra	350.3	62.3	9.7	9.3	360.0	63.0	—	—	—	—	—	—	360.0	63.0
Siskiyou	1,431.9	156.9	56.9	23.2	1,488.8	158.3	463.4	93.7	6.9	3.9	470.3	93.8	1,959.1	178.4
Solano	—	—	0.8	0.7	0.8	0.7	—	—	—	—	—	—	0.8	0.7
Sonoma	131.2	31.1	3.1	1.4	134.4	31.2	59.8	40.9	4.6	4.3	64.5	41.1	198.9	51.6
Stanislaus	—	—	2.1	1.9	2.1	1.9	—	—	0.8	0.6	0.8	0.6	2.9	2.0
Tehama	298.6	58.0	38.2	18.4	336.8	60.7	32.6	17.4	6.0	4.3	38.7	17.9	375.4	62.9
Trinity	776.8	88.4	39.4	14.1	816.2	89.3	582.6	100.5	3.9	2.1	586.5	100.5	1,402.7	129.4
Tulare	183.0	57.9	37.1	14.6	220.1	59.7	618.9	93.8	115.3	26.5	734.2	96.5	954.2	112.1
Tuolumne	324.5	66.1	18.1	5.9	342.6	66.2	495.9	114.3	6.9	5.2	502.8	114.3	845.4	132.0
Ventura	—	—	10.5	4.0	10.5	4.0	26.6	23.5	5.4	5.1	32.0	24.0	42.5	24.3
Yolo	—	—	3.8	2.8	3.8	2.8	—	—	—	—	—	—	3.8	2.8
Yuba	40.4	18.5	3.2	1.6	43.6	18.6	—	—	—	—	—	—	43.6	18.6
All counties	12,434.5	633.0	903.0	64.1	13,337.6	634.4	4,672.5	337.0	440.8	46.9	5,113.3	338.0	18,450.9	700.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-29—Net cubic volume of live trees[a] on forest land, by county and broad species group, California, 2001–2010

	Broad species group					
	Softwood species		Hardwood species		All species	
County	Total	SE	Total	SE	Total	SE
			Million cubic feet			
Alameda	0.1	0.1	162.6	41.7	162.7	41.7
Alpine	1,051.4	169.7	11.6	7.9	1,063.0	170.2
Amador	417.5	130.3	159.4	40.2	576.9	140.2
Butte	1,344.8	216.4	584.1	97.6	1,928.9	264.2
Calaveras	892.7	182.0	280.3	50.1	1,173.0	196.2
Colusa	83.5	32.6	99.3	28.9	182.8	53.4
Contra Costa	1.7	1.4	64.7	24.3	66.4	24.5
Del Norte	3,172.9	721.2	630.1	106.1	3,803.0	743.5
El Dorado	3,048.4	337.0	359.4	57.6	3,407.8	352.7
Fresno	3,725.8	371.7	261.5	37.0	3,987.3	374.6
Glenn	367.3	115.8	160.8	46.8	528.1	134.0
Humboldt	7,700.9	674.7	2,736.1	214.6	10,437.0	743.7
Imperial	—	—	10.1	5.9	10.1	5.9
Inyo	337.1	47.0	23.4	6.7	360.5	48.5
Kern	432.4	76.5	294.6	48.2	727.0	95.6
Lake	506.2	106.8	248.0	42.4	754.3	133.3
Lassen	2,137.1	198.2	42.3	9.0	2,179.4	199.0
Los Angeles	108.7	32.4	104.0	28.0	212.6	47.4
Madera	2,284.6	330.6	248.8	40.6	2,533.5	336.9
Marin	276.3	135.2	140.8	45.3	417.0	158.2
Mariposa	1,542.1	250.8	340.9	60.5	1,883.0	266.9
Mendocino	4,293.8	385.2	2,433.2	187.8	6,727.1	476.5
Merced	—	—	21.5	12.7	21.5	12.7
Modoc	1,493.9	155.4	30.9	9.5	1,524.8	157.3
Mono	959.5	115.2	53.9	16.4	1,013.5	118.0
Monterey	514.0	205.3	447.4	66.0	961.4	235.4
Napa	200.6	61.3	225.0	54.2	425.7	95.9
Nevada	1,149.8	193.2	208.3	46.1	1,358.1	209.2

Table A2-29—Net cubic volume of live trees[a] on forest land, by county and broad species group, California, 2001–2010 (continued)

	Broad species group					
	Softwood species		Hardwood species		All species	
County	Total	SE	Total	SE	Total	SE
			Million cubic feet			
Orange	—	—	6.3	3.1	6.3	3.1
Placer	1,934.8	275.9	403.3	73.5	2,338.1	295.7
Plumas	5,107.7	392.3	195.7	42.9	5,303.3	402.2
Riverside	90.7	34.9	28.0	14.0	118.7	42.6
Sacramento	—	—	5.5	5.0	5.5	5.0
San Benito	21.4	8.0	97.2	29.9	118.6	35.8
San Bernardino	404.3	80.1	111.4	26.0	515.6	91.7
San Diego	13.6	7.1	90.1	27.2	103.6	32.0
San Joaquin	0.1	0.1	81.1	49.0	81.2	49.0
San Luis Obispo	17.9	6.5	389.4	67.6	407.3	69.7
San Mateo	336.2	147.9	151.5	46.2	487.7	173.8
Santa Barbara	50.3	19.2	211.2	43.0	261.5	50.0
Santa Clara	82.4	46.7	364.9	57.7	447.3	84.2
Santa Cruz	1,053.2	228.5	411.6	97.2	1,464.8	285.4
Shasta	4,103.8	325.4	1,027.9	94.7	5,131.7	361.9
Sierra	1,828.4	272.5	77.3	25.0	1,905.7	280.0
Siskiyou	9,522.4	537.5	937.0	90.5	10,459.4	569.5
Solano	—	—	24.9	15.4	24.9	15.4
Sonoma	1,378.7	292.5	702.2	84.5	2,080.9	344.4
Stanislaus	10.9	5.1	48.6	13.2	59.4	15.7
Sutter	—	—	15.0	7.6	15.0	7.6
Tehama	1,860.2	264.6	419.9	53.5	2,280.2	280.2
Trinity	7,068.4	479.2	1,210.5	102.3	8,278.9	527.6
Tulare	3,977.5	397.6	378.5	67.9	4,356.1	407.6
Tuolumne	3,794.3	395.3	334.8	58.1	4,129.1	410.2
Ventura	114.9	31.3	58.5	18.2	173.3	38.2
Yolo	18.9	11.6	31.9	10.3	50.8	18.4
Yuba	555.6	169.8	188.4	44.0	744.0	187.8
All counties	81,389.8	1,394.2	18,385.5	401.3	99,775.3	1,445.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-30—Net volume of live trees[a] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet							
Softwoods:								
California mixed conifer	36,989.8	1,020.5	203.8	45.0	134.1	25.8	37,327.7	1,018.9
Douglas-fir	6,117.2	503.9	105.3	37.9	79.5	29.9	6,302.0	504.7
Fir/spruce/mountain hemlock	11,305.8	728.5	22.9	11.7	48.0	14.4	11,376.7	728.9
Lodgepole pine	3,591.1	324.1	76.7	35.0	6.1	3.4	3,673.9	326.0
Pinyon/juniper woodlands	889.0	68.7	23.1	7.4	10.1	3.5	922.3	68.3
Ponderosa pine	5,023.7	325.3	87.0	18.7	24.4	8.6	5,135.0	325.5
Redwood	8,030.8	986.2	20.8	11.7	14.2	7.4	8,065.8	986.1
Western juniper	728.9	71.7	24.8	7.7	9.5	4.5	763.2	72.0
Western white pine	377.1	92.4	1.6	1.5	15.6	9.5	394.3	92.9
Other western softwoods	999.1	176.6	26.9	11.0	9.0	3.5	1,035.0	177.2
Total	74,052.6	1,500.4	592.8	74.4	350.4	44.8	74,995.8	1,493.7
Hardwoods:								
Alder/maple	817.2	166.3	181.6	60.5	17.0	10.6	1,015.8	176.8
Aspen/birch	39.9	25.3	22.8	13.4	11.3	6.0	74.0	29.3
Elm/ash/cottonwood	121.6	53.7	0.5	0.4	2.6	2.4	124.8	53.8
Tanoak/laurel	7,250.6	529.1	1,170.5	151.4	136.9	35.6	8,558.0	539.0
Western oak	9,588.4	401.6	3,485.0	191.1	339.5	38.7	13,412.9	428.4
Woodland hardwoods	233.9	36.7	23.3	9.2	2.5	1.7	259.7	37.9
Other hardwoods	1,028.0	208.3	191.5	54.7	33.0	8.5	1,252.5	215.2
Total	19,079.5	685.5	5,075.2	252.8	542.9	54.6	24,697.7	694.8
Nonstocked	—	—	—	—	—	—	81.8	15.4
All forest types	93,132.1	1,485.5	5,668.0	261.9	893.4	70.1	99,775.3	1,445.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-31—Gross volume of dead trees[a] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet							
Softwoods:								
California mixed conifer	5,770.1	240.2	63.1	22.7	118.7	37.8	5,952.0	242.9
Douglas-fir	1,045.5	178.9	7.4	4.7	92.8	39.4	1,145.7	182.6
Fir/spruce/mountain hemlock	2,331.4	190.4	21.1	16.6	192.9	103.5	2,545.4	216.1
Lodgepole pine	582.2	67.0	29.2	21.5	0.6	0.7	611.9	70.4
Pinyon/juniper woodlands	120.4	14.6	22.9	11.8	10.3	5.2	153.5	19.2
Ponderosa pine	298.8	34.3	9.3	4.4	19.7	11.0	327.8	36.2
Redwood	2,787.4	527.7	53.4	31.3	34.5	20.6	2,875.3	531.6
Western juniper	111.0	24.3	1.2	1.0	0.3	0.2	112.6	24.4
Western white pine	99.3	27.2	0.5	0.5	5.4	3.7	105.2	27.5
Other western softwoods	432.4	211.2	6.4	3.6	20.5	16.1	459.3	211.8
Total	13,578.5	655.8	214.6	49.2	495.7	120.5	14,288.7	666.3
Hardwoods:								
Alder/maple	234.2	100.1	83.9	47.7	10.4	6.6	328.5	111.1
Aspen/birch	5.1	4.0	4.2	2.7	0.6	0.5	9.9	4.9
Elm/ash/cottonwood	2.1	1.6	—	—	1.4	1.3	3.5	2.1
Tanoak/laurel	894.4	99.6	143.9	35.5	267.4	127.0	1,305.7	163.6
Western oak	890.9	70.1	314.0	35.4	373.0	107.1	1,577.9	131.7
Woodland hardwoods	91.3	18.4	25.5	13.8	—	—	116.7	23.0
Other hardwoods	108.1	29.7	16.4	5.9	37.7	24.3	162.3	38.9
Total	2,226.1	159.2	587.9	70.6	690.5	167.8	3,504.5	238.8
Nonstocked	—	—	—	—	—	—	657.7	132.6
All forest types	15,804.5	664.1	802.5	85.7	1,186.2	206.2	18,450.9	700.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-32—Net volume of live trees[a] on forest land, by forest type group and ownership group, California, 2001–2010

Forest type group	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
Softwoods:														
California mixed conifer	27,455.0	874.4	2,666.1	343.5	487.5	160.7	4,501.5	329.3	2,217.6	240.5	6,719.1	379.8	37,327.7	1,018.9
Douglas-fir	2,573.3	331.8	245.6	112.8	403.0	155.1	1,476.6	223.1	1,603.5	262.2	3,080.1	333.8	6,302.0	504.7
Fir/spruce/mountain hemlock	8,927.0	654.3	1,321.6	266.3	87.0	58.9	817.1	154.0	224.0	76.9	1,041.2	169.7	11,376.7	728.9
Lodgepole pine	2,387.5	255.7	1,041.0	189.3	32.7	23.8	82.1	41.2	130.6	55.3	212.7	68.6	3,673.9	326.0
Pinyon/juniper woodlands	544.3	54.7	298.1	36.1	31.8	14.3	8.3	5.1	39.8	10.7	48.1	11.8	922.3	68.3
Ponderosa pine	3,292.0	271.5	176.4	52.6	19.0	10.3	628.1	103.7	1,019.4	140.9	1,647.6	171.2	5,135.0	325.5
Redwood	284.9	186.7	1,099.0	465.4	2,096.0	748.2	2,223.1	339.1	2,362.7	414.2	4,585.9	516.5	8,065.8	986.1
Western juniper	483.4	61.2	131.1	23.2	23.2	23.0	9.7	4.3	115.8	19.0	125.5	19.4	763.2	72.0
Western white pine	353.5	89.6	40.8	24.2	—	—	—	—	—	—	—	—	394.3	92.9
Other western softwoods	331.2	67.8	205.9	64.4	27.0	25.7	214.5	90.4	256.2	117.9	470.8	148.3	1,035.0	177.2
Total	46,632.1	980.9	7,225.7	626.1	3,207.1	769.8	9,961.2	529.4	7,969.7	568.8	17,930.9	710.7	74,995.8	1,493.7
Hardwoods:														
Alder/maple	168.3	62.8	139.3	66.2	129.4	70.9	336.3	108.0	242.7	81.0	578.9	134.6	1,015.8	176.8
Aspen/birch	49.3	26.3	2.6	2.4	1.5	1.5	8.8	9.4	11.8	8.4	20.6	12.6	74.0	29.3
Elm/ash/cottonwood	12.6	13.3	—	—	20.7	15.9	—	—	91.4	49.6	91.4	49.6	124.8	53.8
Tanoak/laurel	2,415.2	311.0	222.8	84.8	929.8	216.4	1,940.9	230.0	3,049.3	332.3	4,990.2	384.5	8,558.0	539.0
Western oak	4,671.7	286.5	859.7	129.3	695.1	95.4	1,371.7	143.8	5,814.7	254.3	7,186.4	283.9	13,412.9	428.4
Woodland hardwoods	170.2	32.8	40.5	11.1	19.5	11.1	1.7	1.5	27.8	10.4	29.5	10.5	259.7	37.9
Other hardwoods	367.8	125.3	26.9	26.3	266.7	118.0	140.7	55.9	450.3	99.8	591.0	114.0	1,252.5	215.2
Total	7,855.0	431.3	1,291.8	168.8	2,062.7	272.1	3,800.2	290.0	9,688.0	420.6	13,488.1	470.2	24,697.7	694.8
Nonstocked	59.5	13.7	7.7	5.2	—	—	10.8	4.2	3.7	2.2	14.5	4.7	81.8	15.4
All forest types	54,546.7	932.6	8,525.2	632.4	5,269.8	807.8	13,772.2	569.4	17,661.4	665.2	31,433.6	728.3	99,775.3	1,445.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-33—Gross volume of dead trees[a] on forest land, by forest type group and ownership group, California, 2001–2010

Forest type group	Ownership group													
	USDA Forest Service		Other federal		State and local government		Private						All owners	
							Corporate		Noncorporate		All private			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
Softwoods:														
California mixed conifer	4,608.0	211.6	619.2	94.5	87.0	46.7	442.3	46.5	195.4	36.6	637.8	57.7	5,952.0	242.9
Douglas-fir	414.0	69.1	25.1	15.9	88.0	49.9	418.8	153.0	199.9	52.6	618.6	160.9	1,145.7	182.6
Fir/spruce mountain hemlock	1,955.8	184.1	393.7	103.4	31.9	23.5	109.8	31.2	54.2	25.4	164.0	39.6	2,545.4	216.1
Lodgepole pine	366.9	50.1	180.3	42.3	6.2	5.0	22.0	13.2	36.5	21.4	58.5	25.1	611.9	70.4
Pinyon/juniper woodlands	75.6	11.2	59.6	14.2	4.3	2.3	0.4	0.5	13.6	6.1	14.1	6.1	153.5	19.2
Ponderosa pine	227.8	31.5	18.3	9.9	3.4	3.4	42.2	11.3	36.1	9.3	78.3	14.5	327.8	36.2
Redwood	1.6	1.1	304.0	199.7	276.9	89.9	1,272.8	375.6	1,020.0	320.0	2,292.8	489.3	2,875.3	531.6
Western juniper	67.2	15.9	11.9	4.5	16.5	16.8	0.8	0.7	16.1	6.0	16.9	6.1	112.6	24.4
Western white pine	94.1	26.6	10.4	6.9	—	—	0.7	0.7	—	—	0.7	0.7	105.2	27.5
Other western softwoods	106.8	28.7	42.5	15.6	3.2	2.1	260.4	207.2	46.3	30.6	306.7	209.3	459.3	211.8
Total	7,917.7	267.6	1,665.2	243.0	517.4	115.0	2,570.3	455.0	1,618.1	328.8	4,188.4	555.0	14,288.7	666.3
Hardwoods:														
Alder/maple	89.3	43.1	16.2	9.6	91.4	87.9	115.2	50.9	16.4	9.2	131.6	51.7	328.5	111.1
Aspen/birch	7.5	4.3	—	—	2.3	2.3	—	—	0.1	0.1	0.1	0.1	9.9	4.9
Elm/ash/cottonwood	1.5	1.6	—	—	0.3	0.3	—	—	1.7	1.3	1.7	1.3	3.5	2.1
Tanoak/laurel	436.6	87.6	67.6	31.7	103.0	28.5	449.4	126.0	249.1	43.2	698.6	132.0	1,305.7	163.6
Western oak	909.7	120.2	104.5	25.6	52.0	15.0	132.5	24.9	379.1	38.1	511.7	45.2	1,577.9	131.7
Woodland hardwoods	88.0	21.4	17.6	6.9	5.1	3.6	0.8	0.7	5.2	3.2	6.0	3.3	116.7	23.0
Other hardwoods	80.5	31.9	10.2	8.5	28.0	17.3	11.8	5.3	31.8	10.0	43.6	11.3	162.3	38.9
Total	1,613.2	157.4	216.1	43.0	282.0	95.2	709.8	137.2	683.5	58.6	1,393.2	147.2	3,504.5	238.8
Nonstocked	594.0	129.7	19.4	10.2	20.4	20.8	21.0	14.3	2.8	1.4	23.9	14.4	657.7	132.6
All forest types	10,124.9	313.7	1,900.7	244.2	819.8	148.5	3,301.1	471.9	2,304.4	332.4	5,605.5	566.7	18,450.9	700.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-34—Net volume of live trees[a] on forest land, by species group and ownership group, California, 2001–2010

Species group	Ownership group													
	USDA Forest Service		Other federal		State and local government		Private						All owners	
							Corporate		Noncorporate		All private			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
Softwoods:														
Douglas-fir	13,718.2	564.1	873.3	166.6	930.4	165.2	3,443.9	230.3	3,671.3	286.2	7,115.2	342.0	22,637.2	681.9
Incense cedar	2,692.0	162.3	231.3	50.2	59.6	24.0	643.2	68.3	466.8	67.9	1,110.0	93.3	4,092.9	194.9
Lodgepole pine	2,452.7	213.1	987.2	150.1	23.3	14.8	109.4	42.7	133.1	53.3	242.5	67.4	3,705.7	269.7
Ponderosa and Jeffrey pines	8,749.0	333.8	891.6	114.5	185.6	64.9	1,518.7	122.7	1,744.0	149.6	3,262.7	181.6	13,088.8	400.5
Redwood	293.4	175.2	889.9	364.5	2,102.4	664.0	2,480.7	267.5	2,339.4	322.3	4,820.1	393.7	8,105.7	828.1
Sitka spruce	—	—	21.6	14.5	58.6	56.5	115.6	49.2	73.1	42.6	188.7	65.0	269.0	87.3
Sugar pine	2,776.8	167.9	422.5	131.2	72.0	31.9	550.7	59.6	189.5	36.0	740.1	67.2	4,011.4	225.4
True fir	15,389.5	662.0	2,096.6	266.9	189.9	63.3	1,932.6	174.1	797.8	109.5	2,730.4	196.4	20,406.3	741.9
Western hemlock	5.9	4.0	27.9	15.3	73.9	48.1	90.0	41.7	26.0	11.7	116.0	43.3	223.7	66.0
Western juniper	307.2	27.6	107.1	15.1	3.2	2.7	8.3	2.7	104.4	14.3	112.7	14.6	530.2	34.7
Western white pine	770.0	80.2	195.1	40.5	4.1	3.7	13.9	6.0	5.4	3.4	19.4	6.8	988.6	90.1
Woodland softwoods	490.8	43.8	301.7	34.9	24.4	11.3	8.1	4.8	38.7	9.5	46.8	10.7	863.6	57.8
Other western softwoods	1,207.5	128.7	550.2	109.5	92.4	31.0	95.9	24.3	520.7	69.2	616.6	73.1	2,466.5	186.6
Total	48,852.9	909.6	7,596.1	612.5	3,819.7	770.3	11,011.0	502.5	10,110.1	541.9	21,121.0	645.5	81,389.8	1,394.2
Hardwoods:														
Cottonwood and aspen	65.1	21.7	3.0	2.2	41.8	21.4	7.0	4.9	77.9	37.7	85.0	38.0	194.9	48.8
Oak	3,739.7	172.4	587.3	75.4	591.5	72.4	1,065.9	89.7	4,787.6	176.6	5,853.4	190.0	10,771.9	271.1
Red alder	44.8	14.3	76.3	33.9	48.4	29.4	275.7	64.2	54.5	18.5	330.2	66.7	499.8	81.2
Tanoak	734.2	88.4	72.8	21.6	391.1	85.7	961.1	104.5	1,272.6	135.5	2,233.6	160.8	3,431.7	200.5
Woodland hardwoods	101.6	14.7	41.2	9.4	11.0	7.9	3.6	1.8	10.5	4.6	14.1	4.9	167.9	19.8
Other western hardwoods	1,008.4	88.0	148.4	37.7	366.3	63.3	447.9	54.1	1,348.3	97.6	1,796.2	107.4	3,319.3	154.7
Total	5,693.8	230.4	929.1	102.9	1,450.0	160.4	2,761.2	175.2	7,551.3	271.0	10,312.6	291.6	18,385.5	401.3
All species groups	54,546.7	932.6	8,525.2	632.4	5,269.8	807.8	13,772.2	569.4	17,661.4	665.2	31,433.6	728.3	99,775.3	1,445.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-35—Gross volume of dead trees[a] on forest land, by species group and ownership group, California, 2001–2010

Species group	Ownership group													
	USDA Forest Service		Other federal		State and local government		Private						All owners	
							Corporate		Noncorporate		All private			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
Softwoods:														
Douglas-fir	2,404.2	175.4	140.1	35.3	87.3	21.4	383.8	47.0	332.1	52.5	715.9	68.7	3,347.6	191.7
Incense cedar	343.9	31.5	49.7	13.0	6.5	3.1	87.8	15.5	54.0	10.9	141.8	18.6	541.9	39.1
Lodgepole pine	424.8	56.6	216.6	45.8	5.5	5.0	16.0	9.6	14.1	6.2	30.2	11.2	677.1	73.8
Ponderosa and Jeffrey pines	1,006.4	77.4	118.5	28.8	13.3	7.3	101.7	16.4	83.3	15.3	185.0	22.2	1,323.2	85.8
Redwood	34.6	33.3	278.3	198.6	437.9	128.3	2,159.2	459.9	1,115.7	319.7	3,274.8	554.2	4,025.6	599.6
Sitka spruce	—	—	—	—	—	—	1.3	0.9	5.6	4.0	6.9	4.1	6.9	4.1
Sugar pine	588.3	66.4	119.1	32.1	7.6	4.4	33.1	10.4	31.7	15.9	64.8	19.0	779.8	76.3
True fir	3,990.8	214.9	662.9	107.4	74.8	30.4	265.6	36.9	137.9	36.9	403.5	50.7	5,132.0	247.2
Western hemlock	—	—	8.5	5.0	13.8	9.4	0.9	0.8	—	—	0.9	0.8	23.1	10.5
Western juniper	20.9	4.7	5.4	2.2	—	—	0.1	0.1	2.8	1.2	2.9	1.2	29.3	5.3
Western white pine	145.8	23.9	28.8	10.3	—	—	—	—	3.1	2.1	3.1	2.1	177.7	26.1
Woodland softwoods	80.1	13.9	68.8	16.5	3.0	1.9	0.4	0.5	12.5	5.0	13.0	5.1	164.9	22.2
Other western softwoods	287.6	39.7	87.0	20.0	67.3	46.4	5.0	1.8	70.6	18.6	75.6	18.7	517.5	66.9
Total	9,327.5	307.8	1,783.8	242.6	716.9	144.8	3,055.0	469.2	1,863.5	328.5	4,918.5	563.8	16,746.7	694.6
Hardwoods:														
Cottonwood and aspen	15.2	6.4	0.5	0.5	2.7	2.5	—	—	0.2	0.1	0.2	0.1	18.6	6.9
Oak	445.6	36.9	55.6	11.7	35.6	9.2	92.9	17.3	248.4	23.1	341.2	28.7	877.9	48.9
Red alder	3.0	1.8	7.1	3.4	3.3	1.8	20.5	6.1	8.5	4.2	29.0	7.4	42.4	8.5
Tanoak	90.7	20.6	18.3	10.1	31.8	15.7	80.8	22.8	67.7	13.7	148.5	26.1	289.3	38.1
Woodland hardwoods	102.0	20.9	30.8	9.3	5.9	3.8	3.0	1.3	12.1	4.7	15.1	4.8	153.8	23.6
Other western hardwoods	140.9	19.1	4.7	1.9	23.6	7.2	48.9	13.7	104.0	15.9	152.9	20.9	322.1	29.2
Total	797.4	53.1	116.9	18.8	102.9	20.7	246.0	33.2	440.9	33.7	687.0	46.0	1,704.1	75.2
All species groups	10,124.9	313.7	1,900.7	244.2	819.8	148.5	3,301.1	471.9	2,304.4	332.4	5,605.5	566.7	18,450.9	700.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-36—Net volume of live trees[a] on forest land, by species group and diameter class, California, 2001–2010

Species group	Diameter class (inches)															
	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	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet															
Softwoods:																
Douglas-fir	434.2	17.6	671.2	27.8	888.6	36.9	987.4	44.5	1,109.9	50.0	1,222.1	60.0	1,223.6	66.6	996.6	66.2
Incense cedar	128.4	7.3	167.1	9.9	203.6	12.7	211.0	14.0	212.4	16.9	245.5	19.3	247.9	22.3	236.5	23.5
Lodgepole pine	75.1	10.6	111.8	12.8	178.7	20.4	201.1	20.1	297.8	30.3	267.1	29.5	356.9	37.6	336.8	38.3
Ponderosa and Jeffrey pines	178.4	8.7	315.3	15.9	471.5	23.6	605.8	29.8	746.1	37.5	818.4	45.2	866.9	50.3	898.6	59.8
Redwood	46.3	4.5	90.0	8.6	131.9	13.0	220.9	21.4	228.3	23.1	259.2	27.1	279.3	33.9	320.1	38.5
Sitka spruce	1.7	0.7	5.3	2.3	6.2	3.0	10.5	5.7	14.2	7.0	14.6	9.4	22.2	14.2	14.5	7.8
Sugar pine	22.7	2.0	38.5	3.6	54.7	5.6	70.0	6.8	70.2	8.8	103.8	13.1	124.7	15.9	173.7	22.8
True fir	324.4	13.1	536.3	21.7	764.9	33.8	893.9	39.8	1,144.5	53.8	1,192.2	60.7	1,306.3	72.2	1,287.5	71.5
Western hemlock	5.2	2.4	9.6	2.1	16.0	5.2	15.2	5.4	26.2	9.3	19.6	7.6	22.7	8.1	22.8	14.5
Western juniper	18.1	1.6	34.4	3.0	45.9	4.1	52.4	5.1	51.2	5.7	49.3	6.0	55.2	7.3	37.4	6.0
Western white pine	8.6	1.3	12.6	1.8	19.1	3.3	18.9	3.5	30.1	5.2	31.3	7.4	42.5	10.1	38.5	10.1
Woodland softwoods	21.3	2.0	41.5	3.9	69.1	6.2	84.8	8.6	109.5	11.0	121.7	11.8	98.5	10.9	83.9	11.2
Other western softwoods	50.6	5.4	84.3	8.0	109.6	11.2	129.8	13.1	149.5	15.6	158.2	18.2	189.4	23.6	232.9	31.9
Total	1,315.1	28.6	2,117.8	44.0	2,959.9	62.5	3,501.7	74.7	4,189.9	92.7	4,502.9	106.5	4,836.0	125.5	4,679.8	133.5
Hardwoods:																
Cottonwood and aspen	5.1	2.0	5.4	1.7	8.4	2.4	10.6	3.9	14.0	4.7	19.9	7.0	13.3	6.1	30.0	12.4
Oak	891.3	31.2	1,220.0	40.3	1,299.6	42.9	1,176.4	43.3	1,080.3	44.0	988.9	46.5	849.5	44.2	640.8	42.5
Red alder	24.4	4.6	58.5	9.2	96.3	17.4	103.5	21.2	59.0	13.8	67.9	16.9	35.4	13.3	32.7	10.1
Tanoak	259.6	15.1	346.5	21.1	403.7	26.7	399.8	28.5	371.7	29.8	299.9	27.9	274.4	30.6	254.2	28.7
Woodland hardwoods	13.2	1.7	19.1	2.6	23.3	3.5	21.4	2.9	22.1	3.3	18.2	3.3	13.7	2.5	13.7	3.2
Other western hardwoods	250.3	13.3	329.0	18.9	369.4	21.1	372.1	24.7	372.0	29.2	303.1	28.2	302.0	30.2	166.5	21.6
Total	1,443.9	37.3	1,978.6	49.8	2,200.6	56.9	2,083.7	62.3	1,919.0	64.8	1,697.9	64.9	1,488.3	65.7	1,137.9	58.8
All species groups	2,759.0	46.9	4,096.4	65.4	5,160.5	83.2	5,585.4	96.5	6,108.9	111.3	6,200.8	123.0	6,324.3	139.9	5,817.7	145.1

Table A2-36—Net volume of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)															
	21.0–22.9		23.0–24.9		25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet															
Softwoods:																
Douglas-fir	1,084.4	75.8	981.7	63.4	1,015.4	47.0	881.3	44.8	917.3	49.0	878.5	49.4	874.9	51.1	819.3	52.1
Incense cedar	228.0	26.3	218.1	22.9	220.8	16.1	199.0	15.5	163.7	14.5	155.5	14.3	155.7	14.9	152.5	17.0
Lodgepole pine	349.6	44.9	260.0	30.1	264.9	25.6	219.0	24.3	211.2	27.1	143.6	19.6	106.4	16.5	87.6	13.9
Ponderosa and Jeffrey pines	897.7	63.9	778.6	50.4	723.4	36.3	762.8	41.0	702.8	41.0	656.3	43.4	580.0	41.7	492.9	41.6
Redwood	371.6	43.7	339.5	41.7	403.3	40.6	378.7	35.6	339.4	37.6	316.3	34.4	315.9	37.5	262.8	32.3
Sitka spruce	19.5	11.2	3.9	2.5	10.1	5.1	5.7	3.2	12.3	6.0	8.3	3.6	12.3	5.7	13.0	7.7
Sugar pine	163.7	23.6	184.9	22.3	190.1	15.3	215.6	19.1	210.3	18.7	223.7	22.6	221.9	22.5	215.3	23.6
True fir	1,216.6	77.9	1,137.5	68.2	1,130.7	57.5	1,165.7	60.3	1,080.3	60.5	980.0	57.6	834.1	55.9	847.2	58.3
Western hemlock	12.6	11.6	1.2	0.9	11.7	4.2	6.2	3.8	4.5	2.5	—	—	6.4	3.5	—	—
Western juniper	34.6	6.3	30.7	5.4	18.5	2.5	10.3	2.0	13.3	2.4	11.0	2.1	9.1	2.0	5.5	1.8
Western white pine	35.2	9.8	40.1	8.6	42.4	6.6	45.0	7.3	52.0	8.5	48.3	8.8	47.2	9.2	50.3	9.0
Woodland softwoods	62.7	11.6	45.3	7.9	37.5	4.4	21.4	3.4	13.8	2.8	15.6	3.7	9.7	2.5	8.4	2.5
Other western softwoods	175.3	26.6	180.3	24.8	140.7	16.3	132.8	16.5	105.2	14.8	100.2	15.1	80.1	12.9	87.5	15.3
Total	4,651.5	146.6	4,201.9	124.8	4,209.7	97.6	4,043.5	99.4	3,825.9	104.2	3,537.3	100.3	3,253.8	100.7	3,042.2	104.1
Hardwoods:																
Cottonwood and aspen	24.0	9.5	13.4	5.2	10.6	3.9	16.6	7.3	8.0	2.8	5.1	2.7	0.6	0.6	3.3	2.0
Oak	588.0	46.1	484.9	38.0	323.8	19.0	265.5	18.3	218.5	17.6	171.8	16.8	133.6	16.9	77.8	11.5
Red alder	3.6	3.2	8.9	5.9	2.2	1.4	2.4	1.6	3.3	1.9	1.7	1.4	—	—	—	—
Tanoak	262.5	37.4	148.9	21.0	99.7	12.3	83.4	11.6	73.1	13.6	27.1	6.2	19.2	5.0	37.4	10.9
Woodland hardwoods	8.3	2.6	4.8	1.6	4.0	1.0	2.6	0.9	1.7	0.7	0.3	0.3	0.4	0.5	0.5	0.4
Other western hardwoods	196.1	28.8	142.8	19.2	101.4	10.3	81.8	10.3	66.1	9.4	58.9	12.0	39.2	8.6	49.3	11.6
Total	1,082.5	67.5	803.7	49.6	541.8	26.4	452.3	25.9	370.7	24.9	264.9	21.9	193.1	19.6	168.3	19.9
All species groups	5,734.0	160.4	5,005.7	133.9	4,751.4	101.1	4,495.8	102.6	4,196.6	106.9	3,802.2	102.7	3,446.9	103.1	3,210.5	106.5

Table A2-36—Net volume of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0+			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet															
Softwoods:																
Douglas-fir	857.2	56.7	709.4	50.9	674.6	55.4	708.4	58.6	625.0	54.4	570.8	56.1	3,505.1	271.0	22,637.2	681.9
Incense cedar	138.2	16.1	117.2	15.7	102.9	15.7	103.4	14.5	70.3	13.7	50.4	11.9	364.9	48.6	4,092.9	194.9
Lodgepole pine	53.4	10.1	64.2	13.3	40.9	10.6	33.4	9.5	19.2	6.5	10.3	5.3	16.8	10.1	3,705.7	269.7
Ponderosa and Jeffrey pines	429.9	38.2	437.4	38.7	336.4	33.9	264.3	33.1	274.3	36.7	219.0	34.5	632.1	85.8	13,088.8	400.5
Redwood	238.7	37.9	243.1	34.6	188.4	28.7	164.5	28.3	124.4	24.3	100.4	20.3	2,742.7	719.7	8,105.7	828.1
Sitka spruce	8.8	4.8	8.8	5.2	10.9	7.3	11.4	5.9	—	—	2.5	2.6	52.2	43.6	269.0	87.3
Sugar pine	161.6	19.8	155.5	21.6	172.9	23.7	144.8	24.3	142.0	22.7	127.3	23.7	823.8	123.4	4,011.4	225.4
True fir	724.8	55.7	675.1	57.1	601.8	61.5	488.3	48.5	448.4	48.5	378.3	45.5	1,247.6	133.0	20,406.3	741.9
Western hemlock	4.2	3.7	—	—	3.3	3.3	—	—	9.4	6.0	—	—	26.9	27.4	223.7	66.0
Western juniper	13.7	3.5	7.9	2.3	5.4	1.7	2.8	1.2	5.2	2.2	3.5	1.4	14.5	3.9	530.2	34.7
Western white pine	72.0	11.9	54.9	10.4	30.3	8.0	47.3	10.8	22.5	7.2	47.2	12.4	152.4	31.1	988.6	90.1
Woodland softwoods	3.4	1.4	3.4	1.2	1.4	0.9	3.8	1.7	4.0	1.9	—	—	2.9	2.1	863.6	57.8
Other western softwoods	65.3	12.2	48.3	10.2	39.3	11.1	26.8	8.5	30.1	9.1	25.3	10.8	125.1	60.7	2,466.5	186.6
Total	2,771.2	101.2	2,525.3	97.6	2,208.3	100.0	1,999.2	95.9	1,774.8	91.2	1,535.1	89.1	9,706.9	839.2	81,389.8	1,394.2
Hardwoods:																
Cottonwood and aspen	4.6	3.5	—	—	—	—	—	—	—	—	—	—	2.1	2.1	194.9	48.8
Oak	76.3	13.8	76.5	13.7	55.0	13.3	18.5	7.6	32.8	10.1	30.0	10.8	72.2	18.9	10,771.9	271.1
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	499.8	81.2
Tanoak	13.7	5.1	5.4	3.1	16.1	7.0	4.9	3.9	14.4	8.0	8.6	5.8	7.5	7.4	3,431.7	200.5
Woodland hardwoods	—	—	—	—	0.4	0.4	0.3	0.3	—	—	—	—	—	—	167.9	19.8
Other western hardwoods	30.1	9.4	16.3	6.1	4.4	3.3	24.7	8.9	9.0	5.3	2.2	1.9	32.4	10.0	3,319.3	154.7
Total	124.7	18.0	98.2	15.6	75.9	15.4	48.4	12.2	56.2	13.9	40.8	12.4	114.2	22.7	18,385.5	401.3
All species groups	2,895.9	103.3	2,623.5	98.6	2,284.2	101.5	2,047.6	96.9	1,830.9	92.3	1,575.9	89.9	9,821.1	839.4	99,775.3	1,445.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-37—Gross volume of dead trees[a] on forest land, by species group and diameter class, California, 2001–2010

Species group	Diameter class (inches)															
	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	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet															
Softwoods:																
Douglas-fir	39.1	3.5	53.1	5.2	57.4	7.6	88.1	10.0	98.6	11.2	124.6	17.9	96.3	16.5	104.6	19.6
Incense cedar	14.8	1.5	18.1	2.1	17.7	2.8	24.4	3.9	23.1	4.3	18.6	4.5	26.5	6.0	18.9	5.9
Lodgepole pine	16.5	3.9	19.4	5.3	27.9	8.2	37.5	9.8	37.7	10.1	45.4	10.2	39.2	9.8	67.3	14.1
Ponderosa and Jeffrey pines	15.1	1.5	25.3	2.8	29.9	4.3	35.6	5.1	48.1	6.7	49.5	8.0	49.8	9.3	35.3	9.0
Redwood	4.9	0.9	5.6	1.3	10.7	2.3	7.9	2.2	2.5	1.4	14.5	5.3	21.3	6.7	13.0	5.5
Sitka spruce	0.2	0.1	0.5	0.4	0.7	0.6	—	—	—	—	—	—	—	—	3.1	2.8
Sugar pine	4.0	0.7	11.1	2.0	10.0	1.9	16.2	3.6	19.3	5.1	20.4	4.9	22.5	6.9	25.5	8.7
True fir	57.1	4.8	98.8	6.8	134.9	10.1	189.8	15.4	210.2	17.1	268.6	22.0	240.3	25.6	306.0	31.3
Western hemlock	—	—	0.3	0.3	1.9	0.9	0.7	0.8	—	—	2.0	2.2	—	—	—	—
Western juniper	0.7	0.2	2.1	0.5	1.7	0.5	1.7	0.7	2.2	0.9	2.9	1.2	2.5	1.3	3.2	1.6
Western white pine	2.0	0.6	2.5	0.9	4.8	1.7	5.0	1.9	8.3	3.6	3.4	2.0	4.4	2.7	16.5	8.2
Woodland softwoods	3.7	0.8	10.4	1.9	18.5	3.8	16.7	3.6	18.4	4.3	25.0	5.3	20.9	4.7	13.9	5.4
Other western softwoods	9.6	1.6	13.3	3.1	20.3	4.7	25.6	4.6	29.0	6.2	34.2	7.1	19.5	5.6	29.2	9.0
Total	167.6	8.0	260.4	12.0	336.5	17.5	449.3	23.4	497.4	26.6	609.4	33.2	543.3	36.2	636.5	44.2
Hardwoods:																
Cottonwood and aspen	2.1	0.9	2.2	1.2	2.3	1.0	2.5	2.0	4.7	3.0	1.4	1.5	—	—	—	—
Oak	98.8	7.1	96.8	8.0	90.1	9.2	71.3	7.9	64.8	8.7	62.9	10.0	55.6	10.4	43.5	10.6
Red alder	5.4	1.4	10.6	2.5	9.9	2.6	5.0	2.6	1.2	1.1	6.3	5.0	2.3	2.3	—	—
Tanoak	19.8	3.3	25.4	4.6	37.3	7.0	33.9	6.9	34.4	8.8	30.0	8.8	16.1	5.5	16.5	6.8
Woodland hardwoods	11.4	2.0	19.5	3.4	24.9	4.1	19.1	5.1	23.7	5.7	18.8	5.5	8.9	4.3	12.5	7.2
Other western hardwoods	36.6	3.8	40.2	4.9	35.5	4.9	32.0	5.3	28.7	5.9	28.9	7.3	20.7	6.2	15.2	6.3
Total	174.1	9.3	194.7	11.6	200.0	13.8	163.7	13.4	157.5	15.1	148.2	16.9	103.6	14.2	87.7	15.8
All species groups	341.7	12.6	455.1	17.1	536.4	22.6	613.0	27.1	654.9	30.8	757.6	37.4	646.9	39.0	724.2	46.9

Table A2-37—Gross volume of dead trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)															
	21.0–22.9		23.0–24.9		25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet															
Softwoods:																
Douglas-fir	103.2	20.1	147.7	21.7	142.7	13.7	130.3	15.4	146.3	16.7	174.7	20.0	182.4	20.8	153.9	19.4
Incense cedar	34.0	8.4	19.8	5.5	17.5	3.7	16.7	3.4	33.4	5.6	23.1	4.8	25.1	5.5	17.0	4.9
Lodgepole pine	48.2	11.8	36.1	8.1	52.7	7.8	44.6	7.3	41.6	8.6	33.2	7.1	23.2	5.7	25.9	6.7
Ponderosa and Jeffrey pines	82.2	16.2	66.3	12.3	60.1	7.9	63.4	8.4	75.6	10.6	94.4	12.9	76.1	11.5	56.2	10.6
Redwood	23.7	11.0	27.2	9.5	10.7	2.8	23.7	5.3	29.9	7.0	24.7	5.8	42.6	8.7	61.4	12.2
Sitka spruce	—	—	—	—	2.5	1.5	—	—	—	—	—	—	—	—	—	—
Sugar pine	20.0	7.7	18.0	4.9	25.6	5.0	23.9	5.0	24.9	5.4	34.0	8.0	30.8	8.5	28.7	7.7
True fir	327.5	36.8	266.1	26.6	244.4	18.7	236.9	18.4	243.4	20.7	260.2	22.4	232.7	22.2	209.8	21.3
Western hemlock	6.1	5.3	—	—	—	—	—	—	—	—	—	—	—	—	2.2	2.2
Western juniper	1.0	1.0	3.8	2.1	1.2	0.5	0.8	0.5	0.5	0.4	1.1	0.6	0.6	0.5	1.3	1.4
Western white pine	10.6	5.3	3.7	1.6	9.7	2.6	10.2	3.0	8.0	2.8	9.6	3.2	7.5	3.2	7.8	3.3
Woodland softwoods	13.2	4.9	4.1	2.8	3.4	1.2	2.5	1.2	3.4	1.6	1.8	1.1	3.0	1.6	2.7	1.6
Other western softwoods	42.1	11.8	47.7	11.5	34.2	6.0	23.0	5.0	20.5	5.2	26.0	5.7	21.1	5.6	14.9	5.3
Total	711.7	52.1	640.6	41.2	604.8	27.4	575.9	28.4	627.6	32.0	682.9	36.1	645.2	35.8	581.7	35.1
Hardwoods:																
Cottonwood and aspen	—	—	1.6	1.2	—	—	—	—	—	—	—	—	1.8	1.9	—	—
Oak	65.8	14.1	37.9	8.9	30.4	5.3	29.7	5.4	20.6	4.8	23.0	5.7	17.5	5.1	14.2	4.9
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tanoak	19.4	7.4	12.9	6.3	6.6	2.5	8.3	2.7	5.1	2.4	2.8	1.8	3.0	1.9	3.2	2.3
Woodland hardwoods	7.9	4.6	1.1	0.9	—	—	2.5	1.5	—	—	1.9	1.4	—	—	—	—
Other western hardwoods	12.0	6.3	16.9	7.4	7.2	2.4	5.0	2.2	13.2	4.3	4.4	2.6	3.4	2.3	5.1	2.9
Total	105.0	17.7	70.4	13.5	44.1	6.6	45.5	6.7	38.9	6.8	32.1	6.6	25.7	6.2	22.5	6.1
All species groups	816.8	55.0	711.1	43.2	648.9	28.1	621.4	29.1	666.5	32.6	715.0	36.7	670.9	36.4	604.2	35.7

Table A2-37—Gross volume of dead trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0 +			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet															
Softwoods:																
Douglas-fir	115.8	17.2	112.3	18.6	159.9	23.2	141.7	24.7	140.1	23.3	108.8	22.2	725.8	79.6	3,347.6	191.7
Incense cedar	27.2	6.2	21.4	6.0	25.5	6.7	15.2	5.6	19.5	6.6	24.0	8.9	60.4	16.2	541.9	39.1
Lodgepole pine	24.5	7.1	15.7	5.5	14.0	5.4	8.2	4.1	5.9	4.1	5.7	4.1	6.7	4.8	677.1	73.8
Ponderosa and Jeffrey pines	75.9	13.9	49.6	11.4	54.0	12.2	49.0	12.7	30.4	10.7	51.2	14.8	150.2	32.0	1,323.2	85.8
Redwood	57.2	10.5	45.8	10.7	51.1	12.7	67.8	14.0	53.7	13.1	72.8	17.5	3,352.9	576.5	4,025.6	599.6
Sitka spruce	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	4.1
Sugar pine	31.4	9.3	49.0	12.0	29.3	9.3	43.8	12.6	24.4	9.3	19.0	8.7	247.6	45.3	779.8	76.3
True fir	168.7	19.8	179.3	22.6	176.2	24.4	164.2	22.6	160.4	24.7	115.9	20.9	640.4	73.3	5,132.0	247.2
Western hemlock	2.4	2.4	—	—	—	—	4.5	3.9	—	—	3.1	3.2	—	—	23.1	10.5
Western juniper	—	—	—	—	0.8	0.9	—	—	0.6	0.6	—	—	0.6	0.6	29.3	5.3
Western white pine	11.1	4.3	7.0	3.2	7.5	3.9	7.0	5.2	2.1	2.1	7.7	4.7	21.3	8.8	177.7	26.1
Woodland softwoods	1.2	1.2	—	—	—	—	—	—	2.0	1.9	—	—	—	—	164.9	22.2
Other western softwoods	7.3	3.7	6.2	3.8	12.0	5.4	7.2	4.3	6.3	6.2	3.4	3.4	64.9	44.9	517.5	66.9
Total	522.7	35.5	486.3	36.9	530.4	40.1	508.5	41.5	445.4	40.6	411.8	40.4	5,270.8	592.9	16,746.7	694.6
Hardwoods:																
Cottonwood and aspen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.6	6.9
Oak	23.6	7.3	8.7	4.4	14.3	5.9	2.6	2.6	—	—	2.1	2.6	3.8	3.9	877.9	48.9
Red alder	1.8	1.8	—	—	—	—	—	—	—	—	—	—	—	—	42.4	8.5
Tanoak	—	—	4.9	3.3	6.7	4.2	—	—	3.3	3.3	—	—	—	—	289.3	38.1
Woodland hardwoods	1.7	1.7	—	—	—	—	—	—	—	—	—	—	—	—	153.8	23.6
Other western hardwoods	2.0	1.8	—	—	—	—	3.3	3.0	4.5	3.5	—	—	7.1	5.2	322.1	29.2
Total	29.1	7.9	13.6	5.5	20.9	7.2	5.9	4.0	7.8	4.8	2.1	2.6	10.9	6.5	1,704.1	75.2
All species groups	551.8	36.3	499.9	37.6	551.4	40.7	514.4	41.7	453.2	40.8	413.9	40.5	5,281.8	592.9	18,450.9	700.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-38—Net volume of live trees[a] on forest land, by forest type group and stand origin, California, 2001–2010

	Stand origin					
	Natural stands		Artificial regeneration		Total	
Forest type group	Total	SE	Total	SE	Total	SE
			Million cubic feet			
Softwoods:						
California mixed conifer	36,925.2	1,018.8	402.6	79.8	37,327.7	1,018.9
Douglas-fir	6,139.3	502.7	162.6	62.7	6,302.0	504.7
Fir/spruce/mountain hemlock	11,286.1	727.6	90.5	49.8	11,376.7	728.9
Lodgepole pine	3,673.9	326.0	—	—	3,673.9	326.0
Pinyon/juniper woodlands	913.3	67.8	9.0	8.9	922.3	68.3
Ponderosa pine	4,603.5	311.1	531.5	104.2	5,135.0	325.5
Redwood	7,792.9	973.0	272.9	183.0	8,065.8	986.1
Western juniper	757.6	71.9	5.5	4.6	763.2	72.0
Western white pine	394.3	92.9	—	—	394.3	92.9
Other western softwoods	1,035.0	177.2	—	—	1,035.0	177.2
Total	73,521.1	1,489.5	1,474.7	238.6	74,995.8	1,493.7
Hardwoods:						
Alder/maple	939.2	167.4	76.6	57.1	1,015.8	176.8
Aspen/birch	74.0	29.3	—	—	74.0	29.3
Elm/ash/cottonwood	124.8	53.8	—	—	124.8	53.8
Tanoak/laurel	8,373.0	538.6	185.1	53.6	8,558.0	539.0
Western oak	13,330.2	428.2	82.6	25.6	13,412.9	428.4
Woodland hardwoods	259.7	37.9	—	—	259.7	37.9
Other hardwoods	1,224.8	214.2	27.7	20.7	1,252.5	215.2
Total	24,325.6	693.5	372.0	84.8	24,697.7	694.8
Nonstocked	70.1	14.7	11.7	4.6	81.8	15.4
All forest types	97,916.8	1,447.8	1,858.4	253.2	99,775.3	1,445.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-39—Gross volume of dead trees[a] on forest land, by forest type group and stand origin, California, 2001–2010

Forest type group	Stand origin: Natural stands Total	Natural stands SE	Artificial regeneration Total	Artificial regeneration SE	Total	SE
			Million cubic feet			
Softwoods:						
California mixed conifer	5,884.8	242.5	67.2	21.0	5,952.0	242.9
Douglas-fir	1,135.8	182.7	9.8	3.8	1,145.7	182.6
Fir/spruce/mountain hemlock	2,535.8	216.0	9.6	6.6	2,545.4	216.1
Lodgepole pine	611.9	70.4	—	—	611.9	70.4
Pinyon/juniper woodlands	152.9	19.2	0.7	0.7	153.5	19.2
Ponderosa pine	299.7	35.0	28.1	9.4	327.8	36.2
Redwood	2,838.6	531.2	36.7	25.5	2,875.3	531.6
Western juniper	112.2	24.3	0.3	0.3	112.6	24.4
Western white pine	104.5	27.5	0.7	0.7	105.2	27.5
Other western softwoods	459.3	211.8	—	—	459.3	211.8
Total	14,135.5	666.1	153.2	35.1	14,288.7	666.3
Hardwoods:						
Alder/maple	208.2	59.2	120.3	94.1	328.5	111.1
Aspen/birch	9.9	4.9	—	—	9.9	4.9
Elm/ash/cottonwood	3.5	2.1	—	—	3.5	2.1
Tanoak/laurel	1,212.7	158.8	93.0	40.8	1,305.7	163.6
Western oak	1,561.8	131.5	16.1	7.3	1,577.9	131.7
Woodland hardwoods	116.7	23.0	—	—	116.7	23.0
Other hardwoods	140.3	35.0	22.0	16.9	162.3	38.9
Total	3,253.2	215.7	251.3	104.2	3,504.5	238.8
Nonstocked	629.2	130.0	28.5	25.7	657.7	132.6
All forest types	18,017.8	692.7	433.1	112.8	18,450.9	700.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-40—Net volume of live trees[a] on forest land, by forest type group and stand age class, California, 2001–2010

	Stand age class (years)													
	1–20		21–40		41–60		61–80		81–100		101–120		121–140	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Million cubic feet							
Softwoods:														
California mixed conifer	129.3	37.2	426.7	80.0	1,812.7	201.2	5,900.8	412.8	7,308.1	511.5	3,889.0	397.4	3,467.6	419.0
Douglas-fir	64.3	19.7	809.3	147.2	1,426.2	232.6	794.5	189.0	686.6	184.6	194.7	100.2	290.3	143.2
Fir/spruce/mountain hemlock	21.0	10.3	27.9	19.5	408.6	85.9	1,439.2	243.7	1,892.6	273.7	1,185.0	222.1	1,216.2	265.9
Lodgepole pine	0.5	0.3	9.5	5.8	94.5	41.4	226.6	64.0	373.7	94.9	313.7	98.4	356.3	102.1
Pinyon/juniper woodlands	0.9	0.7	2.4	1.2	43.3	21.9	106.6	27.2	192.9	38.7	40.6	20.0	56.0	18.1
Ponderosa pine	60.9	14.9	331.0	68.6	586.4	120.1	991.0	122.6	1,677.5	193.3	538.5	124.0	343.5	104.6
Redwood	86.7	38.9	359.0	128.7	979.8	242.5	1,143.0	255.4	1,285.5	313.2	465.2	191.6	197.7	104.4
Western juniper	1.1	0.7	5.4	2.6	44.7	11.3	176.0	25.7	130.7	25.0	91.3	27.1	26.9	12.7
Western white pine	—	—	—	—	8.4	8.3	21.3	20.3	15.9	12.6	27.5	27.1	2.5	2.5
Other western softwoods	2.2	2.1	143.0	75.0	167.0	71.7	90.8	52.3	196.8	100.8	41.9	25.8	6.0	5.0
Total	366.8	59.9	2,114.1	233.6	5,571.7	419.9	10,889.8	580.6	13,760.3	708.3	6,787.3	523.0	5,963.1	544.6
Hardwoods:														
Alder/maple	47.3	24.9	348.3	105.6	232.8	90.6	164.7	73.5	77.0	42.9	51.9	50.8	12.9	12.8
Aspen/birch	2.7	2.4	11.0	9.2	12.1	9.7	6.8	5.4	6.4	6.5	—	—	19.4	20.1
Elm/ash/cottonwood	—	—	9.3	7.7	—	—	—	—	—	—	—	—	—	—
Tanoak/laurel	36.6	13.0	1,170.2	158.6	2,035.4	250.1	1,817.1	281.2	862.6	182.1	242.8	101.3	156.5	77.2
Western oak	127.4	25.2	277.8	54.0	1,528.4	137.3	2,681.4	212.8	2,705.8	225.3	950.5	141.5	625.9	117.2
Woodland hardwoods	—	—	2.4	1.7	13.1	5.0	64.9	16.6	23.7	8.1	35.3	20.9	3.1	3.1
Other hardwoods	6.2	2.6	58.5	21.0	212.1	74.7	284.7	100.4	119.6	51.0	106.5	75.7	165.7	113.4
Total	220.1	37.9	1,877.6	197.2	4,033.9	303.5	5,019.6	369.4	3,795.1	295.8	1,387.1	197.0	983.6	180.3
Nonstocked	—	—	—	—	—	—	—	—	—	—	—	—	—	—
All forest types	587.0	70.6	3,991.7	299.0	9,605.6	501.3	15,909.3	673.8	17,555.4	755.8	8,174.4	555.5	6,946.7	571.7

Table A2-40—Net volume of live trees[a] on forest land, by forest type group and stand age class, California, 2001–2010 (continued)

Forest type group	Stand age class (years)								Unknown		All classes	
	141–160		161–180		181–200		201+					
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet											
Softwoods:												
California mixed conifer	3,405.9	371.4	1,913.9	317.8	1,896.2	305.6	7,157.3	608.7	20.4	13.9	37,327.7	1,018.9
Douglas-fir	427.2	150.5	319.1	158.6	254.6	115.4	1,033.0	277.6	2.1	2.0	6,302.0	504.7
Fir/spruce/mountain hemlock	1,053.5	230.4	808.1	208.2	1,153.5	273.8	2,171.0	392.8	—	—	11,376.7	728.9
Lodgepole pine	593.1	145.2	249.3	73.3	422.1	127.8	1,034.6	194.1	—	—	3,673.9	326.0
Pinyon/juniper woodlands	64.0	21.6	50.9	19.3	35.3	15.2	148.9	32.1	180.4	26.3	922.3	68.3
Ponderosa pine	272.3	80.8	38.4	21.8	114.3	56.7	178.1	62.1	3.2	3.3	5,135.0	325.5
Redwood	88.1	88.0	165.2	118.4	257.7	206.3	3,037.9	848.7	—	—	8,065.8	986.1
Western juniper	49.3	20.4	26.3	18.0	54.8	27.0	143.6	41.0	13.0	5.8	763.2	72.0
Western white pine	17.7	14.6	34.6	26.6	54.4	35.1	211.9	72.0	—	—	394.3	92.9
Other western softwoods	5.4	3.1	8.0	5.1	80.6	32.1	230.5	70.8	62.8	32.9	1,035.0	177.2
Total	5,976.6	495.8	3,613.9	433.2	4,323.4	491.2	15,346.8	1,158.7	282.0	44.7	74,995.8	1,493.7
Hardwoods:												
Alder maple	21.1	23.4	—	—	28.9	28.8	—	—	30.8	18.1	1,015.8	176.8
Aspen/birch	—	—	0.4	0.5	14.1	14.0	—	—	1.1	0.9	74.0	29.3
Elm/ash/cottonwood	0.5	0.4	—	—	—	—	2.1	2.1	112.8	53.2	124.8	53.8
Tanoak/laurel	791.9	223.6	211.7	112.8	157.5	80.4	727.5	194.0	348.4	95.0	8,558.0	539.0
Western oak	595.0	116.4	212.3	71.5	281.6	90.6	200.3	60.8	3,226.4	179.5	13,412.9	428.4
Woodland hardwoods	19.7	11.2	—	—	7.3	5.6	24.5	14.0	65.7	16.5	259.7	37.9
Other hardwoods	35.1	24.5	0.2	0.2	—	—	169.6	89.5	94.3	34.2	1,252.5	215.2
Total	1,463.3	254.3	424.6	133.3	489.4	125.2	1,124.0	221.9	3,879.5	212.8	24,697.7	694.8
Nonstocked	—	—	—	—	—	—	—	—	81.8	15.4	81.8	15.4
All forest types	7,439.9	555.1	4,038.4	452.5	4,812.8	505.6	16,470.8	1,169.8	4,243.3	217.8	99,775.3	1,445.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-41—Gross volume of dead trees[a] on forest land, by forest type group and stand age class, California, 2001–2010

	Stand age class (years)													
	1–20		21–40		41–60		61–80		81–100		101–120		121–140	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
Softwoods:														
California mixed conifer	137.9	51.6	66.5	22.1	172.9	33.3	666.8	66.0	997.1	92.1	527.0	72.8	456.3	68.9
Douglas-fir	46.7	24.0	270.5	142.3	239.6	68.6	100.6	48.8	87.4	32.4	2.8	2.3	47.6	31.7
Fir/spruce/mountain hemlock	164.0	102.0	6.4	4.5	64.4	21.1	217.0	46.7	436.0	84.0	308.8	76.1	242.9	61.8
Lodgepole pine	—	—	0.1	0.1	14.9	9.0	40.1	14.9	73.7	26.1	66.9	28.7	29.0	11.7
Pinyon/juniper woodlands	5.3	4.5	0.1	0.1	15.4	10.8	14.3	4.5	18.2	4.9	6.9	3.1	11.1	5.5
Ponderosa pine	27.8	11.8	7.9	4.7	34.5	10.7	56.8	15.6	69.7	15.7	27.7	10.1	18.1	8.5
Redwood	422.7	301.3	229.2	110.7	1,057.5	377.3	295.6	90.0	481.4	173.9	107.2	48.0	47.5	26.0
Western juniper	0.2	0.2	0.1	0.1	4.4	2.7	20.4	7.1	16.0	6.5	4.2	2.1	2.9	1.4
Western white pine	0.7	0.7	—	—	1.3	1.2	2.0	1.9	11.3	10.9	8.3	8.2	3.4	3.4
Other western softwoods	3.6	2.9	226.2	205.6	38.3	25.4	11.0	8.0	57.0	33.7	5.7	4.1	—	—
Total	808.9	323.3	807.1	274.0	1,643.2	386.0	1,424.5	131.5	2,247.7	220.2	1,065.4	119.3	858.9	102.2
Hardwoods:														
Alder/maple	38.7	34.0	102.8	41.0	95.7	88.0	33.2	22.2	32.4	32.0	—	—	4.6	4.5
Aspen/birch	—	—	0.9	0.8	2.3	2.3	1.2	1.2	0.1	0.1	—	—	3.7	3.8
Elm/ash/cottonwood	—	—	1.7	1.3	—	—	—	—	—	—	—	—	—	—
Tanoak/laurel	164.5	111.4	247.7	57.3	192.1	37.7	128.5	26.8	98.6	37.5	33.9	16.0	55.0	26.9
Western oak	288.5	104.6	46.8	17.8	105.0	18.4	271.3	32.9	247.7	33.6	131.7	25.2	59.6	16.6
Woodland hardwoods	—	—	—	—	5.2	2.5	37.8	14.1	10.3	7.6	8.1	4.1	0.1	0.1
Other hardwoods	3.3	2.1	5.5	3.4	16.3	7.4	21.9	12.5	16.5	9.1	10.0	8.4	16.1	12.7
Total	495.0	156.5	405.5	72.0	416.6	97.6	493.8	50.8	405.6	60.7	183.7	31.2	139.1	34.3
Nonstocked	—	—	—	—	—	—	—	—	—	—	—	—	—	—
All forest types	1,303.9	358.8	1,212.6	282.6	2,059.8	397.3	1,918.3	140.0	2,653.4	227.6	1,249.2	122.9	998.0	107.6

Table A2-41—Gross volume of dead trees[a] on forest land, by forest type group and stand age class, California, 2001–2010 (continued)

Forest type group	Stand age class (years)								Unknown		All classes	
	141–160		161–180		181–200		201+					
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet											
Softwoods:												
California mixed conifer	674.0	91.0	427.5	90.9	350.3	63.2	1,446.3	153.6	29.3	27.4	5,952.0	242.9
Douglas-fir	50.8	23.5	63.6	35.3	76.0	36.6	158.5	44.8	1.5	1.4	1,145.7	182.6
Fir/spruce/mountain hemlock	269.2	71.4	183.1	61.3	250.5	60.8	403.1	84.4	—	—	2,545.4	216.1
Lodgepole pine	97.8	29.9	48.2	22.5	69.3	21.0	171.9	37.6	—	—	611.9	70.4
Pinyon/juniper woodlands	10.8	6.2	4.7	2.3	4.3	2.2	17.3	4.9	45.0	10.6	153.5	19.2
Ponderosa pine	35.3	10.7	2.2	1.5	12.8	6.9	35.0	14.0	—	—	327.8	36.2
Redwood	8.0	8.0	26.6	22.7	32.9	21.2	166.6	66.1	—	—	2,875.3	531.6
Western juniper	8.7	4.9	12.2	7.6	11.1	6.4	32.2	19.1	0.2	0.2	112.6	24.4
Western white pine	4.3	4.2	21.9	16.1	14.5	8.3	37.6	14.5	—	—	105.2	27.5
Other western softwoods	0.6	0.5	5.6	5.1	18.0	8.8	72.2	23.0	21.1	12.2	459.3	211.8
Total	1,159.5	122.0	795.6	120.4	839.8	99.8	2,540.7	196.7	97.2	31.8	14,288.7	666.3
Hardwoods:												
Alder/maple	9.6	10.7	—	—	11.2	11.1	—	—	0.5	0.4	328.5	111.1
Aspen/birch	—	—	—	—	1.3	1.3	—	—	0.4	0.4	9.9	4.9
Elm/ash/cottonwood	—	—	—	—	—	—	—	—	1.8	1.6	3.5	2.1
Tanoak/laurel	97.1	30.0	16.0	13.2	16.8	11.0	199.3	76.6	56.2	19.5	1,305.7	163.6
Western oak	101.4	33.0	37.3	21.6	29.9	13.4	35.8	17.9	222.9	31.6	1,577.9	131.7
Woodland hardwoods	8.6	6.5	—	—	0.8	0.8	12.0	9.4	33.9	10.8	116.7	23.0
Other hardwoods	0.1	0.1	—	—	—	—	33.2	19.4	39.3	24.3	162.3	38.9
Total	216.7	46.3	53.3	25.3	60.0	20.6	280.2	81.4	355.1	45.6	3,504.5	238.8
Nonstocked	—	—	—	—	—	—	—	—	657.7	132.6	657.7	132.6
All forest types	1,376.2	130.0	848.9	123.0	899.8	101.7	2,821.0	210.6	1,109.9	143.5	18,450.9	700.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-42—Average net volume per acre of live trees[a] on forest land, by forest type group and stand age class, California, 2001–2010

	Stand age class (years)													
	1–20		21–40		41–60		61–80		81–100		101–120		121–140	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre													
Softwoods:														
California mixed conifer	471.19	120.91	1,815.30	182.26	2,748.63	171.31	3,842.95	143.79	4,680.27	181.07	5,044.70	284.35	6,680.60	396.17
Douglas-fir	985.80	146.16	3,522.93	326.31	5,048.43	394.77	5,608.33	721.34	7,317.15	922.72	6,127.45	1,482.05	9,524.61	1,746.40
Fir/spruce/mountain hemlock	366.19	135.50	963.44	557.07	2,419.54	254.18	4,022.75	434.94	5,370.33	340.29	5,573.31	501.64	6,928.03	816.66
Lodgepole pine	30.60	20.56	486.92	200.75	2,314.11	543.36	2,240.59	385.17	2,653.28	415.38	3,520.26	611.65	3,999.88	509.57
Pinyon/juniper woodlands	30.08	21.08	72.83	20.04	400.43	177.88	468.92	94.38	642.37	90.29	443.67	186.74	525.34	129.45
Ponderosa pine	285.85	53.03	1,151.31	172.52	2,524.88	339.21	2,088.94	137.13	3,044.11	181.31	3,206.65	461.90	3,767.46	756.95
Redwood	1,442.45	435.72	4,191.25	1,106.27	7,544.94	942.03	9,307.02	749.41	11,742.72	973.00	12,097.34	1,101.34	8,565.20	2,272.73
Western juniper	28.17	13.32	122.09	37.11	248.41	47.10	383.63	38.41	459.47	60.76	698.59	149.10	440.88	154.50
Western white pine	—	—	—	—	1,183.56	249.24	3,154.81	3,154.81	973.73	733.66	4,313.49	4,313.49	378.11	30.71
Other western softwoods	85.80	67.59	4,058.17	1,320.69	2,632.47	802.53	1,538.33	728.65	2,345.74	1,050.11	2,285.30	1,354.66	503.49	258.53
Total	465.25	66.10	2,117.26	172.37	2,975.28	157.92	3,124.60	116.37	3,938.17	137.11	4,357.51	215.65	5,349.76	308.14
Hardwoods:														
Alder/maple	1,674.96	644.79	3,930.32	598.51	4,130.18	824.39	5,694.64	459.80	3,600.39	933.27	11,088.40	11,088.40	3,506.16	3,506.16
Aspen/birch	316.72	259.83	682.75	428.57	1,438.13	658.19	781.12	10.19	1,542.81	1,542.81	—	—	4,380.28	4,380.28
Elm/ash/cottonwood	—	—	916.16	648.42	—	—	—	—	—	—	—	—	—	—
Tanoak/laurel	271.02	80.76	2,671.20	192.39	4,117.83	259.53	5,333.80	424.07	5,266.91	525.35	4,487.33	1,081.49	4,391.92	1,103.78
Western oak	285.51	47.78	648.79	102.11	1,136.06	72.54	1,631.52	88.30	1,917.00	107.95	2,103.53	202.94	2,200.47	270.86
Woodland hardwoods	—	—	150.80	55.98	295.97	42.87	543.66	76.56	353.90	67.36	1,214.76	434.12	486.28	486.28
Other hardwoods	73.56	24.56	720.19	191.79	2,930.01	561.21	3,298.87	785.12	1,731.25	554.61	4,412.39	2,089.42	7,634.18	3,429.20
Total	313.52	47.94	1,740.99	133.97	1,995.91	111.22	2,251.62	122.62	2,185.13	120.18	2,460.06	244.07	2,759.95	368.40
Nonstocked	—	—	—	—	—	—	—	—	—	—	—	—	—	—
All forest types	393.78	41.87	1,921.88	107.92	2,466.93	96.16	2,784.04	85.99	3,356.11	103.17	3,853.19	175.91	4,722.35	258.79

Table A2-42—Average net volume per acre of live trees[a] on forest land, by forest type group and stand age class, California, 2001–2010 (continued)

Forest type group	Stand age class (years)								Unknown		All classes	
	141–160		161–180		181–200		201+					
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre											
Softwoods:												
California mixed conifer	5,672.10	283.99	6,115.72	561.47	6,152.06	489.83	7,085.30	326.32	1,323.40	407.63	4,783.71	89.60
Douglas-fir	7,502.99	1,151.28	8,866.63	2,371.17	9,956.28	1,106.87	11,561.98	1,584.76	441.29	30.42	5,792.92	295.57
Fir/spruce/mountain hemlock	5,712.07	712.44	7,212.41	914.83	7,691.48	981.19	9,126.76	824.64	—	—	5,582.61	221.75
Lodgepole pine	5,043.45	551.75	3,023.22	350.35	4,835.67	706.33	4,412.70	461.19	—	—	3,603.67	190.37
Pinyon/juniper woodlands	529.65	133.20	845.95	148.57	829.15	166.29	817.23	98.19	322.34	34.63	495.33	30.74
Ponderosa pine	2,774.46	567.59	1,814.67	255.73	3,136.52	912.56	2,824.74	508.49	555.41	555.41	2,290.65	98.33
Redwood	13,437.97	13,437.97	12,293.47	3,190.57	14,899.35	7,763.30	29,490.41	5,030.60	—	—	11,364.51	1,060.28
Western juniper	1,066.56	235.50	1,086.05	502.96	1,284.44	401.06	804.91	180.95	292.74	79.84	497.31	37.61
Western white pine	1,402.01	606.60	2,715.14	1,120.41	2,588.30	1,088.74	3,016.63	517.74	—	—	2,367.15	345.55
Other western softwoods	167.74	59.39	339.56	165.89	1,389.11	305.70	2,138.72	440.99	1,678.20	571.05	1,860.66	257.22
Total	4,684.38	237.67	5,171.69	403.23	5,479.17	411.19	6,741.28	400.13	422.31	55.07	3,943.17	69.69
Hardwoods:												
Alder/maple	4,225.84	4,225.84	—	—	6,247.29	6,247.29	—	—	2,291.21	796.61	3,983.76	365.61
Aspen/birch	—	—	71.98	71.98	2,562.27	2,562.27	—	—	81.87	42.83	989.36	309.95
Elm/ash/cottonwood	1,242.56	1,242.56	—	—	—	—	5,616.78	5,616.78	2,794.39	620.69	2,316.14	582.24
Tanoak/laurel	8,911.45	988.96	8,308.55	1,531.36	4,716.38	1,254.54	7,547.64	770.88	2,959.07	470.37	4,229.67	170.18
Western oak	2,117.07	282.40	2,028.43	486.32	2,962.68	563.73	1,618.21	354.16	1,109.14	44.43	1,408.24	34.74
Woodland hardwoods	750.39	211.62	—	—	558.18	178.12	1,667.57	343.23	484.69	82.24	550.70	54.86
Other hardwoods	2,365.17	1,065.15	24.39	24.39	—	—	5,282.38	1,752.41	795.88	254.67	2,053.07	293.34
Total	3,514.12	445.24	2,980.06	702.35	3,226.82	507.91	4,204.48	560.67	1,158.98	47.67	1,897.89	44.33
Nonstocked	—	—	—	—	—	—	—	—	104.48	17.58	104.48	17.58
All forest types	4,396.42	211.86	4,800.51	362.06	5,116.07	360.12	6,474.69	364.36	884.35	36.81	3,040.49	43.92

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 cubic feet per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-43—Average gross volume per acre of dead trees[a] on forest land, by forest type group and stand age class, California, 2001–2010

	Stand age class (years)													
	1–20		21–40		41–60		61–80		81–100		101–120		121–140	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre													
Softwoods:														
California mixed conifer	502.28	176.80	283.04	82.82	262.16	43.98	434.26	34.77	638.58	45.28	683.60	73.83	879.03	94.64
Douglas-fir	716.04	280.50	1,177.58	590.54	848.19	206.74	710.24	309.02	931.94	291.95	88.10	58.60	1,561.77	759.76
Fir/spruce/mountain hemlock	2,859.64	1,501.20	221.95	143.55	381.09	102.43	606.55	104.88	1,237.09	174.97	1,452.53	271.37	1,383.69	253.52
Lodgepole pine	—	—	3.21	3.58	366.00	161.02	396.20	109.39	522.91	152.90	750.55	254.55	325.95	100.64
Pinyon/juniper woodlands	179.91	126.70	4.25	3.43	142.58	92.71	62.82	17.14	60.55	13.86	75.67	26.84	104.06	45.13
Ponderosa pine	130.36	52.52	27.44	15.70	148.69	40.19	119.74	30.33	126.47	25.79	164.68	51.52	198.86	77.74
Redwood	7,035.08	4,416.44	2,676.03	1,104.37	8,143.72	2,344.51	2,406.93	549.93	4,397.27	1,203.91	2,786.59	522.77	2,058.77	656.39
Western juniper	4.76	3.36	2.59	2.21	24.57	14.30	44.38	14.83	56.32	21.39	31.87	14.83	47.72	17.69
Western white pine	103.75	103.75	—	—	177.09	37.29	290.47	290.47	690.25	655.25	1,306.82	1,306.82	513.95	41.74
Other western softwoods	142.42	88.11	6,420.05	5,133.49	602.89	354.56	186.82	118.53	679.49	359.29	311.81	237.41	—	—
Total	1,025.93	400.09	808.27	267.25	877.49	200.43	408.73	34.30	643.30	57.85	684.03	64.92	770.55	73.80
Hardwoods:														
Alder/maple	1,369.57	959.84	1,159.75	343.66	1,696.71	1,441.47	1,146.69	534.66	1,516.93	1,193.82	—	—	1,237.32	1,237.32
Aspen/birch	—	—	58.30	36.49	269.69	280.99	138.67	154.15	22.80	22.80	—	—	828.69	828.69
Elm/ash/cottonwood	—	—	167.45	15.69	—	—	—	—	—	—	—	—	—	—
Tanoak/laurel	1,219.04	790.28	565.45	112.57	388.62	64.61	377.09	61.01	602.09	194.13	627.29	199.23	1,544.19	366.89
Western oak	646.41	221.85	109.29	39.40	78.08	12.65	165.10	17.55	175.46	21.02	291.47	45.20	209.57	49.87
Woodland hardwoods	—	—	—	—	117.21	43.57	316.45	98.32	154.62	103.40	277.85	87.28	15.65	15.65
Other hardwoods	39.97	22.51	68.34	40.51	225.65	73.89	253.40	128.58	238.44	109.28	414.39	260.90	742.02	426.22
Total	704.92	213.35	375.99	60.85	206.12	47.09	221.51	20.08	233.55	32.18	325.84	44.27	390.22	82.16
Nonstocked	—	—	—	—	—	—	—	—	—	—	—	—	—	—
All forest types	874.72	234.37	583.81	132.83	529.01	100.32	335.69	22.51	507.25	40.55	588.83	49.74	678.41	60.13

Table A2-43—Average gross volume per acre of dead trees[a] on forest land, by forest type group and stand age class, California, 2001–2010 (continued)

Forest type group	Stand age class (years)								Unknown		All classes	
	141–160		161–180		181–200		201+					
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre											
Softwoods:												
California mixed conifer	1,122.51	106.97	1,366.18	219.04	1,136.62	133.05	1,431.74	113.99	1,906.64	1,248.73	762.77	27.24
Douglas-fir	892.57	290.82	1,766.10	639.94	2,970.66	565.52	1,774.10	275.43	317.16	21.86	1,053.13	153.73
Fir/spruce/mountain hemlock	1,459.52	282.82	1,634.11	405.52	1,670.43	252.04	1,694.50	230.93	—	—	1,249.05	85.39
Lodgepole pine	831.99	179.08	584.40	219.94	794.21	118.86	733.36	115.95	—	—	600.23	54.00
Pinyon/juniper woodlands	89.49	46.87	78.67	28.06	101.12	35.98	94.83	21.05	80.42	17.30	82.47	9.78
Ponderosa pine	359.44	71.62	105.19	68.03	350.77	142.13	555.72	146.39	—	—	146.22	14.60
Redwood	1,220.17	1,220.17	1,979.25	1,140.55	1,903.79	392.54	1,617.43	519.69	—	—	4,051.25	669.55
Western juniper	187.79	79.95	502.78	181.99	261.00	112.62	180.26	102.17	4.91	5.01	73.35	15.19
Western white pine	337.70	237.77	1,718.21	360.23	690.66	135.21	535.14	138.40	—	—	631.68	119.88
Other western softwoods	17.40	14.75	237.84	180.01	310.39	111.08	670.29	146.77	562.57	244.68	825.68	370.21
Total	908.79	74.91	1,138.63	137.43	1,064.29	90.90	1,116.05	69.18	145.52	45.79	751.28	34.14
Hardwoods:												
Alder/maple	1,923.93	1,923.93	—	—	2,414.40	2,414.40	—	—	33.50	18.24	1,288.33	380.74
Aspen/birch	—	—	—	—	236.43	236.43	—	—	33.25	23.20	132.43	60.23
Elm/ash/cottonwood	—	—	—	—	—	—	—	—	44.51	36.20	64.99	31.86
Tanoak/laurel	loiu	190.78	626.80	418.38	504.32	244.51	2,067.54	621.01	477.38	120.63	645.31	74.58
Western oak	360.72	105.37	356.01	188.59	315.07	115.06	288.92	129.93	76.64	10.38	165.67	13.29
Woodland hardwoods	325.93	185.52	—	—	59.62	40.93	814.97	379.85	250.52	64.35	247.54	41.14
Other hardwoods	6.47	4.67	4.51	4.51	—	—	1,033.31	395.46	331.63	190.32	266.01	57.62
Total	520.43	92.41	373.83	160.65	395.78	111.85	1,048.17	263.61	106.08	12.93	269.31	17.71
Nonstocked	—	—	—	—	—	—	—	—	839.81	151.92	839.81	151.92
All forest types	813.23	61.55	1,009.10	119.91	956.52	80.60	1,108.92	67.62	231.32	28.79	562.26	21.32

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 cubic feet per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-44—Average net volume per acre of live trees[a] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre							
Softwoods:								
California mixed conifer	5,087.79	91.78	1,145.33	150.09	377.89	56.11	4,783.71	89.60
Douglas-fir	6,485.15	308.97	1,899.38	333.53	891.43	238.75	5,792.92	295.57
Fir/spruce/mountain hemlock	5,949.07	226.47	1,009.45	238.03	418.03	82.23	5,582.61	221.75
Lodgepole pine	3,846.18	198.87	1,822.19	430.59	139.53	56.79	3,603.67	190.37
Pinyon/juniper woodlands	581.86	35.36	116.90	33.12	74.40	20.45	495.33	30.74
Ponderosa pine	2,624.49	105.53	493.06	75.35	161.18	47.42	2,290.65	98.33
Redwood	12,169.43	1,118.13	962.56	273.79	503.88	131.85	11,364.51	1,060.28
Western juniper	570.81	43.11	206.55	56.88	68.75	28.86	497.31	37.61
Western white pine	2,949.81	368.59	213.40	43.73	496.02	214.73	2,367.15	345.55
Other western softwoods	2,672.86	342.82	370.54	103.81	81.93	28.12	1,860.66	257.22
Total	4,374.49	76.02	663.28	66.28	292.72	31.90	3,943.17	69.69
Hardwoods:								
Alder/maple	5,192.83	391.98	2,674.72	493.12	573.14	221.43	3,983.76	365.61
Aspen/birch	2,832.62	644.08	1,490.17	385.74	248.57	103.80	989.36	309.95
Elm/ash/cottonwood	2,841.91	582.22	187.59	173.41	314.76	31.46	2,316.14	582.24
Tanoak/laurel	5,506.03	205.61	2,582.35	163.39	540.77	115.73	4,229.67	170.18
Western oak	1,967.38	55.13	1,038.08	40.36	262.44	24.50	1,408.24	34.74
Woodland hardwoods	609.08	61.16	382.70	131.29	94.71	43.52	550.70	54.86
Other hardwoods	4,733.97	590.95	1,180.65	244.55	143.13	29.40	2,053.07	293.34
Total	2,723.35	71.37	1,231.99	43.87	287.61	24.39	1,897.89	44.33
Nonstocked	—	—	—	—	—	—	104.48	17.58
All forest types	3,891.17	57.07	1,130.61	38.63	289.59	19.40	3,040.49	43.92

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 cubic feet per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-45—Average gross cubic volume per acre of dead trees[a] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre							
Softwoods:								
California mixed conifer	793.66	28.63	354.86	110.35	334.50	98.91	762.77	27.24
Douglas-fir	1,108.35	173.91	134.31	69.93	1,040.11	360.16	1,053.13	153.73
Fir/spruce/mountain hemlock	1,226.78	77.14	930.69	580.18	1,680.95	813.14	1,249.05	85.39
Lodgepole pine	623.53	54.77	693.00	436.16	13.39	14.16	600.23	54.00
Pinyon/juniper woodlands	78.77	8.83	115.65	56.11	75.76	34.35	82.47	9.78
Ponderosa pine	156.10	15.94	52.76	24.22	130.20	69.15	146.22	14.60
Redwood	4,223.86	713.55	2,470.74	497.06	1,223.85	646.18	4,051.25	669.55
Western juniper	86.95	18.09	10.27	8.16	2.19	1.27	73.35	15.19
Western white pine	776.63	142.48	68.84	14.11	172.51	88.49	631.68	119.88
Other western softwoods	1,156.86	544.00	87.96	44.33	186.16	138.66	825.68	370.21
Total	802.12	37.59	240.09	51.56	414.02	96.87	751.28	34.14
Hardwoods:								
Alder/maple	1,488.37	559.34	1,235.65	564.52	349.53	139.83	1,288.33	380.74
Aspen/birch	359.47	189.25	277.46	167.49	13.15	8.79	132.43	60.23
Elm/ash/cottonwood	48.93	34.51	—	—	170.64	17.05	64.99	31.86
Tanoak/laurel	679.20	61.95	317.39	68.88	1,056.10	477.43	645.31	74.58
Western oak	182.81	13.02	93.53	9.86	288.28	80.47	165.67	13.29
Woodland hardwoods	237.64	37.95	418.55	206.19	—	—	247.54	41.14
Other hardwoods	497.86	106.84	101.31	31.30	163.58	101.50	266.01	57.62
Total	317.74	21.15	142.72	16.34	365.78	86.67	269.31	17.71
Nonstocked	—	—	—	—	—	—	839.81	151.92
All forest types	660.33	27.40	160.08	16.28	384.50	64.91	562.26	21.32

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 cubic feet per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-46—Average net volume of live trees[a] on forest land, by forest type group and ownership group, California, 2001–2010

	Ownership group													
	USDA Forest Service		Other federal		State and local government		Private						All owners	
							Corporate		Noncorporate		All private			
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre													
Softwoods:														
California mixed conifer	5,303.87	114.82	5,878.33	445.36	5,666.19	1,144.65	3,102.24	153.61	3,486.46	195.32	3,219.33	122.09	4,783.71	89.60
Douglas-fir	7,489.54	667.56	5,613.59	1,437.85	6,869.31	1,396.90	4,467.51	361.77	5,150.06	487.76	4,798.60	303.30	5,792.92	295.57
Fir/spruce/mountain hemlock	5,885.58	266.98	7,271.14	683.72	5,004.92	1,492.09	3,419.85	368.86	2,697.50	578.88	3,233.52	313.20	5,582.61	221.75
Lodgepole pine	3,413.57	215.45	4,430.94	482.86	2,020.86	676.56	3,198.96	410.87	3,016.24	569.36	3,084.26	389.51	3,603.67	190.37
Pinyon juniper woodlands	642.79	52.84	406.70	40.42	423.19	143.04	399.74	102.82	213.62	44.94	232.37	42.93	495.33	30.74
Ponderosa pine	2,377.29	135.56	2,008.63	338.78	1,212.67	422.19	1,702.32	192.63	2,651.58	207.03	2,186.70	146.11	2,290.65	98.33
Redwood	20,816.80	3,663.57	28,959.97	4,329.52	24,116.70	6,308.76	6,325.65	611.34	10,752.40	841.63	8,028.63	544.88	11,364.51	1,060.28
Western juniper	589.05	58.43	361.38	49.31	2,012.38	1,367.58	387.70	75.36	368.08	43.59	369.52	40.77	497.31	37.61
Western white pine	2,459.34	379.14	2,528.72	580.09	—	—	—	—	—	—	—	—	2,367.15	345.55
Other western softwoods	1,094.95	170.70	1,447.12	366.33	1,871.53	1,219.04	4,859.60	898.57	4,850.31	1,627.77	4,854.54	975.72	1,860.66	257.22
Total	4,145.74	76.39	3,149.76	248.31	8,397.97	1,807.56	3,478.94	132.81	3,571.06	190.91	3,519.29	109.31	3,943.17	69.69
Hardwoods:														
Alder/maple	3,004.53	640.73	4,445.05	709.72	7,787.74	388.11	4,122.61	677.93	3,492.40	692.31	3,832.71	491.33	3,983.76	365.61
Aspen/birch	976.64	421.61	284.52	287.67	1,316.62	0	2,807.85	2,807.85	1,073.52	249.73	1,458.74	448.31	989.36	309.95
Elm/ash/ ottonwood	2,503.82	2,503.82	—	—	2,060.21	656.91	—	—	2,538.40	827.81	2,390.26	795.36	2,316.14	582.24
Tanoak/laurel	4,782.32	391.67	2,980.25	704.58	6,038.88	760.46	3,289.92	231.06	4,358.58	277.61	3,869.68	188.09	4,229.67	170.18
Western oak	1,736.51	80.93	1,341.10	165.61	1,450.42	134.55	1,653.38	108.79	1,190.46	39.07	1,257.67	37.04	1,408.24	34.74
Woodland hardwoods	597.76	79.14	389.49	57.63	988.61	442.87	254.65	254.65	492.35	101.06	467.25	92.80	550.70	54.86
Other hardwoods	1,761.68	520.86	606.20	541.80	4,595.96	1,415.66	2,462.46	662.03	1,863.46	321.82	1,978.04	291.21	2,053.07	293.34
Total	2,066.97	91.81	1,427.15	152.92	2,792.02	281.80	2,419.92	124.38	1,615.03	56.41	1,782.02	50.55	1,897.89	44.33
Nonstocked	110.69	22.61	96.56	59.87	—	—	99.21	34.61	74.53	36.78	91.48	26.29	104.48	17.58
All forest types	3,499.64	59.65	2,599.70	180.19	4,676.57	658.57	3,031.64	95.69	2,132.98	67.49	2,451.35	53.04	3,040.49	43.92

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 cubic feet per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-47—Average gross volume per acre of dead trees[a] on forest land, by forest type group and ownership group, California, 2001–2010

Forest type group	Ownership group													
	USDA Forest Service		Other federal		State and local government		Private						All owners	
							Corporate		Noncorporate		All private			
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre													
Softwoods:														
California mixed conifer	890.19	35.35	1,365.30	161.60	1,011.01	470.30	304.84	27.11	307.26	50.19	305.57	24.29	762.77	27.24
Douglas-fir	1,204.79	161.58	574.58	290.50	1,499.73	691.65	1,266.96	432.89	641.88	144.32	963.75	235.91	1,053.13	153.73
Fir/spruce/mountain hemlock	1,289.48	95.55	2,166.25	429.68	1,836.48	825.54	459.35	110.37	652.69	243.53	509.22	103.19	1,249.05	85.39
Hemlock/Sitka spruce	—	—	—	—	—	—	7,729.21	5,165.06	525.18	417.21	6,000.20	4,091.64	5,860.53	3,999.06
Lodgepole pine	524.53	55.65	767.57	138.38	384.90	199.53	858.44	350.80	842.40	390.18	848.37	277.64	600.23	54.00
Pinyon/juniper woodlands	89.25	12.09	81.36	18.88	56.96	26.83	21.54	20.08	73.07	29.50	67.88	26.79	82.47	9.78
Ponderosa pine	164.54	20.45	207.87	100.06	217.67	152.00	114.28	27.66	93.90	21.83	103.88	17.52	146.22	14.60
Redwood	113.85	30.35	8,011.57	4,248.31	3,186.15	681.75	3,621.62	960.09	4,641.83	1,270.30	4,014.10	767.02	4,051.25	669.55
Western juniper	81.90	18.06	32.81	11.85	1,434.26	1,026.45	33.01	21.21	51.22	18.00	49.89	16.76	73.35	15.19
Western white pine	654.64	135.81	646.39	149.07	—	—	103.75	103.75	—	—	103.75	103.75	631.68	119.88
Other western softwoods	353.18	81.98	301.07	92.27	219.76	96.76	8.80	7.93	965.43	618.96	775.29	509.93	378.51	77.59
Total	703.91	22.77	725.89	103.24	1,354.78	261.01	897.66	154.23	725.04	143.22	822.05	106.34	751.28	34.14
Hardwoods:														
Alder/maple	1,595.39	529.40	516.71	183.85	5,498.80	3,809.46	1,412.65	470.15	236.02	111.78	871.39	286.43	1,288.33	380.74
Aspen/birch	149.42	73.32	—	—	1,966.97	1,966.97	—	—	8.63	7.54	6.72	5.98	132.43	60.23
Elm/ash/cottonwood	296.67	296.67	—	—	29.72	22.40	—	—	47.31	31.31	44.55	29.58	64.99	31.86
Tanoak/laurel	864.43	149.64	904.31	319.15	668.67	130.10	761.80	201.85	356.08	52.93	541.70	97.55	645.31	74.58
Western oak	338.13	42.22	163.07	37.08	108.59	28.85	159.74	26.61	77.62	7.41	89.54	7.47	165.67	13.29
Woodland hardwoods	309.21	62.65	169.03	53.79	258.64	102.96	122.28	122.28	92.24	47.45	95.41	42.46	247.54	41.14
Other hardwoods	385.68	136.65	228.88	167.78	482.73	254.55	205.71	70.21	131.67	35.06	145.83	31.55	266.01	57.62
Total	424.48	38.76	238.74	43.55	381.76	124.28	451.97	83.74	113.94	9.23	184.07	19.05	269.31	17.71
Nonstocked	1,104.34	209.75	242.03	106.34	3,298.89	3,298.89	192.67	127.98	57.11	28.15	150.23	88.77	839.81	151.92
All forest types	649.60	20.13	579.60	73.25	727.50	123.99	726.65	101.64	278.31	39.74	437.14	44.07	562.26	21.32

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 cubic feet per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Gross volume does not deduct volume loss due to defect and adds an estimate of missing bole volume from top loss due to breakage or previous harvest, see glossary.

Table A2-48—Net volume of growing-stock trees[a] on timberland, by species group and diameter class, California, 2001–2010

	Diameter class (inches)															
	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	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet															
Softwoods:																
Douglas-fir	395.7	16.8	611.5	27.0	795.6	35.2	883.8	41.5	1,008.1	48.1	1,098.2	57.8	1,096.7	64.0	888.7	62.5
Incense cedar	112.5	6.9	149.0	9.3	179.3	11.9	182.6	13.1	180.2	16.0	220.8	18.5	221.4	21.2	196.0	21.7
Lodgepole pine	38.3	9.2	51.1	9.6	69.9	11.8	75.9	11.7	106.5	17.1	79.0	14.7	109.6	20.2	104.4	22.1
Ponderosa and Jeffrey pines	162.2	8.4	284.9	15.1	418.4	22.1	544.1	28.6	661.6	35.7	720.0	43.3	765.7	47.2	768.5	56.8
Redwood	42.3	4.3	84.0	8.4	120.1	12.6	204.9	20.9	207.9	22.2	233.9	25.5	252.4	33.1	284.4	37.0
Sitka spruce	1.1	0.5	4.0	2.1	6.2	3.0	9.4	5.6	12.8	6.9	14.6	9.4	22.2	14.2	10.3	6.5
Sugar pine	20.1	1.9	33.0	3.3	45.8	5.1	58.7	6.2	57.7	7.7	88.8	12.0	110.2	14.9	140.0	20.9
True fir	272.0	12.4	434.5	20.2	635.9	31.7	728.8	36.6	936.3	50.3	931.6	55.0	1,048.3	66.3	976.8	63.0
Western hemlock	4.4	2.3	6.3	1.6	13.4	4.9	14.7	5.4	23.5	9.1	14.3	6.8	8.9	4.9	4.6	4.2
Western juniper	4.8	0.7	7.9	1.5	11.5	2.0	12.6	2.9	9.9	2.5	9.8	2.8	14.0	3.6	8.1	2.9
Western white pine	4.4	1.0	5.2	1.1	6.3	1.5	7.8	2.2	12.8	3.2	7.5	2.7	23.3	6.2	21.9	7.6
Other western softwoods	12.8	2.4	27.3	5.1	40.3	6.8	38.3	7.7	48.3	9.8	35.3	8.0	56.9	16.1	71.2	22.6
Total	1,070.7	27.1	1,698.8	41.6	2,342.6	57.4	2,761.6	68.8	3,265.5	85.1	3,453.8	97.2	3,729.4	115.4	3,474.9	120.0
Hardwoods:																
Cottonwood and aspen	3.6	1.9	3.6	1.5	6.0	2.1	3.0	1.3	7.1	3.0	13.8	5.9	—	—	18.8	9.4
Oak	332.9	17.5	473.3	25.4	499.7	25.8	503.1	30.5	393.6	26.9	400.3	30.8	327.4	28.4	294.8	30.0
Red alder	18.0	3.4	43.6	7.4	74.8	15.4	76.0	17.1	37.1	9.9	48.7	14.9	27.1	11.3	28.7	9.7
Tanoak	220.2	14.0	289.2	18.9	333.8	23.8	333.2	25.8	299.0	25.9	239.2	25.4	198.7	25.7	202.7	24.6
Other western hardwoods	152.2	9.8	206.2	15.5	247.6	17.4	279.4	21.5	267.1	25.1	224.8	24.4	207.1	24.3	115.1	18.1
Total	726.9	25.6	1,015.9	36.9	1,161.9	43.1	1,194.6	51.2	1,004.0	48.7	926.8	50.8	760.3	47.9	660.2	45.8
All species groups	1,797.7	39.3	2,714.7	57.8	3,504.5	73.6	3,956.2	87.3	4,269.5	99.0	4,380.6	109.8	4,489.7	125.4	4,135.1	128.8

Table A2-48—Net volume of growing-stock trees[a] on timberland, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)															
	21.0–22.9		23.0–24.9		25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet															
Softwoods:																
Douglas-fir	930.0	71.4	877.1	60.8	855.0	43.2	726.9	40.6	766.8	45.5	712.4	43.9	715.8	48.3	684.3	49.6
Incense cedar	186.8	24.4	177.0	20.2	187.5	15.0	167.3	14.5	137.4	13.1	124.0	13.1	132.7	13.8	117.9	15.3
Lodgepole pine	82.6	19.2	75.9	17.8	60.5	12.2	42.0	10.1	43.0	12.8	22.0	6.4	14.9	4.6	13.0	5.6
Ponderosa and Jeffrey pines	750.6	58.4	646.8	47.1	602.1	33.9	615.0	37.8	548.0	36.2	498.8	37.3	421.4	36.5	345.7	36.0
Redwood	333.0	41.4	291.2	38.3	350.6	38.3	312.2	31.3	281.9	33.1	265.3	30.8	239.8	31.8	217.0	28.7
Sitka spruce	16.2	10.7	3.9	2.5	10.1	5.1	5.7	3.2	9.1	5.6	7.1	3.4	7.4	4.6	8.3	7.1
Sugar pine	129.5	20.8	153.6	19.6	164.3	14.2	172.6	17.3	172.5	16.8	164.9	18.9	175.5	20.2	161.3	20.5
True fir	898.6	65.1	822.4	57.7	807.9	48.2	791.8	49.3	702.9	48.2	675.4	48.9	521.1	43.0	520.0	46.2
Western hemlock	12.6	11.6	0.8	0.8	6.4	2.4	6.2	3.8	2.6	1.8	—	—	—	—	—	—
Western juniper	5.9	3.0	9.8	3.4	3.6	1.1	2.4	1.0	2.1	1.2	1.7	0.8	0.9	0.7	1.3	1.0
Western white pine	18.8	7.3	18.1	5.7	15.3	4.6	17.3	4.5	20.4	5.0	15.7	4.6	12.5	5.0	17.5	5.9
Other western softwoods	30.3	11.8	48.5	13.3	36.7	10.6	45.2	12.6	19.0	6.3	22.1	9.9	29.5	8.6	33.2	9.5
Total	3,395.0	127.9	3,125.1	110.6	3,100.0	87.7	2,904.7	86.9	2,705.7	89.3	2,509.4	87.9	2,271.4	87.3	2,119.5	91.9
Hardwoods:																
Cottonwood and aspen	14.6	7.7	6.5	2.4	5.5	2.8	11.8	6.5	5.0	2.1	5.1	2.7	0.6	0.6	0.9	0.9
Oak	254.4	30.4	230.1	26.3	160.6	14.0	142.4	13.2	109.6	12.2	94.2	12.7	63.7	12.8	40.1	8.5
Red alder	3.6	3.2	8.2	5.9	2.2	1.4	2.4	1.6	3.3	1.9	1.7	1.4	—	—	—	—
Tanoak	210.0	33.9	117.0	18.6	75.6	10.5	66.3	10.6	58.3	12.7	22.4	5.8	13.0	3.9	36.3	10.9
Other western hardwoods	147.0	25.1	101.3	16.8	74.9	8.8	52.9	8.3	52.4	8.5	48.5	11.4	28.1	7.4	34.5	10.2
Total	629.5	52.9	463.1	37.3	318.8	20.5	275.9	20.8	228.5	20.5	171.9	18.4	105.3	15.4	111.7	17.5
All species groups	4,024.5	138.6	3,588.2	117.0	3,418.8	90.6	3,180.6	89.9	2,934.2	91.8	2,681.3	90.0	2,376.7	89.4	2,231.2	94.2

Table A2-48—Net volume of growing-stock trees[a] on timberland, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0+			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet															
Softwoods:																
Douglas-fir	680.1	52.3	558.6	47.0	547.3	51.6	564.3	52.7	504.2	50.3	437.3	50.5	2,591.3	239.0	18,929.6	663.2
Incense cedar	105.9	14.2	80.4	13.1	82.6	14.3	77.1	12.5	48.2	11.1	34.3	9.6	270.7	42.5	3,371.8	178.4
Lodgepole pine	12.3	4.9	8.1	4.2	6.8	5.9	4.8	4.4	10.5	5.4	—	—	—	—	1,031.3	130.9
Ponderosa and Jeffrey pines	292.0	29.9	299.1	31.6	209.1	25.8	164.3	27.0	137.0	26.2	112.3	23.3	358.3	68.5	10,325.8	356.2
Redwood	180.3	32.6	192.4	32.3	134.8	23.9	125.3	24.9	78.1	18.5	69.3	16.7	688.6	148.2	5,189.6	410.5
Sitka spruce	2.2	2.0	5.2	4.2	10.9	7.3	11.4	5.9	—	—	—	—	10.4	9.5	188.7	65.0
Sugar pine	129.2	17.9	85.9	15.4	134.3	20.7	95.6	18.5	95.4	18.8	82.9	19.8	485.3	73.0	2,957.3	166.4
True fir	411.9	40.8	437.0	48.8	288.6	36.5	295.2	37.5	245.0	35.7	205.9	32.2	588.6	95.0	14,176.7	602.0
Western hemlock	—	—	—	—	—	—	—	—	—	—	—	—	—	—	118.7	43.3
Western juniper	3.3	2.2	1.4	1.0	1.1	0.7	—	—	—	—	—	—	3.1	2.3	115.2	16.3
Western white pine	18.9	6.0	10.7	5.2	7.4	3.8	15.1	6.0	3.9	2.8	6.3	4.6	26.5	10.8	313.4	46.1
Other western softwoods	20.1	7.7	10.3	4.2	6.6	4.0	8.6	4.3	4.8	3.7	—	—	19.3	8.9	664.5	105.7
Total	1,856.2	85.9	1,689.2	85.1	1,429.5	78.8	1,361.7	81.4	1,127.1	74.3	948.5	72.1	5,042.2	344.2	57,382.6	1,107.8
Hardwoods:																
Cottonwood and aspen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	105.9	38.9
Oak	45.7	10.6	28.3	8.2	32.4	10.9	8.0	5.9	12.2	6.6	7.0	5.3	41.5	13.7	4,495.2	182.6
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	375.4	69.2
Tanoak	9.1	4.1	3.8	2.7	12.8	6.5	4.9	3.9	7.9	6.3	8.6	5.8	7.5	7.4	2,769.5	175.4
Other western hardwoods	28.0	9.2	12.3	4.6	4.4	3.3	14.1	6.3	9.0	5.3	—	—	24.2	8.5	2,331.1	133.0
Total	82.8	14.5	44.4	10.2	49.5	13.1	26.9	9.4	29.1	10.5	15.6	7.8	73.2	17.7	10,077.1	321.8
All species groups	1,939.0	88.1	1,733.6	85.6	1,479.0	80.2	1,388.6	82.3	1,156.2	75.1	964.1	72.5	5,115.4	344.7	67,459.7	1,194.9

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes live growing stock trees of commercial species that are ≥5 inches in diameter at breast height; excludes trees that are classified as rough or rotten cull.

Table A2-49—Net volume of growing-stock trees[a] on timberland, by species group and ownership group, California, 2001–2010

Species group	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
Softwoods:														
Douglas-fir	11,251.1	558.1	417.2	98.8	281.3	94.3	3,432.6	230.2	3,547.4	285.0	6,980.0	341.8	18,929.6	663.2
Incense cedar	2,239.4	151.4	19.9	13.9	11.9	9.5	641.0	68.3	459.5	67.8	1,100.5	93.2	3,371.8	178.4
Lodgepole pine	765.6	111.8	—	—	23.2	14.8	109.4	42.7	133.1	53.3	242.5	67.4	1,031.3	130.9
Ponderosa and Jeffrey pines	6,961.6	304.4	164.2	41.7	31.5	15.2	1,496.4	122.7	1,672.1	149.1	3,168.5	181.5	10,325.8	356.2
Redwood	23.8	19.6	—	—	350.9	119.1	2,476.0	267.3	2,338.8	322.3	4,814.9	393.5	5,189.6	410.5
Sitka spruce	—	—	—	—	—	—	115.6	49.2	73.1	42.6	188.7	65.0	188.7	65.0
Sugar pine	2,181.5	151.5	33.4	15.4	2.8	2.9	550.6	59.6	189.0	36.0	739.7	67.2	2,957.3	166.4
True fir	11,316.9	565.7	84.8	50.0	50.4	41.1	1,928.1	174.1	796.5	109.5	2,724.6	196.3	14,176.7	602.0
Western hemlock	1.2	1.2	—	—	1.5	1.4	90.0	41.7	26.0	11.7	116.0	43.3	118.7	43.3
Western juniper	75.4	12.6	13.5	7.1	—	—	3.4	1.4	22.9	7.5	26.3	7.7	115.2	16.3
Western white pine	289.9	45.5	—	—	4.1	3.7	13.9	6.0	5.4	3.4	19.4	6.8	313.4	46.1
Other western softwoods	386.9	83.4	8.3	4.6	11.5	6.6	64.7	21.9	193.1	60.9	257.8	64.6	664.5	105.7
Total	35,493.3	888.7	741.4	138.1	769.2	188.2	10,921.8	502.4	9,456.8	541.2	20,378.7	647.1	57,382.6	1,107.8
Hardwoods:														
Cottonwood and aspen	26.8	10.0	3.0	2.2	—	—	7.0	4.9	69.2	37.2	76.2	37.5	105.9	38.9
Oak	2,122.0	128.1	136.0	30.6	51.4	20.6	669.8	67.0	1,516.0	111.7	2,185.8	126.4	4,495.2	182.6
Red alder	28.5	10.5	2.2	1.8	16.8	15.5	275.7	64.2	52.1	18.4	327.8	66.6	375.4	69.2
Tanoak	609.2	82.6	34.7	17.0	69.4	26.9	952.1	104.2	1,104.2	123.9	2,056.2	152.7	2,769.5	175.4
Other western hardwoods	792.8	82.0	60.3	17.5	79.6	29.1	430.5	53.8	967.8	89.2	1,398.3	100.6	2,331.1	133.0
Total	3,579.3	196.3	236.2	50.9	217.2	55.3	2,335.1	164.8	3,709.3	218.3	6,044.4	249.8	10,077.1	321.8
All species groups	39,072.6	932.8	977.5	169.8	986.4	224.4	13,256.9	566.4	13,166.1	652.6	26,423.0	732.6	67,459.7	1,194.9

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes live growing stock trees of commercial species that are ≥5 inches in diameter at breast height; excludes trees that are classified as rough or rotten cull.

Table A2-50—Net cubic volume of sawtimber-sized trees[a] on timberland, by species group and ownership group, California, 2001–2010

	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Million cubic feet							
Softwoods:														
Douglas-fir	10,655.4	543.4	389.4	94.1	266.0	91.3	3,024.3	213.7	3,248.5	272.7	6,272.8	325.9	17,583.7	642.0
Incense cedar	2,057.8	144.2	16.2	12.5	10.9	9.0	550.3	61.6	407.9	63.6	958.1	86.0	3,043.0	168.4
Lodgepole pine	689.1	105.4	—	—	21.0	14.2	86.2	35.0	120.1	50.0	206.3	60.2	916.4	121.8
Ponderosa and Jeffrey pines	6,594.9	295.4	156.5	39.8	29.9	14.7	1,354.9	116.0	1,551.4	142.1	2,906.4	173.5	9,687.6	344.3
Redwood	23.0	19.0	—	—	343.4	117.3	2,343.3	260.1	2,279.6	316.5	4,623.0	385.8	4,989.4	402.6
Sitka spruce	—	—	—	—	—	—	109.3	46.1	71.0	41.3	180.3	61.8	180.3	61.8
Sugar pine	2,127.1	149.1	32.7	15.2	2.8	2.8	527.8	58.5	180.0	35.3	707.8	66.0	2,870.4	163.8
True fir	10,645.5	545.3	76.3	47.5	47.0	38.6	1,716.1	162.7	715.3	102.1	2,431.5	184.1	13,200.3	578.6
Western hemlock	1.2	1.2	—	—	1.0	1.0	77.9	39.0	23.2	10.6	101.2	40.4	103.4	40.4
Western juniper	64.9	11.7	11.5	5.9	—	—	2.4	1.1	20.2	6.8	22.6	6.9	99.0	14.8
Western white pine	278.1	44.5	—	—	4.0	3.6	12.9	5.8	4.7	3.2	17.7	6.6	299.7	45.2
Other western softwoods	356.7	81.1	6.9	4.0	11.3	6.5	53.9	18.8	181.0	58.2	234.9	61.1	609.8	101.8
Total	33,493.6	864.2	689.6	129.7	737.3	183.1	9,859.4	476.9	8,803.1	522.0	18,662.5	626.9	53,583.0	1,076.4
Hardwoods:														
Cottonwood and aspen	16.8	7.9	2.5	2.1	—	—	3.4	2.9	66.1	36.0	69.4	36.1	88.8	37.0
Oak	758.2	54.9	33.0	8.5	28.0	12.4	247.4	29.2	604.2	50.7	851.6	57.2	1,670.9	80.3
Red alder	16.9	6.7	0.5	0.5	14.3	13.2	149.0	42.0	29.4	11.6	178.4	43.5	210.2	45.9
Tanoak	409.8	62.4	26.8	13.6	42.7	18.4	585.7	73.7	800.6	101.9	1,386.3	120.8	1,865.6	137.2
Other western hardwoods	390.6	49.8	24.9	9.3	39.2	18.1	212.3	30.6	477.4	50.7	689.8	57.6	1,144.5	78.4
Total	1,592.3	110.3	87.8	26.6	124.3	34.0	1,197.8	102.4	1,977.7	142.2	3,175.5	164.3	4,979.9	200.3
All species groups	35,085.9	884.4	777.3	143.0	861.6	202.7	11,057.2	507.0	10,780.8	586.1	21,838.0	674.4	58,562.9	1,120.6

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes sawtimber-sized trees that are ≥9 inches diameter at breast height for softwood species and ≥11 inches diameter at breast height for hardwood species.

Table A2-51—Net board-foot volume (Scribner rule) of sawtimber trees[a] on timberland, by county and ownership group, California, 2001–2010

	Ownership group									
	National forest		Other federal		State and local government		Private		All owners	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, Scribner rule									
Alameda	—	—	—	—	16.4	14.4	16.6	19.0	33.0	23.9
Alpine	1,552.0	470.6	—	—	—	—	77.5	70.5	1,629.5	475.8
Amador	911.0	439.9	35.0	35.6	—	—	1,025.6	435.3	1,971.5	680.0
Butte	5,003.3	1,171.4	170.3	173.5	—	—	2,727.0	580.0	7,900.5	1,318.6
Calaveras	1,465.1	620.8	—	—	—	—	2,913.0	708.2	4,378.1	943.4
Colusa	173.9	126.4	—	—	—	—	212.0	152.5	385.9	198.1
Del Norte	7,654.5	1,424.9	—	—	384.0	249.2	3,023.5	649.5	11,062.0	1,585.1
El Dorado	11,940.3	1,695.6	207.8	174.8	0.2	0.2	2,633.4	609.1	14,781.7	1,809.5
Fresno	7,451.1	1,365.8	—	—	—	—	346.1	182.1	7,797.2	1,377.9
Glenn	1,649.2	644.4	—	—	—	—	149.2	129.7	1,798.5	657.3
Humboldt	9,322.2	1,823.4	847.1	412.2	128.9	131.3	25,631.9	2,313.2	35,930.1	2,960.9
Inyo	158.6	131.4	—	—	29.5	26.9	—	—	188.1	134.1
Kern	1,137.3	320.4	4.0	3.6	—	—	137.2	69.2	1,278.6	328.9
Lake	1,869.0	533.3	132.9	110.6	70.2	71.5	459.7	185.2	2,531.8	579.5
Lassen	5,469.2	799.7	197.7	90.1	—	—	2,408.5	392.7	8,075.3	896.4
Los Angeles	332.4	147.0	—	—	—	—	—	—	332.4	147.0
Madera	7,073.8	1,461.1	—	—	—	—	369.6	245.7	7,443.4	1,481.6
Marin	—	—	—	—	317.6	275.1	702.4	615.4	1,019.9	674.1
Mariposa	1,282.4	572.0	8.3	8.7	—	—	747.3	323.1	2,037.9	657.0
Mendocino	2,010.9	586.2	101.5	80.2	2,043.2	906.1	20,613.4	2,045.5	24,769.0	2,322.2
Modoc	3,596.4	572.9	75.2	73.9	—	—	1,113.5	225.8	4,785.1	623.2
Mono	1,674.2	371.2	16.1	16.4	—	—	71.7	76.3	1,762.1	379.3
Monterey	68.7	65.2	—	—	—	—	919.7	605.9	988.4	609.4
Napa	—	—	—	—	—	—	1,065.0	390.0	1,065.0	390.0
Nevada	3,491.8	880.5	40.4	36.1	31.0	27.7	2,553.5	613.9	6,116.7	1,073.4
Placer	7,336.5	1,502.8	143.2	89.9	146.6	111.6	2,203.3	580.5	9,829.6	1,611.8
Plumas	19,634.8	1,935.6	41.6	29.9	—	—	4,993.7	812.1	24,670.1	2,092.1
Riverside	80.0	79.1	—	—	—	—	196.6	134.9	276.6	156.4
San Benito	—	—	—	—	—	—	59.9	60.8	59.9	60.8
San Bernardino	858.2	300.7	—	—	—	—	200.7	145.5	1,058.9	334.0
San Diego	0.5	0.5	—	—	—	—	4.4	4.0	4.9	4.0
San Joaquin	—	—	—	—	—	—	349.6	215.6	349.6	215.6
San Luis Obispo	—	—	—	—	—	—	6.6	5.8	6.6	5.8
San Mateo	—	—	—	—	9.1	8.1	1,370.7	683.5	1,379.7	683.6

Table A2-51—Net board-foot volume (Scribner rule) of sawtimber trees[a] on timberland, by county and ownership group, California, 2001–2010 (continued)

	Ownership group									
	National forest		Other federal		State and local government		Private		All owners	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, Scribner rule									
Santa Barbara	69.6	58.8	—	—	—	—	20.2	18.2	89.8	61.6
Santa Clara	—	—	—	—	418.9	344.4	160.7	115.2	579.6	359.6
Santa Cruz	—	—	—	—	407.1	366.1	4,446.3	1,032.5	4,853.3	1,111.0
Shasta	9,256.9	1,304.3	811.9	399.5	534.0	367.7	7,743.4	910.3	18,346.2	1,693.5
Sierra	8,300.3	1,457.6	—	—	—	—	1,235.0	446.0	9,535.2	1,521.6
Siskiyou	34,369.9	2,746.6	70.5	67.4	132.9	123.5	6,603.8	820.8	41,177.0	2,872.9
Sonoma	—	—	11.9	13.0	94.5	89.2	7,738.9	1,804.9	7,845.3	1,807.1
Tehama	5,952.7	1,276.5	—	—	—	—	2,770.3	606.4	8,722.9	1,427.2
Trinity	23,127.0	2,514.3	1,241.5	463.9	—	—	3,924.6	673.1	28,293.1	2,640.9
Tulare	3,288.9	803.6	—	—	—	—	363.6	219.7	3,652.5	833.1
Tuolumne	9,068.1	1,513.0	—	—	—	—	1,539.2	458.9	10,607.4	1,582.3
Ventura	27.4	21.8	—	—	—	—	—	—	27.4	21.8
Yuba	2,247.8	938.3	—	—	137.7	135.6	1,055.4	466.7	3,440.8	1,054.0
All counties	198,905.6	5,448.1	4,156.8	797.6	4,901.7	1,185.7	116,904.1	3,990.5	324,868.2	6,807.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 board feet was estimated.

[a] Includes sawtimber-sized trees that are ≥9 inches diameter at breast height for softwood species and ≥11 inches diameter at breast height for hardwood species.

Table A2-52—Net board-foot volume (Scribner rule) of sawtimber trees[a] on timberland, by forest type group and ownership group, California, 2001–2010

	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, Scribner rule													
Softwoods:														
California mixed conifer	117,516.2	4,802.4	1,729.3	543.2	429.4	274.8	20,566.4	1,654.2	10,124.9	1,177.4	30,691.2	1,912.9	150,366.0	5,182.7
Douglas-fir	10,785.8	1,894.5	88.8	88.7	1,022.4	617.9	6,410.7	1,073.4	7,856.3	1,446.0	14,266.9	1,763.6	26,163.9	2,641.2
Fir/spruce/mountain hemlock	33,685.2	3,045.4	264.4	267.7	262.1	267.0	3,822.8	777.1	1,099.2	409.5	4,921.9	866.9	39,133.6	3,190.3
Lodgepole pine	3,371.4	712.2	—	—	151.8	112.6	267.2	145.0	579.8	246.0	847.0	284.0	4,370.2	772.4
Pinyon/juniper woodlands	52.5	35.2	—	—	—	—	—	—	13.3	13.2	13.3	13.2	65.8	46.2
Ponderosa pine	12,987.3	1,313.7	294.2	111.3	31.0	27.7	2,708.6	503.1	4,548.0	669.8	7,256.6	822.9	20,569.1	1,554.8
Redwood	—	—	—	—	1,255.6	710.1	11,382.4	1,853.1	13,047.6	2,375.6	24,430.0	2,918.2	25,685.6	3,003.0
Western juniper	488.6	142.6	93.4	49.1	—	—	—	—	139.1	53.6	139.1	53.6	721.1	160.0
Western white pine	338.3	175.7	—	—	—	—	—	—	—	—	—	—	338.3	175.7
Other western softwoods	305.0	173.8	8.3	8.7	—	—	993.6	416.3	1,431.6	674.8	2,425.2	791.6	2,738.5	810.5
Total	179,530.2	5,486.6	2,478.5	622.3	3,152.2	1,006.6	46,151.6	2,745.1	38,839.7	3,135.4	84,991.2	3,884.9	270,152.1	6,779.9
Hardwoods:														
Alder/maple	442.4	223.7	85.9	70.0	78.9	66.6	1,400.0	484.9	815.1	326.5	2,215.1	583.3	2,822.3	632.1
Aspen/birch	84.4	66.2	—	—	—	—	28.2	30.0	48.8	35.9	77.0	46.8	161.4	81.1
Elm/ash/cottonwood	—	—	—	—	—	—	—	—	349.6	215.6	349.6	215.6	349.6	215.6
Tanoak/laurel	8,466.9	1,339.3	570.7	344.6	1,103.8	486.0	7,300.5	942.4	11,537.5	1,593.6	18,838.0	1,793.3	28,979.3	2,296.8
Western oak	8,625.7	888.6	912.6	342.9	256.5	156.2	2,669.7	409.2	5,935.6	680.0	8,605.2	783.9	18,400.1	1,239.1
Woodland hardwoods	170.3	56.1	—	—	—	—	—	—	4.3	4.2	4.3	4.2	174.7	56.2
Other hardwoods	1,371.1	576.4	105.0	107.0	310.3	350.5	521.9	211.5	1,248.9	361.3	1,770.9	417.4	3,557.2	873.7
Total	19,160.9	1,698.7	1,674.2	502.2	1,749.5	628.0	11,920.3	1,133.4	19,939.9	1,779.6	31,860.2	2,007.6	54,444.6	2,740.5
Nonstocked	214.5	61.7	4.2	4.1	—	—	45.6	21.2	7.2	5.1	52.8	21.8	271.5	65.6
All forest types	198,905.6	5,448.1	4,156.8	797.6	4,901.7	1,185.7	58,117.4	2,851.6	58,786.7	3,465.4	116,904.1	3,990.5	324,868.2	6,807.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 board feet was estimated.

[a] Includes sawtimber-sized trees that are ≥9 inches diameter at breast height for softwood species and ≥11 inches diameter at breast height for hardwood species.

Table A2-53—Net board-foot volume (Scribner rule) of sawtimber trees[a] on timberland, by forest type group and stand size class, California, 2000–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, Scribner rule							
Softwoods:								
California mixed conifer	149,435.2	5,185.9	420.0	99.0	510.9	119.1	150,366.0	5,182.7
Douglas-fir	25,557.7	2,640.9	231.0	85.0	375.2	182.2	26,163.9	2,641.2
Fir/spruce/mountain hemlock	38,961.2	3,189.4	49.0	27.5	123.4	52.9	39,133.6	3,190.3
Lodgepole pine	4,181.2	766.2	184.7	97.2	4.3	4.3	4,370.2	772.4
Pinyon/juniper woodlands	65.8	46.2	—	—	—	—	65.8	46.2
Ponderosa pine	20,360.4	1,554.9	130.7	38.5	78.0	33.3	20,569.1	1,554.8
Redwood	25,615.4	3,003.6	34.3	21.2	35.8	22.4	25,685.6	3,003.0
Western juniper	693.6	158.9	7.8	7.4	19.7	17.8	721.1	160.0
Western white pine	290.3	170.8	2.1	2.1	45.8	40.9	338.3	175.7
Other western softwoods	2,738.5	810.5	—	—	—	—	2,738.5	810.5
Total	267,899.3	6,789.6	1,059.6	170.7	1,193.1	231.0	270,152.1	6,779.9
Hardwoods:								
Alder/maple	2,484.6	615.3	279.9	138.9	57.7	40.4	2,822.3	632.1
Aspen/birch	94.5	70.6	48.9	35.9	18.0	17.4	161.4	81.1
Elm/ash/cottonwood	349.6	215.6	—	—	—	—	349.6	215.6
Tanoak/laurel	26,070.9	2,289.2	2,446.8	393.1	461.6	154.1	28,979.3	2,296.8
Western oak	15,583.2	1,191.8	2,367.8	354.6	449.0	125.8	18,400.1	1,239.1
Woodland hardwoods	159.6	55.5	9.5	7.0	5.5	6.0	174.7	56.2
Other hardwoods	3,317.8	868.6	174.3	92.7	65.1	28.7	3,557.2	873.7
Total	48,060.3	2,726.0	5,327.3	553.6	1,057.1	205.5	54,444.6	2,740.5
Nonstocked	—	—	—	—	—	—	271.5	65.6
All forest types	315,959.7	6,868.7	6,386.8	577.6	2,250.2	308.3	324,868.2	6,807.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 board feet was estimated.

[a] Includes sawtimber-sized trees that are ≥9 inches diameter at breast height for softwood species and ≥11 inches diameter at breast height for hardwood species.

Table A2-54—Net board-foot volume (Scribner rule) of sawtimber trees[a] on timberland, by species group and diameter class, California, 2001–2010

Species group	Diameter class (inches)															
	9.0–10.9		11.0–12.9		13.0–14.9		15.0–16.9		17.0–18.9		19.0–20.9		21.0–22.9		23.0–24.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, Scribner rule															
Softwoods:																
Douglas-fir	2,640.6	118.8	3,600.5	172.5	4,573.4	221.5	5,369.3	287.8	5,658.2	335.9	4,769.1	342.4	5,198.6	407.2	5,019.9	356.9
Incense cedar	489.8	33.1	609.5	44.2	675.5	60.9	897.2	76.1	950.5	92.0	881.9	98.9	878.6	115.5	854.4	98.2
Lodgepole pine	219.0	37.3	292.3	45.3	461.6	75.5	370.7	70.8	545.6	102.0	548.8	118.9	451.3	105.6	422.0	100.2
Ponderosa and Jeffrey pines	1,183.7	63.7	1,928.5	102.5	2,718.9	149.5	3,234.7	198.4	3,695.9	232.5	3,967.6	302.1	4,034.0	320.9	3,603.7	265.5
Redwood	345.0	36.8	729.6	74.7	844.1	90.8	1,031.3	114.3	1,200.1	161.1	1,412.1	186.3	1,723.6	219.5	1,564.2	211.9
Sitka spruce	20.9	10.6	41.1	23.9	60.3	32.4	72.9	46.9	115.7	74.5	54.8	34.1	93.2	61.5	22.9	14.9
Sugar pine	132.1	15.2	209.2	22.5	234.6	32.0	404.4	55.6	529.9	72.7	717.1	109.6	687.4	111.3	838.6	107.1
True fir	1,900.3	98.5	2,711.0	138.7	3,942.1	217.1	4,258.4	258.0	5,117.0	332.1	4,948.7	324.3	4,733.8	350.7	4,507.6	320.4
Western hemlock	46.4	18.0	65.3	25.0	113.0	44.1	76.0	36.3	48.1	26.9	26.8	24.7	77.7	71.8	4.7	4.3
Western juniper	30.1	5.4	40.7	9.8	34.7	8.8	36.0	10.3	53.9	14.0	32.8	12.0	23.2	11.8	38.0	13.2
Western white pine	17.4	4.2	26.3	7.7	50.9	13.1	31.2	11.8	104.9	28.3	106.3	37.2	90.3	35.6	92.9	29.1
Other western softwoods	124.1	21.7	144.2	29.8	209.1	43.9	158.9	36.9	278.4	82.1	369.2	120.1	157.4	63.2	268.9	76.2
Total	7,149.4	182.1	10,398.2	267.1	13,918.3	373.6	15,941.3	462.5	18,298.1	581.7	17,835.2	633.1	18,149.0	701.9	17,237.8	625.8
Hardwoods:																
Cottonwood and aspen			10.7	4.8	30.6	12.8	64.5	28.2	—	—	98.7	49.8	82.9	44.6	34.8	12.9
Oak			888.9	58.3	745.6	54.2	830.4	69.7	734.4	69.0	692.4	75.0	642.7	83.5	606.0	76.6
Red alder			327.4	75.1	174.5	46.7	245.9	77.8	143.6	63.3	161.3	55.1	18.9	17.2	47.7	34.4
Tanoak			1,412.9	112.4	1,366.6	122.1	1,118.5	122.5	976.9	130.1	986.7	122.2	1,085.8	183.5	632.0	104.6
Other western hardwoods			893.2	77.3	914.0	104.5	765.5	96.8	710.5	94.7	398.2	69.1	493.5	96.8	275.2	49.1
Total			3,533.1	175.1	3,231.4	184.4	3,024.7	191.7	2,565.4	191.5	2,337.4	175.4	2,323.8	228.4	1,595.7	144.7
All species groups	7,149.4	182.1	13,931.3	327.2	17,149.6	420.4	18,966.0	502.0	20,863.4	617.0	20,172.6	659.4	20,472.8	738.9	18,833.4	643.7

Table A2-54—Net board-foot volume (Scribner rule) of sawtimber trees[a] on timberland, by species group and diameter class, California, 2001–2010 (continued)

	Diameter class (inches)															
	25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9		37.0–38.9		39.0–40.9	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, Scribner rule															
Softwoods:																
Douglas-fir	5,029.1	258.7	4,379.1	249.3	4,711.5	287.3	4,434.3	278.0	4,542.6	313.9	4,394.6	323.8	4,447.6	346.9	3,632.4	310.3
Incense cedar	934.7	75.9	862.2	75.5	717.4	69.6	665.2	70.9	716.1	75.2	650.2	86.1	593.0	80.7	460.3	75.5
Lodgepole pine	344.0	69.5	245.2	60.3	253.1	77.3	127.9	36.8	91.4	28.4	81.1	35.9	77.1	31.8	50.2	26.2
Ponderosa and Jeffrey pines	3,490.8	201.0	3,681.4	231.1	3,356.8	226.1	3,102.7	236.0	2,681.3	237.2	2,250.4	240.1	1,914.3	198.1	1,989.8	213.7
Redwood	1,954.3	217.1	1,775.0	181.0	1,623.7	194.4	1,563.3	184.0	1,435.7	192.2	1,315.5	176.6	1,101.8	204.6	1,196.3	204.4
Sitka spruce	60.9	31.6	34.9	19.9	56.6	35.6	46.0	22.0	46.4	28.9	53.2	45.2	13.5	12.3	36.0	28.6
Sugar pine	931.7	81.6	1,008.8	102.8	1,043.0	102.7	1,016.9	118.0	1,096.7	127.5	1,025.5	131.3	837.3	116.8	560.9	101.6
True fir	4,563.3	276.9	4,602.7	292.6	4,182.9	292.1	4,097.2	303.0	3,211.0	269.5	3,266.0	295.8	2,603.6	260.7	2,805.7	318.9
Western hemlock	37.8	14.6	38.9	23.9	15.7	10.6	—	—	—	—	—	—	—	—	—	—
Western juniper	14.7	4.4	10.0	4.5	8.4	4.9	6.9	3.2	3.8	2.6	6.1	5.0	14.1	10.1	4.9	3.4
Western white pine	80.3	24.4	91.8	23.7	111.7	28.0	89.1	26.5	73.0	29.6	100.1	34.1	112.1	35.5	65.8	32.5
Other western softwoods	209.2	61.1	257.6	73.6	104.0	35.6	131.9	61.2	175.8	52.7	204.9	59.1	124.3	48.2	59.6	25.2
Total	17,651.0	508.6	16,987.5	519.6	16,185.0	547.4	15,281.6	546.4	14,073.7	552.6	13,347.6	591.5	11,838.6	557.5	10,862.0	556.4
Hardwoods:																
Cottonwood and aspen	30.6	16.1	69.4	39.1	27.5	11.5	29.1	15.5	2.6	2.6	4.3	4.3	—	—	—	—
Oak	446.9	41.4	410.6	40.3	332.4	40.1	315.5	46.2	208.9	43.0	142.8	33.3	155.2	39.1	86.2	28.5
Red alder	12.3	7.9	14.0	9.9	19.0	10.7	9.6	7.7	—	—	—	—	—	—	—	—
Tanoak	415.3	59.5	373.5	61.7	330.1	75.5	131.1	34.4	71.1	22.7	219.6	67.8	55.7	25.7	23.7	17.1
Other western hardwoods	238.7	33.0	159.4	31.0	181.3	33.3	151.3	36.9	96.5	32.6	85.5	25.0	103.1	38.8	39.4	16.0
Total	1,143.9	83.4	1,026.8	91.3	890.3	96.2	636.7	73.0	379.0	58.9	452.1	80.4	314.0	60.6	149.3	39.3
All species groups	18,794.8	518.0	18,014.3	528.9	17,075.3	556.5	15,918.2	552.1	14,452.7	558.6	13,799.7	600.7	12,152.6	565.5	11,011.3	557.5

Table A2-54—Net board-foot volume (Scribner rule) of sawtimber trees[a] on timberland, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)										All classes	
	41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0+			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, Scribner rule											
Softwoods:												
Douglas-fir	3,622.6	347.0	3,736.7	352.1	3,378.4	341.0	2,930.0	343.6	17,415.3	1,617.3	103,483.7	4,074.4
Incense cedar	467.8	83.1	444.2	72.7	281.5	65.5	201.0	56.8	1,605.8	255.2	14,837.0	864.1
Lodgepole pine	44.7	40.0	30.2	27.9	65.1	33.8	—	—	—	—	4,721.5	661.5
Ponderosa and Jeffrey pines	1,401.5	174.2	1,106.7	183.9	934.7	180.9	771.1	161.4	2,484.0	484.1	53,532.7	2,019.9
Redwood	840.9	150.7	789.7	157.7	486.1	115.7	431.0	106.4	4,368.0	966.9	27,731.5	2,364.7
Sitka spruce	73.0	48.4	74.2	38.5	—	—	—	—	67.5	61.4	1,044.0	352.7
Sugar pine	891.2	138.5	639.3	124.3	646.8	127.7	567.1	135.9	3,321.6	501.8	17,340.2	1,038.1
True fir	1,867.0	237.1	1,934.9	248.7	1,605.7	238.2	1,360.0	216.7	3,907.5	645.5	72,126.4	3,378.5
Western hemlock	—	—	—	—	—	—	—	—	—	—	550.3	224.6
Western juniper	3.9	2.7	—	—	—	—	—	—	8.9	6.3	371.0	56.2
Western white pine	44.7	23.4	91.6	36.7	22.9	16.4	40.6	29.7	168.6	68.8	1,612.4	249.7
Other western softwoods	43.5	26.5	51.4	26.2	29.7	23.7	—	—	118.1	55.2	3,220.2	567.0
Total	9,300.8	519.7	8,899.0	539.2	7,450.8	498.9	6,300.8	487.1	33,465.3	2,315.3	300,570.9	6,574.2
Hardwoods:												
Cottonwood and aspen	—	—	—	—	—	—	—	—	—	—	485.8	209.8
Oak	111.6	41.4	7.5	5.9	30.0	17.5	27.8	23.6	108.1	43.4	7,523.9	375.9
Red alder	—	—	—	—	—	—	—	—	—	—	1,174.2	263.7
Tanoak	82.7	42.1	31.4	25.0	48.3	38.4	57.6	39.0	35.6	35.3	9,455.0	729.8
Other western hardwoods	15.1	11.4	31.8	21.8	28.4	19.2	—	—	77.9	34.7	5,658.3	409.4
Total	209.4	60.1	70.7	33.5	106.7	46.4	85.3	45.5	221.6	65.8	24,297.3	1,043.0
All species groups	9,510.3	525.2	8,969.8	540.6	7,557.5	500.9	6,386.2	489.0	33,686.9	2,316.0	324,868.2	6,807.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 board feet was estimated.

[a] Includes sawtimber-sized trees that are ≥9 inches diameter at breast height for softwood species and ≥11 inches diameter at breast height for hardwood species.

Table A2-55—Net board-foot volume (International ¼-inch rule) of sawtimber trees[a] on timberland, by species group and diameter class, California, 2001–2010

	Diameter class (inches)															
	9.0–10.9		11.0–12.9		13.0–14.9		15.0–16.9		17.0–18.9		19.0–20.9		21.0–22.9		23.0–24.9	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, International ¼-inch rule															
Softwoods:																
Douglas-fir	3,520.0	158.0	4,543.5	216.8	5,579.8	269.4	6,388.7	340.7	6,606.5	390.3	5,489.0	391.5	5,898.3	459.0	5,646.4	398.1
Incense cedar	663.1	44.7	791.4	57.3	855.2	76.9	1,115.5	94.4	1,166.3	112.7	1,069.5	119.4	1,053.3	138.2	1,017.8	116.7
Lodgepole pine	293.4	50.0	372.1	57.7	568.3	92.5	445.4	84.6	643.3	119.7	635.6	136.6	516.0	120.4	479.3	113.3
Ponderosa and Jeffrey pines	1,596.1	85.7	2,485.0	131.9	3,384.5	185.3	3,928.0	239.7	4,395.6	274.9	4,620.4	348.5	4,634.2	366.0	4,089.5	299.9
Redwood	465.3	49.7	939.4	96.1	1,053.0	113.0	1,258.7	138.9	1,433.0	191.2	1,663.8	218.6	2,004.4	253.2	1,797.0	240.9
Sitka spruce	27.9	14.0	51.0	29.8	73.0	39.2	86.4	55.5	134.6	86.6	63.2	39.5	104.8	69.2	25.5	16.5
Sugar pine	178.2	20.4	269.6	28.9	292.8	39.7	489.9	67.0	631.0	86.3	837.3	127.1	793.1	128.1	958.3	122.2
True fir	2,557.9	132.0	3,470.4	177.0	4,884.6	267.5	5,152.0	310.0	6,067.0	390.7	5,796.2	377.9	5,474.1	402.5	5,143.5	363.8
Western hemlock	61.6	23.7	81.5	30.9	136.3	53.2	88.7	42.4	55.3	30.8	30.1	27.8	85.5	79.0	5.3	4.9
Western juniper	40.6	7.2	53.0	12.7	44.3	11.2	45.6	13.0	67.7	17.5	40.8	14.9	29.2	14.8	48.0	16.6
Western white pine	23.5	5.6	34.0	9.9	63.7	16.3	38.5	14.5	127.1	34.2	126.1	44.0	107.6	42.2	108.4	34.0
Other western softwoods	166.2	29.0	184.1	37.9	257.2	53.7	192.6	44.4	329.7	96.1	429.3	138.6	182.9	72.7	305.5	85.7
Total	9,593.9	243.3	13,275.1	339.1	17,192.9	458.5	19,229.9	553.5	21,657.2	683.1	20,801.2	731.9	20,883.4	800.5	19,624.7	706.2
Hardwoods:																
Cottonwood and aspen			12.1	5.4	36.5	15.3	76.4	33.3	—	—	113.4	57.1	92.6	49.6	39.7	14.7
Oak			1,151.7	75.5	944.4	68.5	1,037.0	86.7	906.1	84.4	845.8	91.0	777.3	100.2	725.8	90.6
Red alder			364.9	83.6	204.1	54.6	285.8	89.7	164.8	71.6	181.4	61.8	21.6	19.6	52.8	38.0
Tanoak			1,805.6	143.1	1,690.4	150.4	1,356.7	147.7	1,164.8	154.3	1,165.9	143.4	1,258.2	210.0	721.4	118.1
Other western hardwoods			1,127.4	96.9	1,120.1	126.4	923.4	115.1	845.9	111.4	469.3	80.5	577.3	111.4	328.4	58.2
Total			4,461.7	217.9	3,995.6	225.7	3,679.4	229.8	3,081.5	226.2	2,775.7	205.7	2,726.9	263.1	1,867.9	166.5
All species groups	9,593.9	243.3	17,736.8	412.1	21,188.5	515.5	22,909.3	600.6	24,738.7	724.6	23,577.0	763.0	23,610.3	843.4	21,492.6	727.1

Table A2-55—Net board-foot volume (International ¼-inch rule) of sawtimber trees[a] on timberland, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)															
	25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9		37.0–38.9		39.0–40.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, International ¼-inch rule															
Softwoods:																
Douglas-fir	5,600.4	286.1	4,833.9	273.2	5,162.8	311.6	4,835.7	301.2	4,918.5	336.9	4,737.1	346.8	4,761.6	369.2	3,899.3	331.0
Incense cedar	1,103.2	89.1	1,007.6	87.9	835.7	80.6	768.4	81.6	826.5	86.3	745.0	97.8	676.4	91.5	520.9	85.1
Lodgepole pine	387.8	78.3	273.7	66.7	281.8	85.1	143.3	41.2	100.4	31.2	88.5	38.7	83.8	34.2	55.0	28.5
Ponderosa and Jeffrey pines	3,906.4	223.2	4,072.8	253.8	3,682.3	246.1	3,384.5	255.6	2,900.1	254.5	2,413.8	255.3	2,047.8	211.1	2,117.5	226.1
Redwood	2,217.8	244.8	2,001.1	202.8	1,822.4	216.5	1,741.0	203.8	1,589.9	211.9	1,450.6	193.5	1,212.1	222.5	1,307.6	221.7
Sitka spruce	67.3	34.6	38.3	21.8	61.8	38.6	49.5	23.7	50.3	31.4	57.4	48.8	14.9	13.5	37.8	30.1
Sugar pine	1,050.9	91.6	1,125.9	114.1	1,149.8	112.8	1,112.6	128.5	1,194.3	138.4	1,109.4	141.5	899.5	125.0	601.0	108.5
True fir	5,154.2	310.9	5,146.0	324.7	4,638.1	321.7	4,511.6	331.0	3,515.9	293.1	3,551.4	319.2	2,825.2	281.5	3,027.0	341.6
Western hemlock	42.0	16.2	42.4	25.9	17.3	11.7	—	—	—	—	—	—	—	—	—	—
Western juniper	18.5	5.5	12.5	5.5	10.6	6.2	8.8	4.0	4.8	3.4	7.4	6.0	17.7	12.5	6.5	4.6
Western white pine	93.1	28.2	106.1	27.4	127.7	31.9	100.7	29.8	81.6	32.9	113.0	38.4	124.9	39.5	72.3	35.3
Other western softwoods	235.4	68.4	290.0	82.2	118.9	40.3	146.1	66.9	195.0	57.9	224.2	64.5	136.0	52.5	67.1	28.0
Total	19,876.9	568.9	18,950.2	574.8	17,909.3	600.2	16,802.1	595.8	15,377.2	598.7	14,497.8	636.8	12,799.8	598.5	11,712.0	595.9
Hardwoods:																
Cottonwood and aspen	34.3	17.9	76.5	42.8	31.1	13.0	32.4	17.2	3.1	3.2	5.1	5.1	—	—	—	—
Oak	529.8	48.7	483.4	47.0	388.4	46.4	364.7	52.9	240.8	49.4	163.2	37.7	175.4	43.8	98.8	31.9
Red alder	13.8	8.7	15.4	10.7	21.1	11.9	10.8	8.7	—	—	—	—	—	—	—	—
Tanoak	471.8	66.9	419.3	68.5	368.5	83.4	145.5	38.0	80.0	25.1	240.3	73.6	60.5	27.7	25.7	18.5
Other western hardwoods	277.8	37.7	183.7	34.7	208.0	37.4	173.5	41.7	109.7	35.7	100.4	29.0	115.7	42.5	45.5	18.3
Total	1,327.4	95.3	1,178.3	102.3	1,017.1	107.5	726.9	82.2	433.6	66.3	509.0	88.6	351.6	66.8	170.1	44.0
All species groups	21,204.4	579.6	20,128.6	585.3	18,926.4	610.5	17,529.0	602.4	15,810.8	605.6	15,006.8	646.9	13,151.4	607.2	11,882.0	597.1

Table A2-55—Net board-foot volume (International ¼-inch rule) of sawtimber trees[a] on timberland, by species group and diameter class, California, 2001–2010 (continued)

	Diameter class (inches)											
	41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0+		All classes	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, International ¼-inch rule											
Softwoods:												
Douglas-fir	3,862.6	367.6	3,985.0	374.1	3,588.3	360.3	3,113.9	363.0	18,596.1	1,724.0	115,567.2	4,427.8
Incense cedar	532.6	93.6	502.6	81.8	317.0	73.3	226.4	63.7	1,812.4	286.5	17,606.7	1,009.0
Lodgepole pine	47.9	42.3	33.0	30.1	71.3	36.9	—	—	—	—	5,519.8	758.1
Ponderosa and Jeffrey pines	1,487.4	184.4	1,172.7	193.9	985.9	189.8	811.8	169.2	2,621.9	509.0	60,738.3	2,245.0
Redwood	918.3	163.9	859.8	171.4	532.5	126.5	472.8	115.4	4,821.0	1,058.1	31,561.5	2,644.3
Sitka spruce	77.6	51.5	79.7	41.3	—	—	—	—	72.9	66.3	1,173.9	398.4
Sugar pine	949.1	147.1	679.1	131.9	683.7	134.7	597.5	143.0	3,522.8	533.1	19,126.1	1,126.8
True fir	2,008.9	254.5	2,072.4	265.1	1,721.8	253.5	1,454.3	230.0	4,184.5	684.6	82,357.2	3,767.8
Western hemlock	—	—	—	—	—	—	—	—	—	—	646.0	260.2
Western juniper	5.2	3.6	—	—	—	—	—	—	13.0	9.1	474.2	71.6
Western white pine	49.5	25.8	101.2	40.3	25.8	18.5	43.9	32.1	183.6	74.8	1,852.3	284.2
Other western softwoods	46.5	28.3	57.1	29.0	32.5	25.7	—	—	131.2	61.0	3,727.4	644.5
Total	9,985.6	554.9	9,542.7	574.9	7,958.8	529.3	6,720.6	515.8	35,959.4	2,479.8	340,350.8	7,231.1
Hardwoods:												
Cottonwood and aspen	—	—	—	—	—	—	—	—	—	—	553.2	236.4
Oak	125.7	45.8	9.6	7.4	35.2	19.9	30.8	25.6	125.1	48.5	9,159.0	452.4
Red alder	—	—	—	—	—	—	—	—	—	—	1,336.5	298.5
Tanoak	88.5	45.1	33.8	26.9	52.9	42.1	60.8	41.0	45.5	45.0	11,256.0	851.5
Other western hardwoods	17.5	13.2	36.7	23.4	32.6	21.6	—	—	89.1	38.3	6,781.8	483.3
Total	231.7	65.5	80.1	36.3	120.7	51.3	91.6	48.3	259.7	76.5	29,086.6	1,223.2
All species groups	10,217.3	560.9	9,622.7	576.5	8,079.5	531.6	6,812.2	517.9	36,219.1	2,480.9	369,437.4	7,505.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 board feet was estimated.

[a] Includes sawtimber-sized trees that are ≥9 inches diameter at breast height for softwood species and ≥11 inches diameter at breast height for hardwood species.

Table A2-56—Net board-foot volume (International ¼-inch rule) of sawtimber trees[a] on timberland, by species group and ownership group, California, 2001–2010

Species group	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million board feet, International ¼-inch rule													
Softwoods:														
Douglas-fir	71,215.6	3,778.5	2,491.0	608.0	1,793.7	625.0	19,023.8	1,396.1	21,043.0	1,861.8	40,066.9	2,204.9	115,567.2	4,427.8
Incense cedar	12,128.1	877.9	89.1	68.7	65.9	56.4	3,016.8	342.9	2,306.8	371.4	5,323.6	491.5	17,606.7	1,009.0
Lodgepole pine	4,166.8	660.7	—	—	123.1	84.5	498.1	203.1	731.8	311.2	1,229.9	366.6	5,519.8	758.1
Ponderosa and Jeffrey pines	41,953.9	1,947.5	947.9	250.7	187.2	93.1	8,129.9	720.3	9,519.4	899.1	17,649.3	1,094.9	60,738.3	2,245.0
Redwood	158.3	132.8	—	—	2,210.7	764.3	14,424.6	1,664.1	14,768.0	2,099.9	29,192.5	2,533.1	31,561.5	2,644.3
Sitka spruce	—	—	—	—	—	—	691.0	283.9	482.9	280.3	1,173.9	398.4	1,173.9	398.4
Sugar pine	14,370.7	1,035.4	207.0	96.2	19.0	19.3	3,369.7	383.0	1,159.8	234.5	4,529.5	434.5	19,126.1	1,126.8
True fir	66,997.9	3,571.5	472.6	298.8	278.6	232.6	10,296.6	1,003.4	4,311.5	634.2	14,608.2	1,140.9	82,357.2	3,767.8
Western hemlock	8.0	7.9	—	—	6.8	6.2	486.0	251.5	145.2	67.4	631.2	260.0	646.0	260.2
Western juniper	311.2	56.4	56.4	29.3	—	—	10.6	4.8	96.1	32.6	106.7	32.9	474.2	71.6
Western white pine	1,724.1	280.4	—	—	24.6	22.0	78.1	36.7	25.5	17.9	103.6	40.5	1,852.3	284.2
Other western softwoods	2,184.4	517.8	37.1	21.8	77.6	46.0	320.6	115.7	1,107.8	363.3	1,428.4	380.6	3,727.4	644.5
Total	215,218.9	5,851.2	4,301.0	829.8	4,787.3	1,207.2	60,345.8	3,050.6	55,697.9	3,470.4	116,043.7	4,145.7	340,350.8	7,231.1
Hardwoods:														
Cottonwood and aspen	96.5	45.4	15.8	13.0	—	—	20.8	18.0	420.1	230.9	440.9	231.6	553.2	236.4
Oak	4,128.2	306.1	168.4	44.8	165.2	75.3	1,347.8	163.7	3,349.5	288.2	4,697.3	324.3	9,159.0	452.4
Red alder	105.9	42.0	3.2	3.3	91.8	84.8	955.9	274.5	179.6	71.0	1,135.5	283.2	1,336.5	298.5
Tanoak	2,461.7	378.2	153.2	78.5	268.7	117.1	3,473.5	444.8	4,898.9	643.9	8,372.4	753.7	11,256.0	851.5
Other western hardwoods	2,327.1	311.6	143.8	54.8	234.3	112.2	1,260.2	186.7	2,816.4	308.2	4,076.6	351.4	6,781.8	483.3
Total	9,119.5	657.2	484.4	154.0	760.1	211.8	7,058.1	623.1	11,664.5	877.3	18,722.6	1,013.3	29,086.6	1,223.2
All species groups	224,338.3	5,974.0	4,785.4	905.8	5,547.3	1,329.8	67,403.9	3,229.5	67,362.4	3,863.4	134,766.4	4,445.0	369,437.4	7,505.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 board feet was estimated.

[a] Includes sawtimber-sized trees that are ≥9 inches diameter at breast height for softwood species and ≥11 inches diameter at breast height for hardwood species.

Table A2-57—Average net board-foot volume per acre (Scribner rule) of sawtimber trees[a] on timberland, by forest type group and ownership group, California, 2001–2010

	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Board feet per acre, Scribner rule													
Softwoods:														
California mixed conifer	28,076.81	829.78	24,192.44	3,654.29	21,033.41	7,992.50	14,190.95	848.54	15,989.28	1,113.83	14,737.77	678.50	23,642.81	606.68
Douglas-fir	41,494.23	5,449.40	13,012.99	1,406.60	30,104.43	12,981.03	19,395.82	2,102.81	25,232.16	3,177.25	22,226.88	1,905.30	27,757.21	2,079.47
Fir/spruce/mountain hemlock	31,373.62	1,771.87	44,507.62	44,507.62	42,439.28	42,439.28	15,998.91	2,117.63	13,234.10	3,381.68	15,285.75	1,795.72	27,797.91	1,477.39
Lodgepole pine	14,400.11	2,029.48	—	—	9,389.87	3,401.18	10,405.76	2,843.23	13,391.50	2,556.81	12,279.99	1,988.34	13,688.41	1,569.82
Pinyon/juniper woodlands	3,214.74	1,152.68	—	—	—	—	—	—	10,271.45	10,271.45	10,271.45	10,271.45	3,448.98	1,341.07
Ponderosa pine	11,137.24	862.45	7,778.58	1,824.36	9,943.37	258.22	7,495.95	1,057.41	12,022.34	1,129.62	9,811.00	791.69	10,566.17	600.60
Redwood	—	—	—	—	59,799.81	6,830.28	32,386.87	3,683.85	59,378.28	5,434.99	42,770.55	3,382.21	43,374.34	3,289.36
Western juniper	3,965.72	786.85	3,677.39	654.41	—	—	—	—	3,003.71	541.48	3,003.71	541.48	3,699.63	525.24
Western white pine	9,560.40	3,291.79	—	—	—	—	—	—	—	—	—	—	8,038.48	3,074.61
Other western softwoods	7,621.53	3,556.57	5,573.79	5,573.79	—	—	22,506.20	3,984.26	37,548.50	11,333.46	29,476.99	5,838.44	22,123.45	4,580.22
Total	25,164.33	625.63	16,477.79	2,732.70	31,263.19	6,435.16	16,435.54	762.23	22,134.78	1,338.57	18,627.30	687.91	22,610.13	461.62
Hardwoods:														
Alder/maple	18,069.35	3,777.06	8,920.59	4,063.09	21,673.46	7,890.67	17,649.29	3,555.26	15,230.01	3,778.78	16,674.64	2,634.86	16,543.90	2,169.23
Aspen/birch	4,196.76	2,439.53	—	—	—	—	8,985.34	8,985.34	4,442.48	1,575.04	5,451.52	1,665.15	4,714.50	1,579.97
Elm/ash/cottonwood	—	—	—	—	—	—	—	—	20,217.35	20,217.35	19,489.61	762.14	18,938.74	1,092.72
Tanoak/laurel	22,306.64	2,485.41	16,172.07	6,509.40	37,995.80	4,553.12	12,535.33	1,085.05	19,308.82	1,899.63	15,965.52	1,128.33	17,846.37	1,033.47
Western oak	8,246.64	605.89	8,270.77	2,567.14	10,207.64	4,527.58	6,450.13	638.56	7,062.75	577.46	6,860.59	440.61	7,554.21	369.27
Woodland hardwoods	2,237.79	491.93	—	—	—	—	—	—	857.03	857.03	368.59	275.23	1,988.79	448.63
Other hardwoods	14,461.80	4,925.48	17,001.81	17,001.81	32,216.35	29,917.00	9,564.02	2,682.11	10,317.57	2,308.29	10,083.41	1,792.46	12,427.57	2,536.12
Total	11,675.90	824.97	10,337.19	2,359.62	25,937.62	6,097.61	10,450.58	711.67	12,115.52	855.81	11,433.97	580.54	11,691.15	474.65
Nonstocked	587.61	150.41	297.58	318.68	—	—	417.37	184.85	208.07	131.29	367.06	144.01	519.18	113.74
All forest types	21,761.00	524.40	12,733.63	1,777.00	29,128.61	4,605.28	14,322.26	575.52	17,113.77	818.78	15,602.01	480.12	18,967.00	355.42

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 board feet per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes sawtimber-sized trees that are ≥9 inches diameter at breast height for softwood species and ≥11 inches diameter at breast height for hardwood species.

Table A2-58—Average net board-foot volume per acre (Scribner rule) of sawtimber trees[a] on timberland, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Board feet per acre, Scribner rule							
Softwoods:								
California mixed conifer	25,558.08	634.04	2,360.21	381.13	1,524.66	297.79	23,642.81	606.68
Douglas-fir	31,221.05	2,265.16	5,375.71	1,008.49	4,630.75	1,842.87	27,757.21	2,079.47
Fir/spruce/mountain hemlock	29,324.54	1,517.70	2,446.58	569.98	2,087.03	604.41	27,797.91	1,477.39
Lodgepole pine	15,472.27	1,744.23	6,757.30	1,854.88	199.34	172.20	13,688.41	1,569.82
Pinyon/juniper woodlands	3,448.98	1,341.07	—	—	—	—	3,448.98	1,341.07
Ponderosa pine	12,452.07	664.11	807.16	218.63	520.82	199.61	10,566.17	600.60
Redwood	47,229.38	3,408.61	1,585.99	579.83	1,270.83	555.07	43,374.34	3,289.36
Western juniper	4,479.47	579.50	935.13	662.94	621.88	482.70	3,699.63	525.24
Western white pine	17,340.76	1,547.89	338.44	338.44	2,402.99	1,698.14	8,038.48	3,074.61
Other western softwoods	25,903.85	4,990.31	—	—	—	—	22,123.45	4,580.22
Total	24,948.30	493.49	2,271.73	285.20	1,604.39	277.22	22,610.13	461.62
Hardwoods:								
Alder/maple	21,612.85	2,389.25	6,646.26	2,195.55	4,271.70	518.83	16,543.90	2,169.23
Aspen/birch	9,775.23	1,452.35	4,931.88	1,655.57	1,229.54	836.58	4,714.50	1,579.97
Elm/ash/cottonwood	20,217.35	20,217.35	—	—	—	—	18,938.74	1,092.72
Tanoak/laurel	23,788.13	1,304.42	7,048.59	659.14	2,554.34	729.75	17,846.37	1,033.47
Western oak	10,336.33	490.47	3,786.68	437.61	1,482.87	363.48	7,554.21	369.27
Woodland hardwoods	2,489.31	567.75	565.44	256.22	806.14	281.93	1,988.79	448.63
Other hardwoods	23,311.81	4,095.86	3,899.83	1,443.17	655.93	250.36	12,427.57	2,536.12
Total	16,280.94	657.75	4,902.96	365.19	1,709.24	290.78	11,691.15	474.65
Nonstocked	—	—	—	—	—	—	519.18	113.74
All forest types	23,079.40	414.84	4,112.69	279.87	1,652.00	201.03	18,967.00	355.42

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 board feet per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes sawtimber-sized trees that are ≥9 inches diameter at breast height for softwood species and ≥11 inches diameter at breast height for hardwood species.

Table A2-59—Aboveground biomass of live trees[a] on forest land, by ownership and land status, California, 2001–2010

Ownership	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
USDA Forest Service:														
National forest	838,482.2	19,323.0	70,108.1	4,970.9	908,590.4	19,185.3	235,943.9	13,930.2	33,515.0	3,779.1	269,458.9	14,316.3	1,178,049.2	19,040.2
Total	838,482.2	19,323.0	70,108.1	4,970.9	908,590.4	19,185.3	235,943.9	13,930.2	33,515.0	3,779.1	269,458.9	14,316.3	1,178,049.2	19,040.2
Other federal government:														
Bureau of Land Management	22,926.6	4,017.3	13,865.7	1,902.8	36,792.3	4,386.4	1,978.8	1,024.0	2,111.6	492.8	4,090.4	1,126.5	40,882.6	4,509.2
Departments of Defense or Energy	323.1	354.6	1,749.4	605.1	2,072.5	701.4	—	—	—	—	—	—	2,072.5	701.4
National Park Service	—	—	—	—	—	—	120,818.1	12,694.6	11,296.9	2,045.3	132,115.0	12,588.1	132,115.0	12,588.1
U.S. Fish and Wildlife Service	—	—	—	—	—	—	120.0	147.5	5.2	5.3	125.2	147.6	125.2	147.6
Other federal	—	—	1,604.4	691.8	1,604.4	691.8	2,771.2	2,009.7	640.0	576.3	3,411.2	2,088.2	5,015.6	2,199.8
Total	23,249.7	4,032.9	17,219.4	2,089.7	40,469.2	4,462.8	125,688.1	12,846.6	14,053.7	2,168.0	139,741.8	12,732.3	180,211.0	13,214.6
State and local government:														
Local	5,986.2	2,390.5	9,834.2	2,086.6	15,820.4	3,178.6	3,421.0	2,176.1	4,611.0	1,413.0	8,032.0	2,593.3	23,852.4	4,066.8
State	15,076.5	4,115.4	3,365.7	1,100.4	18,442.1	4,248.2	65,240.6	14,997.0	9,702.3	2,718.9	74,942.9	15,223.5	93,385.0	15,406.1
Other public	—	—	55.3	50.3	55.3	50.3	982.8	874.6	95.5	91.5	1,078.4	879.3	1,133.7	880.8
Total	21,062.6	4,731.8	13,255.2	2,352.0	34,317.9	5,266.5	69,644.4	15,168.9	14,408.8	3,061.6	84,053.3	15,449.0	118,371.1	15,908.0
Corporate private	295,622.1	12,039.6	16,951.7	2,315.7	312,573.8	12,195.6	—	—	—	—	—	—	312,573.8	12,195.6
Noncorporate private:														
Nongovernmental conservation or natural resource organizations	19,196.1	3,292.9	1,793.1	700.9	20,989.2	3,365.7	—	—	—	—	—	—	20,989.2	3,365.7
Unicorporated partnerships, associations, clubs	7,736.7	2,339.1	1,063.4	415.2	8,800.1	2,395.1	—	—	—	—	—	—	8,800.1	2,395.1
Native American	18,193.1	4,393.8	1,159.6	572.8	19,352.7	4,414.4	—	—	—	—	—	—	19,352.7	4,414.4
Individual	254,191.5	13,197.0	143,739.7	6,554.3	397,931.2	14,088.2	—	—	—	—	—	—	397,931.2	14,088.2
Total	299,317.5	14,107.0	147,755.8	6,604.8	447,073.3	14,915.2	—	—	—	—	—	—	447,073.3	14,915.2
All private	594,939.6	15,407.5	164,707.5	6,844.9	759,647.1	15,633.8	—	—	—	—	—	—	759,647.1	15,633.8
All owners	1,477,734.2	24,925.2	265,290.3	8,899.6	1,743,024.5	24,947.5	431,276.4	23,292.6	61,977.5	5,319.6	493,254.0	23,628.9	2,236,278.5	29,466.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-60—Aboveground biomass of dead trees[a] on forest land, by ownership and land status, California, 2001–2010

Ownership	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
USDA Forest Service:														
National forest	100,491.1	4,417.9	6,618.1	757.1	107,109.2	4,449.7	38,647.4	3,109.3	4,399.0	694.9	43,046.4	3,171.0	150,155.5	5,065.5
Total	100,491.1	4,417.9	6,618.1	757.1	107,109.2	4,449.7	38,647.4	3,109.3	4,399.0	694.9	43,046.4	3,171.0	150,155.5	5,065.5
Other federal government:														
Bureau of Land Management	1,615.1	559.4	1,441.6	267.2	3,056.8	618.4	347.0	280.2	200.3	66.3	547.3	287.9	3,604.0	679.3
Departments of Defense or Energy	—	—	47.8	34.9	47.8	34.9	—	—	—	—	—	—	47.8	34.9
National Park Service	—	—	—	—	—	—	20,848.6	2,712.9	1,290.2	294.1	22,138.8	2,693.6	22,138.8	2,693.6
Other federal	—	—	19.9	14.7	19.9	14.7	537.7	498.6	25.2	22.0	562.8	498.9	582.8	499.1
Total	1,615.1	559.4	1,509.3	269.6	3,124.5	619.2	21,733.3	2,754.2	1,515.6	301.7	23,248.9	2,734.0	26,373.4	2,787.2
State and local government:														
Local	500.2	294.7	363.6	142.6	863.8	327.3	299.4	211.4	59.6	31.4	358.9	213.7	1,222.8	390.3
State	753.0	285.2	102.7	46.1	855.6	288.8	4,954.7	1,150.6	664.2	228.7	5,618.9	1,168.3	6,474.5	1,185.2
Other public	—	—	—	—	—	—	15.5	13.8	4.2	4.8	19.8	14.7	19.8	14.7
Total	1,253.2	409.9	466.3	149.7	1,719.4	436.2	5,269.6	1,168.0	728.1	230.9	5,997.7	1,185.6	7,717.1	1,245.4
Corporate private	24,731.1	2,408.5	569.8	124.5	25,300.9	2,410.6	—	—	—	—	—	—	25,300.9	2,410.6
Noncorporate private:														
Nongovernmental conservation or natural resource organizations	1,091.9	365.0	18.4	12.7	1,110.3	365.2	—	—	—	—	—	—	1,110.3	365.2
Unicorporated partnerships, associations, clubs	391.9	195.7	95.5	83.4	487.3	212.7	—	—	—	—	—	—	487.3	212.7
Native American	1,325.6	548.9	33.5	25.3	1,359.1	548.4	—	—	—	—	—	—	1,359.1	548.4
Individual	15,216.1	1,820.3	5,403.8	568.3	20,619.9	1,898.7	—	—	—	—	—	—	20,619.9	1,898.7
Total	18,025.5	1,937.3	5,551.2	574.7	23,576.7	2,011.6	—	—	—	—	—	—	23,576.7	2,011.6
All private	42,756.6	3,002.8	6,120.9	586.3	48,877.5	3,041.4	—	—	—	—	—	—	48,877.5	3,041.4
All owners	146,116.0	5,375.9	14,714.6	1,004.4	160,830.6	5,429.7	65,650.3	4,277.3	6,642.6	791.8	72,292.9	4,313.3	233,123.5	6,574.5

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Aboveground biomass is estimated from ground to actual height, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-61—Aboveground biomass of live trees[a] on forest land, by county and land status, California, 2001–2010

County	Unreserved forests						Reserved forests						All forest land	
	Timberland		Other forest		Total		Productive		Other forest		Total			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Alameda	545.4	469.2	3,970.4	1,220.7	4,515.8	1,305.4	—	—	847.3	517.9	847.3	517.9	5,363.1	1,404.2
Alpine	7,007.6	1,960.6	1,452.8	552.9	8,460.3	2,036.4	11,830.4	2,791.6	1,464.3	568.3	13,294.7	2,840.6	21,755.0	3,457.3
Amador	9,470.6	2,747.0	3,253.6	1,002.9	12,724.2	2,916.6	1,217.2	802.1	46.4	46.9	1,263.6	803.5	13,987.8	3,024.4
Butte	39,614.1	5,751.8	6,614.4	1,817.1	46,228.5	6,018.6	—	—	522.2	386.0	522.2	386.0	46,750.7	6,030.6
Calaveras	19,527.8	3,879.6	6,335.1	1,240.7	25,862.9	4,047.9	1,215.2	1,238.0	—	—	1,215.2	1,238.0	27,078.1	4,232.4
Colusa	2,945.1	1,298.9	2,404.1	602.2	5,349.3	1,430.1	—	—	27.0	25.7	27.0	25.7	5,376.2	1,430.3
Contra Costa	—	—	1,737.0	795.7	1,737.0	795.7	13.5	14.5	1,048.4	697.9	1,061.9	698.0	2,799.0	1,055.5
Del Norte	52,132.1	6,563.5	1,519.0	744.7	53,651.1	6,586.4	27,915.5	12,934.0	24.7	31.2	27,940.2	12,934.0	81,591.3	14,307.1
El Dorado	61,408.7	6,766.7	6,193.8	1,537.5	67,602.5	6,894.2	5,139.4	2,750.8	895.0	447.5	6,034.4	2,786.5	73,636.9	7,317.4
Fresno	28,488.6	4,710.6	6,746.7	1,114.7	35,235.3	4,841.1	38,133.6	5,763.8	6,760.5	1,501.4	44,894.1	5,909.4	80,129.4	7,262.2
Glenn	8,638.4	2,738.8	3,860.8	1,291.7	12,499.2	3,011.3	196.6	206.6	—	—	196.6	206.6	12,695.8	3,016.4
Humboldt	177,495.2	12,008.3	8,932.8	2,887.7	186,428.0	12,237.7	51,078.3	11,658.5	—	—	51,078.3	11,658.5	237,506.3	15,823.1
Imperial	—	—	78.9	36.0	78.9	36.0	—	—	99.9	102.5	99.9	102.5	178.8	108.6
Inyo	649.0	439.3	2,074.3	446.9	2,723.3	622.5	259.1	181.1	2,954.9	548.3	3,214.0	576.7	5,937.3	816.3
Kern	6,910.7	1,643.5	10,394.0	1,556.1	17,304.7	2,259.5	—	—	964.6	407.3	964.6	407.3	18,269.3	2,290.9
Lake	14,144.8	2,909.5	3,520.4	944.7	17,665.1	3,051.3	846.0	651.1	604.2	459.9	1,450.2	797.2	19,115.3	3,149.7
Lassen	38,473.2	3,819.3	4,373.5	608.4	42,846.7	3,861.6	2,921.6	1,307.4	—	—	2,921.6	1,307.4	45,768.4	4,057.7
Los Angeles	2,528.2	1,028.5	3,515.4	929.1	6,043.6	1,375.2	330.3	311.3	554.2	307.9	884.4	437.7	6,928.0	1,429.5
Madera	27,475.0	5,061.3	6,753.9	1,318.2	34,228.8	5,217.8	18,408.5	4,508.5	803.2	421.0	19,211.8	4,525.2	53,440.6	6,787.4
Marin	4,332.9	2,543.8	1,279.7	517.7	5,612.6	2,593.8	3,851.6	2,342.8	557.3	363.9	4,408.9	2,364.0	10,021.5	3,508.5
Mariposa	10,009.3	2,742.1	8,233.4	1,794.3	18,242.7	3,258.5	22,607.3	4,417.8	831.9	399.4	23,439.1	4,415.3	41,681.9	5,486.8
Mendocino	129,619.4	9,578.4	24,128.1	3,653.4	153,747.6	10,098.2	4,141.3	2,141.1	4,309.2	2,480.2	8,450.5	3,273.1	162,198.1	10,575.0
Merced	—	—	558.2	342.3	558.2	342.3	—	—	51.8	53.2	51.8	53.2	610.0	346.5
Modoc	23,985.3	2,877.5	6,620.3	798.0	30,605.5	2,977.1	2,971.0	1,567.7	205.0	152.4	3,176.0	1,574.8	33,781.5	3,347.5
Mono	7,687.1	1,601.5	8,337.0	1,437.6	16,024.1	2,117.3	785.2	421.1	1,341.2	503.0	2,126.4	654.3	18,150.4	2,198.1
Monterey	4,499.9	2,587.8	12,839.4	2,194.0	17,339.3	3,384.6	5,144.3	3,653.0	5,006.5	1,827.2	10,150.7	4,182.1	27,490.1	5,365.9
Napa	5,587.9	1,867.7	5,813.9	1,776.3	11,401.8	2,467.9	—	—	299.3	261.8	299.3	261.8	11,701.1	2,481.7
Nevada	26,995.5	4,271.1	1,949.0	673.3	28,944.5	4,311.9	167.5	170.6	101.6	92.5	269.0	194.0	29,213.5	4,322.8
Orange	—	—	170.0	103.2	170.0	103.2	—	—	58.9	44.8	58.9	44.8	228.8	112.5
Placer	42,971.2	5,985.8	8,054.6	2,013.5	51,025.8	6,292.5	2,234.6	1,024.3	131.9	94.0	2,366.5	1,027.8	53,392.3	6,367.1
Plumas	105,778.8	8,148.6	826.8	319.4	106,605.6	8,156.3	5,010.4	2,360.2	—	—	5,010.4	2,360.2	111,616.0	8,388.2

Table A2-61—Aboveground biomass of live trees[a] on forest land, by county and land status, California, 2001–2010 (continued)

	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Thousand tons							
Riverside	1,123.2	644.1	320.9	164.7	1,444.0	664.6	1,261.3	692.0	43.0	21.6	1,304.3	692.4	2,748.4	958.8
Sacramento	—	—	149.5	134.7	149.5	134.7	—	—	—	—	—	—	149.5	134.7
San Benito	1,360.2	1,066.8	2,742.2	761.8	4,102.4	1,310.6	—	—	—	—	—	—	4,102.4	1,310.6
San Bernardino	5,485.4	1,648.2	4,554.0	1,168.7	10,039.4	2,008.0	2,364.1	1,111.0	814.6	348.7	3,178.7	1,161.3	13,218.1	2,291.5
San Diego	127.9	94.5	2,631.2	787.2	2,759.1	792.4	683.9	690.5	305.3	217.9	989.3	723.4	3,748.4	1,072.8
San Joaquin	1,451.1	894.9	177.7	154.3	1,628.8	908.1	—	—	—	—	—	—	1,628.8	908.1
San Luis Obispo	531.8	468.4	12,064.3	2,067.6	12,596.2	2,109.6	—	—	1,942.5	1,409.2	1,942.5	1,409.2	14,538.7	2,519.8
San Mateo	5,941.0	2,532.4	1,190.7	638.4	7,131.7	2,611.6	3,421.0	2,176.1	611.2	620.7	4,032.1	2,262.9	11,163.9	3,632.5
Santa Barbara	1,097.7	627.8	6,795.2	1,503.2	7,892.9	1,649.5	529.6	315.4	1,810.1	822.8	2,339.7	878.4	10,232.6	1,865.3
Santa Clara	2,834.8	1,476.2	8,531.9	1,660.3	11,366.7	2,167.1	—	—	2,782.2	875.0	2,782.2	875.0	14,148.8	2,363.6
Santa Cruz	20,206.4	4,170.9	524.9	358.6	20,731.3	4,185.3	10,993.0	4,585.3	719.8	733.3	11,712.8	4,638.7	32,444.1	6,245.7
Shasta	90,465.9	7,273.4	12,978.8	1,906.1	103,444.8	7,453.4	11,818.6	2,676.0	2,532.3	1,164.3	14,350.9	2,886.7	117,795.6	7,855.4
Sierra	39,617.0	5,731.1	—	—	39,617.0	5,731.1	116.3	118.5	—	—	116.3	118.5	39,733.2	5,732.8
Siskiyou	177,200.7	10,758.9	8,396.3	1,780.8	185,597.1	10,852.0	39,373.7	6,388.8	623.9	383.1	39,997.6	6,414.3	225,594.7	11,872.0
Solano	—	—	857.0	431.2	857.0	431.2	—	—	—	—	—	—	857.0	431.2
Sonoma	37,672.3	6,671.8	5,829.0	1,370.5	43,501.3	6,770.0	4,310.5	2,774.0	1,755.2	864.6	6,065.7	2,905.1	49,567.0	7,347.5
Stanislaus	—	—	1,663.6	458.3	1,663.6	458.3	—	—	271.2	209.0	271.2	209.0	1,934.8	503.7
Sutter	—	—	1,332.2	736.8	1,332.2	736.8	—	—	—	—	—	—	1,332.2	736.8
Tehama	38,360.1	5,525.1	8,075.4	1,150.3	46,435.5	5,629.5	4,807.4	1,968.7	919.6	461.0	5,727.0	2,019.5	52,162.5	5,931.3
Trinity	124,783.1	10,052.3	5,976.0	1,506.5	130,759.1	10,127.8	49,126.7	6,126.0	3,142.2	1,297.4	52,269.0	6,243.8	183,028.1	11,200.5
Tulare	14,314.9	3,228.0	5,095.1	1,100.3	19,409.9	3,394.4	59,825.8	7,689.1	10,558.9	2,167.4	70,384.7	7,895.0	89,794.6	8,411.8
Tuolumne	42,053.0	5,897.8	6,487.2	1,616.2	48,540.2	6,080.5	35,296.9	5,878.0	1,400.3	894.6	36,697.2	5,918.5	85,237.4	8,450.7
Ventura	122.1	86.1	2,551.3	712.0	2,673.4	716.8	929.3	488.3	910.2	474.9	1,839.5	679.9	4,512.9	977.5
Yolo	—	—	1,410.0	487.7	1,410.0	487.7	—	—	—	—	—	—	1,410.0	487.7
Yuba	14,064.0	3,704.6	2,414.6	916.2	16,478.6	3,820.9	—	—	323.8	247.6	323.8	247.6	16,802.4	3,828.9
All counties	1,477,734.2	24,925.2	265,290.3	8,899.6	1,743,024.5	24,947.5	431,276.4	23,292.6	61,977.5	5,319.6	493,254.0	23,628.9	2,236,278.5	29,466.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-62—Aboveground biomass of dead trees[a] on forest land, by county and land status, California, 2001–2010

	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Thousands tons							
Alameda	—	—	205.4	104.5	205.4	104.5	—	—	—	—	—	—	205.4	104.5
Alpine	1,303.6	505.0	99.8	64.8	1,403.5	509.0	1,502.1	387.0	104.2	50.8	1,606.3	389.5	3,009.8	637.6
Amador	1,187.8	529.7	40.1	18.4	1,227.9	530.0	278.9	177.5	—	—	278.9	177.5	1,506.8	556.9
Butte	2,931.3	724.6	229.9	93.9	3,161.2	730.4	—	—	19.9	18.7	19.9	18.7	3,181.1	730.7
Calaveras	1,420.5	444.6	289.4	83.9	1,710.0	451.9	22.1	22.5	—	—	22.1	22.5	1,732.0	452.4
Colusa	139.4	67.2	223.7	94.3	363.1	115.7	—	—	—	—	—	—	363.1	115.7
Contra Costa	—	—	3.2	3.3	3.2	3.3	7.1	7.7	—	—	7.1	7.7	10.4	8.4
Del Norte	6,100.9	1,326.9	176.2	91.0	6,277.0	1,329.2	1,783.7	588.3	5.0	6.3	1,788.7	588.3	8,065.7	1,433.9
El Dorado	6,205.6	930.4	188.4	95.6	6,394.0	934.0	1,239.1	701.1	180.6	102.4	1,419.7	708.5	7,813.7	1,147.6
Fresno	2,841.1	651.3	419.0	181.2	3,260.1	674.9	4,394.4	753.3	770.8	208.3	5,165.3	776.3	8,425.4	1,001.5
Glenn	1,168.7	522.3	134.7	69.9	1,303.4	526.5	50.5	53.0	—	—	50.5	53.0	1,353.9	529.1
Humboldt	19,893.6	2,795.2	214.3	76.7	20,107.9	2,795.1	6,155.8	1,911.1	—	—	6,155.8	1,911.1	26,263.8	3,313.3
Imperial	—	—	34.6	25.7	34.6	25.7	—	—	4.2	4.3	4.2	4.3	38.8	26.1
Inyo	144.5	87.7	336.0	102.5	480.5	134.4	85.5	84.6	430.6	137.7	516.1	161.3	996.7	206.2
Kern	1,214.8	530.4	718.6	287.9	1,933.3	600.1	—	—	188.1	95.5	188.1	95.5	2,121.4	607.3
Lake	1,129.5	365.7	288.8	109.8	1,418.3	380.9	1.1	1.1	22.4	15.6	23.6	15.7	1,441.9	380.9
Lassen	3,491.7	584.5	624.8	214.1	4,116.5	622.0	531.2	317.7	—	—	531.2	317.7	4,647.7	697.1
Los Angeles	456.2	264.5	93.5	35.8	549.7	266.7	46.8	45.5	104.0	76.9	150.8	89.2	700.5	280.5
Madera	2,953.1	930.1	211.3	84.6	3,164.3	933.7	3,339.9	1,037.3	144.9	96.9	3,484.8	1,041.4	6,649.2	1,386.4
Marin	552.3	331.7	29.5	15.6	581.8	332.0	395.6	293.6	—	—	395.6	293.6	977.4	443.2
Mariposa	770.9	254.7	246.8	87.1	1,017.7	269.0	5,004.3	1,158.6	193.7	118.0	5,198.0	1,159.4	6,215.7	1,189.7
Mendocino	8,215.5	961.1	640.4	184.5	8,855.9	976.3	580.5	487.0	149.2	82.4	729.7	493.9	9,585.6	1,092.9
Modoc	2,617.0	560.1	270.4	70.5	2,887.4	564.1	538.8	345.3	15.3	15.4	554.1	345.6	3,441.6	659.4
Mono	573.5	203.4	1,370.4	329.8	1,943.9	383.3	157.9	145.9	114.0	70.0	271.8	161.8	2,215.7	415.3
Monterey	179.5	107.5	457.6	154.5	637.1	188.0	33.0	26.3	846.7	474.4	879.7	475.1	1,516.8	510.4
Napa	253.5	118.8	90.0	40.6	343.6	125.2	—	—	14.2	11.4	14.2	11.4	357.7	125.7
Nevada	2,331.4	564.5	26.5	23.1	2,357.9	565.0	—	—	8.0	7.3	8.0	7.3	2,366.0	565.0
Orange	—	—	33.1	30.1	33.1	30.1	—	—	—	—	—	—	33.1	30.1
Placer	4,444.9	850.0	353.0	138.0	4,797.8	859.7	317.4	172.8	23.8	19.1	341.2	173.8	5,139.1	876.0
Plumas	15,301.2	2,002.0	151.9	78.1	15,453.0	2,008.9	839.3	529.3	—	—	839.3	529.3	16,292.3	2,064.5

Table A2-62—Aboveground biomass of dead trees[a] on forest land, by county and land status, California, 2001–2010 (continued)

	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Thousands tons							
Riverside	20.9	19.0	282.8	230.5	303.7	231.3	95.2	80.5	14.9	12.1	110.2	81.4	413.9	245.2
San Benito	—	—	84.9	38.6	84.9	38.6	—	—	—	—	—	—	84.9	38.6
San Bernardino	1,436.4	530.2	469.4	142.5	1,905.8	547.9	756.5	449.0	370.4	152.8	1,126.9	473.2	3,032.7	716.8
San Diego	303.1	270.1	424.1	163.6	727.2	315.0	476.8	398.9	274.4	179.3	751.2	436.6	1,478.4	538.4
San Luis Obispo	—	—	233.0	89.3	233.0	89.3	—	—	23.0	20.5	23.0	20.5	256.0	91.6
San Mateo	197.1	115.5	—	—	197.1	115.5	299.4	211.4	18.2	18.5	317.6	212.2	514.7	238.5
Santa Barbara	25.3	24.3	417.0	158.6	442.4	161.8	104.0	102.9	24.7	15.0	128.7	103.9	571.0	192.1
Santa Clara	66.7	51.0	315.7	125.3	382.4	135.1	—	—	73.7	37.4	73.7	37.4	456.1	140.1
Santa Cruz	781.5	266.4	—	—	781.5	266.4	176.2	93.0	—	—	176.2	93.0	957.7	282.1
Shasta	5,164.0	680.1	672.5	191.6	5,836.5	704.1	1,111.5	415.3	90.9	71.6	1,202.4	419.7	7,038.9	815.4
Sierra	4,856.4	919.3	99.8	95.1	4,956.2	924.0	—	—	—	—	—	—	4,956.2	924.0
Siskiyou	20,590.2	2,592.2	873.3	358.7	21,463.4	2,613.9	7,060.8	1,460.4	101.3	58.6	7,162.1	1,461.3	28,625.6	2,914.8
Solano	—	—	19.0	16.9	19.0	16.9	—	—	—	—	—	—	19.0	16.9
Sonoma	1,287.7	302.8	93.5	40.1	1,381.1	304.6	566.1	409.8	120.8	109.7	686.9	423.9	2,068.0	521.7
Stanislaus	—	—	40.4	34.3	40.4	34.3	—	—	20.7	15.9	20.7	15.9	61.1	37.8
Tehama	4,230.8	878.4	792.7	389.0	5,023.6	959.9	584.3	307.7	100.7	72.1	684.9	315.5	5,708.5	1,004.4
Trinity	10,762.3	1,243.7	515.5	178.9	11,277.8	1,253.8	9,233.2	1,625.8	63.4	36.3	9,296.5	1,626.0	20,574.3	1,982.7
Tulare	2,939.1	1,028.5	553.6	198.5	3,492.8	1,046.6	9,697.4	1,528.4	1,780.6	424.3	11,477.9	1,571.5	14,970.7	1,863.5
Tuolumne	4,889.5	1,083.8	345.1	109.0	5,234.6	1,087.8	7,698.0	1,884.0	105.2	83.8	7,803.3	1,884.6	13,037.9	2,174.8
Ventura	—	—	153.1	54.1	153.1	54.1	485.7	430.8	120.3	115.0	606.0	445.2	759.1	448.1
Yolo	—	—	68.7	48.6	68.7	48.6	—	—	—	—	—	—	68.7	48.6
Yuba	742.9	355.4	59.2	27.2	802.1	356.4	—	—	—	—	—	—	802.1	356.4
All counties	146,116.0	5,375.9	14,714.6	1,004.4	160,830.6	5,429.7	65,650.3	4,277.3	6,642.6	791.8	72,292.9	4,313.3	233,123.5	6,574.5

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Aboveground biomass is estimated from ground to actual height, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-63—Aboveground biomass of live trees[a] on forest land, by forest type group and ownership group, California, 2001–2010

	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Softwoods:														
California mixed conifer	575,845.8	18,029.9	54,125.0	7,133.8	9,786.0	3,104.0	95,932.9	6,817.1	46,994.7	5,003.0	142,927.6	7,831.7	782,684.4	20,988.5
Douglas-fir	53,793.9	6,715.7	5,373.3	2,423.0	8,098.1	3,063.0	32,729.9	4,757.2	35,718.1	5,735.7	68,448.0	7,204.9	135,713.2	10,525.1
Fir/spruce/mountain hemlock	189,090.1	13,417.9	27,060.6	5,384.7	1,967.8	1,295.5	18,029.8	3,329.4	4,975.1	1,631.0	23,004.9	3,653.9	241,123.4	14,970.3
Lodgepole pine	41,695.4	4,373.8	17,689.0	3,215.4	573.3	424.0	1,666.7	847.7	2,481.0	1,044.0	4,147.7	1,340.1	64,105.4	5,602.4
Pinyon/juniper woodlands	8,223.4	895.4	4,407.0	526.3	477.4	206.1	121.1	70.1	794.8	261.9	915.9	271.1	14,023.7	1,095.6
Ponderosa pine	59,784.2	4,828.0	3,198.5	943.2	319.7	171.7	12,065.4	1,925.9	19,344.6	2,652.5	31,410.1	3,204.9	94,712.4	5,873.8
Redwood	6,010.3	3,948.6	22,545.1	9,623.0	41,069.9	14,215.7	43,056.3	6,511.9	46,387.7	8,219.6	89,444.0	10,133.4	159,069.3	19,283.5
Western juniper	12,331.2	1,439.3	3,663.1	576.5	545.1	537.7	272.9	121.8	3,159.1	484.4	3,432.0	498.0	19,971.4	1,712.9
Western white pine	6,357.8	1,587.4	646.4	387.3	—	—	—	—	—	—	—	—	7,004.2	1,634.0
Other western softwoods	6,795.6	1,215.4	3,713.8	1,059.7	555.6	508.8	3,719.3	1,554.8	4,711.1	2,187.5	8,430.3	2,678.5	19,495.2	3,167.4
Total	959,927.7	19,838.6	142,421.7	12,847.4	63,392.9	14,658.1	207,594.2	10,660.5	164,566.3	11,565.0	372,160.5	14,323.9	1,537,902.7	29,838.8
Hardwoods:														
Alder/maple	3,599.5	1,340.2	3,080.8	1,479.4	2,464.5	1,364.2	6,621.3	2,054.6	5,339.3	1,753.5	11,960.6	2,691.3	21,105.5	3,602.9
Aspen/birch	1,096.1	501.6	66.4	56.3	44.1	44.9	306.5	326.2	295.6	207.5	602.1	386.6	1,808.7	637.3
Elm/ash/cottonwood	247.7	261.1	—	—	357.3	269.3	—	—	1,704.6	908.1	1,704.6	908.1	2,309.6	982.5
Tanoak/laurel	61,489.5	7,606.1	6,357.4	2,379.0	23,144.1	5,372.1	52,843.3	6,051.3	79,910.9	8,233.8	132,754.2	9,655.2	223,745.2	13,438.1
Western oak	137,926.9	7,921.8	26,622.3	3,624.0	22,167.1	2,859.2	40,752.9	4,086.3	182,501.5	7,454.7	223,254.4	8,234.6	409,970.7	12,117.8
Woodland hardwoods	3,711.6	689.7	836.0	229.0	529.9	297.0	98.3	85.4	920.5	339.4	1,018.8	350.0	6,096.2	860.1
Other hardwoods	8,814.7	2,797.6	691.8	655.8	6,271.3	2,657.5	4,112.1	1,641.6	11,760.4	2,494.2	15,872.5	2,974.5	31,650.3	5,040.0
Total	216,886.0	10,985.6	37,654.6	4,590.4	54,978.3	6,714.8	104,734.4	7,571.8	282,432.9	10,986.8	387,167.4	12,190.5	696,686.3	17,765.6
Nonstocked	1,235.5	270.0	134.7	81.2	—	—	245.2	90.3	74.1	44.3	319.3	100.5	1,689.5	299.2
All forest types	1,178,049.2	19,040.2	180,211.0	13,214.6	118,371.1	15,908.0	312,573.8	12,195.6	447,073.3	14,915.2	759,647.1	15,633.8	2,236,278.5	29,466.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-64—Aboveground biomass of dead trees[a] on forest land, by forest type group and ownership group, California, 2001–2010

Forest type group	Ownership group													
	USDA Forest Service		Other federal		State and local government		Private						All owners	
							Corporate		Noncorporate		All private			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Softwoods:														
California mixed conifer	67,043.9	3,235.3	9,449.8	1,539.3	1,055.1	610.1	6,336.8	701.9	2,741.5	588.6	9,078.3	895.3	86,627.1	3,736.2
Douglas-fir	5,811.2	1,029.1	459.1	291.8	639.5	395.9	2,246.1	714.8	2,416.3	586.2	4,662.4	916.7	11,572.2	1,462.2
Fir/spruce/mountain hemlock	28,779.6	2,770.1	6,104.2	1,638.7	424.2	324.0	1,511.1	462.0	809.3	399.9	2,320.4	600.7	37,628.4	3,289.8
Lodgepole pine	4,946.8	676.6	2,451.9	586.7	88.4	72.4	251.4	149.1	441.3	231.5	692.8	274.5	8,179.9	939.4
Pinyon/juniper woodlands	832.1	125.1	663.1	162.3	41.4	22.5	5.2	5.6	150.9	67.7	156.1	67.9	1,692.7	216.2
Ponderosa pine	3,210.0	470.4	293.8	167.9	23.4	22.8	474.6	116.6	434.2	106.3	908.8	156.2	4,435.9	523.8
Redwood	9.0	6.9	2,495.1	1,567.2	1,839.6	651.2	5,704.8	1,588.8	4,935.0	1,544.1	10,639.8	2,196.9	14,983.5	2,730.1
Western juniper	1,052.2	248.7	221.7	77.5	89.9	91.6	15.2	12.1	234.5	79.8	249.7	80.7	1,613.5	287.6
Western white pine	1,206.1	350.4	148.4	98.3	—	—	4.1	4.0	—	—	4.1	4.0	1,358.5	364.0
Other western softwoods	1,354.5	368.8	536.0	205.9	55.5	35.2	1,241.8	885.3	417.6	248.8	1,659.4	918.6	3,605.3	1,011.7
Total	114,245.3	4,073.4	22,823.2	2,724.2	4,256.9	1,025.1	17,790.9	2,108.4	12,580.6	1,824.2	30,371.6	2,738.8	171,697.0	5,653.9
Hardwoods:														
Alder/maple	993.6	440.4	191.5	109.7	354.7	335.9	522.4	193.4	187.4	99.7	709.9	217.4	2,249.7	604.7
Aspen/birch	80.4	41.2	—	—	33.4	34.0	—	—	1.7	1.8	1.7	1.8	115.6	53.4
Elm/ash/cottonwood	16.7	17.6	—	—	4.2	4.3	—	—	38.6	30.7	38.6	30.7	59.4	35.6
Tanoak/laurel	6,778.8	1,431.4	1,024.3	580.9	1,538.8	482.8	4,702.0	1,173.1	2,594.7	452.7	7,296.7	1,243.5	16,638.6	2,036.0
Western oak	15,407.6	2,122.0	1,747.8	405.2	917.3	249.9	2,034.6	352.4	7,396.2	751.2	9,430.8	824.6	27,503.5	2,323.8
Woodland hardwoods	1,056.5	282.2	187.2	71.8	53.7	31.0	4.3	3.7	69.3	46.1	73.6	46.2	1,370.9	296.4
Other hardwoods	1,399.5	527.5	161.2	137.0	178.6	107.3	162.1	72.1	661.6	223.5	823.7	234.8	2,563.0	602.7
Total	25,733.1	2,633.3	3,312.0	729.8	3,080.6	645.7	7,425.4	1,232.9	10,949.6	903.0	18,374.9	1,502.4	50,500.7	3,175.6
Nonstocked	10,177.1	2,371.5	238.1	119.7	379.6	386.7	84.6	43.8	46.5	21.2	131.0	48.5	10,925.9	2,406.3
All forest types	150,155.5	5,065.5	26,373.4	2,787.2	7,717.1	1,245.4	25,300.9	2,410.6	23,576.7	2,011.6	48,877.5	3,041.4	233,123.5	6,574.5

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Aboveground biomass is estimated from ground to actual height, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-65—Aboveground biomass of live trees[a] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons							
Softwoods:								
California mixed conifer	773,954.4	21,025.7	5,295.7	1,176.6	3,434.3	617.6	782,684.4	20,988.5
Douglas-fir	131,043.9	10,492.8	2,739.9	1,000.9	1,929.5	645.6	135,713.2	10,525.1
Fir/spruce/mountain hemlock	239,018.9	14,955.2	724.1	384.6	1,380.5	394.7	241,123.4	14,970.3
Lodgepole pine	61,363.1	5,501.0	2,295.2	1,006.4	447.2	280.9	64,105.4	5,602.4
Pinyon/juniper woodlands	13,477.2	1,098.7	376.4	153.7	170.1	58.2	14,023.7	1,095.6
Ponderosa pine	91,879.8	5,866.0	2,164.7	453.0	667.9	213.7	94,712.4	5,873.8
Redwood	158,248.9	19,285.3	463.8	259.8	356.6	185.8	159,069.3	19,283.5
Western juniper	18,930.6	1,704.3	733.9	206.7	307.0	113.6	19,971.4	1,712.9
Western white pine	6,523.2	1,613.4	56.2	55.6	424.7	254.1	7,004.2	1,634.0
Other western softwoods	18,037.9	3,142.3	797.9	303.4	659.4	204.8	19,495.2	3,167.4
Total	1,512,477.9	29,980.7	15,647.7	1,991.3	9,777.1	1,100.6	1,537,902.7	29,838.8
Hardwoods:								
Alder/maple	16,618.5	3,333.4	3,963.2	1,358.9	523.8	327.0	21,105.5	3,602.9
Aspen/birch	720.6	455.7	655.9	404.4	432.2	188.2	1,808.7	637.3
Elm/ash/cottonwood	2,213.5	979.3	9.2	7.2	86.9	79.0	2,309.6	982.5
Tanoak/laurel	184,146.0	13,054.9	34,913.9	4,382.8	4,685.3	1,019.2	223,745.2	13,438.1
Western oak	276,559.4	11,082.7	116,476.3	6,066.8	16,935.0	1,665.1	409,970.7	12,117.8
Woodland hardwoods	5,381.7	818.4	654.4	264.0	60.1	35.2	6,096.2	860.1
Other hardwoods	24,739.4	4,816.2	5,635.7	1,488.6	1,275.2	315.8	31,650.3	5,040.0
Total	510,379.2	17,292.1	162,308.6	7,622.4	23,998.5	2,012.5	696,686.3	17,765.6
Nonstocked	—	—	—	—	—	—	1,689.5	299.2
All forest types	2,022,857.1	30,527.8	177,956.3	7,830.4	33,775.6	2,277.1	2,236,278.5	29,466.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-66—Aboveground biomass of dead trees[a] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons							
Softwoods:								
California mixed conifer	84,249.8	3,692.3	784.8	296.0	1,592.5	606.5	86,627.1	3,736.2
Douglas-fir	10,508.9	1,376.1	80.2	51.0	983.1	495.8	11,572.2	1,462.2
Fir/spruce/mountain hemlock	34,539.6	2,928.1	371.7	273.0	2,717.0	1,519.4	37,628.4	3,289.8
Lodgepole pine	7,830.8	910.7	340.2	230.3	9.0	9.1	8,179.9	939.4
Pinyon/juniper woodlands	1,312.9	159.9	262.6	138.8	117.1	61.9	1,692.7	216.2
Ponderosa pine	4,160.2	513.2	101.5	47.4	174.2	96.0	4,435.9	523.8
Redwood	14,664.8	2,717.1	184.0	110.9	134.7	78.0	14,983.5	2,730.1
Western juniper	1,586.0	287.2	22.5	16.4	5.0	2.8	1,613.5	287.6
Western white pine	1,262.2	359.0	11.5	11.4	84.9	59.2	1,358.5	364.0
Other western softwoods	3,238.2	988.4	94.1	50.9	273.0	209.0	3,605.3	1,011.7
Total	163,353.5	5,426.1	2,253.1	504.5	6,090.4	1,727.9	171,697.0	5,653.9
Hardwoods:								
Alder/maple	1,648.3	551.9	456.4	227.5	145.0	97.3	2,249.7	604.7
Aspen/birch	40.0	33.2	66.7	41.3	8.9	7.0	115.6	53.4
Elm/ash/cottonwood	26.3	19.0	—	—	33.1	30.1	59.4	35.6
Tanoak/laurel	12,105.0	1,541.2	1,598.1	531.0	2,935.6	1,244.3	16,638.6	2,036.0
Western oak	15,190.2	1,179.1	5,613.2	556.7	6,700.1	1,945.4	27,503.5	2,323.8
Woodland hardwoods	1,044.8	222.5	326.1	195.2	—	—	1,370.9	296.4
Other hardwoods	1,665.1	443.6	309.7	116.8	588.2	387.2	2,563.0	602.7
Total	31,719.7	2,046.7	8,370.2	832.7	10,410.8	2,339.4	50,500.7	3,175.6
Nonstocked	—	—	—	—	—	—	10,925.9	2,406.3
All forest types	195,073.2	5,613.8	10,623.3	970.9	16,501.2	2,904.8	233,123.5	6,574.5

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Aboveground biomass is estimated from ground to actual height, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-67—Aboveground biomass of live trees[a] on forest land, by forest type group and stand age class, California, 2001–2010

	Stand age class (years)													
	1–20		21–40		41–60		61–80		81–100		101–120		121–140	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Softwoods:														
California mixed conifer	3,273.4	870.3	9,901.4	1,834.1	39,355.1	4,304.8	125,958.0	8,633.6	152,558.6	10,498.3	81,056.3	8,175.2	70,670.8	8,485.8
Douglas-fir	1,590.3	478.3	18,264.8	3,228.6	31,348.6	4,995.1	17,502.3	3,992.9	15,103.1	4,003.8	4,302.2	2,114.2	5,858.3	2,863.9
Fir/spruce/mountain hemlock	524.2	234.6	796.3	517.5	9,817.5	2,020.4	31,470.2	5,061.5	40,278.4	5,730.6	25,203.2	4,600.9	25,822.1	5,534.2
Lodgepole pine	63.5	37.5	396.6	284.1	1,893.8	846.3	4,567.1	1,229.6	6,729.0	1,709.9	5,712.4	1,705.4	6,123.3	1,762.1
Pinyon/juniper woodlands	17.1	14.5	62.0	38.3	648.4	346.0	1,520.1	385.6	3,054.2	641.3	542.7	251.6	751.8	256.6
Ponderosa pine	1,564.0	355.2	6,592.8	1,295.2	11,017.7	2,225.3	18,648.9	2,304.6	30,137.6	3,433.2	9,895.3	2,266.5	6,114.5	1,805.1
Redwood	1,841.9	793.1	7,309.4	2,581.7	18,500.9	4,530.6	21,585.1	4,873.9	25,072.9	6,142.7	9,042.1	3,707.9	4,012.6	2,086.7
Western juniper	34.0	21.4	150.7	71.1	1,250.3	288.7	4,707.1	654.1	3,616.9	652.8	2,202.6	594.8	710.4	293.4
Western white pine	—	—	—	—	229.6	227.2	403.8	385.0	346.1	241.2	517.9	510.8	78.4	77.5
Other western softwoods	227.4	150.9	2,532.5	1,326.5	2,832.1	1,181.1	1,746.8	859.4	3,876.1	1,970.6	901.0	476.3	104.9	82.4
Total	9,135.8	1,341.9	46,006.4	4,886.4	116,894.1	8,532.5	228,109.5	11,864.1	280,772.8	14,333.4	139,375.8	10,575.1	120,246.9	10,970.2
Hardwoods:														
Alder/maple	1,000.5	520.4	6,922.0	2,036.5	4,850.7	1,871.0	3,520.8	1,560.4	1,685.3	934.8	1,064.4	1,040.5	277.8	274.4
Aspen/birch	109.0	71.8	307.4	234.9	385.0	331.0	196.9	158.9	136.3	138.9	—	—	359.9	372.5
Elm/ash/cottonwood	—	—	203.7	149.1	—	—	—	—	—	—	—	—	—	—
Tanoak/laurel	1,629.7	508.8	34,298.6	4,532.6	53,705.4	6,391.3	48,517.6	7,298.6	21,021.2	4,375.1	5,943.0	2,409.2	3,887.8	1,890.0
Western oak	4,530.8	849.8	9,844.1	1,622.7	47,283.8	3,895.3	78,482.6	5,944.5	78,095.4	6,291.3	26,802.4	3,856.3	17,094.6	3,037.0
Woodland hardwoods	—	—	55.1	35.0	306.4	121.6	1,461.8	358.4	601.6	210.5	760.8	411.4	77.2	75.1
Other hardwoods	334.2	164.4	1,980.5	649.1	5,566.3	1,912.9	7,022.7	2,416.1	3,147.6	1,359.7	2,562.0	1,683.2	3,575.4	2,416.5
Total	7,604.2	1,132.1	53,611.4	5,220.5	112,097.6	7,817.3	139,202.4	9,718.6	104,687.4	7,793.9	37,132.5	4,962.7	25,272.6	4,304.9
Nonstocked	—	—	—	—	—	—	—	—	—	—	—	—	—	—
All forest types	16,740.0	1,745.8	99,617.8	6,976.7	228,991.6	11,158.4	367,311.9	14,969.4	385,460.2	16,013.8	176,508.3	11,599.0	145,519.5	11,736.4

Table A2-67—(Continued) Aboveground biomass of live trees[a] on forest land, by forest type group and stand age class, California, 2001–2010

Forest type group	Stand age class (years)								Unknown		All classes	
	141–160		161–180		181–200		201+					
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons											
Softwoods:												
California mixed conifer	70,745.3	7,663.8	39,421.4	6,436.6	39,324.6	6,360.1	149,957.9	12,790.1	461.7	329.0	782,684.4	20,988.5
Douglas-fir	9,115.1	3,260.2	6,656.6	3,360.2	5,300.9	2,424.7	20,621.1	5,430.9	49.7	45.3	135,713.2	10,525.1
Fir/spruce/mountain hemlock	21,922.6	4,673.9	16,781.3	4,258.9	24,370.8	5,659.4	44,136.9	7,873.1	—	—	241,123.4	14,970.3
Lodgepole pine	10,046.7	2,464.7	4,251.1	1,233.0	7,308.5	2,240.9	17,013.6	3,182.6	—	—	64,105.4	5,602.4
Pinyon/juniper woodlands	951.3	365.7	666.7	248.7	516.7	241.8	2,395.1	519.3	2,897.5	452.5	14,023.7	1,095.6
Ponderosa pine	4,890.5	1,428.5	650.3	369.7	1,906.7	935.4	3,238.1	1,162.6	56.0	57.2	94,712.4	5,873.8
Redwood	1,756.2	1,755.0	3,273.2	2,337.0	4,966.9	3,882.6	61,708.2	16,631.1	—	—	159,069.3	19,283.5
Western juniper	1,202.1	473.3	585.2	387.4	1,185.6	576.4	3,788.8	1,005.0	537.7	241.9	19,971.4	1,712.9
Western white pine	365.6	302.7	607.5	464.3	969.0	652.5	3,486.3	1,201.1	—	—	7,004.2	1,634.0
Other western softwoods	282.0	130.0	258.6	136.6	1,591.8	596.9	3,963.6	1,152.6	1,178.4	573.5	19,495.2	3,167.4
Total	121,277.4	10,059.9	73,151.8	8,783.5	87,441.6	9,913.0	310,309.6	23,108.9	5,181.0	835.6	1,537,902.7	29,838.8
Hardwoods:												
Alder/maple	465.7	517.2	—	—	602.7	601.3	—	—	715.7	425.1	21,105.5	3,602.9
Aspen/birch	—	—	26.7	27.9	224.4	222.7	—	—	63.1	54.8	1,808.7	637.3
Elm/ash/cottonwood	9.2	7.2	—	—	—	—	38.3	38.7	2,058.4	970.3	2,309.6	982.5
Tanoak/laurel	18,372.3	5,082.1	5,043.3	2,615.3	4,068.6	2,045.2	17,547.6	4,651.8	9,710.2	2,556.6	223,745.2	13,438.1
Western oak	18,159.4	3,380.3	5,937.3	1,876.4	7,849.3	2,446.6	6,046.4	1,690.9	109,844.5	5,865.2	409,970.7	12,117.8
Woodland hardwoods	406.4	233.0	—	—	115.1	87.8	571.3	346.4	1,740.5	443.8	6,096.2	860.1
Other hardwoods	921.5	656.1	5.0	5.0	—	—	3,741.9	2,002.6	2,793.3	976.3	31,650.3	5,040.0
Total	38,334.7	6,158.2	11,012.3	3,211.6	12,860.1	3,250.1	27,945.5	5,335.8	126,925.7	6,532.0	696,686.3	17,765.6
Nonstocked	—	—	—	—	—	—	—	—	1,689.5	299.2	1,689.5	299.2
All forest types	159,612.1	11,738.8	84,164.1	9,333.4	100,301.7	10,400.3	338,255.1	23,479.0	133,796.2	6,588.1	2,236,278.5	29,466.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-68—Aboveground biomass of dead trees[a] on forest land, by forest type group and stand age class, California, 2001–2010

	Stand age class (years)													
	1–20		21–40		41–60		61–80		81–100		101–120		121–140	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Softwoods:														
California mixed conifer	1,915.6	773.7	729.7	268.8	2,783.1	621.5	9,461.7	1,027.7	14,616.6	1,378.1	7,847.1	1,130.2	6,893.6	1,064.3
Douglas-fir	186.2	84.4	1,427.2	667.4	1,923.2	438.6	985.7	291.0	1,335.4	518.9	22.4	15.5	743.7	509.6
Fir/spruce/mountain hemlock	2,307.3	1,490.4	86.0	66.3	940.0	292.3	3,532.7	803.8	6,424.9	1,274.8	4,902.6	1,291.7	3,540.8	909.7
Lodgepole pine	—	—	2.0	2.6	206.6	116.9	527.6	198.7	968.2	314.8	882.5	386.3	385.6	156.5
Pinyon/juniper woodlands	65.1	55.6	1.7	1.6	181.9	123.5	193.3	65.3	195.9	52.1	66.8	31.0	134.6	73.2
Ponderosa pine	292.2	115.5	54.3	27.3	370.1	112.8	840.1	260.8	1,050.4	245.3	437.4	159.6	292.4	142.8
Redwood	1,610.9	1,169.0	1,385.0	686.5	5,411.8	2,062.0	1,432.6	452.2	2,267.5	972.3	476.8	234.4	179.7	93.7
Western juniper	3.3	2.3	1.7	1.6	73.9	40.9	334.6	121.2	234.1	92.4	74.3	36.9	66.9	35.3
Western white pine	4.1	4.0	—	—	25.1	24.9	20.3	19.4	184.4	174.2	77.3	76.2	54.2	53.7
Other western softwoods	60.6	43.1	956.2	866.9	346.7	183.3	133.4	90.2	586.4	314.7	77.3	54.7	—	—
Total	6,445.2	2,049.6	4,643.8	1,318.8	12,262.3	2,229.7	17,462.0	1,443.4	27,863.9	2,216.5	14,864.4	1,773.4	12,291.5	1,507.7
Hardwoods:														
Alder/maple	260.2	198.1	624.5	203.9	455.3	342.5	475.8	342.2	88.2	79.9	—	—	82.0	81.0
Aspen/birch	—	—	19.5	17.3	33.4	34.0	15.9	16.0	1.7	1.8	—	—	31.3	32.4
Elm/ash/cottonwood	—	—	38.6	30.7	—	—	—	—	—	—	—	—	—	—
Tanoak/laurel	1,214.8	683.5	3,222.1	986.7	1,934.1	378.9	1,904.3	448.4	1,541.1	634.4	431.8	219.5	924.6	466.7
Western oak	5,345.1	1,902.8	648.1	199.4	1,930.3	338.9	4,732.3	618.3	3,951.3	504.6	2,055.8	402.7	1,098.3	298.3
Woodland hardwoods	—	—	—	—	66.0	32.9	476.3	202.8	165.1	137.5	105.7	53.7	1.3	1.3
Other hardwoods	35.2	16.5	139.3	87.0	359.3	169.1	175.8	63.6	341.6	190.2	176.4	140.7	144.1	103.8
Total	6,855.3	2,030.7	4,692.1	1,026.6	4,778.4	634.7	7,780.4	856.5	6,089.0	846.2	2,769.7	481.8	2,281.6	568.8
Nonstocked	—	—	—	—	—	—	—	—	—	—	—	—	—	—
All forest types	13,300.5	2,883.4	9,335.9	1,666.6	17,040.8	2,309.4	25,242.5	1,663.9	33,952.8	2,360.7	17,634.1	1,830.9	14,573.2	1,607.9

Table A2-68—Aboveground biomass of dead trees[a] on forest land, by forest type group and stand age class, California, 2001–2010 (continued)

Forest type group	Stand age class (years)								Unknown		All classes	
	141–160		161–180		181–200		201+					
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons											
Softwoods:												
California mixed conifer	9,412.8	1,308.5	6,435.1	1,427.2	5,082.6	963.0	20,952.8	2,309.2	496.4	475.8	86,627.1	3,736.2
Douglas-fir	717.4	330.8	852.3	481.6	1,222.3	615.0	2,127.0	621.8	29.4	26.7	11,572.2	1,462.2
Fir/spruce/mountain hemlock	3,873.4	1,098.5	2,537.1	863.5	3,566.0	928.0	5,917.6	1,247.2	—	—	37,628.4	3,289.8
Lodgepole pine	1,290.8	404.7	685.7	316.5	914.7	279.3	2,316.4	511.7	—	—	8,179.9	939.4
Pinyon/juniper woodlands	106.6	64.0	51.0	24.2	52.2	27.6	171.2	48.4	472.3	111.3	1,692.7	216.2
Ponderosa pine	443.8	156.7	19.7	13.4	189.6	102.3	445.8	176.1	—	—	4,435.9	523.8
Redwood	57.2	57.2	202.2	188.0	313.1	232.4	1,646.7	678.8	—	—	14,983.5	2,730.1
Western juniper	139.5	72.0	192.7	120.7	154.4	89.9	333.8	168.1	4.4	4.8	1,613.5	287.6
Western white pine	20.9	20.7	266.6	208.8	195.0	111.3	510.6	191.3	—	—	1,358.5	364.0
Other western softwoods	4.0	3.2	84.5	77.6	189.2	97.7	934.9	306.2	232.2	139.0	3,605.3	1,011.7
Total	16,066.4	1,783.6	11,326.9	1,785.4	11,879.0	1,515.9	35,356.8	2,820.0	1,234.8	508.7	171,697.0	5,653.9
Hardwoods:												
Alder/maple	144.3	160.3	—	—	113.2	112.9	—	—	6.0	5.1	2,249.7	604.7
Aspen/birch	—	—	—	—	6.9	6.9	—	—	6.8	6.7	115.6	53.4
Elm/ash/cottonwood	—	—	—	—	—	—	—	—	20.8	18.1	59.4	35.6
Tanoak/laurel	1,046.8	331.3	150.7	107.8	311.5	209.7	3,125.6	1,229.5	831.2	363.8	16,638.6	2,036.0
Western oak	1,624.8	512.4	710.3	437.9	595.5	252.4	556.7	275.7	4,255.0	512.1	27,503.5	2,323.8
Woodland hardwoods	89.0	71.0	—	—	6.4	6.3	113.9	87.5	347.2	105.4	1,370.9	296.4
Other hardwoods	1.1	1.1	1.0	1.0	—	—	581.5	321.0	607.5	388.3	2,563.0	602.7
Total	2,906.1	634.6	862.1	450.8	1,033.6	346.6	4,377.7	1,300.7	6,074.6	744.8	50,500.7	3,175.6
Nonstocked	—	—	—	—	—	—	—	—	10,925.9	2,406.3	10,925.9	2,406.3
All forest types	18,972.5	1,886.2	12,188.9	1,840.0	12,912.6	1,552.2	39,734.5	3,070.7	18,235.3	2,566.3	233,123.5	6,574.5

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Aboveground biomass is estimated from ground to actual height, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-69—Aboveground biomass of live trees[a] on forest land, by species group and diameter class, California, 2001–2010

	Diameter class (inches)											
	1.0–2.9		3.0–4.9		5.0–6.9		7.0–8.9		9.0–10.9		11.0–12.9	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons											
Softwoods:												
Douglas-fir	1,733.8	111.0	6,220.9	417.2	11,596.6	458.8	14,952.4	606.1	18,577.4	756.8	20,004.2	886.5
Incense cedar	544.2	52.6	1,714.4	154.3	2,816.5	159.6	3,249.6	192.3	3,903.6	243.2	4,047.5	268.4
Lodgepole pine	1,396.3	219.1	1,485.7	311.8	1,895.3	251.7	2,063.2	230.5	2,977.0	339.8	3,178.1	315.7
Ponderosa and Jeffrey pines	561.3	44.4	2,288.3	187.8	4,951.7	241.0	7,231.7	362.2	9,733.2	486.4	11,667.4	573.2
Redwood	315.7	44.2	382.9	68.7	1,116.4	107.4	1,726.7	164.5	2,388.7	235.1	3,943.2	382.0
Sitka spruce	21.3	12.9	29.4	29.7	42.8	17.4	99.1	42.6	105.0	51.1	177.3	94.4
Sugar pine	68.7	10.3	295.2	62.9	576.5	50.5	882.2	79.1	1,174.6	117.2	1,501.2	143.4
True fir	7,300.6	459.5	6,655.1	433.0	10,116.2	392.8	13,211.1	515.5	16,990.0	715.9	18,983.2	820.9
Western hemlock	57.3	19.3	121.1	60.0	121.4	54.1	173.6	37.7	265.2	84.8	242.6	84.9
Western juniper	113.7	20.0	387.6	78.1	717.6	62.8	1,106.4	93.5	1,386.0	119.9	1,513.9	143.0
Western white pine	252.3	57.4	219.2	57.9	244.8	34.5	259.8	37.2	338.9	56.4	305.1	56.2
Woodland softwoods	73.8	19.6	96.3	17.5	263.5	23.9	516.2	46.6	866.8	74.0	1,066.3	103.8
Other western softwoods	1,133.5	168.4	920.3	153.3	1,500.1	142.4	1,870.7	165.5	2,178.3	204.3	2,424.3	231.3
Total	13,572.6	565.7	20,816.4	754.9	35,959.4	753.7	47,342.7	955.6	60,884.7	1,245.0	69,054.4	1,446.6
Hardwoods:												
Cottonwood and aspen	307.8	83.1	185.6	89.5	133.1	50.3	110.3	33.6	156.8	46.2	190.5	69.6
Oak	5,922.7	382.6	16,941.9	1,064.8	32,681.5	1,142.7	42,337.3	1,392.4	43,557.6	1,448.6	37,819.1	1,387.5
Red alder	46.0	14.5	180.5	57.1	570.2	106.3	1,115.5	172.4	1,713.2	302.3	1,830.9	368.0
Tanoak	2,737.7	204.0	5,876.2	443.5	11,065.5	626.6	13,199.8	778.4	14,047.2	907.2	13,121.9	910.7
Woodland hardwoods	98.6	19.8	122.9	31.0	290.6	37.7	420.0	57.6	514.5	76.1	471.3	62.8
Other western hardwoods	2,307.2	193.6	5,138.0	584.8	6,757.0	356.6	8,343.7	469.1	9,140.2	517.3	9,136.5	597.4
Total	11,420.0	490.0	28,445.0	1,309.6	51,497.9	1,346.7	65,526.7	1,654.3	69,129.5	1,797.6	62,570.3	1,829.1
All species groups	24,992.6	744.1	49,261.4	1,526.1	87,457.3	1,531.9	112,869.4	1,875.1	130,014.3	2,138.8	131,624.6	2,288.3

Table A2-69—Aboveground biomass of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)											
	13.0–14.9		15.0–16.9		17.0–18.9		19.0–20.9		21.0–22.9		23.0–24.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons											
Softwoods:												
Douglas-fir	22,290.4	989.5	24,067.0	1,166.2	24,167.4	1,290.9	19,477.0	1,266.7	21,148.4	1,459.8	19,361.6	1,217.8
Incense cedar	4,107.2	326.5	4,778.6	374.5	4,900.4	438.0	4,741.3	466.4	4,599.6	526.1	4,473.7	464.5
Lodgepole pine	4,573.1	459.2	4,037.4	443.9	5,388.6	557.2	5,071.4	569.3	5,252.6	672.1	3,856.3	442.4
Ponderosa and Jeffrey pines	13,725.8	688.0	14,552.9	801.0	15,097.3	873.9	15,319.0	1,016.4	14,968.4	1,066.7	12,900.0	832.2
Redwood	4,054.2	409.5	4,582.7	482.1	4,853.6	585.3	5,669.6	676.8	6,526.6	762.7	5,911.0	723.6
Sitka spruce	226.7	111.8	231.5	148.7	351.1	225.7	229.9	122.8	311.4	178.5	63.7	41.0
Sugar pine	1,521.6	186.2	2,172.9	270.7	2,638.0	332.9	3,704.8	473.9	3,582.6	514.8	4,105.1	493.2
True fir	23,804.0	1,081.8	24,505.1	1,212.6	26,424.1	1,419.8	26,225.4	1,428.3	24,873.4	1,549.5	23,170.0	1,361.3
Western hemlock	416.7	148.3	305.3	118.3	385.8	132.7	345.1	216.9	197.0	181.9	20.5	14.6
Western juniper	1,433.4	155.6	1,353.0	160.7	1,629.5	204.0	1,087.6	166.3	992.2	169.9	930.1	152.3
Western white pine	476.7	81.6	477.2	112.6	652.4	155.5	575.6	151.6	523.9	144.7	610.5	130.4
Woodland softwoods	1,389.3	132.8	1,591.9	145.0	1,274.6	133.2	1,076.5	140.9	834.1	140.2	659.7	105.7
Other western softwoods	2,839.1	283.3	2,949.9	327.5	3,500.0	414.8	4,197.0	543.2	3,263.3	499.5	3,198.8	443.6
Total	80,858.1	1,754.2	85,605.3	2,003.3	91,262.8	2,327.2	87,720.2	2,457.0	87,073.5	2,714.5	79,260.9	2,324.9
Hardwoods:												
Cottonwood and aspen	239.1	80.3	339.2	116.4	243.6	106.8	490.2	202.2	389.1	153.3	230.2	87.9
Oak	34,332.2	1,405.5	31,163.2	1,412.1	27,011.9	1,394.0	21,073.8	1,356.9	18,516.2	1,417.1	15,018.8	1,146.6
Red alder	1,069.0	244.0	1,221.1	290.9	642.9	231.2	612.9	185.8	68.3	62.1	183.1	120.5
Tanoak	11,446.0	897.9	8,841.2	806.1	7,822.9	857.6	6,931.0	766.1	7,095.1	949.9	3,862.7	524.3
Woodland hardwoods	479.4	72.6	403.3	72.3	303.3	54.8	304.1	67.5	180.5	57.8	103.1	34.9
Other western hardwoods	9,038.4	685.0	7,782.5	709.0	7,346.4	733.6	4,209.3	531.7	4,921.2	700.7	3,844.6	486.5
Total	56,604.2	1,884.4	49,750.6	1,840.1	43,370.9	1,862.0	33,621.3	1,691.7	31,170.5	1,876.2	23,242.5	1,399.5
All species groups	137,462.3	2,515.2	135,356.0	2,662.0	134,633.7	2,928.4	121,341.5	2,950.5	118,244.0	3,264.4	102,503.3	2,696.4

Table A2-69—Aboveground biomass of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

	Diameter class (inches)											
	25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons											
Softwoods:												
Douglas-fir	19,762.1	894.9	17,199.4	862.2	17,948.1	936.1	17,188.6	951.1	17,253.3	989.9	16,102.2	1,012.5
Incense cedar	4,513.1	327.1	4,087.4	315.2	3,394.6	297.4	3,319.4	303.6	3,370.5	317.6	3,346.0	372.1
Lodgepole pine	4,018.2	387.4	3,335.8	362.4	3,257.1	403.4	2,163.4	291.5	1,609.8	247.8	1,344.4	209.2
Ponderosa and Jeffrey pines	11,804.8	590.1	12,286.1	658.7	11,227.4	653.5	10,421.7	684.7	9,149.8	652.1	7,778.9	649.8
Redwood	7,008.0	707.7	6,554.9	613.3	5,908.3	651.5	5,531.3	596.8	5,483.0	651.7	4,602.0	561.6
Sitka spruce	160.2	81.1	90.7	51.6	201.5	99.7	143.3	61.8	203.8	92.8	207.3	123.3
Sugar pine	4,213.6	332.0	4,799.6	419.0	4,651.6	407.5	5,132.0	509.1	5,201.0	520.3	5,082.7	549.0
True fir	23,103.5	1,144.1	23,764.6	1,198.7	22,041.5	1,200.8	20,193.0	1,159.2	17,289.3	1,130.1	17,637.7	1,186.6
Western hemlock	184.1	65.6	107.3	61.6	69.6	39.3	—	—	109.3	61.0	—	—
Western juniper	589.6	74.2	390.0	62.9	460.8	73.3	365.7	65.2	337.8	65.7	197.3	55.5
Western white pine	637.1	99.0	673.8	110.3	792.2	128.4	750.4	132.5	732.3	138.8	762.2	137.0
Woodland softwoods	510.2	58.3	306.6	45.2	189.8	35.7	222.7	46.9	163.2	38.0	140.5	35.9
Other western softwoods	2,567.9	293.3	2,437.3	298.0	1,995.0	276.8	1,875.5	273.4	1,512.5	239.7	1,566.7	274.7
Total	79,072.4	1,814.3	76,033.5	1,845.3	72,137.4	1,927.0	67,307.0	1,877.7	62,415.8	1,899.2	58,767.9	1,985.9
Hardwoods:												
Cottonwood and aspen	172.5	63.4	297.5	130.8	142.0	49.5	84.2	44.4	10.3	10.4	58.3	36.1
Oak	9,946.5	565.2	8,005.8	549.2	6,671.1	508.5	5,543.6	499.5	4,274.3	468.6	2,738.1	362.1
Red alder	44.0	26.4	47.0	30.2	68.1	38.1	36.5	29.4	—	—	—	—
Tanoak	2,650.4	313.1	2,194.8	293.1	1,945.1	327.6	680.7	145.6	568.0	132.8	921.5	255.8
Woodland hardwoods	87.0	21.5	54.6	19.0	33.6	13.1	6.2	6.4	9.7	9.9	10.7	7.8
Other western hardwoods	2,640.2	261.1	1,984.4	236.9	1,761.6	254.5	1,446.7	286.1	995.3	203.6	1,397.7	300.4
Total	15,540.6	728.8	12,584.0	698.6	10,621.5	676.0	7,797.9	598.2	5,857.6	533.6	5,126.3	546.9
All species groups	94,613.0	1,944.6	88,617.5	1,967.3	82,758.9	2,033.7	75,104.9	1,969.5	68,273.4	1,979.6	63,894.3	2,070.1

Table A2-69—Aboveground biomass of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0 +			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons															
Softwoods:																
Douglas-fir	16,877.5	1,095.9	14,028.3	987.9	13,287.2	1,074.3	13,944.5	1,139.3	12,792.5	1,078.5	11,326.7	1,092.3	69,598.2	5,297.6	460,905.6	13,442.6
Incense cedar	3,046.6	346.5	2,566.9	337.9	2,262.2	339.6	2,389.6	329.7	1,530.8	292.7	1,143.9	262.6	8,889.5	1,185.2	87,737.4	4,143.5
Lodgepole pine	827.7	151.2	977.6	197.9	677.5	167.0	524.1	147.9	296.4	98.4	148.0	75.7	266.3	155.9	60,621.4	4,309.0
Ponderosa and Jeffrey pines	6,766.3	604.4	6,791.9	601.5	5,175.7	517.2	4,022.5	501.6	4,258.2	564.1	3,349.4	524.4	9,740.5	1,345.3	225,770.0	6,715.1
Redwood	4,159.0	655.8	5,076.7	711.5	4,403.0	659.4	3,719.6	640.5	2,981.1	562.9	2,472.8	489.4	57,356.9	14,079.4	156,728.0	16,158.8
Sitka spruce	140.4	77.4	141.4	83.5	175.6	116.9	183.5	95.0	—	—	41.2	41.7	854.0	714.9	4,432.2	1,424.3
Sugar pine	3,820.9	465.0	3,818.1	509.5	4,176.4	565.9	3,650.6	605.2	3,554.2	561.3	3,366.7	606.4	23,020.1	3,359.1	96,710.7	5,505.6
True fir	15,269.8	1,133.5	14,142.9	1,165.1	12,733.6	1,253.4	10,386.7	1,011.5	9,823.7	1,038.5	8,192.9	966.3	28,498.9	2,904.1	445,336.4	15,347.3
Western hemlock	63.9	55.7	—	—	49.9	50.8	—	—	173.2	104.3	—	—	432.6	440.7	3,841.3	1,052.1
Western juniper	425.0	96.7	249.1	70.9	222.4	59.3	101.6	40.5	205.3	72.9	121.3	48.2	753.4	195.9	17,070.5	1,064.8
Western white pine	1,111.8	185.8	824.0	156.1	473.2	122.5	739.2	166.6	346.7	110.3	706.0	181.9	2,463.8	501.8	15,949.3	1,413.5
Woodland softwoods	55.8	20.6	76.6	24.2	36.7	19.1	58.6	26.1	73.5	34.3	—	—	48.7	35.6	11,591.8	735.6
Other western softwoods	1,221.4	229.2	923.4	187.7	738.8	201.5	553.2	179.5	598.5	179.3	450.5	174.9	2,606.6	1,272.8	49,022.6	3,547.5
Total	53,786.1	1,932.7	49,617.0	1,907.0	44,412.2	2,000.4	40,273.7	1,927.5	36,634.2	1,846.6	31,319.4	1,786.6	204,529.5	16,599.6	1,635,717.2	27,333.8
Hardwoods:																
Cottonwood and aspen	78.0	59.0	—	—	—	—	—	—	—	—	—	—	38.3	38.7	3,896.7	865.1
Oak	2,438.7	381.1	2,174.4	376.9	1,945.2	416.9	536.8	203.6	957.3	272.0	787.2	275.6	2,406.5	576.6	374,801.7	9,048.6
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9,449.2	1,455.7
Tanoak	353.5	122.8	146.3	81.9	386.9	171.6	97.2	77.3	308.1	174.1	193.6	122.1	287.9	182.4	116,781.1	6,205.2
Woodland hardwoods	—	—	—	—	8.0	8.2	6.1	6.3	—	—	—	—	—	—	3,907.6	449.7
Other western hardwoods	919.1	257.1	499.8	184.8	148.3	89.9	521.8	180.9	199.7	116.3	86.2	75.9	1,159.1	347.6	91,724.9	3,975.3
Total	3,789.4	480.8	2,820.5	433.7	2,488.4	458.8	1,161.8	281.2	1,465.1	343.2	1,067.1	310.9	3,891.8	695.8	600,561.3	12,245.4
All species groups	57,575.4	2,001.7	52,437.5	1,949.1	46,900.6	2,056.5	41,435.6	1,950.9	38,099.4	1,877.9	32,386.5	1,812.3	208,421.3	16,610.7	2,236,278.5	29,466.8

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-70—Aboveground biomass of dead trees[a] on forest land, by species group and diameter class, California, 2001–2010

	Diameter class (inches)															
	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	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons															
Softwoods:																
Douglas-fir	900.2	84.0	912.6	96.0	941.8	140.0	1,197.5	149.5	1,329.4	165.8	1,693.9	282.1	1,142.8	231.9	1,190.0	281.4
Incense cedar	309.3	32.6	325.7	38.9	313.8	50.8	389.7	64.2	363.0	70.3	262.0	66.8	361.9	86.3	302.0	99.2
Lodgepole pine	337.5	86.6	303.3	89.5	417.5	128.4	507.6	139.4	508.8	144.7	581.3	137.3	529.0	135.8	944.0	200.9
Ponderosa and Jeffrey pines	386.9	40.3	531.8	60.5	537.3	81.7	566.3	86.3	726.8	106.6	643.9	111.0	520.3	109.7	442.8	122.0
Redwood	109.1	22.6	90.6	21.5	153.4	34.2	92.6	27.4	25.8	17.4	78.5	35.3	111.8	44.0	112.3	55.8
Sitka spruce	4.8	3.1	8.9	7.1	3.6	2.8	—	—	—	—	—	—	—	—	49.6	45.1
Sugar pine	91.2	17.1	231.3	41.2	199.4	38.7	289.1	66.4	345.2	88.2	386.0	93.4	377.8	119.7	417.2	152.4
True fir	1,600.7	139.9	2,042.6	144.0	2,522.7	193.3	3,201.2	264.9	3,374.5	285.9	3,976.2	335.1	3,728.6	428.0	4,543.1	472.5
Western hemlock	—	—	5.2	4.8	23.7	13.0	8.6	9.4	—	—	15.3	16.8	—	—	—	—
Western juniper	25.7	8.2	61.2	15.6	46.3	14.4	42.8	18.8	49.6	20.2	72.9	30.6	60.2	30.3	70.7	36.3
Western white pine	49.3	14.3	42.4	15.2	72.5	27.2	73.6	27.5	101.8	47.3	49.1	28.9	43.2	27.7	182.6	84.2
Woodland softwoods	41.7	9.5	114.7	21.0	203.4	42.3	175.1	38.7	196.4	46.1	266.7	57.0	217.9	49.4	134.0	55.4
Other western softwoods	213.9	35.1	230.3	52.6	309.3	71.0	393.2	70.8	372.1	88.7	541.1	116.0	280.3	83.2	404.2	124.9
Total	4,070.4	204.7	4,900.7	231.1	5,744.8	310.4	6,937.4	377.1	7,393.3	417.8	8,567.0	500.2	7,373.9	550.5	8,792.3	649.3
Hardwoods:																
Cottonwood and aspen	41.6	19.6	32.1	17.6	35.9	15.1	41.7	33.3	58.2	40.6	19.0	20.7	—	—	—	—
Oak	3,127.7	244.3	2,877.8	263.9	2,393.5	262.8	1,875.0	214.4	1,444.8	203.0	1,290.6	215.8	1,070.2	214.0	820.8	222.2
Red alder	91.5	25.1	138.6	37.1	111.3	31.8	48.5	24.8	15.5	13.8	105.2	83.7	33.3	32.7	—	—
Tanoak	781.8	132.4	839.7	163.4	1,082.8	233.5	896.9	207.0	910.5	257.0	755.8	236.2	362.2	132.1	325.5	152.5
Woodland hardwoods	149.6	27.8	253.5	48.2	279.3	48.6	218.0	59.7	243.2	61.5	229.6	72.8	100.9	48.0	117.7	64.9
Other western hardwoods	837.8	90.5	821.3	100.9	757.4	109.0	598.0	105.1	479.2	98.9	606.6	155.1	431.6	132.7	224.3	99.5
Total	5,029.9	302.8	4,962.9	343.3	4,660.3	381.8	3,678.2	329.8	3,151.5	348.3	3,006.8	371.4	1,998.3	294.3	1,488.2	294.2
All species groups	9,100.3	372.6	9,863.6	423.6	10,405.1	498.4	10,615.6	505.3	10,544.7	549.3	11,573.8	625.0	9,372.2	623.2	10,280.5	711.3

Table A2-70—Aboveground biomass of dead trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)															
	21.0–22.9		23.0–24.9		25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons															
Softwoods:																
Douglas-fir	1,278.5	279.8	1,421.1	225.6	1,595.1	172.9	1,549.5	209.1	1,563.6	212.2	2,064.3	270.6	2,075.4	252.9	1,623.3	236.8
Incense cedar	433.1	115.4	235.8	64.9	241.6	58.2	212.7	48.5	464.4	87.6	372.6	81.5	392.5	94.4	225.3	68.0
Lodgepole pine	675.6	165.5	504.1	114.6	701.9	109.5	633.4	104.3	533.6	111.7	436.9	97.1	321.3	79.3	337.2	89.7
Ponderosa and Jeffrey pines	996.5	216.7	770.2	150.9	719.4	103.5	776.4	108.2	889.9	139.9	1,089.1	162.2	802.7	131.2	633.1	129.6
Redwood	213.6	155.3	145.0	81.9	70.5	22.5	108.1	39.8	122.6	41.4	88.3	25.8	176.5	49.7	254.2	59.3
Sitka spruce	—	—	—	—	12.4	7.7	—	—	—	—	—	—	—	—	—	—
Sugar pine	275.8	116.0	271.4	63.5	465.6	98.3	378.2	84.0	373.7	87.7	613.1	142.5	592.7	173.9	578.9	156.3
True fir	5,063.8	584.7	3,879.7	426.0	3,349.2	271.4	3,272.7	271.8	3,375.5	302.2	3,446.1	307.9	3,071.5	309.1	2,970.4	325.4
Western hemlock	44.7	39.0	—	—	—	—	—	—	—	—	—	—	—	—	15.2	15.4
Western juniper	27.9	27.6	94.6	51.0	29.7	13.2	19.9	11.9	14.5	10.3	27.6	16.0	16.9	13.2	27.0	28.7
Western white pine	147.1	74.0	47.1	20.5	121.8	33.2	133.2	40.9	106.2	37.7	135.9	45.7	106.7	46.0	65.7	29.5
Woodland softwoods	139.1	52.6	40.9	27.3	31.7	11.4	28.3	13.9	39.9	18.2	17.2	10.6	35.4	17.9	31.7	18.4
Other western softwoods	562.1	175.1	620.4	146.8	431.3	81.4	313.4	69.5	248.5	65.4	302.4	70.7	263.6	76.8	211.1	75.7
Total	9,857.7	780.1	8,030.3	560.5	7,770.2	388.3	7,425.8	402.8	7,732.4	437.0	8,593.4	493.2	7,855.0	479.9	6,973.1	469.5
Hardwoods:																
Cottonwood and aspen	—	—	17.7	14.1	—	—	—	—	—	—	—	—	14.1	14.6	—	—
Oak	1,189.0	275.7	743.8	175.9	514.5	95.4	569.1	109.7	318.2	76.8	394.4	96.3	257.8	79.6	217.8	80.8
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tanoak	195.1	82.6	154.9	95.1	82.2	32.8	111.4	40.8	88.6	45.4	40.7	27.8	50.6	34.9	39.7	29.9
Woodland hardwoods	91.0	54.6	7.5	6.6	—	—	19.4	12.2	—	—	19.2	14.7	—	—	—	—
Other western hardwoods	188.0	104.0	313.5	135.8	156.8	53.1	78.7	37.3	236.3	84.2	102.4	59.4	67.0	43.6	91.0	50.8
Total	1,663.0	310.7	1,237.4	252.4	753.6	121.0	778.6	128.0	643.1	122.1	556.6	117.3	389.5	97.8	348.5	100.0
All species groups	11,520.8	840.3	9,267.7	612.2	8,523.8	406.1	8,204.5	422.8	8,375.5	451.3	9,150.0	507.3	8,244.5	491.3	7,321.6	481.3

Table A2-70—Aboveground biomass of dead trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0+			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons															
Softwoods:																
Douglas-fir	1,362.8	223.4	1,296.6	237.4	1,794.2	293.9	1,823.4	365.6	1,619.1	306.3	1,465.8	315.6	8,874.6	1,111.9	40,715.4	2,845.4
Incense cedar	401.6	98.1	304.5	91.7	374.5	105.4	287.6	107.2	290.0	103.2	410.2	152.8	923.5	262.8	8,197.2	636.9
Lodgepole pine	310.7	94.0	205.1	74.7	192.3	74.7	109.0	56.0	62.4	42.8	79.9	57.3	95.4	68.5	9,328.0	1,059.2
Ponderosa and Jeffrey pines	836.2	173.5	522.9	131.3	610.4	144.7	557.2	154.7	334.4	130.2	585.9	182.0	1,607.8	364.3	16,088.4	1,108.2
Redwood	259.1	65.2	237.1	74.1	202.8	71.0	286.6	70.1	292.4	92.3	268.4	72.5	15,266.0	2,784.4	18,765.3	2,949.9
Sitka spruce	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.3	52.0
Sugar pine	572.5	185.3	991.0	246.4	559.0	186.7	867.8	268.5	424.3	172.6	405.6	196.9	5,466.2	1,059.4	15,173.2	1,613.9
True fir	2,213.5	267.6	2,448.8	315.1	2,362.0	357.1	2,561.6	375.2	2,340.4	405.5	1,665.3	321.6	9,929.7	1,221.9	76,939.6	3,786.6
Western hemlock	22.8	23.2	—	—	—	—	32.4	28.2	—	—	49.9	50.9	—	—	217.7	105.5
Western juniper	—	—	—	—	21.0	22.3	—	—	15.3	15.8	—	—	19.6	20.4	743.4	134.3
Western white pine	160.8	62.1	97.3	44.1	106.5	55.3	68.7	52.2	30.7	30.3	78.3	51.5	224.7	96.6	2,245.3	327.5
Woodland softwoods	6.0	6.0	—	—	—	—	—	—	21.1	20.3	—	—	—	—	1,741.1	243.1
Other western softwoods	100.7	51.2	82.2	52.1	178.7	84.3	105.4	63.4	33.3	32.9	34.7	34.0	792.2	592.6	7,024.3	927.6
Total	6,246.8	476.9	6,185.5	514.0	6,401.5	542.5	6,699.6	625.9	5,463.4	567.9	5,044.0	555.0	43,199.7	3,539.8	197,258.2	6,234.3
Hardwoods:																
Cottonwood and aspen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	260.3	103.0
Oak	395.4	128.2	153.8	78.4	254.8	105.6	44.6	45.2	—	—	40.7	50.2	74.1	76.6	20,068.6	1,160.6
Red alder	29.1	29.7	—	—	—	—	—	—	—	—	—	—	—	—	573.1	123.9
Tanoak	—	—	69.3	48.0	72.0	45.2	—	—	58.7	57.8	—	—	—	—	6,918.2	1,101.6
Woodland hardwoods	16.1	16.5	—	—	—	—	—	—	—	—	—	—	—	—	1,745.0	283.4
Other western hardwoods	48.8	44.4	—	—	—	—	76.6	69.7	60.8	48.4	—	—	124.0	89.6	6,300.0	596.9
Total	489.5	139.8	223.1	91.9	326.8	114.9	121.2	83.1	119.5	75.3	40.7	50.2	198.1	117.9	35,865.3	1,795.7
All species groups	6,736.3	496.0	6,408.6	530.5	6,728.3	554.1	6,820.9	631.3	5,582.8	572.8	5,084.8	557.2	43,397.7	3,541.3	233,123.5	6,574.5

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Aboveground biomass is estimated from ground to actual height, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-71—Aboveground green biomass of live trees[a] on forest land, by ownership and land status, California, 2001–2010

Ownership	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons, green weight													
USDA Forest Service:														
National forest	1,382,778.9	32,580.3	123,097.4	8,950.1	1,505,876.3	32,427.4	380,911.9	22,339.2	58,186.0	6,509.7	439,097.8	23,057.8	1,944,974.1	31,676.3
Total	1,382,778.9	32,580.3	123,097.4	8,950.1	1,505,876.3	32,427.4	380,911.9	22,339.2	58,186.0	6,509.7	439,097.8	23,057.8	1,944,974.1	31,676.3
Other federal government:														
Bureau of Land Management	39,947.5	7,115.5	24,168.4	3,471.9	64,115.8	7,812.8	3,505.7	1,783.3	3,630.9	887.5	7,136.6	1,973.8	71,252.4	8,022.6
Departments of Defense or Energy	592.1	649.8	3,185.3	1,119.8	3,777.4	1,294.6	—	—	—	—	—	—	3,777.4	1,294.6
National Park Service	—	—	—	—	—	—	181,633.0	18,327.0	18,990.6	3,462.3	200,623.7	18,166.1	200,623.7	18,166.1
U.S. Fish and Wildlife Service	—	—	—	—	—	—	165.6	203.5	8.3	8.5	173.9	203.7	173.9	203.7
Other federal	—	—	2,924.4	1,300.2	2,924.4	1,300.2	4,269.9	3,214.5	1,073.6	961.1	5,343.5	3,352.0	8,267.9	3,595.2
Total	40,539.5	7,145.1	30,278.1	3,830.7	70,817.6	7,965.0	189,574.3	18,629.4	23,703.4	3,679.7	213,277.8	18,462.9	284,095.4	19,617.5
State and local government:														
Local	9,226.6	3,504.6	16,966.6	3,499.5	26,193.2	4,961.9	4,919.1	3,153.6	8,091.2	2,441.5	13,010.3	3,986.5	39,203.5	6,310.1
State	23,521.1	6,418.5	6,152.6	2,021.2	29,673.7	6,708.3	95,490.3	19,954.0	16,770.0	4,598.3	112,260.3	20,445.3	141,934.0	20,904.8
Other public	—	—	88.3	80.4	88.3	80.4	1,790.5	1,593.3	173.8	170.0	1,964.3	1,602.3	2,052.6	1,604.3
Total	32,747.7	7,267.4	23,207.5	4,028.1	55,955.2	8,277.9	102,199.9	20,248.5	25,034.9	5,202.7	127,234.8	20,860.4	183,190.1	21,804.9
Corporate private	476,151.2	19,264.7	30,807.6	4,253.6	506,958.8	19,614.3	—	—	—	—	—	—	506,958.8	19,614.3
Noncorporate private:														
Nongovernmental conservation or natural resource organizations	31,316.3	5,537.9	3,249.5	1,287.9	34,565.7	5,683.9	—	—	—	—	—	—	34,565.7	5,683.9
Unicorporated partnerships, associations, clubs	12,130.0	3,600.9	1,905.0	745.6	14,035.0	3,716.4	—	—	—	—	—	—	14,035.0	3,716.4
Native American	31,635.1	7,721.7	2,160.3	1,072.2	33,795.4	7,765.3	—	—	—	—	—	—	33,795.4	7,765.3
Individual	411,233.7	20,919.5	257,531.5	11,629.9	668,765.2	22,771.6	—	—	—	—	—	—	668,765.2	22,771.6
Total	486,315.1	22,625.6	264,846.3	11,728.5	751,161.4	24,305.1	—	—	—	—	—	—	751,161.4	24,305.1
All private	962,466.3	24,693.3	295,653.9	12,194.1	1,258,120.2	25,356.0	—	—	—	—	—	—	1,258,120.2	25,356.0
All owners	2,418,532.4	41,201.2	472,236.9	15,891.4	2,890,769.3	41,478.0	672,686.1	34,213.8	106,924.3	9,099.9	779,610.4	34,928.8	3,670,379.7	45,947.3

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-72—Aboveground green biomass of live trees[a] on forest land, by species group and diameter class, California, 2001–2010

	Diameter class (inches)											
	1.0–2.9		3.0–4.9		5.0–6.9		7.0–8.9		9.0–10.9		11.0–12.9	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons, green weight											
Softwoods:												
Douglas-fir	3,226.3	206.5	11,575.7	776.4	21,578.7	853.6	27,823.0	1,127.8	34,568.4	1,408.3	37,223.5	1,649.6
Incense cedar	729.3	70.6	2,297.7	206.8	3,774.8	213.9	4,355.2	257.8	5,231.7	326.0	5,424.6	359.8
Lodgepole pine	2,296.6	360.3	2,443.6	512.9	3,117.2	414.0	3,393.4	379.1	4,896.4	558.9	5,227.1	519.2
Ponderosa and Jeffrey pines	775.9	61.4	3,163.4	259.6	6,847.5	333.3	10,001.6	500.8	13,463.3	672.8	16,141.8	792.7
Redwood	379.4	53.1	460.1	82.6	1,341.7	129.0	2,075.2	197.7	2,870.7	282.5	4,738.9	459.0
Sitka spruce	37.3	22.7	51.6	52.2	75.2	30.6	173.9	74.8	184.3	89.6	311.2	165.7
Sugar pine	130.8	19.7	561.8	119.7	1,096.9	96.1	1,678.7	150.5	2,235.2	223.0	2,856.6	272.8
True fir	11,692.7	738.6	10,440.3	688.4	15,772.5	615.0	20,523.4	807.3	26,419.8	1,118.8	29,384.5	1,267.6
Western hemlock	112.9	38.1	238.8	118.4	239.3	106.6	342.1	74.3	522.7	167.1	478.1	167.4
Western juniper	181.6	32.0	619.1	124.8	1,146.1	100.2	1,767.1	149.3	2,213.7	191.4	2,417.9	228.3
Western white pine	456.0	103.8	396.1	104.7	442.5	62.4	469.6	67.2	612.4	101.9	551.5	101.6
Woodland softwoods	122.5	31.6	162.3	29.6	444.7	40.4	870.9	79.0	1,461.6	125.1	1,797.1	175.5
Other western softwoods	1,944.5	287.1	1,575.8	261.6	2,575.8	243.6	3,188.6	279.7	3,710.0	347.4	4,112.9	392.1
Total	22,085.8	921.8	33,986.3	1,261.6	58,452.8	1,254.5	76,662.6	1,583.4	98,390.1	2,047.1	110,665.8	2,358.2
Hardwoods:												
Cottonwood and aspen	613.5	165.7	370.0	178.5	264.5	100.2	219.9	67.0	311.0	91.9	377.5	138.1
Oak	11,034.0	712.1	31,469.7	1,973.3	60,910.9	2,140.9	78,918.1	2,605.9	81,198.6	2,715.3	70,563.4	2,601.3
Red alder	79.1	25.0	310.4	98.2	980.7	182.8	1,918.7	296.6	2,946.6	519.9	3,149.2	633.0
Tanoak	4,408.4	328.5	9,462.2	714.2	17,818.3	1,009.0	21,255.2	1,253.5	22,619.7	1,460.9	21,129.7	1,466.5
Woodland hardwoods	176.6	35.6	221.1	55.8	516.7	67.4	747.0	102.9	902.1	132.1	838.6	111.6
Other western hardwoods	3,834.9	311.2	8,333.5	887.3	11,180.8	579.8	13,912.2	781.2	15,152.2	844.6	15,212.6	991.5
Total	20,146.5	871.6	50,166.8	2,306.0	91,671.9	2,428.2	116,971.0	2,978.8	123,130.2	3,211.3	111,270.9	3,252.1
All species groups	42,232.2	1,262.4	84,153.2	2,657.8	150,124.7	2,724.5	193,633.6	3,330.9	221,520.3	3,742.6	221,936.8	3,957.9

Table A2-72—Aboveground biomass of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)											
	13.0–14.9		15.0–16.9		17.0–18.9		19.0–20.9		21.0–22.9		23.0–24.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons, green weight											
Softwoods:												
Douglas-fir	41,477.4	1,841.3	44,783.4	2,170.1	44,970.1	2,402.1	36,242.1	2,357.1	39,351.7	2,716.3	36,027.3	2,266.0
Incense cedar	5,504.6	437.6	6,404.4	501.9	6,567.7	587.0	6,354.5	625.1	6,164.5	705.1	5,995.8	622.5
Lodgepole pine	7,521.5	755.3	6,640.5	730.0	8,862.8	916.5	8,341.1	936.4	8,639.2	1,105.4	6,342.5	727.6
Ponderosa and Jeffrey pines	18,988.9	951.7	20,141.9	1,108.7	20,892.0	1,209.0	21,191.1	1,405.2	20,712.3	1,475.5	17,848.0	1,151.1
Redwood	4,872.3	492.2	5,507.5	579.3	5,833.0	703.4	6,813.8	813.4	7,843.7	916.6	7,103.8	869.7
Sitka spruce	397.8	196.2	406.3	261.0	616.1	396.1	403.4	215.6	546.5	313.2	111.8	71.9
Sugar pine	2,895.5	354.4	4,134.8	515.1	5,019.8	633.5	7,049.8	901.7	6,817.3	979.7	7,811.5	938.5
True fir	36,769.1	1,681.3	37,542.0	1,879.4	40,738.5	2,219.5	39,957.5	2,187.0	37,907.9	2,384.5	35,197.4	2,078.9
Western hemlock	821.4	292.3	601.7	233.2	760.5	261.5	680.2	427.5	388.2	358.5	40.4	28.8
Western juniper	2,289.4	248.6	2,160.9	256.7	2,602.5	325.8	1,737.1	265.6	1,584.6	271.3	1,485.5	243.2
Western white pine	861.4	147.5	862.4	203.5	1,178.9	281.0	1,040.2	273.9	946.7	261.6	1,103.4	235.7
Woodland softwoods	2,336.7	224.1	2,672.1	244.4	2,139.4	224.2	1,803.1	237.1	1,403.2	237.0	1,099.1	176.1
Other western softwoods	4,833.2	490.9	4,978.4	549.7	5,811.4	703.3	7,091.3	923.6	5,585.4	878.3	5,429.7	772.6
Total	129,569.1	2,862.0	136,836.2	3,261.3	145,992.8	3,787.3	138,705.2	3,948.2	137,891.3	4,391.3	125,596.0	3,730.5
Hardwoods:												
Cottonwood and aspen	466.6	156.6	653.2	222.4	483.0	212.4	953.2	392.9	750.8	294.8	453.6	174.6
Oak	64,071.7	2,627.2	58,233.7	2,646.5	50,368.5	2,599.6	39,347.4	2,536.1	34,520.4	2,641.7	28,171.3	2,154.7
Red alder	1,838.6	419.6	2,100.3	500.3	1,105.8	397.6	1,054.1	319.6	117.5	106.9	314.9	207.2
Tanoak	18,431.1	1,445.8	14,236.7	1,298.0	12,596.9	1,381.0	11,160.7	1,233.6	11,425.0	1,529.5	6,219.9	844.3
Woodland hardwoods	856.1	129.2	717.2	128.9	541.4	97.7	541.7	120.3	324.8	104.1	185.5	62.8
Other western hardwoods	14,868.4	1,141.6	12,801.3	1,169.4	12,174.9	1,199.6	6,887.9	872.5	7,851.4	1,111.5	6,194.5	781.5
Total	100,532.6	3,333.5	88,742.4	3,277.8	77,270.5	3,288.8	59,945.1	3,031.8	54,989.9	3,300.8	41,539.8	2,520.7
All species groups	230,101.7	4,297.8	225,578.6	4,536.7	223,263.4	4,931.4	198,650.3	4,934.5	192,881.2	5,440.5	167,135.8	4,472.7

Table A2-72—Aboveground biomass of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

	Diameter class (inches)											
	25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons, green weight											
Softwoods:												
Douglas-fir	36,772.7	1,665.3	32,004.0	1,604.4	33,396.8	1,741.8	31,983.9	1,769.8	32,104.3	1,841.9	29,962.6	1,884.1
Incense cedar	6,048.6	438.4	5,478.0	422.4	4,549.5	398.6	4,448.7	406.8	4,517.3	425.7	4,484.3	498.7
Lodgepole pine	6,608.9	637.1	5,486.6	596.1	5,357.1	663.5	3,558.2	479.5	2,647.8	407.6	2,211.2	344.0
Ponderosa and Jeffrey pines	16,333.9	816.3	16,996.3	910.7	15,535.3	903.7	14,423.6	947.0	12,662.6	901.7	10,764.8	898.5
Redwood	8,422.2	850.6	7,877.7	737.1	7,100.5	783.0	6,647.5	717.2	6,589.4	783.2	5,530.7	674.9
Sitka spruce	281.1	142.4	159.2	90.5	353.5	175.0	251.4	108.5	357.6	162.9	363.8	216.4
Sugar pine	8,018.0	631.8	9,133.0	797.2	8,851.4	775.5	9,765.6	968.7	9,896.9	990.0	9,671.7	1,044.7
True fir	34,908.4	1,715.3	35,474.1	1,773.5	33,010.5	1,799.4	30,004.4	1,729.4	25,633.6	1,709.9	25,697.0	1,739.4
Western hemlock	362.9	129.4	211.4	121.4	137.2	77.4	—	—	215.5	120.3	—	—
Western juniper	941.6	118.5	622.9	100.4	735.9	117.1	584.0	104.1	539.6	104.9	315.1	88.7
Western white pine	1,151.3	178.9	1,217.7	199.3	1,431.7	232.1	1,356.2	239.5	1,323.4	250.8	1,377.4	247.5
Woodland softwoods	852.1	97.4	510.2	75.6	315.8	59.7	371.0	78.9	268.8	62.9	232.9	59.5
Other western softwoods	4,401.8	521.6	4,189.8	534.2	3,469.4	493.7	3,208.5	493.1	2,570.8	409.9	2,649.5	470.0
Total	125,103.5	2,846.3	119,361.0	2,898.3	114,244.7	3,055.7	106,603.1	2,999.3	99,327.6	3,050.9	93,261.0	3,173.4
Hardwoods:												
Cottonwood and aspen	333.9	122.2	570.5	249.5	274.4	95.3	161.4	85.0	20.5	20.8	111.8	68.9
Oak	18,626.3	1,058.6	15,036.1	1,028.4	12,542.6	956.5	10,393.5	937.6	8,059.6	884.9	5,168.4	684.0
Red alder	75.7	45.5	80.9	51.9	117.2	65.6	62.7	50.5	—	—	—	—
Tanoak	4,267.8	504.2	3,534.2	471.9	3,132.1	527.5	1,096.1	234.5	914.6	213.9	1,483.8	411.9
Woodland hardwoods	152.0	37.5	95.9	33.5	57.3	21.7	8.8	9.0	13.7	14.1	19.3	14.1
Other western hardwoods	4,270.7	420.0	3,326.7	397.0	2,896.8	420.8	2,433.6	479.4	1,609.9	327.2	2,284.4	490.4
Total	27,726.5	1,295.1	22,644.4	1,253.8	19,020.4	1,203.7	14,156.1	1,085.4	10,618.3	976.4	9,067.7	955.8
All species groups	152,830.0	3,112.7	142,005.4	3,151.4	133,265.1	3,274.5	120,759.3	3,197.4	109,945.9	3,215.9	102,328.7	3,335.9

Table A2-72—Aboveground biomass of live trees[a] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0 +			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons, green weight															
Softwoods:																
Douglas-fir	31,405.0	2,039.1	26,103.2	1,838.3	24,724.5	1,999.1	25,947.6	2,119.9	23,803.9	2,006.9	21,076.2	2,032.5	129,507.1	9,857.7	857,639.5	25,013.7
Incense cedar	4,083.2	464.4	3,440.2	452.8	3,031.8	455.1	3,202.6	441.9	2,051.7	392.3	1,533.1	352.0	11,913.9	1,588.5	117,587.6	5,553.2
Lodgepole pine	1,361.3	248.6	1,608.0	325.6	1,114.4	274.7	862.0	243.3	487.6	161.8	243.4	124.5	437.9	256.4	99,706.2	7,087.2
Ponderosa and Jeffrey pines	9,365.9	836.1	9,406.0	832.6	7,167.4	716.1	5,574.5	694.8	5,895.6	780.4	4,637.5	725.8	13,501.4	1,862.2	312,432.7	9,290.7
Redwood	4,998.3	788.1	6,101.2	855.1	5,291.6	792.5	4,470.2	769.7	3,582.7	676.5	2,971.9	588.2	68,931.4	16,920.6	188,355.3	19,419.7
Sitka spruce	246.5	135.9	248.2	146.5	308.2	205.2	322.1	166.7	—	—	72.3	73.2	1,498.8	1,254.5	7,778.1	2,499.6
Sugar pine	7,270.7	884.8	7,265.4	969.4	7,947.2	1,076.8	6,946.6	1,151.7	6,763.2	1,068.1	6,406.5	1,154.0	43,804.6	6,391.9	184,029.4	10,476.5
True fir	21,876.0	1,600.4	20,330.4	1,656.4	18,305.0	1,833.5	15,309.2	1,503.7	13,818.6	1,498.1	11,742.9	1,412.8	38,943.0	3,850.8	667,398.5	22,623.2
Western hemlock	126.0	109.8	—	—	98.3	100.1	—	—	341.4	205.6	—	—	852.7	868.7	7,571.7	2,073.7
Western juniper	678.7	154.4	397.8	113.2	355.2	94.7	162.3	64.7	328.0	116.5	193.8	76.9	1,203.2	312.8	27,263.6	1,700.7
Western white pine	2,009.3	335.9	1,489.2	282.1	855.2	221.3	1,336.0	301.0	626.6	199.3	1,276.0	328.8	4,452.6	906.9	28,823.7	2,554.5
Woodland softwoods	91.6	34.0	124.6	39.3	59.9	31.2	95.1	42.4	118.9	55.3	—	—	79.5	58.2	19,433.1	1,235.4
Other western softwoods	2,116.0	400.9	1,561.5	324.4	1,242.4	335.4	984.1	327.5	1,053.5	317.6	715.3	284.0	3,920.5	1,667.4	82,920.1	6,077.5
Total	85,628.4	3,076.9	78,075.6	2,996.5	70,501.0	3,199.7	65,212.4	3,163.2	58,871.6	3,008.4	50,868.7	2,962.7	319,046.7	22,574.8	2,600,939.6	41,226.0
Hardwoods:																
Cottonwood and aspen	147.4	111.6	—	—	—	—	—	—	—	—	—	—	76.4	77.1	7,613.2	1,671.0
Oak	4,575.6	716.4	4,066.3	703.6	3,666.8	786.6	972.4	366.0	1,752.3	495.7	1,481.8	518.3	4,522.4	1,082.5	699,671.8	16,943.5
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16,252.3	2,503.8
Tanoak	569.2	197.8	235.6	132.0	622.9	276.3	156.5	124.5	496.2	280.4	311.8	196.7	463.6	293.7	188,048.1	9,992.0
Woodland hardwoods	—	—	—	—	11.4	11.7	11.0	11.2	—	—	—	—	—	—	6,938.2	799.6
Other western hardwoods	1,475.4	414.6	799.7	289.2	237.7	144.1	885.2	308.0	311.5	181.7	123.8	109.0	1,856.5	555.1	150,916.6	6,481.9
Total	6,767.6	859.5	5,101.6	780.5	4,538.9	844.5	2,025.1	491.3	2,559.9	597.6	1,917.4	565.0	6,918.9	1,249.7	1,069,440.2	21,586.6
All species groups	92,396.0	3,217.9	83,177.2	3,084.3	75,039.9	3,319.5	67,237.5	3,204.8	61,431.5	3,066.9	52,786.1	3,014.0	325,965.6	22,606.2	3,670,379.7	45,947.3

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-73—Average aboveground biomass per acre of live trees[a] on forest land, by forest type group and ownership group, California, 2001–2010

	Ownership group													
	USDA Forest Service		Other federal		State and local government		Private						All owners	
							Corporate		Noncorporate		All private			
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
Softwoods:														
California mixed conifer	111.24	2.31	119.34	9.59	113.75	20.57	66.11	3.07	73.88	3.82	68.48	2.43	100.30	1.81
Douglas-fir	156.57	12.92	122.83	29.75	138.04	26.40	99.03	6.97	114.72	10.31	106.64	6.21	124.75	5.83
Fir/spruce/mountain hemlock	124.67	5.19	148.89	13.24	113.27	28.63	75.46	7.54	59.90	11.30	71.44	6.35	118.32	4.31
Lodgepole pine	59.62	3.50	75.29	8.25	35.47	12.69	64.91	8.38	57.30	10.79	60.13	7.54	62.88	3.15
Pinyon/juniper woodlands	9.71	0.89	6.01	0.58	6.36	2.00	5.80	1.02	4.27	1.20	4.42	1.09	7.53	0.50
Ponderosa pine	43.17	2.35	36.41	5.92	20.40	6.84	32.70	3.44	50.32	3.80	41.69	2.66	42.25	1.73
Redwood	439.16	75.92	594.08	93.26	472.55	116.44	122.51	11.55	211.11	17.23	156.59	10.71	224.13	20.53
Western juniper	15.03	1.31	10.09	1.13	47.35	31.60	10.94	2.45	10.04	1.04	10.11	0.98	13.01	0.85
Western white pine	44.23	6.51	40.09	10.79	—	—	—	—	—	—	—	—	42.05	5.98
Other western softwoods	22.46	2.69	26.10	5.67	38.45	23.23	84.25	15.53	89.18	30.18	86.93	17.86	35.05	4.46
Total	85.34	1.53	62.08	5.12	166.00	34.06	72.50	2.59	73.74	3.83	73.04	2.16	80.86	1.38
Hardwoods:														
Alder/maple	64.27	13.64	98.34	16.65	148.33	4.06	81.18	11.71	76.84	14.27	79.18	9.14	82.77	7.06
Aspen/birch	21.72	7.36	7.35	6.56	38.23	38.23	97.68	97.68	26.90	3.12	42.62	16.11	24.19	6.33
Elm/ash/cottonwood	49.03	49.03	—	—	35.53	10.20	—	—	47.34	14.56	44.58	14.03	42.87	10.27
Tanoak/laurel	121.76	9.02	85.02	19.60	150.32	18.75	89.57	5.61	114.22	6.09	102.94	4.28	110.58	3.94
Western oak	51.27	2.16	41.53	4.40	46.26	3.67	49.12	2.89	37.36	1.09	39.07	1.03	43.04	0.94
Woodland hardwoods	13.04	1.59	8.03	1.18	26.84	12.24	14.74	14.74	16.30	3.72	16.13	3.33	12.93	1.23
Other hardwoods	42.22	11.43	15.56	13.48	108.07	30.12	71.95	19.45	48.67	7.63	53.12	7.30	51.88	6.63
Total	57.07	2.26	41.60	4.03	74.42	6.55	66.69	3.00	47.08	1.39	51.15	1.24	53.54	1.08
Nonstocked	2.30	0.44	1.68	0.92	—	—	2.25	0.73	1.49	0.74	2.01	0.55	2.16	0.34
All forest types	75.58	1.21	54.95	3.73	105.05	12.56	68.81	1.93	53.99	1.43	59.24	1.10	68.15	0.89

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-74—Average aboveground biomass per acre of dead trees[a] on forest land by forest type group and ownership group, California, 2001–2010

Forest type group	Ownership group													
	USDA Forest Service		Other federal		State and local government		Private						All owners	
							Corporate		Noncorporate		All private			
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
Softwoods:														
California mixed conifer	12.95	0.55	20.83	2.73	12.26	6.25	4.37	0.42	4.31	0.83	4.35	0.39	11.10	0.43
Douglas-fir	16.91	2.45	10.50	5.33	10.90	5.74	6.80	1.98	7.76	1.55	7.26	1.27	10.64	1.17
Fir/spruce/mountain hemlock	18.97	1.46	33.59	6.95	24.42	11.76	6.32	1.66	9.74	3.96	7.21	1.60	18.46	1.32
Hemlock/Sitka spruce	—	—	—	—	—	—	36.80	20.88	5.83	5.74	29.37	16.82	28.68	16.44
Lodgepole pine	7.07	0.75	10.44	1.95	5.47	2.90	9.79	3.88	10.19	3.85	10.04	2.82	8.02	0.72
Pinyon/juniper woodlands	0.98	0.14	0.90	0.22	0.55	0.26	0.25	0.23	0.81	0.33	0.75	0.30	0.91	0.11
Ponderosa pine	2.32	0.31	3.34	1.72	1.49	1.00	1.29	0.28	1.13	0.25	1.21	0.18	1.98	0.21
Redwood	0.66	0.21	65.75	32.50	21.17	5.43	16.23	4.00	22.46	6.14	18.63	3.42	21.11	3.44
Western juniper	1.28	0.28	0.61	0.20	7.81	5.59	0.61	0.36	0.75	0.23	0.74	0.22	1.05	0.18
Western white pine	8.39	1.85	9.20	2.13	—	—	0.61	0.61	—	—	0.61	0.61	8.16	1.64
Other western softwoods	4.48	1.06	3.79	1.24	3.84	1.34	0.22	0.20	8.43	4.78	6.80	3.96	4.51	0.83
Total	10.16	0.35	9.95	1.15	11.15	2.37	6.21	0.69	5.64	0.77	5.96	0.51	9.03	0.29
Hardwoods:														
Alder/maple	17.74	4.94	6.11	2.02	21.35	14.26	6.40	1.49	2.70	1.23	4.70	1.06	8.82	1.91
Aspen/birch	1.59	0.69	—	—	28.97	28.97	—	—	0.16	0.14	0.12	0.11	1.55	0.67
Elm/ash/cottonwood	3.30	3.30	—	—	0.41	0.31	—	—	1.07	0.73	1.01	0.69	1.10	0.54
Tanoak/laurel	13.42	2.48	13.70	6.54	9.99	2.40	7.97	1.83	3.71	0.55	5.66	0.90	8.22	0.92
Western oak	5.73	0.75	2.73	0.58	1.91	0.48	2.45	0.37	1.51	0.15	1.65	0.14	2.89	0.24
Woodland hardwoods	3.71	0.85	1.80	0.55	2.72	0.31	0.64	0.64	1.23	0.70	1.16	0.63	2.91	0.55
Other hardwoods	6.70	2.24	3.63	2.74	3.08	1.57	2.84	0.92	2.74	0.81	2.76	0.68	4.20	0.89
Total	6.77	0.65	3.66	0.75	4.17	0.79	4.73	0.74	1.83	0.14	2.43	0.19	3.88	0.23
Nonstocked	18.92	3.90	2.97	1.23	61.47	61.47	0.77	0.38	0.93	0.44	0.82	0.29	13.95	2.80
All forest types	9.63	0.32	8.04	0.83	6.85	1.02	5.57	0.51	2.85	0.24	3.81	0.23	7.10	0.20

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Aboveground biomass is estimated from ground to actual height, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-75—Average aboveground biomass per acre of live trees[a] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre							
Softwoods:								
California mixed conifer	106.45	1.85	29.76	3.99	9.68	1.30	100.30	1.81
Douglas-fir	138.93	6.03	49.44	9.08	21.63	4.53	124.75	5.83
Fir/spruce/mountain hemlock	125.77	4.38	31.89	8.22	12.03	2.14	118.32	4.31
Lodgepole pine	65.72	3.32	54.54	10.84	10.23	5.28	62.88	3.15
Pinyon/juniper woodlands	8.82	0.57	1.90	0.71	1.25	0.34	7.53	0.50
Ponderosa pine	48.00	1.85	12.27	1.84	4.42	1.10	42.25	1.73
Redwood	239.80	21.65	21.46	6.00	12.64	3.16	224.13	20.53
Western juniper	14.82	0.97	6.11	1.43	2.23	0.67	13.01	0.85
Western white pine	51.02	6.59	7.71	1.58	13.52	5.62	42.05	5.98
Other western softwoods	48.25	6.03	11.01	2.59	6.00	1.27	35.05	4.46
Total	89.35	1.50	17.51	1.79	8.17	0.74	80.86	1.38
Hardwoods:								
Alder/maple	105.61	7.39	58.36	11.24	17.62	6.83	82.77	7.06
Aspen/birch	51.12	11.94	42.93	14.22	9.52	2.75	24.19	6.33
Elm/ash/cottonwood	51.71	10.58	3.28	3.03	10.54	1.05	42.87	10.27
Tanoak/laurel	139.84	4.64	77.03	4.35	18.50	3.06	110.58	3.94
Western oak	56.75	1.47	34.70	1.22	13.09	0.98	43.04	0.94
Woodland hardwoods	14.02	1.32	10.74	3.83	2.25	0.84	12.93	1.23
Other hardwoods	113.93	12.74	34.75	6.35	5.53	1.04	51.88	6.63
Total	72.85	1.72	39.40	1.25	12.71	0.83	53.54	1.08
Nonstocked	—	—	—	—	—	—	2.16	0.34
All forest types	84.52	1.15	35.50	1.11	10.95	0.59	68.15	0.89

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-76—Average aboveground biomass per acre of dead trees[a] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre							
Softwoods:								
California mixed conifer	11.59	0.45	4.41	1.45	4.49	1.62	11.10	0.43
Douglas-fir	11.14	1.27	1.45	0.79	11.02	5.01	10.64	1.17
Fir/spruce/mountain hemlock	18.17	1.21	16.37	9.02	23.68	12.01	18.46	1.32
Hemlock/Sitka spruce	31.90	17.92	—	—	0.76	0.76	28.68	16.44
Lodgepole pine	8.39	0.75	8.08	4.49	0.21	0.19	8.02	0.72
Pinyon/juniper woodlands	0.86	0.10	1.33	0.66	0.86	0.41	0.91	0.11
Ponderosa pine	2.17	0.24	0.58	0.26	1.15	0.60	1.98	0.21
Redwood	22.22	3.67	8.51	2.02	4.78	2.43	21.11	3.44
Western juniper	1.24	0.21	0.19	0.14	0.04	0.02	1.05	0.18
Western white pine	9.87	1.99	1.57	0.32	2.70	1.47	8.16	1.64
Other western softwoods	5.82	1.08	1.30	0.62	2.56	1.87	4.51	0.83
Total	9.65	0.31	2.52	0.53	5.09	1.40	9.03	0.29
Hardwoods:								
Alder/maple	10.47	2.84	6.72	2.50	4.88	2.25	8.82	1.91
Aspen/birch	2.84	1.67	4.36	2.40	0.20	0.14	1.55	0.67
Elm/ash/cottonwood	0.61	0.40	—	—	4.01	0.40	1.10	0.54
Tanoak/laurel	9.19	1.01	3.53	1.10	11.59	4.59	8.22	0.92
Western oak	3.12	0.22	1.67	0.15	5.18	1.46	2.89	0.24
Woodland hardwoods	2.72	0.47	5.35	2.92	—	—	2.91	0.55
Other hardwoods	7.67	1.58	1.91	0.62	2.55	1.62	4.20	0.89
Total	4.53	0.27	2.03	0.19	5.51	1.20	3.88	0.23
Nonstocked	—	—	—	—	—	—	13.95	2.80
All forest types	8.15	0.23	2.12	0.18	5.35	0.91	7.10	0.20

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Aboveground biomass is estimated from ground to actual height, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-77—Average aboveground biomass per acre of live trees[a] on forest land, by forest type group and stand age class, California, 2001–2010

	Stand age class (years)													
	1–20		21–40		41–60		61–80		81–100		101–120		121–140	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
Softwoods:														
California mixed conifer	11.93	2.76	42.13	4.05	59.68	3.54	82.03	2.86	97.70	3.56	105.14	5.65	136.15	7.82
Douglas-fir	24.40	3.20	79.51	6.52	110.96	7.84	123.54	13.58	160.95	19.63	135.43	26.08	192.21	33.18
Fir/spruce/mountain hemlock	9.14	3.09	27.49	13.87	58.13	5.39	87.97	8.31	114.29	6.72	118.54	9.54	147.09	16.24
Hemlock/Sitka spruce	—	—	121.29	13.44	99.39	7.66	—	—	131.75	131.75	448.27	448.27	—	—
Lodgepole pine	3.71	1.81	20.24	10.62	46.40	10.84	45.17	6.46	47.77	7.53	64.11	9.37	68.74	8.92
Pinyon/juniper woodlands	0.57	0.45	1.89	0.81	5.99	2.85	6.69	1.34	10.17	1.56	5.94	2.28	7.05	1.93
Ponderosa pine	7.35	1.16	22.93	3.12	47.44	6.17	39.31	2.53	54.69	3.10	58.93	8.35	67.06	12.63
Redwood	30.65	8.45	85.33	21.70	142.47	17.28	175.76	15.16	229.03	19.90	235.15	19.31	173.81	43.21
Western juniper	0.86	0.41	3.42	0.97	6.94	1.08	10.26	0.92	12.71	1.50	16.86	3.00	11.65	3.10
Western white pine	—	—	—	—	32.34	6.81	59.91	59.91	21.20	12.75	81.19	81.19	11.80	0.96
Other western softwoods	8.90	3.64	28.25	22.16	14.26	4.83	29.59	11.10	45.51	20.58	29.80	6.11	8.77	3.83
Total	11.59	1.42	46.07	3.48	62.42	3.10	65.45	2.31	80.36	2.75	89.48	4.26	107.88	6.20
Hardwoods:														
Alder/maple	35.41	13.43	78.11	10.36	86.04	15.95	121.73	9.28	78.79	19.23	227.19	227.19	75.33	75.33
Aspen/birch	12.86	6.34	19.05	10.08	45.79	25.03	22.74	0.56	32.75	32.75	—	—	81.24	81.24
Elm/ash/cottonwood	—	—	20.02	10.00	—	—	—	—	—	—	—	—	—	—
Tanoak/laurel	12.08	2.99	78.29	5.13	108.65	6.10	142.42	10.12	128.35	12.36	109.81	24.01	109.14	26.11
Western oak	10.15	1.57	22.99	2.74	35.15	1.87	47.75	2.34	55.33	2.90	59.31	5.37	60.10	6.53
Woodland hardwoods	—	—	3.44	1.03	6.92	1.14	12.25	1.50	8.99	1.81	26.20	6.95	11.91	11.91
Other hardwoods	4.00	1.62	24.40	5.65	76.91	13.55	81.36	18.31	45.55	14.58	106.13	41.96	164.72	71.90
Total	10.83	1.35	49.71	3.27	55.46	2.67	62.44	3.08	60.28	3.02	65.86	5.79	70.92	8.17
Nonstocked	—	—	—	—	—	—	—	—	—	—	—	—	—	—
All forest types	11.23	0.99	47.96	2.37	58.81	2.01	64.28	1.84	73.69	2.11	83.20	3.52	98.92	5.18

Table A2-77—Average aboveground biomass per acre of live trees[a] on forest land, by forest type group and stand age class, California, 2001–2010 (continued)

Forest type group	Stand age class (years)								Unknown		All classes	
	141–160		161–180		181–200		201+					
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre											
Softwoods:												
California mixed conifer	117.82	5.75	125.97	10.92	127.59	10.32	148.45	6.88	30.00	10.59	100.30	1.81
Douglas-fir	160.08	26.12	184.94	52.21	207.33	27.17	230.81	28.91	10.24	0.71	124.75	5.83
Fir/spruce/mountain hemlock	118.86	13.72	149.77	17.82	162.51	19.07	185.55	15.82	—	—	118.32	4.31
Hemlock/Sitka spruce	—	—	—	—	—	—	—	—	—	—	104.09	12.54
Lodgepole pine	85.43	9.59	51.56	5.61	83.73	12.79	72.56	7.47	—	—	62.88	3.15
Pinyon/juniper woodlands	7.87	2.46	11.08	1.88	12.13	3.33	13.14	1.61	5.18	0.62	7.53	0.50
Ponderosa pine	49.83	9.93	30.74	4.60	52.34	14.71	51.34	9.96	9.73	9.73	42.25	1.73
Redwood	267.93	267.93	243.54	61.64	287.15	141.10	599.04	92.33	—	—	224.13	20.53
Western juniper	26.01	5.18	24.13	10.38	27.79	8.41	21.24	4.20	12.07	3.43	13.01	0.85
Western white pine	28.89	12.74	47.68	18.79	46.08	21.30	49.63	8.91	—	—	42.05	5.98
Other western softwoods	8.82	1.01	10.96	2.54	29.86	4.75	36.78	6.71	31.48	8.76	28.92	4.26
Total	95.06	4.82	104.69	8.20	110.82	8.27	136.31	7.90	7.76	1.03	80.86	1.38
Hardwoods:												
Alder/maple	93.25	93.25	—	—	130.49	130.49	—	—	53.24	18.29	82.77	7.06
Aspen/birch	—	—	4.33	4.33	40.76	40.76	—	—	4.91	2.58	24.19	6.33
Elm/ash/cottonwood	21.70	21.70	—	—	—	—	103.24	103.24	50.98	11.27	42.87	10.27
Tanoak/laurel	206.76	19.47	197.96	28.10	121.86	30.82	182.05	17.73	82.47	11.67	110.58	3.94
Western oak	64.62	7.71	56.72	11.99	82.57	14.40	48.86	9.06	37.76	1.40	43.04	0.94
Woodland hardwoods	15.49	4.47	—	—	8.80	2.64	38.83	10.19	12.84	2.42	12.93	1.23
Other hardwoods	62.05	28.72	0.81	0.81	—	—	116.53	40.28	23.58	7.18	51.88	6.63
Total	92.06	9.95	77.29	15.96	84.80	12.89	104.54	12.92	37.92	1.40	53.54	1.08
Nonstocked	—	—	—	—	—	—	—	—	2.16	0.34	2.16	0.34
All forest types	94.32	4.39	100.05	7.38	106.62	7.27	132.97	7.20	27.88	1.10	68.15	0.89

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-78—Average aboveground biomass per acre of dead trees[a] on forest land, by forest type group and stand age class, California, 2001–2010

	Stand age class (years)													
	1–20		21–40		41–60		61–80		81–100		101–120		121–140	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
Softwoods:														
California mixed conifer	6.98	2.67	3.10	1.03	4.22	0.85	6.16	0.57	9.36	0.69	10.18	1.17	13.28	1.49
Douglas-fir	2.86	0.90	6.21	2.74	6.81	1.19	6.96	1.42	14.23	4.81	0.71	0.36	24.40	12.52
Fir/spruce/mountain hemlock	40.22	22.21	2.97	1.84	5.57	1.38	9.87	1.86	18.23	2.71	23.06	4.80	20.17	3.79
Lodgepole pine	—	—	0.10	0.11	5.06	1.96	5.22	1.49	6.87	1.76	9.90	3.44	4.33	1.36
Pinyon/juniper woodlands	2.19	1.55	0.05	0.04	1.68	1.06	0.85	0.25	0.65	0.15	0.73	0.28	1.26	0.61
Ponderosa pine	1.37	0.51	0.19	0.09	1.59	0.43	1.77	0.52	1.91	0.41	2.60	0.81	3.21	1.33
Redwood	26.81	17.21	16.17	6.89	41.67	13.10	11.67	2.95	20.71	7.48	12.40	3.41	7.78	1.84
Western juniper	0.08	0.05	0.04	0.03	0.41	0.21	0.73	0.25	0.82	0.30	0.57	0.25	1.10	0.45
Western white pine	0.61	0.61	—	—	3.54	0.75	3.01	3.01	11.30	10.41	12.11	12.11	8.17	0.66
Other western softwoods	2.37	1.14	27.14	21.63	5.46	2.44	2.26	1.31	6.99	3.29	4.21	3.17	—	—
Total	8.17	2.50	4.65	1.27	6.55	1.13	5.01	0.37	7.97	0.56	9.54	0.99	11.03	1.10
Hardwoods:														
Alder/maple	9.21	5.06	7.05	1.36	8.08	5.36	16.45	8.84	4.13	2.88	—	—	22.24	0
Aspen/birch	—	—	1.21	0.85	3.97	4.14	1.83	2.04	0.42	0.42	—	—	7.07	7.07
Elm/ash/cottonwood	—	—	3.79	0.50	—	—	—	—	—	—	—	—	—	—
Tanoak/laurel	9.00	4.70	7.35	2.07	3.91	0.65	5.59	1.09	9.41	3.38	7.98	2.97	25.96	7.15
Western oak	11.98	4.03	1.51	0.43	1.43	0.23	2.88	0.34	2.80	0.31	4.55	0.73	3.86	0.90
Woodland hardwoods	—	—	—	—	1.49	0.55	3.99	1.48	2.47	1.91	3.64	1.08	0.20	0.20
Other hardwoods	0.42	0.16	1.72	1.04	4.96	1.76	2.04	0.55	4.94	2.28	7.31	4.21	6.64	3.23
Total	9.76	2.75	4.35	0.90	2.36	0.29	3.49	0.34	3.51	0.44	4.91	0.69	6.40	1.37
Nonstocked	—	—	—	—	—	—	—	—	—	—	—	—	—	—
All forest types	8.92	1.85	4.49	0.77	4.38	0.57	4.42	0.26	6.49	0.41	8.31	0.76	9.91	0.91

Table A2-78—Average aboveground biomass per acre of dead trees[a] on forest land, by forest type group and stand age class, California, 2001–2010 (continued)

Forest type group	Stand age class (years)								Unknown		All classes	
	141–160		161–180		181–200		201+					
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre											
Softwoods:												
California mixed conifer	15.68	1.57	20.56	3.54	16.49	2.14	20.74	1.76	32.26	22.06	11.10	0.43
Douglas-fir	12.60	4.08	23.68	8.97	47.81	11.13	23.81	3.89	6.05	0.42	10.64	1.17
Fir/spruce/mountain hemlock	21.00	4.56	22.64	5.73	23.78	4.25	24.88	3.42	—	—	18.46	1.32
Lodgepole pine	10.98	2.48	8.32	3.09	10.48	1.64	9.88	1.59	—	—	8.02	0.72
Pinyon/juniper woodlands	0.88	0.49	0.85	0.30	1.23	0.45	0.94	0.21	0.84	0.18	0.91	0.11
Ponderosa pine	4.52	1.25	0.93	0.60	5.20	2.10	7.07	1.78	—	—	1.98	0.21
Redwood	8.73	8.73	15.04	9.88	18.10	7.71	15.99	5.44	—	—	21.11	3.44
Western juniper	3.02	1.09	7.94	2.97	3.62	1.59	1.87	0.88	0.10	0.10	1.05	0.18
Western white pine	1.65	1.16	20.92	6.69	9.27	1.87	7.27	1.77	—	—	8.16	1.64
Other western softwoods	0.12	0.08	3.58	2.72	3.26	1.28	8.67	1.99	6.20	2.86	6.48	1.69
Total	12.59	1.13	16.21	2.08	15.05	1.47	15.53	1.01	1.85	0.74	9.03	0.29
Hardwoods:												
Alder/maple	28.90	28.90	—	—	24.51	24.51	—	—	0.45	0.23	8.82	1.91
Aspen/birch	—	—	—	—	1.26	1.26	—	—	0.53	0.37	1.55	0.67
Elm/ash/cottonwood	—	—	—	—	—	—	—	—	0.52	0.40	1.10	0.54
Tanoak/laurel	11.78	2.30	5.91	3.10	9.33	4.77	32.43	10.17	7.06	2.56	8.22	0.92
Western oak	5.78	1.62	6.79	3.88	6.27	2.10	4.50	2.00	1.46	0.17	2.89	0.24
Woodland hardwoods	3.39	2.08	—	—	0.49	0.34	7.74	3.42	2.56	0.59	2.91	0.55
Other hardwoods	0.08	0.06	0.17	0.17	—	—	18.11	6.18	5.13	3.05	4.20	0.89
Total	6.98	1.28	6.05	2.93	6.82	1.83	16.38	4.25	1.81	0.21	3.88	0.23
Nonstocked	—	—	—	—	—	—	—	—	13.95	2.80	13.95	2.80
All forest types	11.21	0.92	14.49	1.82	13.73	1.29	15.62	1.00	3.80	0.52	7.10	0.20

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory. Aboveground biomass is estimated from ground to actual height, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-79—Aboveground carbon mass[a] of live trees[b] on forest land, by ownership and land status, California, 2001–2010

Ownership	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams													
USDA Forest Service:														
National forest	380,335.5	8,764.9	31,801.0	2,254.8	412,136.6	8,702.5	107,024.2	6,318.8	15,202.4	1,714.2	122,226.5	6,493.9	534,363.1	8,636.6
Total	380,335.5	8,764.9	31,801.0	2,254.8	412,136.6	8,702.5	107,024.2	6,318.8	15,202.4	1,714.2	122,226.5	6,493.9	534,363.1	8,636.6
Other federal government:														
Bureau of Land Management	10,399.5	1,822.3	6,289.5	863.1	16,689.0	1,989.7	897.6	464.5	957.8	223.5	1,855.4	511.0	18,544.4	2,045.4
Departments of Defense or Energy	146.6	160.9	793.5	274.5	940.1	318.1	—	—	—	—	—	—	940.1	318.1
National Park Service	—	—	—	—	—	—	54,803.1	5,758.3	5,124.3	927.7	59,927.4	5,710.0	59,927.4	5,710.0
U.S. Fish and Wildlife Service	—	—	—	—	—	—	54.4	66.9	2.4	2.4	56.8	66.9	56.8	66.9
Other federal	—	—	727.8	313.8	727.8	313.8	1,257.0	911.6	290.3	261.4	1,547.3	947.2	2,275.1	997.8
Total	10,546.1	1,829.3	7,810.7	947.9	18,356.8	2,024.3	57,012.1	5,827.2	6,374.8	983.4	63,386.9	5,775.4	81,743.7	5,994.2
State and local government:														
Local	2,715.3	1,084.3	4,460.8	946.5	7,176.2	1,441.8	1,551.8	987.1	2,091.5	640.9	3,643.3	1,176.3	10,819.5	1,844.7
State	6,838.7	1,866.8	1,526.7	499.1	8,365.4	1,927.0	29,593.1	6,802.6	4,401.0	1,233.3	33,994.1	6,905.4	42,359.4	6,988.2
Other public	—	—	25.1	22.8	25.1	22.8	445.8	396.7	43.3	41.5	489.2	398.9	514.2	399.5
Total	9,554.0	2,146.3	6,012.6	1,066.8	15,566.6	2,388.9	31,590.7	6,880.6	6,535.8	1,388.8	38,126.6	7,007.7	53,693.1	7,215.8
Corporate private	134,094.2	5,461.1	7,689.3	1,050.4	141,783.5	5,531.9	—	—	—	—	—	—	141,783.5	5,531.9
Noncorporate private:														
Nongovernmental conservation or natural resource organizations	8,707.4	1,493.7	813.4	317.9	9,520.7	1,526.7	—	—	—	—	—	—	9,520.7	1,526.7
Unicorporated partnerships, associations, clubs	3,509.4	1,061.0	482.4	188.3	3,991.7	1,086.4	—	—	—	—	—	—	3,991.7	1,086.4
Native American	8,252.4	1,993.0	526.0	259.8	8,778.4	2,002.4	—	—	—	—	—	—	8,778.4	2,002.4
Individual	115,301.3	5,986.2	65,200.3	2,973.0	180,501.6	6,390.4	—	—	—	—	—	—	180,501.6	6,390.4
Total	135,770.4	6,398.9	67,022.0	2,996.0	202,792.4	6,765.5	—	—	—	—	—	—	202,792.4	6,765.5
All private	269,864.6	6,988.8	74,711.3	3,104.8	344,575.9	7,091.5	—	—	—	—	—	—	344,575.9	7,091.5
All owners	670,300.2	11,306.1	120,335.7	4,036.8	790,635.9	11,316.2	195,627.0	10,565.5	28,113.0	2,413.0	223,740.0	10,718.1	1,014,375.9	13,366.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert megagrams of carbon to tons of biomass by multiplying by 2.204586. The result will be approximate due to rounding.

[b] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-80—Aboveground carbon mass[a] of dead trees[b] on forest land, by ownership and land status, California, 2001–2010

Ownership	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams													
USDA Forest Service:														
National forest	45,582.8	2,004.0	3,002.0	343.4	48,584.7	2,018.4	17,530.4	1,410.4	1,995.4	315.2	19,525.8	1,438.4	68,110.6	2,297.7
Total	45,582.8	2,004.0	3,002.0	343.4	48,584.7	2,018.4	17,530.4	1,410.4	1,995.4	315.2	19,525.8	1,438.4	68,110.6	2,297.7
Other federal government:														
Bureau of Land Management	732.6	253.7	653.9	121.2	1,386.5	280.5	157.4	127.1	90.8	30.1	248.2	130.6	1,634.8	308.1
Departments of Defense or Energy	—	—	21.7	15.8	21.7	15.8	—	—	—	—	—	—	21.7	15.8
National Park Service	—	—	—	—	—	—	9,456.9	1,230.6	585.2	133.4	10,042.2	1,221.8	10,042.2	1,221.8
Other federal	—	—	9.0	6.7	9.0	6.7	243.9	226.1	11.4	10.0	255.3	226.3	264.3	226.4
Total	732.6	253.7	684.6	122.3	1,417.3	280.9	9,858.2	1,249.3	687.5	136.9	10,545.7	1,240.1	11,963.0	1,264.3
State and local government:														
Local	226.9	133.7	164.9	64.7	391.8	148.4	135.8	95.9	27.0	14.2	162.8	96.9	554.7	177.1
State	341.5	129.4	46.6	20.9	388.1	131.0	2,247.4	521.9	301.3	103.7	2,548.7	529.9	2,936.8	537.6
Other public	—	—	—	—	—	—	7.1	6.3	1.9	2.2	9.0	6.7	9.0	6.7
Total	568.4	185.9	211.5	67.9	779.9	197.8	2,390.3	529.8	330.2	104.7	2,720.5	537.8	3,500.5	564.9
Corporate private	11,218.0	1,092.5	258.5	56.5	11,476.5	1,093.4	—	—	—	—	—	—	11,476.5	1,093.4
Noncorporate private:														
Nongovernmental conservation or natural resource organizations	495.3	165.6	8.4	5.8	503.6	165.6	—	—	—	—	—	—	503.6	165.6
Unincorporated partnerships, associations, clubs	177.8	88.8	43.3	37.8	221.1	96.5	—	—	—	—	—	—	221.1	96.5
Native American	601.3	249.0	15.2	11.5	616.5	248.7	—	—	—	—	—	—	616.5	248.7
Individual	6,902.0	825.7	2,451.2	257.8	9,353.2	861.3	—	—	—	—	—	—	9,353.2	861.3
Total	8,176.4	878.8	2,518.0	260.7	10,694.4	912.5	—	—	—	—	—	—	10,694.4	912.5
All private	19,394.4	1,362.1	2,776.5	265.9	22,170.9	1,379.6	—	—	—	—	—	—	22,170.9	1,379.6
All owners	66,278.2	2,438.5	6,674.6	455.6	72,952.8	2,462.9	29,779.0	1,940.2	3,013.1	359.1	32,792.1	1,956.5	105,744.8	2,982.2

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert megagrams of carbon to tons of biomass by multiplying by 2.204586. The result will be approximate due to rounding.

[b] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-81—Aboveground carbon mass[a] of live trees[b] on forest land, by forest type group and ownership group, California, 2001–2010

	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Thousand megagrams							
Softwoods:														
California mixed conifer	261,203.6	8,178.4	24,551.1	3,235.9	4,438.9	1,408.0	43,515.2	3,092.2	21,316.8	2,269.4	64,832.0	3,552.4	355,025.6	9,520.4
Douglas-fir	24,400.9	3,046.2	2,437.3	1,099.1	3,673.3	1,389.4	14,846.3	2,157.8	16,201.7	2,601.7	31,048.0	3,268.1	61,559.5	4,774.2
Fir/spruce/mountain hemlock	85,771.3	6,086.3	12,274.7	2,442.5	892.6	587.6	8,178.3	1,510.2	2,256.7	739.8	10,435.0	1,657.4	109,373.6	6,790.5
Lodgepole pine	18,913.1	1,984.0	8,023.7	1,458.5	260.1	192.3	756.0	384.5	1,125.4	473.5	1,881.4	607.9	29,078.2	2,541.2
Pinyon/juniper woodlands	3,730.1	406.2	1,999.0	238.7	216.5	93.5	54.9	31.8	360.5	118.8	415.5	123.0	6,361.1	497.0
Ponderosa pine	27,118.1	2,190.0	1,450.8	427.8	145.0	77.9	5,472.9	873.6	8,774.7	1,203.2	14,247.6	1,453.8	42,961.5	2,664.4
Redwood	2,726.3	1,791.1	10,226.5	4,365.0	18,629.3	6,448.3	19,530.3	2,953.8	21,041.5	3,728.4	40,571.8	4,596.5	72,153.8	8,747.0
Western juniper	5,593.5	652.9	1,661.6	261.5	247.3	243.9	123.8	55.2	1,433.0	219.7	1,556.7	225.9	9,059.0	777.0
Western white pine	2,883.9	720.1	293.2	175.7	—	—	—	—	—	—	—	—	3,177.1	741.2
Other western softwoods	3,082.5	551.3	1,684.6	480.7	252.0	230.8	1,687.1	705.3	2,136.9	992.3	3,824.0	1,215.0	8,843.0	1,436.7
Total	435,423.2	8,998.8	64,602.5	5,827.6	28,755.0	6,648.9	94,164.7	4,835.6	74,647.3	5,245.9	168,812.0	6,497.3	697,592.7	13,534.9
Hardwoods:														
Alder/maple	1,632.8	607.9	1,397.5	671.0	1,117.9	618.8	3,003.4	932.0	2,421.9	795.4	5,425.3	1,220.8	9,573.5	1,634.3
Aspen/birch	497.2	227.5	30.1	25.5	20.0	20.4	139.0	148.0	134.1	94.1	273.1	175.4	820.4	289.1
Elm/ash/cottonwood	112.3	118.4	—	—	162.1	122.2	—	—	773.2	411.9	773.2	411.9	1,047.6	445.7
Tanoak/laurel	27,891.6	3,450.1	2,883.7	1,079.1	10,498.1	2,436.8	23,969.7	2,744.9	36,247.6	3,734.9	60,217.3	4,379.6	101,490.8	6,095.5
Western oak	62,563.7	3,593.3	12,075.9	1,643.8	10,055.0	1,296.9	18,485.5	1,853.6	82,782.7	3,381.4	101,268.2	3,735.2	185,962.7	5,496.6
Woodland hardwoods	1,683.6	312.8	379.2	103.9	240.4	134.7	44.6	38.7	417.6	154.0	462.1	158.8	2,765.2	390.1
Other hardwoods	3,998.4	1,269.0	313.8	297.5	2,844.7	1,205.5	1,865.2	744.6	5,334.5	1,131.4	7,199.8	1,349.2	14,356.6	2,286.1
Total	98,379.5	4,983.1	17,080.1	2,082.2	24,938.1	3,045.9	47,507.5	3,434.6	128,111.6	4,983.6	175,619.1	5,529.6	316,016.9	8,058.5
Nonstocked	560.4	122.5	61.1	36.8	—	—	111.2	41.0	33.6	20.1	144.8	45.6	766.4	135.7
All forest types	534,363.1	8,636.6	81,743.7	5,994.2	53,693.1	7,215.8	141,783.5	5,531.9	202,792.4	6,765.5	344,575.9	7,091.5	1,014,375.9	13,366.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert megagrams of carbon to tons of biomass by multiplying by 2.204586. The result will be approximate due to rounding.

[b] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-82—Aboveground carbon mass[a] of dead trees[b] on forest land, by forest type group and ownership group, California, 2001–2010

	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Thousand megagrams							
Softwoods:														
California mixed conifer	30,411.1	1,467.5	4,286.4	698.2	478.6	276.8	2,874.4	318.4	1,243.5	267.0	4,117.9	406.1	39,294.0	1,694.8
Douglas-fir	2,636.0	466.8	208.3	132.4	290.1	179.6	1,018.8	324.2	1,096.0	265.9	2,114.9	415.8	5,249.1	663.2
Fir/spruce/mountain hemlock	13,054.4	1,256.5	2,768.9	743.3	192.4	147.0	685.4	209.5	367.1	181.4	1,052.5	272.5	17,068.2	1,492.3
Lodgepole pine	2,243.9	306.9	1,112.2	266.1	40.1	32.9	114.0	67.6	200.2	105.0	314.2	124.5	3,710.4	426.1
Pinyon/juniper woodlands	377.4	56.8	300.8	73.6	18.8	10.2	2.4	2.5	68.4	30.7	70.8	30.8	767.8	98.1
Ponderosa pine	1,456.0	213.4	133.3	76.2	10.6	10.3	215.3	52.9	197.0	48.2	412.2	70.9	2,012.1	237.6
Redwood	4.1	3.1	1,131.8	710.9	834.4	295.4	2,587.7	720.7	2,238.5	700.4	4,826.2	996.5	6,796.5	1,238.4
Western juniper	477.3	112.8	100.6	35.2	40.8	41.5	6.9	5.5	106.4	36.2	113.2	36.6	731.9	130.5
Western white pine	547.1	159.0	67.3	44.6	—	—	1.8	1.8	—	—	1.8	1.8	616.2	165.1
Other western softwoods	614.4	167.3	243.1	93.4	25.2	15.9	563.3	401.6	189.4	112.8	752.7	416.7	1,635.4	458.9
Total	51,821.7	1,847.7	10,352.6	1,235.7	1,930.9	465.0	8,070.0	956.4	5,706.6	827.4	13,776.5	1,242.3	77,881.7	2,564.6
Hardwoods:														
Alder/maple	450.7	199.8	86.9	49.8	160.9	152.4	237.0	87.7	85.0	45.2	322.0	98.6	1,020.5	274.3
Aspen/birch	36.5	18.7	—	—	15.2	15.4	—	—	0.8	0.8	0.8	0.8	52.4	24.2
Elm/ash/cottonwood	7.6	8.0	—	—	1.9	1.9	—	—	17.5	13.9	17.5	13.9	26.9	16.1
Tanoak/laurel	3,074.9	649.3	464.6	263.5	698.0	219.0	2,132.8	532.1	1,177.0	205.3	3,309.8	564.0	7,547.3	923.5
Western oak	6,988.9	962.5	792.8	183.8	416.1	113.3	922.9	159.9	3,354.9	340.7	4,277.8	374.1	12,475.6	1,054.1
Woodland hardwoods	479.2	128.0	84.9	32.6	24.3	14.1	1.9	1.7	31.4	20.9	33.4	21.0	621.8	134.5
Other hardwoods	634.8	239.3	73.1	62.1	81.0	48.7	73.5	32.7	300.1	101.4	373.6	106.5	1,162.6	273.4
Total	11,672.5	1,194.5	1,502.3	331.0	1,397.4	292.9	3,368.1	559.3	4,966.7	409.6	8,334.9	681.5	22,907.1	1,440.5
Nonstocked	4,616.3	1,075.7	108.0	54.3	172.2	175.4	38.4	19.9	21.1	9.6	59.4	22.0	4,956.0	1,091.5
All forest types	68,110.6	2,297.7	11,963.0	1,264.3	3,500.5	564.9	11,476.5	1,093.4	10,694.4	912.5	22,170.9	1,379.6	105,744.8	2,982.2

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert megagrams of carbon to tons of biomass by multiplying by 2.204586. The result will be approximate due to rounding.

[b] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-83—Aboveground carbon mass[a] of live trees[b] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams							
Softwoods:								
California mixed conifer	351,065.7	9,537.3	2,402.1	533.7	1,557.8	280.1	355,025.6	9,520.4
Douglas-fir	59,441.5	4,759.5	1,242.8	454.0	875.2	292.9	61,559.5	4,774.2
Fir/spruce/mountain hemlock	108,419.0	6,783.7	328.4	174.4	626.2	179.1	109,373.6	6,790.5
Lodgepole pine	27,834.3	2,495.3	1,041.1	456.5	202.8	127.4	29,078.2	2,541.2
Pinyon/juniper woodlands	6,113.3	498.4	170.7	69.7	77.2	26.4	6,361.1	497.0
Ponderosa pine	41,676.7	2,660.8	981.9	205.5	303.0	96.9	42,961.5	2,664.4
Redwood	71,781.7	8,747.8	210.4	117.8	161.7	84.3	72,153.8	8,747.0
Western juniper	8,586.9	773.1	332.9	93.7	139.2	51.5	9,059.0	777.0
Western white pine	2,958.9	731.9	25.5	25.2	192.7	115.3	3,177.1	741.2
Other western softwoods	8,182.0	1,425.3	361.9	137.6	299.1	92.9	8,843.0	1,436.7
Total	686,060.0	13,599.3	7,097.8	903.3	4,434.9	499.2	697,592.7	13,534.9
Hardwoods:								
Alder/maple	7,538.2	1,512.0	1,797.7	616.4	237.6	148.3	9,573.5	1,634.3
Aspen/birch	326.9	206.7	297.5	183.4	196.0	85.4	820.4	289.1
Elm/ash/cottonwood	1,004.1	444.2	4.2	3.3	39.4	35.9	1,047.6	445.7
Tanoak/laurel	83,528.6	5,921.7	15,836.9	1,988.0	2,125.2	462.3	101,490.8	6,095.5
Western oak	125,447.4	5,027.1	52,833.6	2,751.9	7,681.7	755.3	185,962.7	5,496.6
Woodland hardwoods	2,441.1	371.2	296.8	119.7	27.3	16.0	2,765.2	390.1
Other hardwoods	11,221.8	2,184.6	2,556.3	675.2	578.4	143.3	14,356.6	2,286.1
Total	231,508.0	7,843.7	73,623.2	3,457.5	10,885.7	912.9	316,016.9	8,058.5
Nonstocked	—	—	—	—	—	—	766.4	135.7
All forest types	917,568.0	13,847.4	80,721.0	3,551.9	15,320.6	1,032.9	1,014,375.9	13,366.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert megagrams of carbon to tons of biomass by multiplying by 2.204586. The result will be approximate due to rounding.

[b] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-84—Aboveground carbon mass[a] of dead trees[b] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams							
Softwoods:								
California mixed conifer	38,215.7	1,674.8	356.0	134.3	722.3	275.1	39,294.0	1,694.8
Douglas-fir	4,766.9	624.2	36.4	23.2	445.9	224.9	5,249.1	663.2
Fir/spruce/mountain hemlock	15,667.2	1,328.2	168.6	123.8	1,232.4	689.2	17,068.2	1,492.3
Lodgepole pine	3,552.0	413.1	154.3	104.5	4.1	4.1	3,710.4	426.1
Pinyon/juniper woodlands	595.5	72.6	119.1	62.9	53.1	28.1	767.8	98.1
Ponderosa pine	1,887.1	232.8	46.0	21.5	79.0	43.5	2,012.1	237.6
Redwood	6,651.9	1,232.5	83.5	50.3	61.1	35.4	6,796.5	1,238.4
Western juniper	719.4	130.3	10.2	7.4	2.3	1.3	731.9	130.5
Western white pine	572.5	162.8	5.2	5.1	38.5	26.8	616.2	165.1
Other western softwoods	1,468.8	448.3	42.7	23.1	123.8	94.8	1,635.4	458.9
Total	74,097.1	2,461.3	1,022.0	228.8	2,762.6	783.8	77,881.7	2,564.6
Hardwoods:								
Alder/maple	747.7	250.4	207.0	103.2	65.8	44.1	1,020.5	274.3
Aspen/birch	18.1	15.1	30.2	18.7	4.0	3.2	52.4	24.2
Elm/ash/cottonwood	11.9	8.6	—	—	15.0	13.6	26.9	16.1
Tanoak/laurel	5,490.8	699.1	724.9	240.9	1,331.6	564.4	7,547.3	923.5
Western oak	6,890.3	534.8	2,546.1	252.5	3,039.2	882.4	12,475.6	1,054.1
Woodland hardwoods	473.9	100.9	147.9	88.6	—	—	621.8	134.5
Other hardwoods	755.3	201.2	140.5	53.0	266.8	175.6	1,162.6	273.4
Total	14,388.1	928.4	3,796.7	377.7	4,722.3	1,061.2	22,907.1	1,440.5
Nonstocked	—	—	—	—	—	—	4,956.0	1,091.5
All forest types	88,485.2	2,546.4	4,818.7	440.4	7,484.9	1,317.6	105,744.8	2,982.2

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert megagrams of carbon to tons of biomass by multiplying by 2.204586. The result will be approximate due to rounding.

[b] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-85—Aboveground carbon mass[a] of live trees[b] on forest land, by species group and diameter class, California, 2001–2010

	Diameter class (inches)													
	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	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams													
Softwoods:														
Douglas-fir	786.5	50.3	2,821.8	189.3	5,260.2	208.1	6,782.4	274.9	8,426.7	343.3	9,073.9	402.1	10,110.9	448.8
Incense cedar	246.8	23.9	777.6	70.0	1,277.6	72.4	1,474.0	87.2	1,770.7	110.3	1,835.9	121.8	1,863.0	148.1
Lodgepole pine	633.4	99.4	673.9	141.4	859.7	114.2	935.9	104.6	1,350.4	154.1	1,441.6	143.2	2,074.4	208.3
Ponderosa and Jeffrey pines	254.6	20.1	1,038.0	85.2	2,246.1	109.3	3,280.3	164.3	4,415.0	220.6	5,292.3	260.0	6,226.0	312.1
Redwood	143.2	20.0	173.7	31.2	506.4	48.7	783.2	74.6	1,083.5	106.6	1,788.6	173.3	1,839.0	185.8
Sitka spruce	9.6	5.9	13.3	13.5	19.4	7.9	45.0	19.3	47.6	23.2	80.4	42.8	102.8	50.7
Sugar pine	31.2	4.7	133.9	28.5	261.5	22.9	400.1	35.9	532.8	53.2	681.0	65.0	690.2	84.5
True fir	3,311.6	208.4	3,018.7	196.4	4,588.7	178.2	5,992.6	233.9	7,706.7	324.7	8,610.8	372.4	10,797.5	490.7
Western hemlock	26.0	8.8	55.0	27.2	55.1	24.5	78.7	17.1	120.3	38.5	110.0	38.5	189.0	67.3
Western juniper	51.6	9.1	175.8	35.4	325.5	28.5	501.9	42.4	628.7	54.4	686.7	64.8	650.2	70.6
Western white pine	114.4	26.1	99.4	26.3	111.1	15.7	117.9	16.9	153.7	25.6	138.4	25.5	216.2	37.0
Woodland softwoods	33.5	8.9	43.7	8.0	119.5	10.8	234.1	21.2	393.2	33.5	483.7	47.1	630.2	60.2
Other western softwoods	514.2	76.4	417.5	69.6	680.4	64.6	848.6	75.1	988.1	92.7	1,099.7	104.9	1,287.8	128.5
Total	6,156.5	256.6	9,442.3	342.4	16,311.2	341.9	21,474.6	433.4	27,617.3	564.7	31,323.1	656.2	36,677.2	795.7
Hardwoods:														
Cottonwood and aspen	139.6	37.7	84.2	40.6	60.4	22.8	50.0	15.3	71.1	21.0	86.4	31.6	108.5	36.4
Oak	2,686.6	173.5	7,684.9	483.0	14,824.3	518.3	19,204.2	631.6	19,757.7	657.1	17,154.7	629.4	15,573.1	637.5
Red alder	20.9	6.6	81.9	25.9	258.6	48.2	506.0	78.2	777.1	137.1	830.5	166.9	484.9	110.7
Tanoak	1,241.8	92.5	2,665.4	201.2	5,019.3	284.2	5,987.4	353.1	6,371.8	411.5	5,952.1	413.1	5,191.9	407.3
Woodland hardwoods	44.7	9.0	55.7	14.1	131.8	17.1	190.5	26.1	233.4	34.5	213.8	28.5	217.5	32.9
Other western hardwoods	1,046.6	87.8	2,330.6	265.3	3,065.0	161.7	3,784.7	212.8	4,146.0	234.6	4,144.3	271.0	4,099.8	310.7
Total	5,180.1	222.3	12,902.7	594.0	23,359.5	610.9	29,722.9	750.4	31,357.2	815.4	28,381.9	829.7	25,675.6	854.8
All species groups	11,336.7	337.5	22,345.0	692.2	39,670.6	694.9	51,197.5	850.5	58,974.5	970.2	59,704.9	1,038.0	62,352.9	1,140.9

Table A2-85—Aboveground carbon mass[a] of live trees[b] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)													
	15.0–16.9		17.0–18.9		19.0–20.9		21.0–22.9		23.0–24.9		25.0–26.9		27.0–28.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams													
Softwoods:														
Douglas-fir	10,916.8	529.0	10,962.3	585.6	8,834.8	574.6	9,592.9	662.2	8,782.4	552.4	8,964.1	405.9	7,801.6	391.1
Incense cedar	2,167.6	169.9	2,222.8	198.7	2,150.7	211.6	2,086.4	238.6	2,029.3	210.7	2,047.2	148.4	1,854.0	143.0
Lodgepole pine	1,831.4	201.3	2,444.3	252.8	2,300.4	258.3	2,382.6	304.9	1,749.2	200.7	1,822.7	175.7	1,513.1	164.4
Ponderosa and Jeffrey pines	6,601.2	363.4	6,848.1	396.4	6,948.7	461.1	6,789.7	483.9	5,851.4	377.5	5,354.7	267.7	5,573.0	298.8
Redwood	2,078.7	218.7	2,201.6	265.5	2,571.8	307.0	2,960.5	346.0	2,681.2	328.2	3,178.8	321.0	2,973.3	278.2
Sitka spruce	105.0	67.5	159.3	102.4	104.3	55.7	141.3	81.0	28.9	18.6	72.7	36.8	41.2	23.4
Sugar pine	985.6	122.8	1,196.6	151.0	1,680.5	214.9	1,625.1	233.5	1,862.1	223.7	1,911.3	150.6	2,177.1	190.0
True fir	11,115.5	550.0	11,986.0	644.0	11,895.8	647.9	11,282.6	702.8	10,509.9	617.5	10,479.8	519.0	10,779.6	543.7
Western hemlock	138.5	53.7	175.0	60.2	156.5	98.4	89.3	82.5	9.3	6.6	83.5	29.8	48.7	27.9
Western juniper	613.7	72.9	739.1	92.5	493.4	75.4	450.1	77.1	421.9	69.1	267.4	33.7	176.9	28.5
Western white pine	216.5	51.1	295.9	70.5	261.1	68.7	237.6	65.7	276.9	59.2	289.0	44.9	305.6	50.0
Woodland softwoods	722.1	65.8	578.2	60.4	488.3	63.9	378.3	63.6	299.2	48.0	231.4	26.4	139.1	20.5
Other western softwoods	1,338.1	148.6	1,587.6	188.1	1,903.8	246.4	1,480.2	226.6	1,451.0	201.2	1,164.8	133.1	1,105.5	135.2
Total	38,830.6	908.7	41,396.8	1,055.6	39,789.9	1,114.5	39,496.5	1,231.3	35,952.7	1,054.6	35,867.2	823.0	34,488.8	837.0
Hardwoods:														
Cottonwood and aspen	153.9	52.8	110.5	48.5	222.4	91.7	176.5	69.6	104.4	39.9	78.2	28.7	134.9	59.3
Oak	14,135.6	640.5	12,252.6	632.3	9,559.1	615.5	8,398.9	642.8	6,812.5	520.1	4,511.7	256.4	3,631.4	249.1
Red alder	553.9	132.0	291.6	104.9	278.0	84.3	31.0	28.2	83.0	54.6	20.0	12.0	21.3	13.7
Tanoak	4,010.4	365.6	3,548.5	389.0	3,143.9	347.5	3,218.4	430.9	1,752.1	237.8	1,202.2	142.0	995.6	132.9
Woodland hardwoods	183.0	32.8	137.6	24.8	137.9	30.6	81.9	26.2	46.8	15.8	39.5	9.8	24.7	8.6
Other western hardwoods	3,530.1	321.6	3,332.3	332.7	1,909.4	241.2	2,232.2	317.9	1,743.9	220.7	1,197.6	118.4	900.1	107.5
Total	22,566.9	834.7	19,673.0	844.6	15,250.6	767.3	14,138.9	851.0	10,542.8	634.8	7,049.2	330.6	5,708.1	316.9
All species groups	61,397.5	1,207.5	61,069.8	1,328.3	55,040.5	1,338.3	53,635.5	1,480.8	46,495.5	1,223.1	42,916.5	882.1	40,196.9	892.4

Table A2-85—Aboveground carbon mass[a] of live trees[b] on forest land, by species group and diameter class, California, 2001–2010 (continued)

	Diameter class (inches)													
	29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9		37.0–38.9		39.0–40.9		41.0–42.9	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams													
Softwoods:														
Douglas-fir	8,141.3	424.6	7,796.8	431.4	7,826.1	449.0	7,304.0	459.3	7,655.6	497.1	6,363.2	448.1	6,027.1	487.3
Incense cedar	1,539.8	134.9	1,505.7	137.7	1,528.9	144.1	1,517.7	168.8	1,382.0	157.2	1,164.4	153.3	1,026.1	154.0
Lodgepole pine	1,477.4	183.0	981.3	132.2	730.2	112.4	609.8	94.9	375.4	68.6	443.5	89.8	307.3	75.8
Ponderosa and Jeffrey pines	5,092.8	296.4	4,727.3	310.6	4,150.3	295.8	3,528.5	294.7	3,069.2	274.2	3,080.8	272.9	2,347.7	234.6
Redwood	2,680.0	295.5	2,509.0	270.7	2,487.1	295.6	2,087.5	254.7	1,886.5	297.5	2,302.8	322.7	1,997.2	299.1
Sitka spruce	91.4	45.2	65.0	28.0	92.4	42.1	94.0	55.9	63.7	35.1	64.2	37.9	79.7	53.0
Sugar pine	2,110.0	184.9	2,327.9	230.9	2,359.2	236.0	2,305.5	249.0	1,733.1	210.9	1,731.9	231.1	1,894.4	256.7
True fir	9,998.0	544.7	9,159.6	525.8	7,842.4	512.6	8,000.5	538.3	6,926.4	514.1	6,415.2	528.5	5,775.9	568.5
Western hemlock	31.6	17.8	—	—	49.6	27.7	—	—	29.0	25.3	—	—	22.6	23.0
Western juniper	209.0	33.3	165.9	29.6	153.2	29.8	89.5	25.2	192.8	43.8	113.0	32.1	100.9	26.9
Western white pine	359.4	58.2	340.4	60.1	332.2	63.0	345.7	62.1	504.3	84.3	373.8	70.8	214.6	55.5
Woodland softwoods	86.1	16.2	101.0	21.3	74.1	17.2	63.7	16.3	25.3	9.3	34.7	11.0	16.6	8.7
Other western softwoods	904.9	125.5	850.7	124.0	686.1	108.7	710.7	124.6	554.0	104.0	418.9	85.1	335.1	91.4
Total	32,721.5	874.1	30,530.5	851.7	28,311.8	861.5	26,657.1	900.8	24,397.4	876.7	22,506.3	865.0	20,145.4	907.4
Hardwoods:														
Cottonwood and aspen	64.4	22.4	38.2	20.1	4.7	4.7	26.5	16.4	35.4	26.8	—	—	—	—
Oak	3,026.0	230.6	2,514.6	226.6	1,938.8	212.5	1,242.0	164.3	1,106.2	172.9	986.3	171.0	882.3	189.1
Red alder	30.9	17.3	16.5	13.3	—	—	—	—	—	—	—	—	—	—
Tanoak	882.3	148.6	308.8	66.1	257.6	60.3	418.0	116.0	160.3	55.7	66.4	37.2	175.5	77.8
Woodland hardwoods	15.2	5.9	2.8	2.9	4.4	4.5	4.9	3.6	—	—	—	—	3.6	3.7
Other western hardwoods	799.1	115.4	656.2	129.8	451.5	92.4	634.0	136.3	416.9	116.6	226.7	83.8	67.3	40.8
Total	4,817.9	306.6	3,537.1	271.4	2,657.0	242.0	2,325.3	248.1	1,718.9	218.1	1,279.4	196.7	1,128.7	208.1
All species groups	37,539.4	922.5	34,067.6	893.3	30,968.8	897.9	28,982.4	939.0	26,116.2	908.0	23,785.7	884.1	21,274.1	932.8

Table A2-85—Aboveground carbon mass[a] of live trees[b] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches) 43.0–44.9 Total	43.0–44.9 SE	45.0–46.9 Total	45.0–46.9 SE	47.0–48.9 Total	47.0–48.9 SE	49.0+ Total	49.0+ SE	All classes Total	All classes SE
	Thousand megagrams									
Softwoods:										
Douglas-fir	6,325.2	516.8	5,802.7	489.2	5,137.8	495.5	31,569.7	2,403.0	209,066.8	6,097.6
Incense cedar	1,083.9	149.6	694.4	132.8	518.9	119.1	4,032.3	537.6	39,797.7	1,879.5
Lodgepole pine	237.7	67.1	134.5	44.6	67.1	34.3	120.8	70.7	27,497.9	1,954.6
Ponderosa and Jeffrey pines	1,824.6	227.5	1,931.5	255.9	1,519.3	237.9	4,418.3	610.2	102,409.3	3,046.0
Redwood	1,687.2	290.5	1,352.2	255.3	1,121.7	222.0	26,017.1	6,386.4	71,091.8	7,329.6
Sitka spruce	83.3	43.1	—	—	18.7	18.9	387.4	324.3	2,010.5	646.1
Sugar pine	1,655.9	274.5	1,612.2	254.6	1,527.1	275.1	10,441.9	1,523.7	43,868.0	2,497.3
True fir	4,711.4	458.8	4,456.0	471.1	3,716.3	438.3	12,927.1	1,317.3	202,004.6	6,961.5
Western hemlock	—	—	78.6	47.3	—	—	196.2	199.9	1,742.4	477.2
Western juniper	46.1	18.4	93.1	33.1	55.0	21.9	341.7	88.8	7,743.2	483.0
Western white pine	335.3	75.6	157.3	50.0	320.3	82.5	1,117.6	227.6	7,234.6	641.2
Woodland softwoods	26.6	11.8	33.3	15.5	—	—	22.1	16.2	5,258.0	333.7
Other western softwoods	250.9	81.4	271.5	81.3	204.3	79.3	1,182.3	577.3	22,236.6	1,609.2
Total	18,268.2	874.3	16,617.3	837.6	14,206.5	810.4	92,774.6	7,529.6	741,961.3	12,398.6
Hardwoods:										
Cottonwood and aspen	—	—	—	—	—	—	17.4	17.5	1,767.5	392.4
Oak	243.5	92.4	434.2	123.4	357.1	125.0	1,091.6	261.6	170,010.1	4,104.5
Red alder	—	—	—	—	—	—	—	—	4,286.2	660.3
Tanoak	44.1	35.1	139.8	79.0	87.8	55.4	130.6	82.7	52,971.9	2,814.7
Woodland hardwoods	2.8	2.8	—	—	—	—	—	—	1,772.5	204.0
Other western hardwoods	236.7	82.1	90.6	52.8	39.1	34.4	525.8	157.7	41,606.4	1,803.2
Total	527.0	127.5	664.6	155.7	484.0	141.0	1,765.3	315.6	272,414.6	5,554.5
All species groups	18,795.2	884.9	17,281.9	851.8	14,690.5	822.1	94,539.9	7,534.6	1,014,375.9	13,366.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert megagrams of carbon to tons of biomass by multiplying by 2.204586. The result will be approximate due to rounding.

[b] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-86—Aboveground carbon mass[a] of dead trees[b] on forest land, by species group and diameter class, California, 2001–2010

	Diameter class (inches)															
	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	
Species group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams															
Softwoods:																
Douglas-fir	408.3	38.1	414.0	43.6	427.2	63.5	543.2	67.8	603.0	75.2	768.3	128.0	518.4	105.2	539.8	127.6
Incense cedar	140.3	14.8	147.7	17.6	142.4	23.1	176.8	29.1	164.7	31.9	118.9	30.3	164.2	39.2	137.0	45.0
Lodgepole pine	153.1	39.3	137.6	40.6	189.4	58.3	230.3	63.2	230.8	65.6	263.7	62.3	239.9	61.6	428.2	91.1
Ponderosa and Jeffrey pines	175.5	18.3	241.2	27.4	243.7	37.1	256.9	39.1	329.7	48.4	292.1	50.4	236.0	49.8	200.8	55.4
Redwood	49.5	10.2	41.1	9.8	69.6	15.5	42.0	12.4	11.7	7.9	35.6	16.0	50.7	20.0	50.9	25.3
Sitka spruce	2.2	1.4	4.0	3.2	1.6	1.3	—	—	—	—	—	—	—	—	22.5	20.5
Sugar pine	41.4	7.8	104.9	18.7	90.5	17.5	131.2	30.1	156.6	40.0	175.1	42.4	171.4	54.3	189.2	69.1
True fir	726.1	63.5	926.5	65.3	1,144.3	87.7	1,452.0	120.2	1,530.7	129.7	1,803.6	152.0	1,691.3	194.2	2,060.7	214.3
Western hemlock	—	—	2.3	2.2	10.7	5.9	3.9	4.3	—	—	7.0	7.6	—	—	—	—
Western juniper	11.7	3.7	27.8	7.1	21.0	6.5	19.4	8.5	22.5	9.2	33.1	13.9	27.3	13.8	32.1	16.5
Western white pine	22.4	6.5	19.3	6.9	32.9	12.3	33.4	12.5	46.2	21.4	22.3	13.1	19.6	12.6	82.8	38.2
Woodland softwoods	18.9	4.3	52.0	9.5	92.3	19.2	79.4	17.5	89.1	20.9	121.0	25.8	98.8	22.4	60.8	25.1
Other western softwoods	97.0	15.9	104.5	23.9	140.3	32.2	178.4	32.1	168.8	40.2	245.4	52.6	127.1	37.8	183.4	56.6
Total	1,846.3	92.9	2,223.0	104.8	2,605.8	140.8	3,146.8	171.1	3,353.6	189.5	3,886.0	226.9	3,344.8	249.7	3,988.2	294.5
Hardwoods:																
Cottonwood and aspen	18.9	8.9	14.6	8.0	16.3	6.9	18.9	15.1	26.4	18.4	8.6	9.4	—	—	—	—
Oak	1,418.7	110.8	1,305.4	119.7	1,085.7	119.2	850.5	97.2	655.4	92.1	585.4	97.9	485.4	97.1	372.3	100.8
Red alder	41.5	11.4	62.8	16.8	50.5	14.4	22.0	11.3	7.1	6.3	47.7	37.9	15.1	14.8	—	—
Tanoak	354.6	60.1	380.9	74.1	491.2	105.9	406.8	93.9	413.0	116.6	342.8	107.1	164.3	59.9	147.6	69.2
Woodland hardwoods	67.9	12.6	115.0	21.9	126.7	22.0	98.9	27.1	110.3	27.9	104.1	33.0	45.8	21.8	53.4	29.4
Other western hardwoods	380.0	41.1	372.5	45.8	343.6	49.5	271.3	47.7	217.3	44.9	275.1	70.4	195.8	60.2	101.8	45.1
Total	2,281.6	137.4	2,251.2	155.7	2,113.9	173.2	1,668.4	149.6	1,429.5	158.0	1,363.9	168.5	906.4	133.5	675.1	133.4
All species groups	4,127.9	169.0	4,474.1	192.1	4,719.7	226.1	4,815.2	229.2	4,783.1	249.2	5,249.9	283.5	4,251.2	282.7	4,663.3	322.7

Table A2-86—Aboveground carbon mass[a] of dead trees[b] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)															
	21.0–22.9		23.0–24.9		25.0–26.9		27.0–28.9		29.0–30.9		31.0–32.9		33.0–34.9		35.0–36.9	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams															
Softwoods:																
Douglas-fir	579.9	126.9	644.6	102.3	723.5	78.4	702.8	94.8	709.2	96.3	936.4	122.8	941.4	114.7	736.3	107.4
Incense cedar	196.4	52.4	107.0	29.5	109.6	26.4	96.5	22.0	210.7	39.8	169.0	37.0	178.0	42.8	102.2	30.8
Lodgepole pine	306.5	75.1	228.7	52.0	318.4	49.7	287.3	47.3	242.0	50.7	198.2	44.0	145.7	36.0	153.0	40.7
Ponderosa and Jeffrey pines	452.0	98.3	349.4	68.4	326.3	47.0	352.2	49.1	403.7	63.5	494.0	73.6	364.1	59.5	287.2	58.8
Redwood	96.9	70.4	65.8	37.2	32.0	10.2	49.0	18.0	55.6	18.8	40.1	11.7	80.1	22.6	115.3	26.9
Sitka spruce	—	—	—	—	5.6	3.5	—	—	—	—	—	—	—	—	—	—
Sugar pine	125.1	52.6	123.1	28.8	211.2	44.6	171.6	38.1	169.5	39.8	278.1	64.6	268.9	78.9	262.6	70.9
True fir	2,296.9	265.2	1,759.8	193.2	1,519.2	123.1	1,484.5	123.3	1,531.1	137.1	1,563.1	139.6	1,393.2	140.2	1,347.4	147.6
Western hemlock	20.3	17.7	—	—	—	—	—	—	—	—	—	—	—	—	6.9	7.0
Western juniper	12.7	12.5	42.9	23.1	13.5	6.0	9.0	5.4	6.6	4.7	12.5	7.2	7.7	6.0	12.3	13.0
Western white pine	66.7	33.6	21.4	9.3	55.2	15.1	60.4	18.6	48.2	17.1	61.6	20.7	48.4	20.8	29.8	13.4
Woodland softwoods	63.1	23.9	18.5	12.4	14.4	5.1	12.8	6.3	18.1	8.3	7.8	4.8	16.0	8.1	14.4	8.3
Other western softwoods	255.0	79.4	281.4	66.6	195.7	36.9	142.2	31.5	112.7	29.7	137.2	32.0	119.6	34.8	95.8	34.3
Total	4,471.5	353.9	3,642.5	254.2	3,524.6	176.1	3,368.4	182.7	3,507.4	198.2	3,898.0	223.7	3,563.0	217.7	3,163.0	213.0
Hardwoods:																
Cottonwood and aspen	—	—	8.0	6.4	—	—	—	—	—	—	—	—	6.4	6.6	—	—
Oak	539.3	125.0	337.4	79.8	233.4	43.3	258.2	49.8	144.3	34.8	178.9	43.7	116.9	36.1	98.8	36.7
Red alder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tanoak	88.5	37.5	70.3	43.1	37.3	14.9	50.5	18.5	40.2	20.6	18.4	12.6	23.0	15.8	18.0	13.6
Woodland hardwoods	41.3	24.8	3.4	3.0	—	—	8.8	5.5	—	—	8.7	6.7	—	—	—	—
Other western hardwoods	85.3	47.2	142.2	61.6	71.1	24.1	35.7	16.9	107.2	38.2	46.4	26.9	30.4	19.8	41.3	23.1
Total	754.4	140.9	561.3	114.5	341.8	54.9	353.2	58.0	291.7	55.4	252.5	53.2	176.7	44.4	158.1	45.4
All species groups	5,225.8	381.2	4,203.8	277.7	3,866.4	184.2	3,721.5	191.8	3,799.1	204.7	4,150.5	230.1	3,739.7	222.8	3,321.1	218.3

Table A2-86—Aboveground carbon mass[a] of dead trees[b] on forest land, by species group and diameter class, California, 2001–2010 (continued)

Species group	Diameter class (inches)														All classes	
	37.0–38.9		39.0–40.9		41.0–42.9		43.0–44.9		45.0–46.9		47.0–48.9		49.0 +			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams															
Softwoods:																
Douglas-fir	618.2	101.3	588.2	107.7	813.8	133.3	827.1	165.8	734.4	138.9	664.9	143.2	4,025.5	504.3	18,468.5	1,290.7
Incense cedar	182.1	44.5	138.1	41.6	169.9	47.8	130.5	48.6	131.5	46.8	186.1	69.3	418.9	119.2	3,718.3	288.9
Lodgepole pine	140.9	42.6	93.0	33.9	87.2	33.9	49.4	25.4	28.3	19.4	36.2	26.0	43.3	31.1	4,231.2	480.4
Ponderosa and Jeffrey pines	379.3	78.7	237.2	59.6	276.9	65.6	252.8	70.2	151.7	59.1	265.8	82.5	729.3	165.2	7,297.7	502.7
Redwood	117.5	29.6	107.6	33.6	92.0	32.2	130.0	31.8	132.6	41.8	121.8	32.9	6,924.7	1,263.0	8,511.9	1,338.1
Sitka spruce	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36.0	23.6
Sugar pine	259.7	84.1	449.5	111.8	253.6	84.7	393.6	121.8	192.4	78.3	184.0	89.3	2,479.5	480.5	6,882.6	732.1
True fir	1,004.0	121.4	1,110.8	142.9	1,071.4	162.0	1,161.9	170.2	1,061.6	183.9	755.4	145.9	4,504.1	554.2	34,899.8	1,717.6
Western hemlock	10.3	10.5	—	—	—	—	14.7	12.8	—	—	22.7	23.1	—	—	98.8	47.9
Western juniper	—	—	—	—	9.5	10.1	—	—	6.9	7.2	—	—	8.9	9.2	337.2	60.9
Western white pine	72.9	28.2	44.1	20.0	48.3	25.1	31.2	23.7	13.9	13.7	35.5	23.4	101.9	43.8	1,018.5	148.5
Woodland softwoods	2.7	2.7	—	—	—	—	—	—	9.6	9.2	—	—	—	—	789.7	110.3
Other western softwoods	45.7	23.2	37.3	23.7	81.1	38.2	47.8	28.8	15.1	14.9	15.7	15.4	359.3	268.8	3,186.2	420.7
Total	2,833.5	216.3	2,805.8	233.1	2,903.7	246.1	3,039.0	283.9	2,478.2	257.6	2,288.0	251.7	19,595.4	1,605.7	89,476.3	2,827.9
Hardwoods:																
Cottonwood and aspen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	118.1	46.7
Oak	179.4	58.1	69.7	35.5	115.6	47.9	20.2	20.5	—	—	18.5	22.8	33.6	34.7	9,103.1	526.4
Red alder	13.2	13.5	—	—	—	—	—	—	—	—	—	—	—	—	260.0	56.2
Tanoak	—	—	31.4	21.8	32.6	20.5	—	—	26.6	26.2	—	—	—	—	3,138.1	499.7
Woodland hardwoods	7.3	7.5	—	—	—	—	—	—	—	—	—	—	—	—	791.5	128.5
Other western hardwoods	22.1	20.1	—	—	—	—	34.8	31.6	27.6	21.9	—	—	56.2	40.6	2,857.7	270.8
Total	222.0	63.4	101.2	41.7	148.2	52.1	55.0	37.7	54.2	34.2	18.5	22.8	89.8	53.5	16,268.5	814.6
All species groups	3,055.6	225.0	2,907.0	240.6	3,051.9	251.3	3,093.9	286.3	2,532.4	259.8	2,306.4	252.8	19,685.2	1,606.4	105,744.8	2,982.2

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert megagrams of carbon to tons of biomass by multiplying by 2.204586. The result will be approximate due to rounding.

[b] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-87—Average aboveground carbon mass[a] per hectare of live trees[b] on forest land, by forest type group and ownership group, California, 2001–2010

Forest type group	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Kilograms per hectare													
Softwoods:														
California mixed conifer	124,690.11	2,594.45	133,758.95	10,744.31	127,495.33	23,060.27	74,103.86	3,444.64	82,814.94	4,279.37	76,758.61	2,722.89	112,427.88	2,028.41
Douglas-fir	175,489.06	14,482.79	137,681.54	33,340.73	154,728.79	29,589.60	110,994.81	7,807.18	128,582.38	11,550.75	119,526.11	6,960.81	139,829.47	6,535.65
Fir/spruce/mountain hemlock	139,736.07	5,812.46	166,882.76	14,841.89	126,957.43	32,093.89	84,578.09	8,450.65	67,140.39	12,666.89	80,080.18	7,112.11	132,622.32	4,834.54
Lodgepole pine	66,820.72	3,921.91	84,389.99	9,249.59	39,758.00	14,225.83	72,753.68	9,393.76	64,226.04	12,090.67	67,400.64	8,453.45	70,479.77	3,533.89
Pinyon/juniper woodlands	10,886.10	992.39	6,739.47	652.85	7,123.46	2,242.90	6,500.32	1,138.32	4,782.01	1,349.99	4,955.17	1,222.97	8,442.07	558.30
Ponderosa pine	48,390.74	2,636.58	40,813.79	6,631.68	22,869.87	7,662.36	36,651.05	3,852.95	56,397.15	4,264.20	46,726.94	2,978.94	47,356.28	1,935.45
Redwood	492,243.86	85,097.32	665,879.95	104,526.74	529,669.07	130,516.33	137,318.32	12,950.46	236,620.92	19,308.53	175,520.35	12,005.99	251,215.02	23,009.75
Western juniper	16,843.07	1,470.94	11,314.37	1,261.79	53,074.09	35,422.33	12,262.25	2,743.41	11,253.73	1,160.15	11,327.80	1,093.18	14,587.03	953.76
Western white pine	49,579.02	7,301.72	44,936.02	12,093.87	—	—	—	—	—	—	—	—	47,135.60	6,702.08
Other western softwoods	25,178.62	3,012.87	29,249.96	6,358.09	43,102.85	26,032.29	94,429.32	17,407.97	99,955.49	33,824.81	97,439.75	20,019.61	39,283.59	5,002.07
Total	95,655.56	1,716.86	69,586.97	5,734.94	186,063.72	38,179.01	81,265.32	2,900.46	82,651.14	4,289.27	81,872.34	2,426.10	90,634.15	1,546.59
Hardwoods:														
Alder/maple	72,043.37	15,293.02	110,220.75	18,663.95	166,262.34	4,550.94	90,991.18	13,127.17	86,131.03	15,991.25	88,755.48	10,239.16	92,772.63	7,914.49
Aspen/birch	24,344.96	8,254.69	8,239.52	7,357.09	42,847.96	42,847.96	109,485.97	109,485.97	30,150.24	3,492.09	47,771.96	18,060.28	27,110.88	7,094.92
Elm/ash/cottonwood	54,958.26	54,958.26	—	—	39,825.70	11,430.22	—	—	53,061.03	16,319.59	49,964.26	15,723.19	48,055.96	11,514.94
Tanoak/laurel	136,471.86	10,111.85	95,299.60	21,964.00	168,490.02	21,012.58	100,396.23	6,289.62	128,028.25	6,830.74	115,386.90	4,801.37	123,948.22	4,418.97
Western oak	57,465.22	2,416.33	46,551.66	4,926.39	51,847.69	4,118.90	55,057.85	3,233.80	41,880.26	1,226.83	43,793.57	1,150.38	48,246.09	1,053.03
Woodland hardwoods	14,613.50	1,786.09	9,005.90	1,327.73	30,080.38	13,718.14	16,523.25	16,523.25	18,266.05	4,172.89	18,082.07	3,730.47	14,488.42	1,373.35
Other hardwoods	47,327.73	12,811.55	17,443.08	15,105.33	121,132.70	33,764.06	80,641.57	21,806.44	54,550.82	8,546.77	59,541.56	8,183.42	58,153.15	7,430.34
Total	63,969.29	2,530.85	46,628.05	4,521.24	83,412.24	7,343.08	74,755.26	3,366.81	52,773.77	1,553.47	57,334.36	1,387.62	60,007.75	1,215.84
Nonstocked	2,574.57	493.65	1,884.86	1,032.55	—	—	2,517.20	823.46	1,669.43	830.55	2,251.78	619.92	2,418.21	378.26
All forest types	84,717.44	1,358.50	61,596.09	4,185.70	117,743.60	14,074.68	77,122.50	2,166.33	60,519.57	1,606.34	66,401.54	1,233.33	76,383.85	993.75

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 kilograms per hectare was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert kilograms per hectare of carbon to tons per acre of biomass by multiplying by 0.00089. The result will be approximate due to rounding.

[b] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-88—Average aboveground carbon mass[a] per hectare of dead trees[b] on forest land, by forest type group and ownership group, California, 2001–2010

	Ownership group													
							Private							
	USDA Forest Service		Other federal		State and local government		Corporate		Noncorporate		All private		All owners	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Kilograms per hectare													
Softwoods:														
California mixed conifer	14,517.28	614.84	23,353.27	3,057.84	13,746.15	7,006.22	4,894.91	468.06	4,831.04	932.90	4,875.44	432.36	12,443.46	476.72
Douglas-fir	18,957.56	2,748.74	11,764.00	5,970.80	12,218.05	6,432.18	7,617.05	2,214.02	8,698.48	1,737.93	8,141.63	1,424.00	11,923.15	1,308.33
Fir/spruce/mountain hemlock	21,267.88	1,630.95	37,644.86	7,790.33	27,367.43	13,186.11	7,088.53	1,864.93	10,921.37	4,444.02	8,077.18	1,792.05	20,696.30	1,478.12
Lodgepole pine	7,927.76	845.74	11,697.51	2,188.87	6,129.25	3,255.27	10,974.55	4,353.66	11,425.14	4,319.51	11,257.40	3,162.80	8,993.27	809.56
Pinyon/juniper woodlands	1,101.47	151.89	1,014.12	242.43	617.42	287.88	278.75	259.80	907.80	369.46	844.41	335.46	1,018.95	124.20
Ponderosa pine	2,598.22	346.65	3,748.69	1,930.26	1,672.13	1,118.30	1,441.59	309.40	1,265.94	276.94	1,351.96	206.89	2,217.96	239.74
Redwood	739.34	234.88	73,693.96	36,428.77	23,725.11	6,088.88	18,194.03	4,487.25	25,173.19	6,884.94	20,878.93	3,830.09	23,663.16	3,856.60
Western juniper	1,437.22	316.08	684.87	229.08	8,750.14	6,262.15	681.87	401.08	835.34	262.42	824.07	244.83	1,178.49	197.20
Western white pine	9,404.92	2,077.81	10,317.38	2,386.35	—	—	681.95	681.95	—	—	681.95	681.95	9,142.43	1,840.10
Other western softwoods	5,018.43	1,187.85	4,221.54	1,377.64	4,305.36	1,501.82	31,527.22	18,824.71	8,861.21	4,537.03	19,179.72	9,447.38	7,264.88	1,891.93
Total	11,384.40	390.17	11,151.38	1,291.49	12,494.27	2,650.93	6,964.48	775.76	6,318.45	864.27	6,681.50	574.97	10,118.72	321.14
Hardwoods:														
Alder/maple	19,886.52	5,542.10	6,852.51	2,259.52	23,929.72	15,983.48	7,179.15	1,666.61	3,023.84	1,382.53	5,267.68	1,192.04	9,889.00	2,142.90
Aspen/birch	1,786.19	768.11	—	—	32,473.69	32,473.69	—	—	177.92	155.38	138.40	123.13	1,732.27	748.27
Elm/ash/ ottonwood	3,698.72	3,698.72	—	—	463.86	349.61	—	—	1,200.08	817.24	1,130.04	772.41	1,235.59	608.91
Tanoak/laurel	15,045.21	2,778.16	15,354.30	7,328.80	11,202.58	2,687.66	8,933.25	2,056.71	4,157.07	620.74	6,342.12	1,012.60	9,217.31	1,026.39
Western oak	6,419.36	840.22	3,056.20	650.54	2,145.59	535.59	2,748.77	414.13	1,697.27	164.48	1,849.94	153.31	3,236.67	263.55
Woodland hardwoods	4,159.60	956.03	2,016.46	614.78	3,046.55	350.50	715.16	715.16	1,375.43	779.91	1,305.73	701.20	3,258.06	612.44
Other hardwoods	7,514.08	2,508.91	4,065.01	3,068.59	3,448.92	1,765.27	3,179.07	1,029.10	3,068.88	903.06	3,089.96	756.73	4,709.11	998.21
Total	7,589.83	732.00	4,101.28	844.53	4,673.90	886.85	5,299.93	827.34	2,045.97	159.23	2,721.09	214.72	4,349.78	262.23
Nonstocked	21,206.50	4,372.82	3,332.15	1,384.09	68,899.32	68,899.32	868.38	424.86	1,046.82	491.77	924.24	327.92	15,638.23	3,142.23
All forest types	10,798.18	364.09	9,014.41	935.49	7,676.19	1,139.97	6,242.58	566.92	3,191.53	263.79	4,272.44	262.97	7,962.73	224.49

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 kilograms per hectare was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert kilograms per hectare of carbon to tons per acre of biomass by multiplying by 0.00089. The result will be approximate due to rounding.

[b] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-89—Average aboveground carbon mass[a] per hectare of live trees[b] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All size classes	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Kilograms per hectare							
Softwoods:								
California mixed conifer	119,320.99	2,075.07	33,355.16	4,476.65	10,848.62	1,457.00	112,427.88	2,028.41
Douglas-fir	155,718.12	6,756.28	55,414.45	10,178.32	24,247.52	5,075.22	139,829.47	6,535.65
Fir/spruce/mountain hemlock	140,972.86	4,910.79	35,749.58	9,209.70	13,484.99	2,401.63	132,622.32	4,834.54
Lodgepole pine	73,664.76	3,724.78	61,132.99	12,152.81	11,463.27	5,912.74	70,479.77	3,533.89
Pinyon/juniper woodlands	9,886.92	644.48	2,134.29	799.11	1,397.89	376.43	8,442.07	558.30
Ponderosa pine	53,801.91	2,075.29	13,756.46	2,062.59	4,951.24	1,236.47	47,356.28	1,935.45
Redwood	268,787.39	24,268.52	24,048.79	6,727.14	14,171.52	3,545.94	251,215.02	23,009.75
Western juniper	16,616.45	1,081.76	6,847.34	1,602.02	2,502.22	748.95	14,587.03	953.76
Western white pine	57,190.27	7,381.55	8,638.24	1,770.21	15,155.53	6,296.98	47,135.60	6,702.08
Other western softwoods	54,087.43	6,761.71	12,339.73	2,903.58	6,720.85	1,420.15	39,283.59	5,002.07
Total	100,145.39	1,686.56	19,624.86	2,003.69	9,153.88	831.42	90,634.15	1,546.59
Hardwoods:								
Alder/maple	118,370.76	8,281.13	65,413.01	12,601.00	19,753.26	7,651.06	92,772.63	7,914.49
Aspen/birch	57,296.36	13,386.10	48,121.49	15,933.81	10,669.45	3,085.90	27,110.88	7,094.92
Elm/ash/cottonwood	57,962.62	11,856.91	3,671.14	3,393.71	11,810.26	1,180.40	48,055.96	11,514.94
Tanoak/laurel	156,740.30	5,203.82	86,336.57	4,872.83	20,739.61	3,429.59	123,948.22	4,418.97
Western oak	63,604.35	1,647.31	38,888.82	1,365.90	14,671.76	1,093.00	48,246.09	1,053.03
Woodland hardwoods	15,709.16	1,481.95	12,042.21	4,297.63	2,522.43	946.21	14,488.42	1,373.35
Other hardwoods	127,701.83	14,283.64	38,948.95	7,115.73	6,195.33	1,167.92	58,153.15	7,430.34
Total	81,654.91	1,922.99	44,162.34	1,401.87	14,248.98	925.17	60,007.75	1,215.84
Nonstocked	—	—	—	—	—	—	2,418.21	378.26
All forest types	94,732.94	1,283.65	39,787.99	1,245.61	12,271.73	661.09	76,383.85	993.75

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 kilograms per hectare was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert kilograms per hectare of carbon to tons per acre of biomass by multiplying by 0.00089. The result will be approximate due to rounding.

[b] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-90—Average aboveground carbon mass[a] per hectare of dead trees[b] on forest land, by forest type group and stand size class, California, 2001–2010

	Stand size class							
	Large-diameter stands		Medium-diameter stands		Small-diameter stands		All size classes	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Kilograms per hectare							
Softwoods:								
California mixed conifer	12,988.84	500.76	4,943.14	1,629.03	5,030.40	1,810.91	12,443.46	476.72
Douglas-fir	12,487.68	1,419.01	1,621.21	882.11	12,354.04	5,614.09	11,923.15	1,308.33
Fir/spruce/mountain hemlock	20,371.41	1,359.29	18,352.30	10,108.24	26,540.96	13,460.15	20,696.30	1,478.12
Lodgepole pine	9,400.64	841.48	9,060.19	5,037.24	229.93	213.26	8,993.27	809.56
Pinyon/juniper woodlands	963.14	108.59	1,489.39	740.86	962.53	463.45	1,018.95	124.20
Ponderosa pine	2,436.10	272.23	644.89	293.95	1,291.31	671.95	2,217.96	239.74
Redwood	24,908.28	4,114.23	9,543.02	2,265.90	5,352.53	2,722.54	23,663.16	3,856.60
Western juniper	1,392.15	233.73	209.85	155.23	40.49	21.25	1,178.49	197.20
Western white pine	11,065.81	2,234.86	1,763.12	361.31	3,028.40	1,650.06	9,142.43	1,840.10
Other western softwoods	9,709.84	2,699.84	1,455.83	691.13	2,782.64	2,010.14	7,264.88	1,891.93
Total	10,816.09	342.96	2,825.76	592.27	5,702.13	1,570.88	10,118.72	321.14
Hardwoods:								
Alder/maple	11,740.59	3,181.57	7,533.48	2,802.35	5,467.60	2,517.81	9,889.00	2,142.90
Aspen/birch	3,180.23	1,873.98	4,892.58	2,692.38	219.32	152.82	1,732.27	748.27
Elm/ash/cottonwood	689.12	445.29	—	—	4,496.12	449.37	1,235.59	608.91
Tanoak/laurel	10,303.45	1,129.03	3,951.80	1,228.00	12,994.41	5,148.96	9,217.31	1,026.39
Western oak	3,493.51	245.58	1,874.12	170.98	5,804.70	1,639.54	3,236.67	263.55
Woodland hardwoods	3,049.69	531.02	6,001.17	3,269.54	—	—	3,258.06	612.44
Other hardwoods	8,595.03	1,768.37	2,140.25	699.78	2,857.58	1,816.84	4,709.11	998.21
Total	5,074.79	299.30	2,277.43	211.79	6,181.37	1,346.92	4,349.78	262.23
Nonstocked	—	—	—	—	—	—	15,638.23	3,142.23
All forest types	9,135.52	257.63	2,375.19	203.53	5,995.39	1,024.95	7,962.73	224.49

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 kilograms per hectare was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert kilograms per hectare of carbon to tons per acre of biomass by multiplying by 0.00089. The result will be approximate due to rounding.

[b] Includes all dead trees ≥5 inches in diameter at breast height; smaller dead trees were not measured in this inventory.

Table A2-91—Volume of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)													
	Fine-wood size classes[a]						Coarse-wood size classes[b]							
	0.1–0.24		0.25–0.9		1.0–2.9		3.0–9.0		10.0–19.0		≥20.0		All down wood	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Million cubic feet													
Softwoods:														
California mixed conifer	69.1	2.4	516.8	36.9	1,470.3	54.8	1,529.5	48.1	2,789.7	93.2	5,805.3	254.4	12,180.7	378.7
Douglas-fir	16.1	1.6	81.6	8.4	244.4	32.2	200.8	18.2	398.6	39.9	1,202.5	178.7	2,144.0	232.3
Fir/spruce/mountain hemlock	24.6	1.6	150.5	10.0	450.7	31.8	405.2	29.0	866.9	65.0	1,599.9	147.0	3,497.8	235.6
Lodgepole pine	4.8	0.9	47.3	23.4	81.6	11.0	117.1	15.4	316.7	39.6	606.2	73.3	1,173.7	120.8
Pinyon/juniper woodlands	7.5	0.6	38.1	3.1	96.7	8.6	73.5	7.3	138.3	17.0	63.9	14.0	418.0	37.7
Ponderosa pine	6.0	0.6	75.2	5.3	218.4	16.6	215.3	16.2	313.9	26.5	606.8	70.6	1,435.6	108.1
Redwood	8.6	1.1	51.2	6.4	175.1	24.1	180.8	20.5	410.6	46.2	1,437.0	251.5	2,263.3	299.2
Western juniper	3.3	0.3	28.1	3.0	67.9	10.2	39.6	5.1	75.0	11.3	184.4	44.9	398.3	61.2
Western white pine	0.6	0.1	3.8	1.0	7.6	2.0	12.8	3.2	28.7	9.0	68.5	18.8	122.0	28.8
Other western softwoods	3.0	0.5	18.0	3.1	47.3	9.6	47.3	7.7	147.5	26.2	230.6	46.2	493.8	78.4
Total	143.6	3.4	1,010.7	45.4	2,859.9	73.1	2,821.9	60.3	5,486.0	127.2	11,805.0	418.7	24,127.1	550.8
Hardwoods:														
Alder/maple	2.3	0.4	16.8	3.2	59.9	11.9	44.3	8.1	104.9	21.4	383.8	91.5	611.9	125.3
Aspen/birch	0.3	0.1	2.9	1.0	11.4	3.5	12.4	4.1	9.8	6.7	17.7	12.6	54.5	23.7
Elm/ash/cottonwood	0.8	0.5	2.1	0.8	6.7	2.9	3.1	1.3	4.5	2.2	—	—	17.2	6.8
Tanoak/laurel	20.6	1.5	121.5	11.4	387.1	30.0	351.7	24.2	654.6	47.7	1,626.3	166.8	3,161.8	230.8
Western oak	47.4	1.7	307.6	12.7	806.8	36.7	656.5	27.0	943.3	48.6	1,037.5	94.4	3,799.2	164.6
Woodland hardwoods	2.2	0.3	17.4	2.9	45.3	6.9	23.6	5.0	34.6	8.1	17.0	7.6	140.0	21.4
Other hardwoods	4.8	0.8	28.6	4.6	81.6	17.4	72.7	12.4	90.9	15.7	98.8	26.0	377.4	57.1
Total	78.4	2.4	497.0	17.8	1,398.8	51.4	1,164.3	38.0	1,842.5	71.3	3,181.0	210.7	8,162.0	303.4
Nonstocked	3.1	0.5	24.6	3.5	68.4	10.0	83.4	12.1	160.8	29.9	163.1	41.0	503.4	76.0
All forest types	225.1	3.7	1,532.2	47.5	4,327.1	82.7	4,069.6	64.5	7,489.3	136.5	15,149.1	451.7	32,792.5	573.5

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] The diameter of each piece was visually estimated before being counted within each size class. Counts were used as input to volume equations for fine-wood.

[b] Diameter classes are based on the diameter at the large end of the piece for decay classes less than 5, and based on the transect diameter for decay class 5 pieces. The diameter of each piece was measured and recorded to the nearest inch. Because of this, class breakpoints for 9, 10, 19, and 20 actually represent 0.4 inches above and below the value. For example, 9 represents 8.6 to 9.4 inches.

Table A2-92—Biomass of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)													
	Fine-wood size classes[a]						Coarse-wood size classes[b]							
	0.1–0.24		0.25–0.9		1.0–2.9		3.0–9.0		10.0–19.0		≥20.0		All down wood	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Softwoods:														
California mixed conifer	725.75	25.96	5,420.91	428.55	15,309.11	580.32	12,025.81	390.84	19,671.58	667.58	38,726.00	1,752.46	91,879.16	2,850.86
Douglas-fir	188.79	18.14	958.38	94.71	2,824.23	350.79	1,676.69	157.18	2,989.04	312.31	8,439.01	1,260.53	17,076.14	1,764.59
Fir/spruce/mountain hemlock	240.00	15.09	1,466.15	97.62	4,389.55	308.78	2,801.13	201.16	5,635.60	424.71	10,331.63	959.43	24,864.06	1,637.04
Lodgepole pine	48.19	8.74	476.34	237.76	813.46	109.05	1,029.16	133.29	2,547.30	323.75	4,776.79	593.72	9,691.24	1,010.74
Pinyon/juniper woodlands	90.09	7.27	455.59	37.84	1,152.23	103.33	700.36	72.18	1,290.06	156.12	574.31	130.36	4,262.63	371.74
Ponderosa pine	61.29	6.57	762.42	53.70	2,225.27	169.82	1,829.21	142.71	2,524.72	219.45	4,229.67	513.39	11,632.58	866.49
Redwood	86.10	10.35	511.58	63.74	1,737.51	239.39	1,524.21	180.12	3,013.75	343.90	10,449.32	1,936.56	17,322.47	2,306.76
Western juniper	37.40	3.29	317.31	32.88	761.45	109.28	337.11	44.44	587.26	84.11	1,212.36	268.85	3,252.89	419.10
Western white pine	5.70	1.43	37.37	9.44	73.48	19.77	99.40	24.54	240.73	74.45	590.18	167.63	1,046.87	250.41
Other western softwoods	31.27	5.34	188.94	32.49	490.62	96.94	392.39	63.84	1,211.88	213.67	1,681.77	334.30	3,996.87	605.73
Total	1,514.57	36.16	10,594.98	507.34	29,776.91	765.19	22,415.46	494.55	39,711.93	937.37	81,011.04	3,019.75	185,024.90	4,158.76
Hardwoods:														
Alder/maple	24.39	4.38	180.44	34.07	650.71	129.16	335.40	61.86	727.59	147.72	2,671.15	614.02	4,589.67	896.05
Aspen/birch	2.93	1.02	28.50	9.70	112.47	34.38	82.44	28.18	67.39	48.45	125.65	89.22	419.38	176.19
Elm/ash/cottonwood	11.34	8.11	24.65	9.62	70.15	29.15	19.36	7.49	33.02	15.72	—	—	158.53	62.13
Tanoak/laurel	263.65	18.74	1,540.89	140.49	4,889.06	371.87	3,238.10	244.85	5,124.11	393.37	10,854.26	1,089.29	25,910.07	1,772.11
Western oak	666.92	23.59	4,279.79	177.24	11,177.69	502.35	6,174.80	258.80	8,372.58	421.57	8,678.35	786.65	39,350.13	1,568.21
Woodland hardwoods	30.07	4.78	232.92	40.10	595.75	91.92	243.46	55.32	309.78	67.72	131.84	56.22	1,543.82	229.52
Other hardwoods	59.57	9.47	353.35	55.72	1,023.86	213.02	643.25	111.23	778.43	133.08	829.02	242.93	3,687.50	557.75
Total	1,058.87	31.79	6,640.54	233.47	18,519.69	667.00	10,736.80	369.49	15,412.92	595.89	23,290.27	1,473.12	75,659.09	2,481.11
Nonstocked	32.20	4.68	260.91	37.62	730.82	108.42	675.22	96.61	1,336.85	253.29	1,201.35	303.78	4,237.35	629.28
All forest types	2,605.64	43.30	17,496.43	542.84	49,027.42	934.68	33,827.49	560.51	56,461.70	1,045.70	105,502.66	3,241.98	264,921.34	4,358.18

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] The diameter of each piece was visually estimated before being counted within each size class. Counts were used as input to volume equations for fine-wood.

[b] Diameter classes are based on the diameter at the large end of the piece for decay classes less than 5, and based on the transect diameter for decay class 5 pieces. The diameter of each piece was measured and recorded to the nearest inch. Because of this, class breakpoints for 9, 10, 19, and 20 actually represent 0.4 inches above and below the value. For example, 9 represents 8.6 to 9.4 inches.

Table A2-93—Carbon mass of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)													
	Fine-wood size classes[a]						Coarse-wood size classes[b]							
	0.1–.24		0.25–0.9		1.0–2.9		3.0–9.0		10.0–19.0		≥ 20.0		All down wood	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams													
Softwoods:														
California mixed conifer	329.2	11.8	2,458.9	194.4	6,944.2	263.2	5,617.5	182.4	9,193.5	311.9	18,142.4	822.4	42,685.8	1,326.8
Douglas-fir	85.6	8.2	434.7	43.0	1,281.1	159.1	773.8	72.7	1,387.0	145.0	3,955.6	591.5	7,917.8	822.8
Fir/spruce/mountain hemlock	108.9	6.8	665.0	44.3	1,991.1	140.1	1,318.5	94.7	2,647.1	199.6	4,818.5	446.6	11,549.1	761.1
Lodgepole pine	21.9	4.0	216.1	107.8	369.0	49.5	485.2	62.8	1,195.6	152.0	2,240.2	278.8	4,527.9	472.4
Pinyon/juniper woodlands	40.9	3.3	206.7	17.2	522.7	46.9	329.3	33.9	608.5	73.7	271.4	61.6	1,979.4	173.6
Ponderosa pine	27.8	3.0	345.8	24.4	1,009.4	77.0	857.6	66.9	1,183.4	102.9	1,972.5	238.8	5,396.5	402.5
Redwood	39.1	4.7	232.1	28.9	788.1	108.6	705.6	83.0	1,406.7	160.3	4,918.6	913.9	8,090.1	1,084.2
Western juniper	17.0	1.5	143.9	14.9	345.4	49.6	157.7	20.8	275.6	39.5	567.3	125.8	1,506.9	194.8
Western white pine	2.6	0.6	17.0	4.3	33.3	9.0	46.6	11.5	113.3	35.0	278.3	79.0	491.1	117.6
Other western softwoods	14.2	2.4	85.7	14.7	222.5	44.0	184.0	29.9	570.4	100.7	793.6	157.8	1,870.5	283.8
Total	687.0	16.4	4,805.9	230.1	13,506.8	347.1	10,475.7	230.7	18,581.1	438.5	37,958.5	1,419.3	86,015.0	1,942.6
Hardwoods:														
Alder/maple	11.1	2.0	81.8	15.5	295.2	58.6	153.6	28.3	336.5	68.4	1,252.7	289.2	2,130.8	418.5
Aspen/birch	1.3	0.5	12.9	4.4	51.0	15.6	37.3	12.7	31.0	22.4	57.2	40.7	190.8	80.3
Elm/ash/cottonwood	5.1	3.7	11.2	4.4	31.8	13.2	8.6	3.3	14.7	7.0	—	—	71.5	28.0
Tanoak/laurel	119.6	8.5	698.9	63.7	2,217.7	168.7	1,470.1	110.7	2,346.8	179.6	5,065.1	507.6	11,918.2	817.2
Western oak	302.5	10.7	1,941.3	80.4	5,070.2	227.9	2,800.0	117.8	3,824.2	192.4	3,992.8	363.4	17,931.0	717.8
Woodland hardwoods	13.6	2.2	105.7	18.2	270.2	41.7	110.1	25.0	143.2	31.4	61.9	26.4	704.7	104.9
Other hardwoods	27.0	4.3	160.3	25.3	464.4	96.6	292.3	50.6	354.9	60.6	386.0	112.1	1,684.8	255.1
Total	480.3	14.4	3,012.1	105.9	8,400.5	302.6	4,872.0	167.7	7,051.3	272.2	10,815.7	686.0	34,631.9	1,142.7
Nonstocked	14.6	2.1	118.3	17.1	331.5	49.2	316.6	45.3	629.1	119.5	565.0	143.1	1,975.2	294.7
All forest types	1,181.9	19.6	7,936.4	246.2	22,238.8	424.0	15,664.3	259.2	26,261.5	486.6	49,339.2	1,521.5	122,622.1	2,031.9

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] The diameter of each piece was visually estimated before being counted within each size class. Counts were used as input to volume equations for fine-wood.

[b] Diameter classes are based on the diameter at the large end of the piece for decay classes less than 5, and based on the transect diameter for decay class 5 pieces. The diameter of each piece was measured and recorded to the nearest inch. Because of this, class breakpoints for 9, 10, 19, and 20 actually represent 0.4 inches above and below the value. For example, 9 represents 8.6 to 9.4 inches.

Table A2-94—Number of pieces of down wood[a] on forest land, by forest type group and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)[b]							
	3.0–9.0		10.0–19.0		≥ 20.0		All classes	
Forest type group	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand pieces							
Softwoods:								
California mixed conifer	1,449,257.7	44,627.1	312,053.2	11,005.8	73,637.4	3,536.7	1,834,948.3	53,698.7
Douglas-fir	168,133.7	14,804.9	43,494.0	4,787.6	17,610.4	2,459.5	229,238.0	19,468.1
Fir/spruce/mountain hemlock	376,476.0	25,868.2	92,161.4	6,967.7	23,244.9	2,200.7	491,882.3	32,283.1
Lodgepole pine	101,410.3	13,128.9	28,301.2	3,155.4	8,639.6	1,110.2	138,351.1	15,836.5
Pinyon/juniper woodlands	95,280.5	9,211.9	22,897.0	2,980.6	2,461.8	568.9	120,639.2	11,398.6
Ponderosa pine	227,852.6	16,447.1	36,862.8	3,413.1	9,016.6	1,140.7	273,732.0	19,122.2
Redwood	147,191.9	16,615.6	47,532.3	5,706.2	17,615.0	2,318.4	212,339.2	22,260.0
Western juniper	51,198.4	6,867.0	9,768.1	1,544.5	2,440.0	536.0	63,406.5	7,794.5
Western white pine	13,797.6	3,365.5	3,184.3	1,050.6	1,328.7	507.4	18,310.6	4,187.7
Other western softwoods	43,504.6	6,648.8	16,789.3	2,917.5	3,752.3	730.0	64,046.2	9,207.7
Total	2,674,103.2	54,403.9	613,043.6	14,932.7	159,746.6	5,418.3	3,446,893.5	65,781.5
Hardwoods:								
Alder/maple	35,183.8	6,509.6	10,708.5	2,176.9	6,206.1	1,559.2	52,098.3	9,355.0
Aspen/birch	14,515.5	4,929.9	711.1	445.7	187.0	136.5	15,413.6	5,274.9
Elm/ash/cottonwood	3,888.0	1,657.8	320.3	192.7	—	—	4,208.3	1,756.0
Tanoak/laurel	314,029.4	20,779.5	67,691.2	5,181.3	22,275.8	2,154.8	403,996.4	25,580.7
Western oak	695,041.0	26,863.3	105,628.7	5,555.9	15,896.8	1,310.2	816,566.4	30,794.5
Woodland hardwoods	31,071.5	6,564.7	5,928.7	1,483.7	459.4	247.6	37,459.6	7,533.3
Other hardwoods	70,571.0	11,611.8	10,773.1	2,208.0	1,610.1	563.5	82,954.2	13,212.4
Total	1,164,300.1	35,845.3	201,761.5	8,062.3	46,635.1	2,965.1	1,412,696.7	42,058.2
Nonstocked	72,591.1	9,916.8	15,498.3	2,529.1	2,369.1	632.7	90,458.5	11,995.4
All forest types	3,910,994.5	58,398.4	830,303.4	15,903.2	208,750.8	5,954.1	4,950,048.7	68,987.9

Note: Estimates subject to sampling error; SE = sampling error.

[a] Includes down wood pieces ≥ 3 inches in diameter at the transect intersection. Number of pieces can not be estimated for down wood with smaller diameters (fine woody material) because pieces were not individually measured.

[b] Diameter classes are based on the diameter at the large end of the piece for decay class less than 5, and based on the transect diameter for decay class 5 pieces. The diameter of each piece was measured and recorded to the nearest inch. Because of this, class breakpoints for 9, 10, 19, and 20 actually represent 0.4 inches above and below the value. For example, 9 represents 8.6 to 9.4 inches.

Table A2-95—Biomass of down wood[a] on forest land, by forest type group, ownership group, and land status, California, 2001–2010

Forest type group	Ownership group and land status																	
	U.S. Forest Service				Other federal				State and local government				Private					
	Timberland		Other forest land		Timberland		Other forest land		Timberland		Other forest land		Timberland		Other forest land		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons																	
Softwoods:																		
California mixed conifer	49,990.0	2,189.1	11,595.3	1,167.7	459.2	150.0	5,458.7	820.8	219.5	106.5	844.3	299.9	23,277.7	1,366.1	34.4	29.0	91,879.2	2,850.9
Douglas-fir	3,292.2	627.1	914.6	323.5	17.0	17.3	426.9	266.4	464.3	209.7	828.8	517.3	11,132.2	1,520.2	—	—	17,076.1	1,764.6
Fir/spruce/mountain hemlock	13,546.5	1,158.3	4,573.7	781.3	71.2	72.1	2,665.0	602.1	68.0	69.3	166.1	119.5	3,773.5	642.3	—	—	24,864.1	1,637.0
Lodgepole pine	2,618.1	569.7	3,603.6	543.0	—	—	2,609.8	585.1	145.8	93.6	—	—	714.0	257.9	—	—	9,691.2	1,010.7
Pinyon/juniper woodlands	31.5	22.6	2,356.8	270.9	30.0	30.8	1,458.8	225.9	—	—	96.3	45.0	—	—	289.2	110.0	4,262.6	371.7
Ponderosa pine	6,165.4	677.7	1,097.9	237.6	156.5	76.9	184.3	107.3	0.8	0.7	105.2	76.3	3,887.9	466.0	34.6	23.9	11,632.6	866.5
Redwood	—	—	353.9	207.3	—	—	2,431.5	1,191.6	299.6	196.3	1,596.1	537.5	12,641.4	1,918.9	—	—	17,322.5	2,306.8
Western juniper	438.4	153.4	1,682.9	292.6	90.6	59.8	419.8	89.6	—	—	218.9	221.8	82.2	40.7	320.1	75.2	3,252.9	419.1
Western white pine	200.0	99.7	669.4	195.2	—	—	159.1	120.0	—	—	—	—	18.4	18.2	—	—	1,046.9	250.4
Other western softwoods	375.2	182.5	1,546.6	360.2	1.4	1.5	750.4	222.0	—	—	54.3	32.5	1,169.2	382.8	99.8	85.7	3,996.9	605.7
Total	76,657.1	2,458.9	28,394.8	1,597.5	826.0	195.6	16,564.2	1,619.1	1,198.0	323.5	3,910.0	835.7	56,696.5	2,755.5	778.2	162.7	185,024.9	4,158.8
Hardwoods:																		
Alder/maple	348.3	175.1	408.4	199.9	61.6	47.7	552.6	386.6	69.5	62.0	157.2	110.3	2,867.9	752.6	124.1	66.1	4,589.7	896.1
Aspen/birch	89.4	46.5	164.1	133.1	—	—	23.4	17.1	—	—	4.9	5.0	137.5	104.1	—	—	419.4	176.2
Elm/ash/cottonwood	—	—	24.9	26.2	—	—	—	—	—	—	16.6	13.5	80.1	49.4	37.0	23.5	158.5	62.1
Tanoak/laurel	4,596.5	805.5	1,852.7	564.6	159.9	75.5	366.9	178.1	557.5	259.5	1,272.2	401.0	16,161.8	1,385.0	942.6	309.5	25,910.1	1,772.1
Western oak	7,302.1	722.8	8,020.6	803.7	734.6	251.9	1,846.3	339.7	169.7	78.1	1,455.9	242.3	7,872.2	838.3	11,948.9	686.7	39,350.1	1,568.2
Woodland hardwoods	191.1	58.8	718.2	161.9	—	—	352.0	109.7	—	—	70.6	40.0	55.4	46.3	156.4	74.9	1,543.8	229.5
Other hardwoods	1,025.6	303.9	427.1	158.2	29.7	30.3	17.1	11.9	215.1	218.7	178.3	85.9	1,457.1	358.4	337.3	106.9	3,687.5	557.7
Total	13,553.0	1,125.1	11,616.1	1,023.2	985.9	276.7	3,158.3	553.7	1,011.8	376.7	3,155.8	488.2	28,632.1	1,741.1	13,546.2	762.2	75,659.1	2,481.1
Nonstocked	2,078.6	467.7	844.7	298.3	60.8	43.9	375.4	199.3	—	—	27.6	28.1	828.0	215.7	22.4	18.2	4,237.3	629.3
All forest types	92,288.7	2,572.9	40,855.5	1,877.8	1,872.6	344.3	20,097.9	1,682.3	2,209.8	496.0	7,093.4	942.3	86,156.5	2,954.6	14,346.9	777.3	264,921.3	4,358.2

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes down wood with diameters ≥0.1 inch.

Table A2-96—Carbon mass of down wood[a] on forest land, by forest type group, ownership group, and land status, California, 2001–2010

Forest type group	Ownership group and land status																	
	U.S. Forest Service				Other federal				State and local government				Private				All forest land	
	Timberland		Other forest land		Timberland		Other forest land		Timberland		Other forest land		Timberland		Other forest land			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams																	
Softwoods:																		
California mixed conifer	23,209.9	1,017.8	5,398.1	545.2	211.8	69.3	2,555.8	384.8	100.9	48.7	394.0	140.2	10,799.6	633.9	15.6	13.1	42,685.8	1,326.8
Douglas-fir	1,520.2	290.8	417.9	147.2	7.7	7.9	199.5	125.3	215.7	97.7	386.4	241.8	5,170.4	709.7	—	—	7,917.8	822.8
Fir/spruce/mountain hemlock	6,289.7	538.7	2,121.1	361.5	32.9	33.3	1,242.2	280.6	31.9	32.5	77.5	55.7	1,753.8	299.5	—	—	11,549.1	761.1
Lodgepole pine	1,219.6	264.7	1,685.1	254.1	—	—	1,222.9	274.7	67.6	43.4	—	—	332.7	120.4	—	—	4,527.9	472.4
Pinyon/juniper woodlands	14.4	10.4	1,095.7	126.7	14.2	14.6	677.0	105.5	—	—	44.8	21.0	—	—	133.4	50.7	1,979.4	173.6
Ponderosa pine	2,857.8	314.6	513.3	111.3	72.2	35.5	86.4	50.5	0.4	0.3	48.4	35.2	1,802.1	216.1	15.9	11.0	5,396.5	402.5
Redwood	—	—	163.3	95.5	—	—	1,141.1	560.4	138.1	90.4	748.1	252.6	5,899.5	902.1	—	—	8,090.1	1,084.2
Western juniper	203.1	71.5	781.0	135.9	41.2	27.2	193.0	41.4	—	—	101.9	103.3	38.5	19.1	148.2	35.0	1,506.9	194.8
Western white pine	93.2	46.5	314.3	91.8	—	—	75.0	56.6	—	—	—	—	8.5	8.4	—	—	491.1	117.6
Other western softwoods	175.1	85.0	727.1	169.6	0.7	0.7	351.3	103.9	—	—	24.7	14.8	545.2	179.0	46.5	39.9	1,870.5	283.8
Total	35,583.0	1,143.4	13,216.9	744.1	380.8	90.2	7,744.2	760.0	554.5	149.8	1,825.7	391.4	26,350.4	1,289.1	359.7	75.4	86,015.0	1,942.6
Hardwoods:																		
Alder/maple	160.1	80.3	188.4	92.1	28.6	22.2	259.3	181.7	32.6	29.2	72.1	50.9	1,332.6	351.6	57.1	30.7	2,130.8	418.5
Aspen/birch	40.4	21.0	74.2	60.2	—	—	10.7	7.9	—	—	2.2	2.3	63.3	48.0	—	—	190.8	80.3
Elm/ash/cottonwood	—	—	11.2	11.8	—	—	—	—	—	—	7.5	6.1	36.1	22.2	16.7	10.6	71.5	28.0
Tanoak/laurel	2,107.1	369.8	856.5	263.1	73.4	35.1	165.8	80.6	260.3	121.6	583.5	185.6	7,446.9	638.7	424.6	139.3	11,918.2	817.2
Western oak	3,346.8	330.3	3,661.5	370.1	336.3	116.7	843.7	155.9	77.5	35.7	658.2	109.6	3,598.8	384.4	5,408.2	310.8	17,931.0	717.8
Woodland hardwoods	87.3	26.8	328.3	74.0	—	—	159.9	50.0	—	—	32.0	18.1	25.8	21.7	71.3	34.2	704.7	104.9
Other hardwoods	470.6	139.3	197.1	73.5	13.4	13.7	7.7	5.4	97.1	98.6	81.7	39.5	664.8	164.1	152.4	48.4	1,684.8	255.1
Total	6,212.4	515.5	5,317.3	472.8	451.8	128.1	1,447.2	256.7	467.5	174.3	1,437.3	224.6	13,168.2	803.6	6,130.3	344.8	34,631.9	1,142.7
Nonstocked	969.9	218.8	393.8	140.1	28.3	20.5	176.1	93.9	—	—	12.7	12.9	384.2	100.3	10.1	8.2	1,975.2	294.7
All forest types	42,765.2	1,194.5	18,928.0	873.1	860.8	159.3	9,367.5	789.0	1,021.9	229.5	3,275.7	439.4	39,902.8	1,379.0	6,500.1	352.0	122,622.1	2,031.9

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Includes down wood with diameters ≥0.1 inch.

Table A2-97—Biomass of down wood[a] on forest land, by county and land status, California, 2001–2010

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Alameda	63.9	70.9	490.4	173.2	554.3	187.1	—	—	24.4	14.7	24.4	14.7	578.6	187.7
Alpine	1,059.1	399.2	336.4	155.9	1,395.5	428.2	1,585.7	458.4	160.6	77.1	1,746.4	463.6	3,141.8	624.5
Amador	1,719.4	547.2	296.0	147.3	2,015.5	561.5	45.2	31.7	1.1	1.1	46.2	31.7	2,061.7	562.4
Butte	3,564.6	554.2	553.8	164.9	4,118.4	577.6	—	—	91.2	79.1	91.2	79.1	4,209.6	582.9
Calaveras	2,055.4	460.0	719.3	185.2	2,774.7	496.4	108.6	110.6	—	—	108.6	110.6	2,883.2	508.5
Colusa	312.3	139.1	248.4	64.1	560.7	152.7	—	—	4.6	4.4	4.6	4.4	565.3	152.7
Contra Costa	—	—	43.8	23.0	43.8	23.0	8.5	9.1	18.2	14.6	26.7	17.2	70.5	28.7
Del Norte	6,263.8	1,015.5	98.5	38.6	6,362.3	1,015.4	1,632.1	572.1	8.2	10.4	1,640.3	572.2	8,002.6	1,155.4
El Dorado	7,004.5	848.9	605.1	183.1	7,609.5	865.9	591.8	345.8	139.3	67.3	731.2	352.2	8,340.7	921.9
Fresno	2,757.3	556.4	971.7	286.9	3,729.0	624.5	3,418.8	576.5	1,091.8	258.2	4,510.6	626.6	8,239.6	852.3
Glenn	830.0	248.7	314.7	114.6	1,144.7	274.0	26.9	28.3	—	—	26.9	28.3	1,171.6	275.1
Humboldt	28,585.6	2,499.7	951.6	483.3	29,537.2	2,537.0	6,404.5	1,475.3	—	—	6,404.5	1,475.3	35,941.6	2,849.4
Imperial	—	—	30.5	17.1	30.5	17.1	—	—	3.9	4.0	3.9	4.0	34.4	17.6
Inyo	96.8	62.7	762.3	155.2	859.2	167.4	68.8	48.2	1,123.3	245.5	1,192.1	250.0	2,051.3	289.8
Kern	1,591.2	395.3	1,182.4	198.5	2,773.6	443.9	—	—	347.5	167.3	347.5	167.3	3,121.1	472.4
Lake	1,747.1	374.0	480.9	149.0	2,228.0	401.4	23.5	15.5	43.6	29.6	67.1	33.4	2,295.2	402.5
Lassen	7,200.2	766.1	885.8	160.5	8,086.0	783.3	633.1	304.0	—	—	633.1	304.0	8,719.1	834.6
Los Angeles	283.2	110.4	371.5	123.9	654.7	163.2	62.3	52.9	93.1	66.8	155.4	85.2	810.0	180.5
Madera	2,536.0	561.2	649.8	166.5	3,185.8	586.7	1,634.5	469.7	203.7	128.5	1,838.2	486.0	5,024.0	751.3
Marin	428.2	219.0	129.3	62.4	557.5	227.6	120.3	72.6	30.8	22.8	151.1	75.4	708.6	239.7
Mariposa	1,509.6	402.5	659.6	136.3	2,169.2	423.1	2,947.0	667.6	454.0	285.2	3,401.0	715.0	5,570.2	830.8
Mendocino	15,149.9	1,217.0	1,913.1	355.3	17,063.0	1,253.0	283.7	153.3	161.4	92.7	445.1	179.1	17,508.1	1,261.9
Merced	—	—	2.6	1.8	2.6	1.8	—	—	4.4	4.5	4.4	4.5	7.0	4.9
Modoc	4,310.4	507.1	958.7	176.2	5,269.1	535.0	350.9	180.8	12.9	9.2	363.7	181.0	5,632.8	561.8
Mono	1,174.5	315.1	2,157.2	364.4	3,331.7	472.5	190.3	106.7	213.1	96.5	403.4	143.8	3,735.1	489.9
Monterey	359.2	217.9	835.2	209.7	1,194.4	301.9	368.2	198.7	787.4	274.2	1,155.6	401.3	2,350.0	501.2
Napa	398.7	159.6	289.4	77.9	688.1	175.1	—	—	6.5	4.8	6.5	4.8	694.7	175.2
Nevada	2,653.9	615.7	195.8	102.2	2,849.7	622.5	72.5	73.8	69.8	63.6	142.3	97.4	2,992.0	631.5
Orange	—	—	25.2	20.4	25.2	20.4	—	—	16.7	14.3	16.7	14.3	41.9	24.9

Table A2-97—Biomass of down wood[a] on forest land, by county and land status, California, 2001–2010 (continued)

County	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Placer	4,675.6	682.1	398.7	118.0	5,074.3	694.7	369.4	209.4	2.1	1.6	371.5	209.4	5,445.8	724.7
Plumas	11,277.9	898.2	185.1	114.3	11,463.1	904.6	365.4	190.4	—	—	365.4	190.4	11,828.5	917.5
Riverside	17.0	10.4	429.5	321.8	446.5	321.9	247.6	157.8	72.5	43.3	320.2	163.7	766.6	360.8
Sacramento	—	—	1.0	1.1	1.0	1.1	—	—	—	—	—	—	1.0	1.1
San Benito	23.4	19.3	322.6	92.4	345.9	94.4	—	—	—	—	—	—	345.9	94.4
San Bernardino	737.5	234.6	1,183.1	267.5	1,920.6	353.2	282.6	121.1	316.4	138.0	599.0	182.6	2,519.6	393.2
San Diego	39.0	25.9	252.6	93.6	291.6	97.0	95.8	74.9	132.7	87.9	228.6	115.3	520.2	150.6
San Joaquin	80.1	49.4	4.6	3.8	84.7	49.5	—	—	—	—	—	—	84.7	49.5
San Luis Obispo	22.4	18.0	826.9	200.5	849.3	201.2	—	—	37.1	24.7	37.1	24.7	886.4	202.5
San Mateo	642.6	309.3	81.8	45.8	724.4	312.7	64.5	47.3	8.4	8.5	72.9	48.1	797.2	314.6
Santa Barbara	62.5	32.4	942.3	235.7	1,004.8	237.8	46.9	30.4	291.2	158.2	338.1	160.8	1,342.9	286.8
Santa Clara	198.0	108.7	746.1	178.2	944.1	207.5	—	—	177.3	59.1	177.3	59.1	1,121.4	215.5
Santa Cruz	1,562.4	533.0	48.5	42.7	1,611.0	534.7	389.3	168.7	21.8	22.2	411.1	170.1	2,022.0	561.1
Shasta	10,659.1	925.3	1,328.8	233.4	11,987.9	944.4	1,429.6	379.8	146.7	63.4	1,576.3	380.8	13,564.2	1,009.8
Sierra	4,993.3	712.2	68.0	54.6	5,061.3	731.7	24.1	24.6	—	—	24.1	24.6	5,085.4	732.1
Siskiyou	23,235.4	1,565.4	1,295.1	248.1	24,530.4	1,577.0	3,678.7	604.7	141.7	69.4	3,820.4	612.4	28,350.8	1,636.3
Solano	—	—	103.5	50.4	103.5	50.4	—	—	—	—	—	—	103.5	50.4
Sonoma	2,779.9	457.9	264.2	81.1	3,044.1	462.4	252.0	160.7	30.6	19.6	282.7	161.9	3,326.7	489.3
Stanislaus	—	—	117.6	53.7	117.6	53.7	—	—	41.9	31.8	41.9	31.8	159.5	62.4
Sutter	—	—	35.2	20.3	35.2	20.3	—	—	—	—	—	—	35.2	20.3
Tehama	5,312.0	723.4	1,026.1	246.0	6,338.0	761.9	372.8	159.7	186.1	113.8	559.0	195.8	6,897.0	783.2
Trinity	14,308.3	1,301.4	612.6	186.3	14,920.9	1,309.4	5,075.2	753.0	133.4	56.2	5,208.6	754.4	20,129.5	1,463.9
Tulare	1,797.0	477.4	503.3	109.5	2,300.2	487.8	6,649.0	906.9	1,713.5	332.4	8,362.5	954.0	10,662.8	1,056.4
Tuolumne	5,111.7	679.4	707.6	202.1	5,819.4	705.9	4,093.7	718.8	363.5	188.2	4,457.2	738.6	10,276.5	1,016.3
Ventura	9.4	7.0	357.0	75.5	366.4	75.8	97.4	66.3	134.5	57.8	231.9	87.9	598.4	113.3
Yolo	—	—	60.0	24.5	60.0	24.5	—	—	—	—	—	—	60.0	24.5
Yuba	1,328.4	380.5	155.5	55.6	1,483.9	384.3	—	—	3.2	2.9	3.2	2.9	1,487.1	384.4
All counties	182,527.7	3,923.3	29,216.1	1,246.3	211,743.8	3,995.3	44,111.2	2,432.3	9,066.3	764.9	53,177.6	2,509.6	264,921.3	4,358.2

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes down wood with diameters ≥0.1 inch.

Table A2-98—Carbon mass of down wood[a] on forest land, by county and land status, California, 2001–2010

County	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams													
Alameda	28.8	31.9	221.0	78.0	249.7	84.3	—	—	10.9	6.6	10.9	6.6	260.7	84.5
Alpine	491.9	185.3	154.4	71.1	646.3	198.3	740.4	214.2	75.2	36.3	815.6	216.7	1,461.9	290.6
Amador	787.5	250.4	133.1	66.0	920.6	256.6	20.9	14.8	0.5	0.5	21.4	14.8	942.0	257.0
Butte	1,632.1	253.6	250.7	74.7	1,882.8	264.0	—	—	41.0	35.5	41.0	35.5	1,923.8	266.4
Calaveras	951.0	214.0	325.1	83.7	1,276.1	230.0	50.5	51.5	—	—	50.5	51.5	1,326.6	235.6
Colusa	144.0	64.3	112.7	29.2	256.7	70.4	—	—	2.1	2.0	2.1	2.0	258.8	70.4
Contra Costa	—	—	19.8	10.4	19.8	10.4	3.9	4.2	8.3	6.7	12.2	7.9	32.1	13.1
Del Norte	2,908.6	473.9	45.2	17.7	2,953.9	473.8	755.3	266.1	3.8	4.8	759.1	266.1	3,713.0	538.8
El Dorado	3,246.5	394.8	275.1	83.0	3,521.6	402.3	272.6	157.5	65.5	31.7	338.1	160.7	3,859.7	427.2
Fresno	1,283.3	259.2	445.7	133.5	1,729.0	290.9	1,596.4	269.6	507.8	120.6	2,104.2	293.0	3,833.2	397.8
Glenn	382.2	114.8	143.3	52.1	525.6	126.2	12.4	13.0	—	—	12.4	13.0	538.0	126.7
Humboldt	13,280.4	1,169.9	436.7	225.0	13,717.1	1,187.3	2,996.9	693.1	—	—	2,996.9	693.1	16,714.0	1,335.3
Imperial	—	—	13.8	7.7	13.8	7.7	—	—	1.8	1.8	1.8	1.8	15.5	7.9
Inyo	45.0	29.2	355.6	72.7	400.6	78.4	32.2	22.5	522.1	114.7	554.3	116.7	954.9	135.5
Kern	741.7	184.7	538.2	90.7	1,279.8	206.5	—	—	161.9	78.5	161.9	78.5	1,441.7	219.9
Lake	806.8	173.6	221.0	69.0	1,027.8	186.3	10.9	7.1	19.8	13.4	30.6	15.2	1,058.4	186.7
Lassen	3,349.9	356.9	406.3	73.9	3,756.2	364.8	294.6	141.1	—	—	294.6	141.1	4,050.7	388.5
Los Angeles	130.3	50.4	168.1	55.9	298.4	74.0	28.1	23.9	43.2	31.4	71.4	39.4	369.8	82.2
Madera	1,181.0	262.0	297.3	76.7	1,478.3	273.6	760.5	217.7	95.0	60.2	855.6	225.4	2,333.9	349.6
Marin	197.0	101.1	58.2	28.0	255.2	104.9	54.7	33.0	13.9	10.2	68.5	34.2	323.7	110.3
Mariposa	696.5	185.3	300.5	62.1	997.0	194.6	1,374.7	311.6	211.8	133.0	1,586.5	333.7	2,583.5	386.3
Mendocino	6,986.1	562.3	864.1	160.3	7,850.2	578.0	129.8	69.9	72.9	41.6	202.7	81.3	8,052.9	581.9
Merced	—	—	1.2	0.8	1.2	0.8	—	—	2.0	2.0	2.0	2.0	3.1	2.2
Modoc	2,001.8	235.9	443.8	82.2	2,445.6	249.0	163.1	84.1	5.9	4.2	169.0	84.2	2,614.6	261.4
Mono	545.6	146.5	1,006.2	170.8	1,551.7	220.7	88.9	49.8	100.0	45.3	188.8	67.3	1,740.5	228.9
Monterey	166.2	101.4	379.5	96.1	545.7	139.5	168.8	91.3	359.1	126.2	527.9	185.7	1,073.6	231.8
Napa	180.9	72.4	131.7	35.5	312.6	79.5	—	—	2.9	2.2	2.9	2.2	315.5	79.5
Nevada	1,230.3	288.1	89.4	47.0	1,319.7	291.2	33.8	34.5	31.7	28.9	65.6	45.0	1,385.3	295.3
Orange	—	—	11.4	9.2	11.4	9.2	—	—	7.5	6.4	7.5	6.4	18.9	11.2

Table A2-98—Carbon mass of down wood[a] on forest land, by county and land status, California, 2001–2010 (continued)

County	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams													
Placer	2,164.4	316.5	181.0	53.5	2,345.4	322.2	172.2	98.2	1.0	0.7	173.1	98.2	2,518.5	336.4
Plumas	5,231.7	417.0	86.0	53.7	5,317.7	420.1	169.0	87.7	—	—	169.0	87.7	5,486.7	425.9
Riverside	7.7	4.7	194.8	145.4	202.5	145.4	115.5	73.5	32.9	19.5	148.4	76.0	350.9	163.9
Sacramento	—	—	0.5	0.5	0.5	0.5	—	—	—	—	—	—	0.5	0.5
San Benito	10.6	8.7	148.0	42.8	158.6	43.6	—	—	—	—	—	—	158.6	43.6
San Bernardino	343.5	109.5	543.2	123.2	886.7	163.6	132.3	56.8	148.1	65.0	280.3	85.9	1,167.0	182.7
San Diego	17.7	11.8	113.6	42.0	131.3	43.6	44.5	34.9	60.9	40.4	105.4	53.3	236.7	68.8
San Joaquin	36.1	22.2	2.1	1.7	38.2	22.3	—	—	—	—	—	—	38.2	22.3
San Luis Obispo	10.1	8.1	371.3	89.7	381.4	90.0	—	—	16.8	11.2	16.8	11.2	398.1	90.6
San Mateo	298.5	144.1	36.8	20.6	335.3	145.6	29.4	21.6	3.8	3.8	33.2	21.9	368.5	146.5
Santa Barbara	28.1	14.6	426.4	106.7	454.6	107.7	21.6	14.0	133.4	73.0	155.0	74.2	609.5	130.7
Santa Clara	89.8	49.4	337.1	80.5	426.9	93.9	—	—	80.3	26.8	80.3	26.8	507.2	97.5
Santa Cruz	712.7	242.3	21.7	19.1	734.4	243.1	178.8	78.0	10.0	10.2	188.8	78.6	923.2	255.4
Shasta	4,939.7	430.7	603.8	106.1	5,543.5	439.1	657.9	174.7	66.8	29.0	724.7	175.2	6,268.2	468.9
Sierra	2,317.3	331.2	31.6	25.5	2,348.9	340.5	11.0	11.2	—	—	11.0	11.2	2,359.9	340.7
Siskiyou	10,768.3	726.1	594.4	113.5	11,362.6	731.3	1,710.3	282.4	64.7	31.6	1,774.9	285.7	13,137.6	759.5
Solano	—	—	46.5	22.6	46.5	22.6	—	—	—	—	—	—	46.5	22.6
Sonoma	1,278.4	211.5	118.8	36.4	1,397.2	213.4	116.1	74.0	13.9	8.9	130.0	74.5	1,527.1	225.8
Stanislaus	—	—	52.8	24.0	52.8	24.0	—	—	19.1	14.6	19.1	14.6	72.0	28.0
Sutter	—	—	16.0	9.2	16.0	9.2	—	—	—	—	—	—	16.0	9.2
Tehama	2,459.9	335.5	467.3	111.3	2,927.2	352.4	172.3	74.1	84.3	51.1	256.5	89.9	3,183.7	362.1
Trinity	6,624.3	602.1	278.5	85.0	6,902.8	605.7	2,357.8	351.0	61.0	25.7	2,418.7	351.7	9,321.5	678.4
Tulare	836.2	222.9	228.1	49.9	1,064.3	227.5	3,106.2	424.7	799.6	155.8	3,905.8	446.8	4,970.0	494.5
Tuolumne	2,368.3	315.0	322.9	92.3	2,691.1	326.9	1,915.7	337.1	168.6	87.0	2,084.3	346.1	4,775.4	473.6
Ventura	4.3	3.2	163.1	34.5	167.4	34.6	44.5	30.2	61.4	26.3	105.8	40.1	273.2	51.6
Yolo	—	—	27.2	11.1	27.2	11.1	—	—	—	—	—	—	27.2	11.1
Yuba	608.2	174.5	70.3	25.1	678.6	176.3	—	—	1.5	1.3	1.5	1.3	680.0	176.3
All counties	84,550.8	1,827.0	13,332.7	571.3	97,883.5	1,859.3	20,544.3	1,137.0	4,194.3	355.5	24,738.6	1,172.6	122,622.1	2,031.9

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Includes down wood with diameters ≥0.1 inch.

Table A2-99—Average volume per acre of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)													
	Fine-wood size classes[a]						Coarse-wood size classes[b]							
	0.1–0.24		0.25–0.9		1.0–2.9		3.0–9.0		10.0–19.0		≥20.0		All down wood	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Cubic feet per acre													
Softwoods:														
California mixed conifer	8.86	0.25	66.23	4.53	188.42	5.85	196.02	4.68	357.51	9.43	743.98	28.70	1,561.01	36.33
Douglas-fir	14.80	1.10	74.96	5.78	224.68	25.13	184.59	11.31	366.38	27.36	1,105.40	146.60	1,970.82	167.52
Fir/spruce/mountain hemlock	12.08	0.45	73.87	3.22	221.16	10.76	198.83	10.04	425.40	23.64	785.06	60.41	1,716.42	76.68
Lodgepole pine	4.71	0.78	46.39	22.75	80.02	8.96	114.89	12.41	310.67	31.74	594.56	57.94	1,151.24	84.19
Pinyon/juniper woodlands	4.04	0.28	20.44	1.41	51.96	4.02	39.47	3.67	74.26	8.79	34.29	7.44	224.47	18.55
Ponderosa pine	2.68	0.26	33.56	1.77	97.41	5.88	96.02	5.62	140.04	9.72	270.67	28.66	640.39	37.35
Redwood	12.16	1.03	72.12	6.49	246.75	26.83	254.69	19.19	578.53	44.87	2,024.66	314.96	3,188.91	332.28
Western juniper	2.14	0.16	18.33	1.66	44.26	6.16	25.81	3.00	48.88	6.70	120.13	28.18	259.55	36.44
Western white pine	3.49	0.60	22.94	4.01	45.39	8.78	76.85	13.35	172.52	43.87	411.52	84.56	732.72	109.65
Other western softwoods	5.34	0.79	32.44	4.57	84.99	14.66	85.04	10.42	265.23	37.98	414.62	70.15	887.66	104.76
Total	7.55	0.16	53.14	2.32	150.37	3.51	148.37	2.79	288.45	6.07	620.69	21.15	1,268.57	26.08
Hardwoods:														
Alder/maple	8.87	0.87	65.86	7.77	234.92	31.76	173.66	17.45	411.27	55.72	1,505.04	270.48	2,399.63	322.80
Aspen/birch	3.97	0.96	38.85	9.20	152.61	29.33	166.16	42.63	130.52	83.88	236.40	153.40	728.50	256.39
Elm/ash/cottonwood	14.76	8.12	39.81	6.12	123.79	31.85	57.47	17.32	83.41	27.21	—	—	319.25	65.53
Tanoak/laurel	10.17	0.54	60.05	4.84	191.30	11.61	173.82	8.55	323.54	17.83	803.79	72.48	1,562.66	85.38
Western oak	4.98	0.14	32.30	1.16	84.71	3.41	68.93	2.42	99.03	4.63	108.93	9.60	398.88	14.96
Woodland hardwoods	4.66	0.48	36.88	4.80	96.00	10.37	50.04	9.17	73.31	15.42	36.06	15.70	296.94	32.52
Other hardwoods	7.91	1.03	46.86	6.06	133.79	25.50	119.16	16.64	149.03	21.49	161.87	39.87	618.63	72.84
Total	6.02	0.15	38.19	1.22	107.49	3.54	89.47	2.51	141.59	4.95	244.45	15.69	627.20	20.91
Nonstocked	3.92	0.49	31.38	3.66	87.38	10.69	106.55	13.16	205.39	34.19	208.24	49.32	642.86	81.67
All forest types	6.86	0.11	46.69	1.44	131.86	2.47	124.02	1.92	228.23	4.12	461.65	13.76	999.30	17.32

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 cubic feet per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] The diameter of each piece was visually estimated before being counted within each size class. Counts were used as input to volume equations for fine wood.

[b] Diameter classes are based on the diameter at the large end of the piece for decay classes less than 5, and based on the transect diameter for decay class 5 pieces. The diameter of each piece was measured and recorded to the nearest inch. Because of this, class breakpoints for 9, 10, 19, and 20 actually represent 0.4 inch above and below the value. For example, 9 represents 8.6 to 9.4 inches.

Table A2-100—Average biomass per acre of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)													
	Fine-wood size classes[a]						Coarse-wood size classes[b]							
	0.1–0.24		0.25–0.9		1.0–2.9		3.0–9.0		10.0–19.0		≥20.0		All down wood	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
Softwoods:														
California mixed conifer	0.093	0.003	0.695	0.053	1.962	0.063	1.541	0.039	2.521	0.068	4.963	0.200	11.775	0.274
Douglas-fir	0.174	0.012	0.881	0.064	2.596	0.267	1.541	0.101	2.748	0.219	7.757	1.034	15.697	1.224
Fir/spruce/mountain hemlock	0.118	0.004	0.719	0.031	2.154	0.104	1.375	0.070	2.765	0.156	5.070	0.397	12.201	0.518
Lodgepole pine	0.047	0.008	0.467	0.231	0.798	0.089	1.009	0.107	2.499	0.261	4.685	0.476	9.506	0.713
Pinyon/juniper woodlands	0.048	0.003	0.245	0.017	0.619	0.049	0.376	0.036	0.693	0.081	0.308	0.069	2.289	0.181
Ponderosa pine	0.027	0.003	0.340	0.018	0.993	0.060	0.816	0.051	1.126	0.082	1.887	0.210	5.189	0.297
Redwood	0.121	0.010	0.721	0.065	2.448	0.266	2.148	0.177	4.246	0.341	14.723	2.456	24.407	2.567
Western juniper	0.024	0.002	0.207	0.018	0.496	0.065	0.220	0.026	0.383	0.049	0.790	0.167	2.120	0.240
Western white pine	0.034	0.006	0.224	0.039	0.441	0.086	0.597	0.099	1.445	0.364	3.543	0.773	6.285	0.979
Other western softwoods	0.056	0.008	0.340	0.047	0.882	0.146	0.705	0.088	2.179	0.310	3.023	0.509	7.185	0.784
Total	0.080	0.002	0.557	0.026	1.566	0.037	1.179	0.023	2.088	0.045	4.259	0.153	9.728	0.195
Hardwoods:														
Alder/maple	0.096	0.009	0.708	0.083	2.552	0.351	1.315	0.137	2.853	0.378	10.475	1.772	17.999	2.182
Aspen birch	0.039	0.009	0.381	0.087	1.504	0.284	1.102	0.294	0.901	0.608	1.680	1.084	5.608	1.869
Elm/ash/cottonwood	0.210	0.128	0.458	0.074	1.302	0.293	0.359	0.093	0.613	0.184	—	—	2.943	0.523
Tanoak/laurel	0.130	0.007	0.762	0.059	2.416	0.142	1.600	0.094	2.533	0.152	5.365	0.470	12.806	0.619
Western oak	0.070	0.002	0.449	0.016	1.174	0.047	0.648	0.023	0.879	0.040	0.911	0.080	4.131	0.139
Woodland hardwoods	0.064	0.007	0.494	0.067	1.263	0.141	0.516	0.103	0.657	0.126	0.280	0.115	3.273	0.339
Other hardwoods	0.098	0.012	0.579	0.073	1.678	0.311	1.054	0.150	1.276	0.182	1.359	0.378	6.045	0.711
Total	0.081	0.002	0.510	0.016	1.423	0.046	0.825	0.025	1.184	0.041	1.790	0.109	5.814	0.165
Nonstocked	0.041	0.005	0.333	0.040	0.933	0.117	0.862	0.105	1.707	0.291	1.534	0.365	5.411	0.672
All forest types	0.079	0.001	0.533	0.016	1.494	0.028	1.031	0.017	1.721	0.031	3.215	0.099	8.073	0.131

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.0005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] The diameter of each piece was visually estimated before being counted within each size class. Counts were used as input to volume equations for fine wood.

[b] Diameter classes are based on the diameter at the large end of the piece for decay classes less than 5, and based on the transect diameter for decay class 5 pieces. The diameter of each piece was measured and recorded to the nearest inch. Because of this, class breakpoints for 9, 10, 19, and 20 actually represent 0.4 inch above and below the value. For example, 9 represents 8.6 to 9.4 inches.

Table A2-101—Average carbon mass per hectare of down wood on forest land, by forest type group and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)													
	Fine-wood size classes[a]						Coarse-wood size classes[b]							
	0.1–0.24		0.25–0.9		1.0–2.9		3.0–9.0		10.0–19.0		≥20.0		All down wood	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Kilograms per hectare													
Softwoods:														
California mixed conifer	104.25	3.10	778.68	59.56	2,199.06	70.08	1,778.94	44.88	2,911.35	78.77	5,745.25	231.43	13,517.53	314.91
Douglas-fir	194.51	13.44	987.44	71.31	2,909.89	299.76	1,757.67	115.31	3,150.54	251.05	8,984.88	1,198.75	17,984.94	1,415.84
Fir/spruce/mountain hemlock	132.00	4.91	806.41	35.04	2,414.33	116.90	1,598.79	81.07	3,209.76	180.75	5,842.73	455.89	14,004.03	595.39
Lodgepole pine	52.99	8.80	523.70	258.68	894.35	99.32	1,175.99	124.40	2,897.84	302.83	5,429.84	552.85	10,974.70	823.64
Pinyon/juniper woodlands	54.23	3.65	274.26	19.36	693.63	54.59	437.00	42.35	807.54	94.28	360.25	81.06	2,626.90	208.87
Ponderosa pine	30.64	2.96	381.21	20.01	1,112.64	67.45	945.28	58.52	1,304.46	94.54	2,174.33	241.36	5,948.56	341.38
Redwood	135.98	11.38	807.94	72.98	2,744.02	298.03	2,456.57	200.99	4,897.59	392.78	17,124.86	2,866.61	28,166.95	2,993.50
Western juniper	27.32	1.91	231.76	20.14	556.16	73.33	253.87	30.20	443.85	57.16	913.47	193.53	2,426.42	276.33
Western white pine	38.39	6.74	251.51	44.26	494.48	95.92	690.76	114.26	1,681.06	422.31	4,129.29	900.92	7,285.50	1,138.98
Other western softwoods	63.01	8.91	380.72	53.03	988.62	163.54	817.40	101.42	2,534.11	361.09	3,525.45	593.46	8,309.32	909.09
Total	89.26	1.91	624.40	29.18	1,754.86	41.16	1,361.05	26.54	2,414.14	51.75	4,931.73	177.78	11,175.43	225.86
Hardwoods:														
Alder/maple	107.21	10.15	793.15	93.51	2,860.28	393.53	1,488.05	154.88	3,260.80	432.04	12,139.27	2,070.04	20,648.76	2,538.57
Aspen/birch	43.95	10.55	427.20	97.90	1,685.75	318.53	1,233.41	326.73	1,025.33	693.74	1,890.68	1,221.96	6,306.31	2,102.42
Elm/ash/cottonwood	235.91	143.87	512.93	83.17	1,459.66	328.59	395.56	102.32	674.77	202.87	—	—	3,278.83	581.84
Tanoak/laurel	146.05	7.74	853.61	66.17	2,708.39	159.45	1,795.41	104.25	2,866.06	171.25	6,185.88	541.09	14,555.40	707.45
Western oak	78.48	2.27	503.65	18.20	1,315.41	52.36	726.44	26.39	992.14	45.18	1,035.89	91.46	4,652.02	157.84
Woodland hardwoods	71.46	8.24	553.55	74.54	1,415.88	157.87	576.97	115.08	750.32	145.02	324.14	134.10	3,692.33	383.50
Other hardwoods	109.46	13.89	649.24	81.47	1,881.21	348.14	1,183.80	168.85	1,437.44	204.77	1,563.50	429.82	6,824.65	804.32
Total	91.20	2.32	571.97	17.91	1,595.16	51.34	925.14	27.90	1,338.95	46.76	2,053.76	125.89	6,576.18	188.61
Nonstocked	46.08	5.72	373.43	45.09	1,046.02	130.76	998.91	121.24	1,985.23	339.31	1,782.87	425.49	6,232.55	778.49
All forest types	89.00	1.43	597.62	18.37	1,674.61	31.16	1,179.54	19.05	1,977.53	36.22	3,715.31	114.47	9,233.61	150.63

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 kilograms per hectare was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] The diameter of each piece was visually estimated before being counted within each size class. Counts were used as input to volume equations for fine-wood.

[b] Diameter classes are based on the diameter at the large end of the piece for decay classes less than 5, and based on the transect diameter for decay class 5 pieces. The diameter of each piece was measured and recorded to the nearest inch. Because of this, class breakpoints for 9, 10, 19, and 20 actually represent 0.4 inch above and below the value. For example, 9 represents 8.6 to 9.4 inches.

Table A2-102—Average number of pieces per acre of down wood[a] on forest land, by forest type group and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)							
	3.0–9.0		10.0–19.0		≥20.0		All classes	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Pieces per acre							
Softwoods:								
California mixed conifer	185.7	4.2	40.0	1.1	9.4	0.4	235.2	4.9
Douglas-fir	154.6	9.1	40.0	3.4	16.2	2.0	210.7	11.2
Fir/spruce/mountain hemlock	184.7	8.6	45.2	2.5	11.4	0.9	241.4	10.1
Lodgepole pine	99.5	10.5	27.8	2.3	8.5	0.9	135.7	11.8
Pinyon/juniper woodlands	51.2	4.6	12.3	1.6	1.3	0.3	64.8	5.7
Ponderosa pine	101.6	5.5	16.4	1.3	4.0	0.5	122.1	6.3
Redwood	207.4	15.4	67.0	5.9	24.8	2.6	299.2	18.8
Western juniper	33.4	4.1	6.4	0.9	1.6	0.3	41.3	4.5
Western white pine	82.8	13.6	19.1	5.3	8.0	2.8	109.9	15.7
Other western softwoods	78.2	8.8	30.2	4.2	6.7	1.1	115.1	11.5
Total	140.6	2.5	32.2	0.7	8.4	0.3	181.2	2.9
Hardwoods:								
Alder/maple	138.0	15.0	42.0	5.6	24.3	4.6	204.3	19.5
Aspen/birch	194.1	48.7	9.5	5.3	2.5	1.7	206.1	51.7
Elm/ash/cottonwood	72.2	20.1	5.9	3.0	—	—	78.1	20.6
Tanoak/laurel	155.2	6.9	33.5	2.0	11.0	0.9	199.7	8.1
Western oak	73.0	2.4	11.1	0.5	1.7	0.1	85.7	2.7
Woodland hardwoods	65.9	11.9	12.6	2.9	1.0	0.5	79.4	13.4
Other hardwoods	115.7	15.2	17.7	3.2	2.6	0.9	136.0	17.1
Total	89.5	2.3	15.5	0.6	3.6	0.2	108.6	2.7
Nonstocked	92.7	10.5	19.8	2.8	3.0	0.8	115.5	12.5
All forest types	119.2	1.7	25.3	0.5	6.4	0.2	150.8	2.0

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.05 pieces per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes down wood pieces ≥3 inches in diameter at the transect intersection. Number of pieces can not be estimated for down wood with smaller diameters (fine woody material) because pieces were not individually measured.

Table A2-103—Average biomass per acre of down wood[a] on forest land, by forest type group, ownership group, and land status, California, 2001–2010

	Ownership group and land status																	
	U.S. Forest Service				Other federal				State and local government				Private					
	Timberland		Other forest land		Timberland		Other forest land		Timberland		Other forest land		Timberland		Other forest land		All forest land	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre																	
Softwoods:																		
California mixed conifer	11.944	0.391	11.702	0.826	6.424	1.026	14.287	1.395	10.754	1.235	12.866	2.660	11.178	0.452	7.458	3.473	11.775	0.274
Douglas-fir	12.665	1.765	10.934	2.630	2.490	0.342	11.565	5.399	13.673	2.516	33.551	12.216	17.343	1.761	—	—	15.697	1.224
Fir/spruce/mountain hemlock	12.617	0.611	10.323	1.328	11.983	11.983	15.158	2.088	11.016	11.016	14.833	0.758	11.719	1.307	—	—	12.201	0.518
Lodgepole pine	11.182	1.685	7.745	0.812	—	—	11.108	1.875	9.018	0.505	—	—	10.351	2.084	—	—	9.506	0.713
Pinyon/juniper woodlands	1.929	0.916	2.838	0.287	20.705	20.705	1.994	0.279	—	—	1.282	0.466	0.006	0.006	1.405	0.478	2.289	0.181
Ponderosa pine	5.287	0.467	5.021	0.724	4.137	1.215	3.684	1.695	0.254	0.007	8.383	1.926	5.257	0.449	2.506	0.457	5.189	0.297
Redwood	—	—	25.861	5.885	—	—	64.070	17.689	14.268	5.005	24.216	3.957	22.132	2.692	—	—	24.407	2.567
Western juniper	3.558	0.950	2.413	0.356	3.569	1.550	1.244	0.215	—	—	19.011	13.458	1.776	0.659	1.091	0.219	2.120	0.240
Western white pine	5.652	2.016	6.177	1.091	—	—	9.870	4.580	—	—	—	—	2.746	2.746	—	—	6.285	0.979
Other western softwoods	9.375	2.606	5.892	1.056	0.951	0.951	5.328	1.194	—	—	3.761	0.429	14.211	2.279	6.789	3.428	7.185	0.784
Total	10.745	0.281	6.902	0.317	5.492	0.753	7.727	0.700	11.882	1.489	13.912	2.254	12.426	0.505	1.462	0.268	9.728	0.195
Hardwoods:																		
Alder/maple	14.228	2.207	12.957	3.538	6.402	1.293	25.460	10.671	19.100	8.597	12.115	1.810	21.589	3.315	6.817	2.703	17.999	2.182
Aspen/birch	4.444	1.345	5.407	3.881	—	—	2.588	0.280	—	—	4.293	0.000	9.736	3.349	—	—	5.608	1.869
Elm/ash/cottonwood	—	—	4.925	4.925	—	—	—	—	—	—	1.654	0.630	4.463	0.175	1.820	0.709	2.943	0.523
Tanoak/laurel	12.110	1.587	14.767	3.304	4.532	1.616	9.292	2.289	19.189	4.644	10.185	2.268	13.697	0.776	8.596	1.858	12.806	0.619
Western oak	6.981	0.489	4.878	0.414	6.657	1.731	3.479	0.536	6.752	1.733	3.206	0.396	6.276	0.518	2.679	0.132	4.131	0.139
Woodland hardwoods	2.511	0.504	3.444	0.559	—	—	3.383	0.706	—	—	3.578	1.062	4.737	2.552	3.039	1.009	3.273	0.339
Other hardwoods	10.817	1.721	3.748	1.107	4.816	4.816	0.448	0.248	22.335	17.148	3.685	1.141	8.297	1.405	2.739	0.711	6.045	0.711
Total	8.259	0.521	5.380	0.404	6.087	1.268	4.250	0.646	15.000	3.877	4.701	0.578	10.275	0.485	2.832	0.136	5.814	0.165
Nonstocked	5.693	1.083	4.887	1.490	4.316	1.924	5.685	2.500	—	—	4.467	0.000	5.761	1.073	1.476	0.702	5.411	0.672
All forest types	10.097	0.244	6.338	0.247	5.736	0.727	6.806	0.536	13.132	1.804	7.400	0.825	11.498	0.355	2.692	0.126	8.073	0.131

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.0005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots within forest type groups.

[a] Includes down wood with diameters ≥0.1 inch.

Table A2-104—Average biomass per acre of down wood[a] on forest land, by ownership and land status, California, 2001–2010

Ownership	Land status													
	Unreserved forests						Reserved forests						All forest land	
	Timberland		Other forest		Total		Productive		Other forest		Total			
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
USDA Forest Service:														
National forest	10.097	0.244	3.804	0.267	8.563	0.198	10.218	0.511	4.707	0.406	8.471	0.387	8.542	0.173
Other federal government:														
Bureau of Land Management	5.786	0.738	2.090	0.212	2.951	0.257	6.023	1.891	3.559	0.853	3.827	0.796	3.098	0.252
Departments of Defense or Energy	3.072	0.000	1.381	0.381	1.505	0.377	—	—	—	—	—	—	1.505	0.377
National Park Service	—	—	—	—	—	—	15.075	1.422	4.346	0.757	11.493	1.031	11.493	1.031
U.S. Fish and Wildlife Service	—	—	—	—	—	—	7.719	0.000	—	—	4.555	2.983	4.555	2.983
Other federal	—	—	1.261	0.455	1.261	0.455	21.198	10.540	3.665	1.297	11.735	6.421	3.532	1.748
Total	5.736	0.727	1.980	0.188	2.770	0.232	14.842	1.370	4.050	0.564	10.237	0.871	6.700	0.488
State and local government:														
Local	9.241	1.486	4.246	0.874	5.384	0.802	4.482	1.555	1.998	0.381	2.376	0.463	4.606	0.630
State	15.387	2.594	3.355	0.848	9.528	1.697	16.395	2.075	2.954	0.595	10.533	1.374	10.249	1.090
Other public	—	—	0.639	0.039	0.639	0.039	9.561	9.561	1.932	0.653	4.684	2.079	3.463	1.655
Total	13.132	1.804	3.871	0.643	7.073	0.878	15.710	1.967	2.678	0.440	9.155	1.165	8.256	0.758
Corporate private	13.770	0.556	2.748	0.354	12.593	0.512	—	—	—	—	—	—	12.593	0.512
Noncorporate private:														
Nongovernmental organizations and conservation or natural resource organizations	9.107	1.256	1.873	0.588	7.503	1.054	—	—	—	—	—	—	7.503	1.054
Unincorporated partnerships, associations, or clubs	10.836	2.829	4.851	2.546	9.083	2.159	—	—	—	—	—	—	9.083	2.159
Native American	16.663	2.940	2.612	0.557	12.834	2.390	—	—	—	—	—	—	12.834	2.390
Individual	8.308	0.413	2.684	0.137	4.833	0.189	—	—	—	—	—	—	4.833	0.189
Total	8.816	0.399	2.686	0.134	5.229	0.194	—	—	—	—	—	—	5.229	0.194
All private	11.498	0.355	2.692	0.126	7.838	0.223	—	—	—	—	—	—	7.838	0.223
All owners	10.657	0.204	2.975	0.111	7.857	0.141	11.928	0.524	4.182	0.292	9.065	0.364	8.073	0.131

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.0005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots.

[a] Includes down wood with diameters ≥0.1 inch.

Table A2-105—Average biomass per acre of down wood[a] on forest land, by county and land status, California, 2001–2010

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
Alameda	9.970	2.725	6.118	1.322	6.403	1.288	—	—	1.241	0.272	1.241	0.272	5.448	1.162
Alpine	8.980	2.723	4.803	1.691	7.423	1.862	10.095	2.159	2.685	0.952	8.051	1.679	7.760	1.244
Amador	13.851	3.251	3.809	1.532	9.984	2.232	2.797	1.404	0.174	0.174	2.077	1.138	9.199	2.055
Butte	9.181	0.900	4.245	0.837	7.940	0.734	—	—	7.335	3.391	7.335	3.391	7.925	0.721
Calaveras	10.182	1.557	3.158	0.668	6.458	0.913	17.581	17.581	—	—	17.581	17.581	6.615	0.915
Colusa	6.427	1.724	1.531	0.284	2.660	0.575	—	—	0.689	0.689	0.689	0.689	2.599	0.560
Contra Costa	—	—	1.831	0.343	1.831	0.343	1.532	1.532	1.324	0.584	1.384	0.415	1.631	0.276
Del Norte	12.946	1.584	1.983	0.358	11.926	1.475	18.179	4.186	2.037	2.037	17.485	4.096	12.757	1.406
El Dorado	10.932	0.897	4.866	1.032	9.946	0.791	11.537	5.456	5.341	0.844	9.448	3.703	9.900	0.792
Fresno	9.865	1.464	2.847	0.751	6.006	0.840	8.796	1.050	4.243	0.789	6.983	0.736	6.504	0.553
Glenn	8.369	1.414	3.325	0.862	5.906	0.930	4.576	4.576	—	—	4.576	4.576	5.867	0.904
Humboldt	18.913	1.322	10.550	4.574	18.442	1.277	32.208	5.303	—	—	32.208	5.303	19.962	1.296
Imperial	—	—	0.564	0.252	0.564	0.252	—	—	0.921	0.921	0.921	0.921	0.591	0.235
Inyo	5.715	1.409	2.774	0.480	2.944	0.471	5.482	0.332	4.135	0.718	4.194	0.687	3.561	0.420
Kern	10.076	1.611	2.086	0.282	3.827	0.507	—	—	4.781	1.908	4.781	1.908	3.914	0.492
Lake	9.098	1.260	2.959	0.701	6.284	0.829	2.151	0.182	2.387	0.864	2.299	0.543	5.981	0.777
Lassen	8.431	0.607	1.808	0.272	6.017	0.442	17.275	3.862	—	—	17.275	3.862	6.316	0.458
Los Angeles	4.610	1.069	2.478	0.695	3.097	0.614	5.649	3.380	3.543	1.766	4.166	1.598	3.258	0.574
Madera	11.358	1.779	2.052	0.445	5.900	0.907	11.129	2.241	5.633	2.610	10.043	1.899	6.948	0.846
Marin	18.072	2.413	3.730	1.134	9.553	2.471	6.403	0.737	2.746	0.333	5.035	0.909	8.019	1.754
Mariposa	10.071	1.795	2.585	0.367	5.356	0.829	15.018	2.324	10.646	5.288	14.237	2.144	8.651	1.029
Mendocino	11.628	0.662	5.298	0.743	10.254	0.561	11.193	2.308	5.310	1.842	7.985	1.752	10.181	0.546
Merced	—	—	0.103	0.073	0.103	0.073	—	—	0.641	0.057	0.641	0.057	0.219	0.126
Modoc	6.247	0.478	1.437	0.233	3.883	0.306	10.588	3.275	1.050	0.126	8.014	2.830	4.016	0.312
Mono	5.714	1.205	3.907	0.546	4.397	0.518	7.844	1.814	3.086	1.041	4.323	1.045	4.389	0.475
Monterey	11.219	4.771	2.316	0.505	3.042	0.673	11.144	4.544	7.604	2.190	8.460	2.400	4.441	0.832
Napa	6.745	1.625	2.556	0.411	3.993	0.733	—	—	0.866	0.244	0.866	0.244	3.862	0.712
Nevada	7.698	1.490	3.234	1.380	7.031	1.296	26.558	26.558	8.627	8.627	13.148	4.619	7.190	1.266
Orange	—	—	2.263	0.606	2.263	0.606	—	—	6.028	2.931	6.028	2.931	3.014	0.869
Placer	9.999	0.982	3.454	0.706	8.703	0.842	9.671	4.036	0.182	0.063	7.464	3.365	8.606	0.821
Plumas	8.431	0.464	3.808	1.981	8.269	0.454	10.086	3.176	—	—	10.086	3.176	8.315	0.450
Riverside	1.119	0.133	8.551	5.833	6.823	4.547	10.422	3.917	1.691	0.852	4.802	2.001	5.803	2.475
Sacramento	—	—	0.109	0.051	0.108	0.051	—	—	—	—	—	—	0.108	0.051
San Benito	2.470	0.471	2.292	0.491	2.303	0.462	—	—	—	—	—	—	2.303	0.462
San Bernardino	7.844	1.531	4.944	0.814	5.762	0.747	7.464	1.145	2.007	0.775	3.063	0.757	4.764	0.559
San Diego	2.747	2.747	3.163	0.804	3.101	0.685	7.631	2.344	3.276	1.759	4.306	1.577	3.536	0.728
San Joaquin	4.630	4.630	0.635	0.220	3.443	0.788	—	—	—	—	—	—	3.443	0.788

Table A2-105—Average biomass per acre of down wood[a] on forest land, by county and land status, California, 2001–2010 (continued)

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
San Luis Obispo	1.902	1.115	3.213	0.629	3.156	0.607	—	—	1.284	0.579	1.284	0.579	2.974	0.556
San Mateo	14.099	4.824	4.212	1.635	11.144	3.674	4.482	1.555	1.700	1.700	3.773	1.329	9.456	2.952
Santa Barbara	2.925	0.443	4.482	0.873	4.338	0.797	2.427	0.820	5.032	2.200	4.380	1.687	4.349	0.732
Santa Clara	6.951	2.012	4.021	0.648	4.411	0.652	—	—	2.688	0.556	2.688	0.556	4.005	0.529
Santa Cruz	12.921	3.790	5.009	1.690	12.334	3.527	8.960	1.969	3.532	3.532	8.284	1.838	11.219	2.623
Shasta	8.556	0.508	2.987	0.405	7.091	0.414	10.417	1.753	2.850	0.765	8.353	1.403	7.218	0.398
Sierra	10.692	0.982	7.177	5.891	10.622	1.007	5.218	5.218	—	—	5.218	5.218	10.570	1.001
Siskiyou	10.366	0.529	2.825	0.440	9.086	0.461	10.028	1.119	4.030	1.455	9.503	1.049	9.140	0.422
Solano	—	—	3.908	1.152	3.908	1.152	—	—	—	—	—	—	3.698	1.096
Sonoma	8.694	0.847	2.230	0.454	6.947	0.704	11.982	3.754	1.207	0.547	6.090	2.624	6.865	0.684
Stanislaus	—	—	1.370	0.518	1.370	0.518	—	—	2.365	1.063	2.365	1.063	1.541	0.477
Sutter	—	—	1.281	0.317	1.281	0.317	—	—	—	—	—	—	1.281	0.317
Tehama	11.636	0.909	2.329	0.504	7.065	0.638	7.366	1.986	5.441	3.112	6.590	1.779	7.024	0.603
Trinity	11.854	0.757	4.583	0.976	11.129	0.702	10.895	1.138	2.190	0.610	9.888	1.044	10.779	0.586
Tulare	9.045	1.833	1.669	0.283	4.599	0.847	11.421	1.095	5.859	0.794	9.561	0.801	7.756	0.616
Tuolumne	11.013	0.858	3.978	0.883	9.064	0.723	12.176	1.456	8.174	2.869	11.709	1.337	10.048	0.681
Ventura	0.784	0.228	2.131	0.315	2.041	0.301	2.635	1.455	2.628	0.811	2.631	0.771	2.236	0.325
Yolo	—	—	0.901	0.278	0.901	0.278	—	—	—	—	—	—	0.901	0.278
Yuba	11.388	2.052	2.520	0.494	8.320	1.549	—	—	0.449	0.028	0.449	0.028	8.016	1.513
All counties	10.657	0.204	2.975	0.111	7.857	0.141	11.928	0.524	4.182	0.292	9.065	0.364	8.073	0.131

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.0005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots.

[a] Includes down wood with diameters ≥0.1 inch.

Table A2-106—Average biomass per acre of all dead wood (dead trees and down wood)[a] on forest land, by county and land status, California, 2001–2010

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
Alameda	9.97	2.73	8.68	2.01	8.78	1.87	—	—	1.24	0.27	1.24	0.27	7.38	1.69
Alpine	20.03	5.43	6.23	2.45	14.89	3.72	19.66	3.41	4.43	1.36	15.46	2.75	15.19	2.26
Amador	23.42	5.47	4.33	1.58	16.07	3.77	20.06	4.06	0.17	0	14.61	5.39	15.92	3.44
Butte	16.73	1.95	6.01	1.00	14.03	1.56	—	—	8.94	4.33	8.94	4.33	13.91	1.53
Calaveras	17.22	3.00	4.43	0.83	10.44	1.65	21.16	21.16	—	—	21.16	21.16	10.59	1.63
Colusa	9.30	2.36	2.91	0.60	4.38	0.86	—	—	0.69	0.69	0.69	0.69	4.27	0.84
Contra Costa	—	—	1.97	0.22	1.97	0.22	2.83	2.83	1.32	0.58	1.75	0.53	1.87	0.27
Del Norte	25.56	3.16	5.53	1.68	23.69	2.92	38.05	6.17	3.27	3.27	36.55	6.17	25.62	2.68
El Dorado	20.62	1.75	6.38	1.62	18.30	1.54	35.69	16.16	12.26	3.01	27.79	11.12	19.18	1.74
Fresno	20.03	2.82	4.07	1.19	11.26	1.60	20.10	2.01	7.24	1.16	14.98	1.43	13.16	1.07
Glenn	20.16	5.10	4.75	1.36	12.63	2.98	13.16	0	—	—	13.16	0	12.65	2.89
Humboldt	32.07	2.42	12.93	4.65	31.00	2.31	63.17	10.18	—	—	63.17	10.18	34.55	2.38
Imperial	—	—	1.21	0.61	1.21	0.61	—	—	1.90	1.90	1.90	0	1.26	0.57
Inyo	14.24	2.34	4.00	0.60	4.59	0.67	12.29	4.44	5.72	0.95	6.01	0.95	5.29	0.58
Kern	17.77	3.88	3.35	0.57	6.50	1.08	—	—	7.37	2.02	7.37	2.02	6.58	1.00
Lake	14.98	2.47	4.74	1.02	10.28	1.53	2.26	0.13	3.62	0.50	3.11	0.41	9.74	1.43
Lassen	12.52	0.99	3.08	0.51	9.08	0.71	31.77	8.61	—	—	31.77	8.61	9.68	0.77
Los Angeles	12.04	3.76	3.10	0.71	5.70	1.40	9.89	6.73	7.50	2.67	8.21	2.72	6.08	1.26
Madera	24.58	4.91	2.72	0.50	11.76	2.32	33.87	7.14	9.64	4.60	29.08	6.01	16.15	2.41
Marin	41.38	8.70	4.58	1.23	19.52	6.71	27.46	9.81	2.75	0.33	18.22	8.27	19.08	5.26
Mariposa	15.21	2.50	3.55	0.55	7.87	1.20	40.52	5.26	15.19	6.15	36.00	4.73	18.30	2.28
Mendocino	17.93	1.01	7.07	1.06	15.58	0.86	34.10	17.56	10.22	2.65	21.08	8.99	15.76	0.88
Merced	—	—	0.10	0.07	0.10	0.07	—	—	0.64	0.06	0.64	0.06	0.22	0.13
Modoc	10.04	1.01	1.84	0.30	6.01	0.59	26.85	9.73	2.30	1.02	20.23	8.17	6.47	0.65
Mono	8.50	1.62	6.39	0.83	6.96	0.75	14.35	6.78	4.74	1.51	7.24	2.38	6.99	0.72
Monterey	16.82	5.95	3.59	0.78	4.67	0.98	12.14	4.55	15.78	5.28	14.90	4.32	7.31	1.41
Napa	11.03	2.47	3.35	0.61	5.99	1.19	—	—	2.75	0.43	2.75	0.43	5.85	1.15
Nevada	14.46	2.29	3.67	1.60	12.85	2.01	26.56	26.56	9.62	9.62	13.89	4.36	12.88	1.96
Orange	—	—	5.24	1.68	5.24	1.68	—	—	6.03	2.93	6.03	2.93	5.40	1.43
Placer	19.51	1.91	6.51	1.31	16.93	1.64	17.98	6.33	2.24	0.61	14.32	5.35	16.73	1.57
Plumas	19.87	1.50	6.93	2.99	19.42	1.46	33.25	12.22	—	—	33.25	12.22	19.77	1.46
Riverside	2.50	1.01	14.18	10.04	11.47	7.82	14.43	6.29	2.04	0.82	6.46	2.96	8.94	4.18
Sacramento	—	—	0.11	0.05	0.11	0.05	—	—	—	—	—	—	0.11	0.05
San Benito	2.47	0.47	2.90	0.64	2.87	0.60	—	—	—	—	—	—	2.87	0.60
San Bernardino	23.12	4.76	6.91	1.08	11.48	1.83	27.44	8.59	4.36	1.55	8.83	2.61	10.50	1.50
San Diego	24.08	12.36	8.48	2.27	10.83	3.07	45.59	13.93	10.05	5.33	18.46	7.36	13.58	3.40
San Joaquin	4.63	4.63	0.64	0.22	3.44	0.79	—	—	—	—	—	—	3.44	0.79

Table A2-106—Average biomass per acre of all dead wood (dead trees and down wood)[a] on forest land, by county and land status, California, 2001–2010 (continued)

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
County	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
San Luis Obispo	1.90	1.12	4.12	0.75	4.02	0.73	—	—	2.08	0.89	2.08	0.89	3.83	0.67
San Mateo	18.42	5.48	4.21	1.64	14.18	4.32	25.29	8.94	5.40	5.40	20.22	7.77	15.56	3.82
Santa Barbara	4.11	1.22	6.47	1.29	6.25	1.18	7.81	4.94	5.46	2.19	6.05	2.08	6.20	1.03
Santa Clara	9.29	2.79	5.72	1.08	6.20	1.04	—	—	3.81	0.77	3.81	0.77	5.63	0.83
Santa Cruz	19.38	4.30	5.01	1.69	18.32	4.04	13.01	2.02	3.53	3.53	11.83	2.09	16.53	3.03
Shasta	12.70	0.78	4.50	0.70	10.54	0.63	18.52	3.59	4.62	1.80	14.73	2.86	10.96	0.64
Sierra	21.09	2.18	17.71	4.37	21.02	2.15	5.22	5.22	—	—	5.22	5.22	20.87	2.14
Siskiyou	19.55	1.29	4.73	1.08	17.04	1.11	29.28	3.75	6.91	2.19	27.32	3.48	18.37	1.07
Solano	—	—	4.63	1.71	4.63	1.71	—	—	—	—	—	—	4.38	1.62
Sonoma	12.72	1.22	3.02	0.61	10.10	1.02	38.90	16.23	5.97	3.35	20.89	9.63	11.13	1.36
Stanislaus	—	—	1.84	0.61	1.84	0.61	—	—	3.53	0.69	3.53	0.69	2.13	0.55
Sutter	—	—	1.28	0.32	1.28	0.32	—	—	—	—	—	—	1.28	0.32
Tehama	20.90	2.26	4.13	1.11	12.67	1.43	18.91	5.64	8.38	3.69	14.66	4.03	12.84	1.35
Trinity	20.77	1.24	8.44	1.83	19.54	1.16	30.72	3.49	3.23	0.94	27.54	3.21	21.80	1.24
Tulare	23.84	5.50	3.51	0.63	11.58	2.47	28.08	2.61	11.95	1.52	22.68	1.91	18.65	1.55
Tuolumne	21.55	2.46	5.92	1.13	17.22	1.91	35.07	5.51	10.54	4.23	32.21	4.99	22.80	2.28
Ventura	0.78	0.23	3.05	0.45	2.89	0.43	15.78	9.98	4.98	2.00	9.51	4.57	5.07	1.59
Yolo	—	—	1.93	0.85	1.93	0.85	—	—	—	—	—	—	1.93	0.85
Yuba	17.76	4.21	3.48	0.68	12.82	3.03	—	—	0.45	0.03	0.45	0.03	12.34	2.94
All counties	19.19	0.41	4.47	0.17	13.83	0.27	29.68	1.26	7.25	0.50	21.39	0.87	15.18	0.27

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots.

[a] Includes dead trees ≥5 inches in diameter at breast height and down wood ≥0.1 inch diameter at the transect intersection.

Table A2-107—Volume of live trees, dead trees,[a] and down wood on forest land, by stand age class, California, 2001–2010

	Live trees (1)		Dead trees (1)		Down wood (2)		
Stand age class	Total	SE	Total	SE	Total	SE	All volume
			Million cubic feet				
Classes in years:							
1–20	857.2	92.9	1,393.4	372.0	1,623.5	145.8	3,874.2
21–40	5,404.3	386.0	1,314.9	295.8	2,751.6	254.0	9,470.8
41–60	12,244.2	609.4	2,210.2	411.6	3,969.3	296.7	18,423.7
61–80	19,249.8	793.6	2,102.3	148.3	4,946.6	251.9	26,298.7
81–100	20,455.8	857.5	2,843.9	237.8	4,809.1	236.0	28,108.9
101–120	9,373.8	621.9	1,338.2	130.0	2,389.5	184.0	13,101.4
121–140	7,805.8	629.7	1,066.3	114.2	1,790.5	160.7	10,662.6
141–160	8,468.3	626.6	1,450.1	136.0	2,111.1	189.9	12,029.6
161–180	4,500.0	500.3	890.2	127.9	1,194.5	145.2	6,584.8
181–200	5,346.3	551.6	950.3	107.4	1,528.5	158.9	7,825.2
201+	18,276.4	1,268.7	2,964.6	220.2	4,024.6	273.4	25,265.6
Unknown	6,540.0	320.0	1,243.1	156.6	1,653.5	111.6	9,436.6
All classes	118,522.0	1,589.8	19,767.5	728.6	32,792.5	573.5	171,082.0

Note: Totals may be off because of rounding; data subject to sampling error; SE = standard error.

[a] Live and dead tree volume is aboveground volume of the tree from ground to tip (live trees) and to actual height (dead trees), including stem volume and stem bark.

Table A2-108—Biomass of live trees, dead trees[a], and down wood on forest land, by stand age class, California, 2001–2010

	Live trees		Dead trees		Down wood		
Stand age class	Total	SE	Total	SE	Total	SE	All biomass
			Thousand tons				
Classes in years:							
1–20	16,740.0	1,745.8	13,300.5	2,883.4	14,032.8	1,222.1	44,073.3
21–40	99,617.8	6,976.7	9,335.9	1,666.6	21,003.4	1,830.8	129,957.1
41–60	228,991.6	11,158.4	17,040.8	2,309.4	32,613.9	2,300.2	278,646.3
61–80	367,311.9	14,969.4	25,242.5	1,663.9	41,204.5	2,019.7	433,758.9
81–100	385,460.2	16,013.8	33,952.8	2,360.7	39,510.0	1,894.3	458,923.0
101–120	176,508.3	11,599.0	17,634.1	1,830.9	18,805.1	1,436.0	212,947.5
121–140	145,519.5	11,736.4	14,573.2	1,607.9	14,187.1	1,257.1	174,279.8
141–160	159,612.1	11,738.8	18,972.5	1,886.2	15,969.7	1,397.9	194,554.3
161–180	84,164.1	9,333.4	12,188.9	1,840.0	9,063.6	1,112.1	105,416.6
181–200	100,301.7	10,400.3	12,912.6	1,552.2	11,844.1	1,217.6	125,058.4
201+	338,255.1	23,479.0	39,734.5	3,070.7	30,004.1	1,965.7	407,993.7
Unknown	133,796.2	6,588.1	18,235.3	2,566.3	16,682.8	1,013.5	168,714.3
All classes	2,236,278.5	29,466.8	233,123.5	6,574.5	264,921.3	4,358.2	2,734,323.3

Note: Totals may be off because of rounding; data subject to sampling error; SE = standard error.

[a] Live and dead tree biomass is total aboveground biomass of the tree from ground to tip (live trees) and to actual height (dead trees), including stem wood, bark, and branches.

Table A2–109—Carbon mass of live trees, dead trees[a], and down wood on forest land, by stand age class, California, 2001–2010

	Live trees		Dead trees		Down wood		
Stand age class	Total	SE	Total	SE	Total	SE	All carbon mass
			Thousand megagrams				
Classes in years:							
1–20	7,593.2	791.9	6,033.1	1,307.9	6,487.3	565.4	20,113.6
21–40	45,186.6	3,164.6	4,234.8	756.0	9,737.2	853.5	59,158.6
41–60	103,870.6	5,061.5	7,729.7	1,047.5	15,111.2	1,077.2	126,711.5
61–80	166,612.7	6,790.1	11,450.0	754.7	19,004.6	934.0	197,067.3
81–100	174,844.7	7,263.9	15,401.0	1,070.8	18,241.5	875.8	208,487.2
101–120	80,064.2	5,261.3	7,998.8	830.5	8,706.8	666.1	96,769.8
121–140	66,007.7	5,323.7	6,610.4	729.4	6,564.2	581.9	79,182.3
141–160	72,400.0	5,324.7	8,605.9	855.6	7,406.9	650.4	88,412.8
161–180	38,176.8	4,233.6	5,528.9	834.6	4,215.6	518.1	47,921.3
181–200	45,496.8	4,717.6	5,857.2	704.1	5,521.1	568.6	56,875.1
201+	153,432.5	10,650.1	18,023.6	1,392.9	13,980.4	917.4	185,436.5
Unknown	60,690.0	2,988.4	8,271.5	1,164.1	7,645.3	468.7	76,606.8
All classes	1,014,375.9	13,366.1	105,744.8	2,982.2	122,622.1	2,031.9	1,242,742.8

Note: Totals may be off because of rounding; data subject to sampling error; SE = standard error.

[a] Live and dead tree carbon mass is total aboveground carbon mass of the tree from ground to tip (live trees) and to actual height (dead trees), including stem wood, bark, and branches.

Table A2-110—Average volume per acre of live trees, dead trees[a], and down wood on forest land, by stand age class, California, 2001–2010

	Live trees		Dead trees		Down wood		
Stand age class	Total	SE	Total	SE	Total	SE	All volume
			Cubic feet per acre				
Classes in years:							
1–20	575.05	53.20	934.79	242.58	1,089.13	75.56	2,599.0
21–40	2,601.99	133.51	633.08	138.75	1,324.80	102.67	4,559.9
41–60	3,144.58	112.54	567.63	103.79	1,019.41	67.63	4,731.6
61–80	3,368.60	98.49	367.90	23.68	865.62	36.36	4,602.1
81–100	3,910.59	113.86	543.68	42.19	919.38	35.39	5,373.7
101–120	4,418.56	190.72	630.78	52.36	1,126.36	65.05	6,175.7
121–140	5,306.41	277.87	724.89	63.59	1,217.16	79.17	7,248.5
141–160	5,004.17	236.18	856.93	64.08	1,247.53	86.59	7,108.6
161–180	5,349.23	396.14	1,058.18	124.19	1,419.94	126.01	7,827.4
181–200	5,683.27	384.12	1,010.17	85.01	1,624.88	112.49	8,318.3
201+	7,184.45	389.69	1,165.37	70.54	1,582.09	82.57	9,931.9
Unknown	1,363.01	52.75	259.07	31.35	344.62	20.46	1,966.7
All classes	3,611.77	47.91	602.38	22.18	999.30	17.32	70,443.3

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; the average was calculated using a ratio of means formula across plots.

[a] Live and dead tree volume is aboveground volume of the tree from ground to tip (live trees) and to actual height (dead trees), including stem volume and stem bark.

Table A2-111—Average biomass per acre of live trees, dead trees[a], and down wood on forest land, by stand age class, California, 2001–2010

	Live trees		Dead trees		Down wood		
Stand age class	Total	SE	Total	SE	Total	SE	All biomass
			Tons per acre				
Classes in years:							
1–20	11.23	0.99	8.92	1.85	9.41	0.62	29.6
21–40	47.96	2.37	4.49	0.77	10.11	0.72	62.6
41–60	58.81	2.01	4.38	0.57	8.38	0.52	71.6
61–80	64.28	1.84	4.42	0.26	7.21	0.29	75.9
81–100	73.69	2.11	6.49	0.41	7.55	0.28	87.7
101–120	83.20	3.52	8.31	0.76	8.86	0.50	100.4
121–140	98.92	5.18	9.91	0.91	9.64	0.61	118.5
141–160	94.32	4.39	11.21	0.92	9.44	0.62	115.0
161–180	100.05	7.38	14.49	1.82	10.77	0.97	125.3
181–200	106.62	7.27	13.73	1.29	12.59	0.85	132.9
201+	132.97	7.20	15.62	1.00	11.79	0.58	160.4
Unknown	27.88	1.10	3.80	0.52	3.48	0.18	35.2
All classes	68.15	0.89	7.10	0.20	8.07	0.13	83.3

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; the average was calculated using a ratio of means formula across plots.

[a] Live and dead tree biomass is total aboveground biomass of the tree from ground to tip (live trees) and to actual height (dead trees), including stem wood, bark, and branches.

Table A2-112—Average carbon mass per hectare of live trees, dead trees[a], and down wood on forest land, by stand age class, California, 2001–2010

	Live trees		Dead trees		Down wood		
Stand age class	Total	SE	Total	SE	Total	SE	All carbon mass
			Kilograms per hectare				
Classes in years:							
1–20	12,587.34	1,104.74	10,001.10	2,075.11	10,753.96	704.78	33,342.4
21–40	53,759.57	2,653.03	5,038.20	861.89	11,584.58	832.12	70,382.4
41–60	65,918.66	2,257.66	4,905.44	640.45	9,589.89	598.11	80,414.0
61–80	72,046.42	2,058.81	4,951.19	293.87	8,217.96	327.56	85,215.6
81–100	82,596.02	2,361.42	7,275.38	454.81	8,617.24	319.65	98,488.6
101–120	93,258.15	3,942.82	9,316.98	847.33	10,141.57	576.41	112,716.7
121–140	110,881.17	5,805.92	11,104.28	1,015.77	11,026.71	700.53	133,012.2
141–160	105,719.52	4,915.28	12,566.49	1,027.82	10,815.68	719.20	129,101.7
161–180	112,138.67	8,273.07	16,240.31	2,045.03	12,382.70	1,123.44	140,761.7
181–200	119,510.33	8,147.28	15,385.46	1,441.26	14,502.63	980.76	149,398.4
201+	149,039.81	8,070.74	17,507.55	1,124.29	13,580.17	666.84	180,127.5
Unknown	31,255.14	1,229.46	4,259.81	580.46	3,937.33	206.39	39,452.3
All classes	76,383.85	993.75	7,962.73	224.49	9,233.61	150.63	93,580.2

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; the average was calculated using a ratio of means formula across plots.

[a] Live and dead tree carbon mass is total aboveground carbon mass of the tree from ground to tip (live trees) and to actual height (dead trees), including stem wood, bark, and branches.

Table A2-113—Area of forest land, by national forest and land status, California, 2001–2010

National forest	Land status													
	Unreserved forests						Reserved forests						All forest land	
	Timberland		Other forest		Total		Productive		Other forest		Total			
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres													
Angeles	61.4	18.1	116.3	24.6	177.8	29.9	17.3	9.9	13.9	9.1	31.2	13.4	209.0	32.2
Cleveland	6.5	6.3	6.5	3.3	12.9	7.1	—	—	—	—	—	—	12.9	7.1
Eldorado	470.0	48.9	11.4	8.4	481.4	49.5	53.7	17.7	32.9	14.3	86.6	22.7	568.0	53.9
Inyo	179.8	31.8	475.7	46.1	655.6	54.4	161.1	30.4	182.7	31.9	343.8	43.0	999.3	62.3
Klamath	1,049.5	69.9	140.8	28.5	1,190.3	74.0	312.9	41.7	21.5	9.8	334.4	42.9	1,524.7	79.9
Lake Tahoe Basin	55.7	18.0	25.4	12.1	81.1	21.6	19.5	11.0	12.2	7.6	31.7	13.1	112.8	24.9
Lassen	845.7	66.0	105.3	24.3	951.0	70.0	45.2	15.7	15.5	9.2	60.6	18.2	1,011.6	71.7
Los Padres	49.7	16.4	339.7	37.3	389.4	40.9	88.6	22.2	223.4	33.6	312.0	39.3	701.5	50.7
Mendocino	422.6	47.4	193.5	32.7	616.1	54.9	95.4	23.5	35.3	14.6	130.7	27.8	746.8	60.5
Modoc	627.2	55.9	559.4	48.7	1,186.6	70.0	33.1	13.8	12.2	8.6	45.4	16.2	1,231.9	71.0
Plumas	1,058.3	67.4	58.2	17.9	1,116.5	69.4	11.7	8.5	—	—	11.7	8.5	1,128.2	69.5
Rogue River	10.9	7.8	6.2	6.3	17.1	10.0	19.7	11.1	—	—	19.7	11.1	36.8	14.9
San Bernardino	87.7	22.8	110.5	24.8	198.2	33.0	44.1	16.3	30.0	13.4	74.2	21.0	272.4	38.1
Sequoia	257.9	38.1	126.1	26.2	384.0	45.9	404.0	46.7	169.3	30.8	573.4	55.0	957.4	67.5
Shasta-Trinity	1,301.3	77.7	108.5	24.3	1,409.8	80.3	513.0	52.4	94.6	23.1	607.6	56.7	2,017.4	88.4
Sierra	491.2	49.1	168.3	30.0	659.5	56.5	271.5	38.3	171.8	30.9	443.3	48.2	1,102.8	68.0
Siskyou	8.2	6.4	—	—	8.2	6.4	6.3	6.2	—	—	6.3	6.2	14.5	8.9
Six Rivers	773.5	52.9	88.7	22.9	862.2	55.0	78.6	19.8	15.0	8.8	93.6	21.7	955.8	52.8
Stanislaus	507.3	50.5	69.8	19.6	577.1	53.3	147.2	28.9	19.3	10.0	166.5	30.4	743.6	59.4
Tahoe	736.0	58.1	27.3	12.5	763.3	59.0	24.2	12.2	6.7	6.4	30.9	13.7	794.2	59.9
Toiyabe	140.0	28.0	208.3	33.4	348.3	43.7	43.4	16.0	52.9	16.9	96.3	23.1	444.6	48.7
All national forests	9,140.5	138.6	2,945.9	109.7	12,086.4	146.4	2,390.7	105.7	1,109.4	75.5	3,500.0	124.3	15,586.4	110.4

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 acres was estimated.

Table A2-114—Net volume of live trees[a] on forest land, by national forest and land status, California, 2001–2010

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
National forest	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
							Million cubic feet							
Angeles	92.3	37.8	89.0	27.1	181.2	46.1	32.1	25.3	5.3	3.2	37.4	25.5	218.7	52.4
Cleveland	0.6	0.6	4.0	2.4	4.6	2.5	—	—	—	—	—	—	4.6	2.5
Eldorado	2,657.3	330.9	23.7	18.1	2,680.9	330.9	186.5	68.5	40.7	20.7	227.1	71.5	2,908.0	337.3
Inyo	395.5	92.5	358.8	60.5	754.3	108.5	545.6	136.0	176.2	41.7	721.7	140.7	1,476.0	171.1
Klamath	4,935.0	437.3	160.9	62.4	5,095.9	440.4	1,558.0	281.4	21.6	16.7	1,579.6	282.4	6,675.5	496.7
Lake Tahoe Basin	211.1	78.3	60.5	40.0	271.6	87.6	148.8	132.3	17.0	11.5	165.8	132.8	437.4	157.9
Lassen	3,119.5	320.1	65.7	21.7	3,185.2	320.4	165.5	66.4	14.7	10.7	180.3	67.3	3,365.5	325.8
Los Padres	120.5	49.9	226.3	40.7	346.8	65.3	293.3	175.2	264.7	84.9	558.0	198.0	904.8	206.4
Mendocino	1,618.0	227.7	305.3	79.2	1,923.3	237.6	435.7	132.1	32.0	19.1	467.7	133.5	2,391.0	272.0
Modoc	1,259.2	164.4	193.4	30.3	1,452.6	166.5	134.8	71.5	8.1	6.5	142.9	71.8	1,595.5	180.2
Plumas	4,699.5	406.2	55.4	25.4	4,754.8	407.0	134.5	98.8	—	—	134.5	98.8	4,889.3	414.3
Rogue River	39.3	38.8	3.4	3.4	42.7	38.9	162.0	102.6	—	—	162.0	102.6	204.6	109.7
San Bernardino	208.3	67.3	85.8	25.9	294.1	71.5	82.7	36.1	36.0	20.6	118.7	41.4	412.8	81.2
Sequoia	741.0	146.3	61.8	24.3	802.7	148.2	1,966.4	299.2	187.1	56.5	2,153.6	303.5	2,956.3	325.4
Shasta-Trinity	5,870.1	450.1	122.5	37.7	5,992.6	450.7	2,514.9	305.4	157.4	56.8	2,672.4	309.5	8,664.9	504.5
Sierra	2,763.0	328.0	239.3	60.5	3,002.3	330.9	1,575.8	274.8	233.8	65.1	1,809.7	280.3	4,812.0	400.7
Siskyou	47.0	42.8	—	—	47.0	42.8	51.0	50.5	—	—	51.0	50.5	98.0	66.2
Six Rivers	4,750.2	454.4	155.7	59.5	4,906.0	454.5	626.7	186.4	10.8	7.4	637.5	186.5	5,543.4	451.0
Stanislaus	2,228.4	299.4	105.1	49.8	2,333.5	302.1	689.2	157.7	28.3	17.7	717.5	158.6	3,051.0	332.6
Tahoe	3,108.4	338.9	71.7	43.0	3,180.1	340.2	63.3	37.3	3.3	3.2	66.6	37.4	3,246.7	341.8
Toiyabe	267.4	66.6	243.1	65.4	510.5	93.1	111.9	45.8	68.2	28.5	180.1	53.8	690.6	106.4
All national forests	39,131.5	933.0	2,631.2	190.6	41,762.6	926.4	11,478.6	683.2	1,305.4	148.5	12,784.0	693.9	54,546.7	932.6

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50,000 cubic feet was estimated.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-115—Aboveground biomass of live trees[a] on forest land, by national forest and land status, California, 2001–2010

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
National forest	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Angeles	2,528.2	1,028.5	3,126.4	885.6	5,654.6	1,346.1	1,017.8	746.8	360.7	273.5	1,378.5	795.1	7,033.1	1,546.4
Cleveland	28.7	27.9	256.9	147.9	285.5	150.4	—	—	—	—	—	—	285.5	150.4
Eldorado	54,941.9	6,757.4	712.9	605.9	55,654.8	6,768.1	3,710.5	1,345.2	933.3	471.1	4,643.9	1,423.4	60,298.7	6,889.5
Inyo	7,304.1	1,798.7	5,897.8	1,022.4	13,201.9	2,038.8	9,762.6	2,452.3	3,576.5	802.9	13,339.1	2,548.9	26,541.0	3,152.5
Klamath	107,244.8	9,219.3	4,644.7	1,635.6	111,889.5	9,318.3	33,216.5	5,906.8	542.8	378.5	33,759.2	5,935.0	145,648.7	10,466.7
Lake Tahoe Basin	4,411.4	1,655.1	1,108.1	730.5	5,519.4	1,803.2	2,840.6	2,539.8	348.3	255.8	3,188.9	2,552.5	8,708.3	3,100.1
Lassen	65,648.5	6,637.4	1,698.4	582.5	67,346.9	6,649.4	3,401.1	1,401.6	510.1	379.7	3,911.3	1,451.9	71,258.2	6,772.1
Los Padres	3,150.9	1,358.7	6,716.1	1,117.0	9,867.1	1,784.1	6,313.8	3,683.6	9,142.0	2,367.8	15,455.8	4,459.0	25,322.8	4,697.0
Mendocino	36,388.5	4,991.5	9,560.7	2,419.1	45,949.2	5,442.5	9,078.5	2,672.5	1,219.3	714.4	10,297.9	2,765.5	56,247.1	6,088.1
Modoc	26,380.5	3,479.9	5,493.5	737.6	31,873.9	3,542.3	2,971.0	1,567.7	205.0	152.4	3,176.0	1,574.8	35,049.9	3,850.5
Plumas	99,564.3	8,423.6	1,529.6	740.0	101,093.9	8,453.2	2,666.3	1,956.3	—	—	2,666.3	1,956.3	103,760.2	8,584.9
Rogue River	1,001.8	988.5	136.3	137.9	1,138.1	998.1	3,300.9	2,096.8	—	—	3,300.9	2,096.8	4,438.9	2,319.3
San Bernardino	4,731.9	1,506.5	2,703.9	817.6	7,435.8	1,699.1	2,179.4	950.2	606.3	343.6	2,785.8	1,007.1	10,221.6	1,942.0
Sequoia	15,387.1	3,078.2	1,668.4	666.0	17,055.5	3,147.5	40,563.2	6,147.8	4,584.9	1,564.4	45,148.1	6,309.1	62,203.6	6,788.8
Shasta-Trinity	126,807.1	9,484.4	3,742.2	1,113.6	130,549.3	9,513.9	53,740.0	6,373.2	4,563.8	1,643.4	58,303.7	6,547.8	188,853.0	10,609.0
Sierra	56,426.0	6,607.9	7,602.4	1,892.4	64,028.4	6,797.3	29,568.9	5,284.7	4,623.4	1,176.4	34,192.3	5,380.3	98,220.7	8,017.0
Siskyou	908.8	816.0	—	—	908.8	816.0	981.1	970.6	—	—	981.1	970.6	1,889.8	1,268.0
Six Rivers	107,532.8	9,667.8	4,233.8	1,509.8	111,766.6	9,677.2	13,338.5	3,862.0	413.1	285.6	13,751.6	3,872.5	125,518.1	9,544.2
Stanislaus	46,949.6	6,293.3	2,715.0	1,077.2	49,664.7	6,345.4	13,529.3	3,078.4	498.0	305.5	14,027.3	3,090.8	63,691.9	6,891.0
Tahoe	65,477.6	6,962.7	2,132.7	1,281.3	67,610.3	7,037.0	1,457.5	857.7	84.9	80.9	1,542.3	860.7	69,152.6	7,078.7
Toiyabe	5,667.9	1,407.7	4,428.3	1,197.8	10,096.2	1,844.4	2,306.7	949.1	1,302.5	539.5	3,609.1	1,087.6	13,705.3	2,117.0
All national forests	838,482.2	19,323.0	70,108.1	4,970.9	908,590.4	19,185.3	235,943.9	13,930.2	33,515.0	3,779.1	269,458.9	14,316.3	1,178,049.2	19,040.2

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-116—Aboveground carbon mass[a] of live trees[b] on forest land, by national forest and land status, California, 2001–2010

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
National forest	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand megagrams													
Angeles	1,146.8	466.5	1,418.1	401.7	2,564.9	610.6	461.7	338.7	163.6	124.1	625.3	360.7	3,190.2	701.4
Cleveland	13.0	12.7	116.5	67.1	129.5	68.2	—	—	—	—	—	—	129.5	68.2
Eldorado	24,921.6	3,065.2	323.4	274.8	25,245.0	3,070.0	1,683.1	610.2	423.4	213.7	2,106.5	645.7	27,351.5	3,125.1
Inyo	3,313.1	815.9	2,675.2	463.8	5,988.4	924.8	4,428.3	1,112.3	1,622.3	364.2	6,050.6	1,156.2	12,039.0	1,430.0
Klamath	48,646.3	4,181.9	2,106.8	741.9	50,753.1	4,226.8	15,067.0	2,679.3	246.2	171.7	15,313.2	2,692.1	66,066.3	4,747.7
Lake Tahoe Basin	2,001.0	750.8	502.6	331.4	2,503.6	817.9	1,288.5	1,152.0	158.0	116.0	1,446.5	1,157.8	3,950.1	1,406.2
Lassen	29,778.2	3,010.7	770.4	264.2	30,548.6	3,016.2	1,542.7	635.8	231.4	172.2	1,774.1	658.6	32,322.7	3,071.8
Los Padres	1,429.3	616.3	3,046.4	506.7	4,475.7	809.3	2,863.9	1,670.9	4,146.8	1,074.0	7,010.7	2,022.6	11,486.4	2,130.6
Mendocino	16,505.8	2,264.1	4,336.7	1,097.3	20,842.6	2,468.7	4,118.0	1,212.2	553.1	324.1	4,671.1	1,254.4	25,513.7	2,761.6
Modoc	11,966.2	1,578.5	2,491.8	334.6	14,458.0	1,606.8	1,347.6	711.1	93.0	69.1	1,440.6	714.3	15,898.7	1,746.6
Plumas	45,162.4	3,820.9	693.8	335.6	45,856.2	3,834.4	1,209.4	887.4	—	—	1,209.4	887.4	47,065.6	3,894.1
Rogue River	454.4	448.4	61.8	62.5	516.2	452.7	1,497.3	951.1	—	—	1,497.3	951.1	2,013.5	1,052.0
San Bernardino	2,146.4	683.4	1,226.5	370.8	3,372.9	770.7	988.6	431.0	275.0	155.8	1,263.6	456.8	4,636.5	880.9
Sequoia	6,979.6	1,396.3	756.8	302.1	7,736.4	1,427.7	18,399.5	2,788.6	2,079.7	709.6	20,479.2	2,861.8	28,215.5	3,079.4
Shasta-Trinity	57,519.7	4,302.1	1,697.5	505.1	59,217.2	4,315.5	24,376.4	2,890.9	2,070.1	745.5	26,446.6	2,970.1	85,663.7	4,812.3
Sierra	25,594.8	2,997.3	3,448.4	858.4	29,043.3	3,083.2	13,412.5	2,397.1	2,097.2	533.6	15,509.6	2,440.5	44,552.9	3,636.5
Siskyou	412.2	370.1	—	—	412.2	370.1	445.0	440.2	—	—	445.0	440.2	857.2	575.2
Six Rivers	48,776.9	4,385.3	1,920.5	684.8	50,697.3	4,389.6	6,050.4	1,751.8	187.4	129.5	6,237.7	1,756.6	56,935.0	4,329.2
Stanislaus	21,296.3	2,854.7	1,231.5	488.6	22,527.9	2,878.3	6,136.9	1,396.4	225.9	138.6	6,362.8	1,402.0	28,890.7	3,125.7
Tahoe	29,700.6	3,158.3	967.4	581.2	30,668.0	3,192.0	661.1	389.0	38.5	36.7	699.6	390.4	31,367.6	3,210.9
Toiyabe	2,571.0	638.5	2,008.7	543.3	4,579.6	836.6	1,046.3	430.5	590.8	244.7	1,637.1	493.4	6,216.7	960.3
All national forests	380,335.5	8,764.9	31,801.0	2,254.8	412,136.6	8,702.5	107,024.2	6,318.8	15,202.4	1,714.2	122,226.5	6,493.9	534,363.1	8,636.6

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 megagrams was estimated.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert megagrams of carbon to tons of biomass by multiplying by 2.204586. The result will be approximate due to rounding.

[b] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-117—Biomass of down wood on forest land, by national forest and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)													
	Fine-wood size classes[a]						Coarse-wood size classes[b]							
	0.1–0.24		0.25–0.9		1.0–2.9		3.0–9.0		10.0–19.0		≥20.0		All down wood	
National forest	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand tons													
Angeles	12.4	2.8	78.6	17.9	231.4	62.9	128.7	33.8	183.2	59.0	227.9	75.9	862.3	192.6
Cleveland	0.8	0.5	5.8	3.5	8.9	8.7	3.8	2.6	4.8	4.7	—	—	24.1	17.7
Eldorado	48.3	9.5	524.6	239.7	915.2	129.9	841.4	112.9	1,706.1	230.3	2,963.0	508.5	6,998.5	911.9
Inyo	37.7	4.0	229.4	24.4	661.5	83.7	547.8	62.4	1,550.2	202.9	2,388.3	379.1	5,414.9	597.5
Klamath	173.7	15.1	1,095.4	118.3	3,027.9	301.3	2,069.2	165.2	4,070.4	339.8	6,377.5	707.4	16,814.1	1,302.5
Lake Tahoe Basin	9.1	2.7	48.1	14.0	144.6	53.4	113.1	35.9	263.6	85.2	522.2	255.8	1,100.7	397.0
Lassen	67.4	7.0	539.6	54.9	1,505.7	150.9	1,224.0	133.1	2,041.6	230.8	4,164.3	583.2	9,542.5	947.7
Los Padres	53.8	6.3	327.7	37.5	836.2	108.4	402.7	56.9	586.6	126.7	812.2	311.4	3,019.1	493.5
Mendocino	81.1	9.7	529.7	69.9	1,278.3	185.7	829.5	110.5	1,337.2	188.2	2,090.0	382.3	6,145.7	750.4
Modoc	34.9	3.8	351.3	32.0	1,030.2	103.9	821.3	100.5	1,535.1	193.0	1,778.7	323.3	5,551.4	591.0
Plumas	88.6	7.9	603.2	52.8	1,816.7	167.1	1,587.1	152.6	2,623.8	251.7	3,171.4	450.2	9,890.7	849.6
Rogue River	4.2	1.9	19.0	8.6	54.3	23.5	47.5	25.8	59.9	28.6	17.7	18.4	202.6	91.7
San Bernardino	12.2	2.6	127.3	27.0	321.5	66.1	229.9	48.6	505.1	109.9	912.5	278.0	2,108.5	448.6
Sequoia	54.2	5.7	448.8	44.4	1,258.6	147.2	734.7	87.6	1,596.6	254.3	3,087.2	519.7	7,180.1	841.3
Shasta-Trinity	183.9	11.8	1,139.7	69.3	3,500.9	237.0	2,254.6	155.4	3,875.0	301.4	8,110.8	838.1	19,064.9	1,280.6
Sierra	73.8	7.0	455.1	42.2	1,342.0	164.6	900.7	97.4	1,911.5	199.6	5,451.9	680.7	10,135.0	996.6
Siskyou	1.8	1.3	11.3	8.3	23.4	16.4	39.6	25.1	70.8	47.2	176.9	173.0	323.8	230.7
Six Rivers	150.5	16.6	1,027.7	358.9	2,078.4	305.2	1,393.4	171.3	2,238.7	261.4	4,447.9	707.5	11,336.6	1,201.2
Stanislaus	48.1	6.0	356.3	40.5	1,137.0	136.0	932.2	113.8	1,751.5	211.6	3,114.1	480.6	7,339.2	800.1
Tahoe	67.3	7.4	459.1	44.5	1,199.7	127.3	975.8	107.3	1,798.4	226.6	2,955.6	592.6	7,455.9	887.9
Toiyabe	22.7	3.9	145.2	32.3	485.0	186.4	333.8	59.6	553.4	103.7	1,093.4	336.6	2,633.6	530.4
All national forests	1,226.6	29.0	8,522.8	457.9	22,857.6	603.3	16,410.8	376.4	30,263.2	748.0	53,863.3	1,917.6	133,144.3	2,748.1

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 bone-dry tons was estimated.

[a] The diameter of each piece was visually estimated before being counted within each size class. Counts were used as input to volume equations for fine-wood.

[b] Diameter classes are based on the diameter at the large end of the piece for decay classes less than 5, and based on the transect diameter for decay class 5 pieces. The diameter of each piece was measured and recorded to the nearest inch. Because of this, class breakpoints for 9, 10, 19, and 20 actually represent 0.4 inch above and below the value. For example, 9 represents 8.6 to 9.4 inches.

Table A2-118—Average net volume per acre of live trees[a] on forest land, by national forest and land status, California, 2001–2010

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
National forest	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
							Cubic feet per acre							
Angeles	1,502.07	419.44	764.63	165.16	1,019.46	191.45	1,855.17	921.05	384.94	49.11	1,200.28	619.19	1,046.46	187.50
Cleveland	91.59	91.59	615.66	166.43	353.42	170.65	—	—	—	—	—	—	353.42	170.65
Eldorado	5,653.78	404.42	2,080.36	440.05	5,569.35	399.82	3,470.84	666.09	1,235.89	323.85	2,621.94	508.03	5,119.86	363.46
Inyo	2,199.39	335.54	754.13	99.19	1,150.60	129.40	3,386.14	559.28	964.41	153.41	2,099.42	314.72	1,477.00	139.51
Klamath	4,702.31	280.63	1,142.46	378.73	4,281.17	262.39	4,978.56	610.14	1,006.32	557.39	4,723.18	579.25	4,378.12	239.09
Lake Tahoe Basin	3,789.45	698.56	2,379.82	1,136.87	3,347.78	625.89	7,639.43	5,312.08	1,395.25	361.92	5,234.60	3,469.50	3,877.72	1,099.35
Lassen	3,688.61	249.66	623.98	147.72	3,349.34	233.86	3,665.59	749.89	952.12	490.90	2,973.32	681.39	3,326.80	223.36
Los Padres	2,421.71	575.49	666.34	91.60	890.56	129.92	3,309.45	1,806.52	1,184.86	348.77	1,788.21	593.00	1,289.87	275.43
Mendocino	3,828.54	335.93	1,577.87	309.69	3,121.74	267.65	4,567.76	781.81	905.58	389.54	3,577.83	680.85	3,201.56	249.83
Modoc	2,007.74	192.13	345.69	46.04	1,224.21	115.49	4,068.82	1,304.52	658.91	255.00	3,148.73	1,104.28	1,295.11	120.38
Plumas	4,440.44	272.56	951.33	339.97	4,258.54	264.48	11,539.11	803.73	—	—	11,539.11	803.73	4,333.74	266.91
Rogue River	3,611.63	2,187.57	546.47	546.47	2,498.46	1,691.31	8,202.12	2,473.82	—	—	8,202.12	2,473.82	5,556.52	1,906.41
San Bernardino	2,373.91	458.20	776.97	156.60	1,483.89	260.40	1,873.69	435.82	1,198.28	387.86	1,600.15	314.35	1,515.56	207.94
Sequoia	2,873.18	379.05	489.72	173.58	2,090.34	294.39	4,867.16	488.41	1,105.03	266.37	3,756.05	391.07	3,087.91	266.16
Shasta-Trinity	4,510.92	222.90	1,128.81	236.01	4,250.67	212.83	4,902.03	331.58	1,664.57	422.88	4,398.09	302.73	4,295.07	171.69
Sierra	5,625.22	395.95	1,421.87	244.20	4,552.49	337.41	5,804.59	593.45	1,360.91	276.71	4,082.24	444.71	4,363.45	263.66
Siskyou	5,698.68	2,687.59	—	—	5,698.68	2,687.59	8,129.94	8,129.94	—	—	8,129.94	8,129.94	6,750.06	1,693.28
Six Rivers	6,141.35	406.28	1,755.82	502.69	5,690.22	382.61	7,975.68	1,338.48	718.51	298.01	6,810.93	1,277.08	5,799.97	359.54
Stanislaus	4,392.81	407.87	1,504.64	573.36	4,043.37	373.62	4,680.71	555.88	1,467.73	402.30	4,308.43	522.99	4,102.73	310.77
Tahoe	4,223.36	322.84	2,626.01	1,133.67	4,166.19	313.99	2,616.66	815.94	494.32	494.32	2,153.89	747.67	4,087.86	304.34
Toiyabe	1,911.01	284.92	1,166.86	245.51	1,465.88	190.13	2,574.90	397.52	1,289.62	324.20	1,869.39	297.64	1,553.29	163.25
All national forests	4,281.13	84.96	893.16	53.98	3,455.35	68.34	4,801.46	197.76	1,176.71	107.41	3,652.57	151.98	3,499.64	59.65

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 cubic feet per acre was estimated; the average was calculated using a ratio of means formula across plots.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-119—Average aboveground biomass per acre of live trees[a] on forest land, by national forest and land status, California, 2001–2010

	Land status													
	Unreserved forests						Reserved forests							
	Timberland		Other forest		Total		Productive		Other forest		Total		All forest land	
National forest	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
Angeles	41.16	11.17	26.87	5.36	31.81	5.39	58.82	23.68	25.96	9.23	44.18	15.81	33.66	5.24
Cleveland	4.43	4.43	39.73	6.32	22.06	10.58	—	—	—	—	—	—	22.06	10.58
Eldorado	116.90	8.04	62.69	26.65	115.62	7.93	69.07	12.57	28.37	7.19	53.61	9.59	106.16	7.23
Inyo	40.62	6.92	12.40	1.69	20.14	2.52	60.59	10.16	19.58	2.72	38.80	5.61	26.56	2.59
Klamath	102.19	5.70	32.98	9.52	94.00	5.34	106.14	12.50	25.24	12.08	100.94	11.91	95.52	4.88
Lake Tahoe Basin	79.19	15.16	43.60	20.46	68.04	13.05	145.81	102.32	28.55	11.04	100.65	66.68	77.20	21.32
Lassen	77.63	5.06	16.13	4.05	70.82	4.75	75.31	16.45	32.98	17.27	64.51	14.35	70.44	4.54
Los Padres	63.34	17.15	19.77	2.38	25.34	3.50	71.25	37.79	40.92	9.13	49.53	12.93	36.10	6.10
Mendocino	86.10	7.08	49.41	9.27	74.58	5.85	95.18	14.90	34.51	14.26	78.78	12.96	75.32	5.30
Modoc	42.06	4.10	9.82	1.04	26.86	2.43	89.66	28.74	16.74	3.77	69.98	24.07	28.45	2.55
Plumas	94.08	5.53	26.28	10.37	90.54	5.38	228.79	13.08	—	—	228.79	13.08	91.97	5.41
Rogue River	92.09	55.73	21.97	21.97	66.62	41.83	167.17	50.97	—	—	167.17	50.97	120.53	38.79
San Bernardino	53.94	9.98	24.48	5.19	37.52	5.91	49.37	11.48	20.18	6.38	37.55	8.28	37.53	4.85
Sequoia	59.67	8.12	13.23	4.85	44.41	6.30	100.40	10.00	27.08	7.89	78.74	8.10	64.97	5.55
Shasta-Trinity	97.45	4.52	34.50	6.77	92.60	4.31	104.75	6.54	48.25	12.25	95.95	6.04	93.61	3.47
Sierra	114.88	7.72	45.17	7.65	97.09	6.55	108.92	11.90	26.91	4.56	77.13	8.64	89.07	5.15
Siskyou	110.29	48.92	—	—	110.29	48.92	156.27	156.27	—	—	156.27	156.27	130.18	31.06
Six Rivers	139.02	8.09	47.74	12.00	129.63	7.65	169.76	25.97	27.50	11.89	146.93	24.92	131.33	7.18
Stanislaus	92.55	8.53	38.88	10.92	86.06	7.74	91.88	10.44	25.81	6.61	84.23	9.95	85.65	6.37
Tahoe	88.97	6.45	78.06	32.72	88.57	6.30	60.29	18.55	12.59	0	49.89	16.94	87.07	6.11
Toiyabe	40.50	6.04	21.26	4.49	28.99	3.75	53.09	8.50	24.64	6.08	37.47	6.18	30.83	3.25
All national forests	91.73	1.73	23.80	1.40	75.17	1.40	98.69	3.97	30.21	2.73	76.99	3.07	75.58	1.21

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots.

[a] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes. Aboveground biomass of the tree from ground to tip, includes stem wood, bark, and branches; calculated with regional biomass equations.

Table A2-120—Average aboveground carbon mass[a] per hectare of live trees[b] on forest land, by national forest and land status, California, 2001–2010

National forest	Land status													
	Unreserved forests						Reserved forests						All forest land	
	Timberland		Other forest		Total		Productive		Other forest		Total			
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Kilograms per hectare													
Angeles	46,131.80	12,517.20	30,122.60	6,009.30	35,654.70	6,046.30	65,934.10	26,537.90	29,092.90	10,342.40	49,523.70	17,716.00	37,725.50	5,869.70
Cleveland	4,961.10	4,961.10	44,530.60	7,087.60	24,730.70	11,862.60	—	—	—	—	—	—	24,730.70	11,862.60
Eldorado	131,027.20	9,010.30	70,263.10	29,868.40	129,591.60	8,883.70	77,420.30	14,084.70	31,796.00	8,057.50	60,090.90	10,744.40	118,992.40	8,099.00
Inyo	45,525.50	7,758.50	13,896.20	1,897.30	22,572.80	2,821.50	67,915.70	11,382.80	21,947.20	3,043.80	43,491.60	6,290.40	29,769.00	2,898.00
Klamath	114,539.20	6,388.40	36,971.10	10,673.40	105,362.80	5,989.10	118,974.30	14,013.60	28,294.20	13,537.80	113,144.30	13,352.40	107,069.60	5,467.60
Lake Tahoe Basin	88,764.00	16,996.10	48,864.50	22,929.70	76,262.50	14,629.70	163,436.90	114,683.40	31,998.30	12,377.60	112,815.80	74,735.60	86,529.00	23,902.20
Lassen	87,007.60	5,672.70	18,081.90	4,539.90	79,377.10	5,322.10	84,412.60	18,439.20	36,965.70	19,357.30	72,307.80	16,089.50	78,953.40	5,086.90
Los Padres	71,000.60	19,219.30	22,161.40	2,672.30	28,399.70	3,919.50	79,861.40	42,353.80	45,862.40	10,230.50	55,517.50	14,488.70	40,462.80	6,833.40
Mendocino	96,508.30	7,934.60	55,386.00	10,385.90	83,594.10	6,554.10	106,688.30	16,705.40	38,681.40	15,987.50	88,305.30	14,530.40	84,418.70	5,939.90
Modoc	47,145.60	4,590.30	11,007.80	1,166.00	30,109.40	2,722.90	100,493.80	32,213.10	18,766.00	4,225.70	78,441.30	26,976.00	31,889.90	2,857.00
Plumas	105,447.50	6,200.30	29,452.80	11,618.90	101,485.60	6,027.70	256,441.80	14,662.10	—	—	256,441.80	14,662.10	103,086.20	6,066.40
Rogue River	103,217.10	62,467.80	24,622.80	24,622.80	74,674.20	46,883.90	187,371.00	57,126.20	—	—	187,371.00	57,126.20	135,097.50	43,475.10
San Bernardino	60,454.00	11,184.10	27,438.10	5,814.70	42,053.40	6,620.60	55,339.20	12,864.60	22,618.00	7,149.70	42,086.90	9,282.00	42,062.50	5,432.00
Sequoia	66,877.20	9,102.10	14,826.90	5,438.90	49,781.50	7,062.40	112,533.20	11,203.80	30,348.40	8,838.90	88,260.70	9,082.00	72,826.10	6,224.60
Shasta-Trinity	109,223.70	5,066.10	38,664.80	7,591.60	103,794.20	4,834.20	117,410.00	7,325.10	54,083.60	13,733.90	107,552.50	6,764.90	104,926.10	3,893.10
Sierra	128,764.00	8,654.70	50,630.00	8,575.40	108,823.60	7,341.40	122,080.80	13,334.80	30,160.00	5,110.30	86,452.60	9,682.70	99,830.80	5,772.40
Siskyou	123,624.30	54,835.70	—	—	123,624.30	54,835.70	175,160.00	175,160.00	—	—	175,160.00	175,160.00	145,910.40	34,811.00
Six Rivers	155,827.40	9,070.30	53,507.30	13,449.90	145,302.00	8,580.10	190,275.80	29,109.80	30,820.40	13,324.20	164,683.80	27,933.80	147,200.00	8,043.80
Stanislaus	103,737.70	9,556.60	43,583.40	12,242.60	96,459.60	8,676.30	102,988.80	11,701.90	28,926.10	7,411.20	94,407.20	11,154.10	95,999.90	7,135.40
Tahoe	99,718.10	7,225.80	87,493.70	36,677.30	99,280.50	7,061.20	67,575.60	20,797.20	14,114.70	14,114.70	55,918.60	18,992.40	97,592.60	6,848.70
Toiyabe	45,394.50	6,767.90	23,824.20	5,035.30	32,491.60	4,204.60	59,506.80	9,532.60	27,613.50	6,815.00	42,000.30	6,921.40	34,551.50	3,639.80
All national forests	102,820.70	1,936.30	26,674.90	1,565.00	84,261.00	1,564.00	110,623.30	4,448.20	33,862.80	3,062.80	86,293.50	3,441.60	84,717.40	1,358.50

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.005 kilograms per hectare was estimated; the average was calculated using a ratio of means formula across plots.

[a] Total aboveground carbon mass of the tree from ground to tip, includes stem wood, bark, and branches; calculated by applying a factor of 0.5 to aboveground biomass estimated from regional biomass equations, and converting to metric units. Convert kilograms per hectare of carbon to tons per acre of biomass by multiplying by 0.00089. The result will be approximate due to rounding.

[b] Includes all live trees ≥1 inch in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-121—Average biomass per acre of down wood on forest land, by national forest and down wood diameter class, California, 2001–2010

	Down wood diameter class (inches)													
	Fine-wood size classes[a]						Coarse-wood size classes[b]							
	0.1–0.24		0.25–0.9		1.0–2.9		3.0–9.0		10.0–19.0		≥20.0		All down wood	
National forest	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Tons per acre													
Angeles	0.059	0.010	0.376	0.066	1.108	0.258	0.616	0.132	0.877	0.245	1.090	0.318	4.126	0.672
Cleveland	0.063	0.030	0.451	0.191	0.688	0.378	0.290	0.107	0.372	0.204	—	—	1.863	0.510
Eldorado	0.085	0.015	0.924	0.412	1.611	0.171	1.481	0.144	3.004	0.296	5.217	0.757	12.321	1.126
Inyo	0.038	0.003	0.230	0.020	0.662	0.072	0.548	0.053	1.551	0.177	2.390	0.344	5.419	0.485
Klamath	0.114	0.008	0.718	0.068	1.986	0.171	1.357	0.084	2.670	0.178	4.183	0.413	11.028	0.649
Lake Tahoe Basin	0.081	0.016	0.426	0.081	1.282	0.371	1.003	0.235	2.337	0.553	4.629	2.005	9.758	2.750
Lassen	0.067	0.005	0.533	0.039	1.488	0.106	1.210	0.101	2.018	0.178	4.116	0.496	9.433	0.657
Los Padres	0.077	0.007	0.467	0.041	1.192	0.131	0.574	0.070	0.836	0.166	1.158	0.431	4.304	0.614
Mendocino	0.109	0.010	0.709	0.073	1.712	0.205	1.111	0.119	1.790	0.204	2.798	0.452	8.229	0.735
Modoc	0.028	0.003	0.285	0.019	0.836	0.067	0.667	0.069	1.246	0.133	1.444	0.243	4.506	0.377
Plumas	0.079	0.005	0.535	0.034	1.610	0.113	1.407	0.106	2.326	0.175	2.811	0.363	8.767	0.545
Rogue River	0.113	0.023	0.515	0.098	1.475	0.195	1.290	0.471	1.626	0.434	0.481	0.459	5.500	1.111
San Bernardino	0.045	0.007	0.467	0.074	1.180	0.180	0.844	0.136	1.854	0.322	3.350	0.920	7.741	1.280
Sequoia	0.057	0.004	0.469	0.032	1.315	0.124	0.767	0.074	1.668	0.241	3.225	0.493	7.500	0.708
Shasta-Trinity	0.091	0.004	0.565	0.025	1.735	0.092	1.118	0.060	1.921	0.124	4.020	0.372	9.450	0.479
Sierra	0.067	0.005	0.413	0.029	1.217	0.131	0.817	0.075	1.733	0.150	4.944	0.546	9.190	0.728
Siskyou	0.127	0.039	0.781	0.292	1.613	0.484	2.727	0.390	4.876	1.088	12.182	9.786	22.305	8.895
Six Rivers	0.157	0.015	1.075	0.367	2.175	0.288	1.458	0.160	2.342	0.254	4.654	0.716	11.861	1.098
Stanislaus	0.065	0.006	0.479	0.040	1.529	0.138	1.254	0.115	2.355	0.212	4.188	0.554	9.869	0.737
Tahoe	0.085	0.007	0.578	0.036	1.510	0.113	1.229	0.098	2.264	0.229	3.721	0.690	9.388	0.862
Toiyabe	0.051	0.007	0.327	0.063	1.091	0.400	0.751	0.106	1.245	0.187	2.459	0.702	5.923	0.986
All national forests	0.079	0.002	0.547	0.029	1.467	0.038	1.053	0.024	1.942	0.047	3.456	0.123	8.542	0.173

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 0.0005 bone-dry tons per acre was estimated; the average was calculated using a ratio of means formula across plots.

[a] The diameter of each piece was visually estimated before being counted within each size class. Counts were used as input to volume equations for fine-wood.

[b] Diameter classes are based on the diameter at the large end of the piece for decay classes less than 5, and based on the transect diameter for decay class 5 pieces. The diameter of each piece was measured and recorded to the nearest inch. Because of this, class breakpoints for 9, 10, 19, and 20 actually represent 0.4 inch above and below the value. For example, 9 represents 8.6 to 9.4 inches.

Table A2-122—Number of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010

Species	Total number of live trees		Number of live trees with damage		Type of damage					
					Animal		Bark beetle		Cankers	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
					Thousand trees					
Softwoods:										
Bigcone Douglas-fir	1,237.1	411.5	416.6	157.5	—	—	—	—	6.2	6.4
Bishop pine	4,865.2	2,103.2	2,310.3	1,400.3	78.8	78.8	—	—	109.5	93.1
Brewer spruce	2,376.1	1,187.1	108.9	61.9	—	—	—	—	—	—
California juniper	38,413.3	11,912.7	3,501.5	789.4	118.1	67.3	—	—	—	—
California red fir	306,797.8	27,829.1	135,247.2	16,108.8	368.7	135.3	3,475.9	851.7	10,985.6	3,549.4
California torreya	15,087.6	4,258.5	1,650.0	705.4	—	—	—	—	—	—
Coulter pine	2,854.1	819.6	861.9	289.6	—	—	6.3	6.2	—	—
Cypress	45.1	41.7	—	—	—	—	—	—	—	—
Douglas-fir	1,272,209.0	47,405.0	161,183.3	8,908.2	2,839.7	772.9	399.3	120.8	18,016.8	3,267.0
Engelmann spruce	170.6	120.9	74.2	74.0	—	—	—	—	—	—
Foxtail pine	4,617.4	1,464.6	2,421.0	739.2	6.4	6.4	—	—	—	—
Giant sequoia	987.3	943.8	6.1	6.4	—	—	—	—	—	—
Grand fir	11,312.3	3,095.7	1,372.3	616.7	91.9	60.0	—	—	—	—
Grey pine	43,986.6	4,979.6	11,380.2	1,803.3	183.1	71.0	518.2	274.5	891.0	659.4
Bristlecone pine	2,540.3	1,349.5	1,584.9	811.8	6.3	6.2	—	—	—	—
Incense cedar	596,538.2	35,953.4	92,598.2	8,189.7	520.9	157.0	111.6	83.1	292.9	114.6
Jeffrey pine	242,240.3	18,329.1	54,926.1	5,231.0	1,015.1	331.7	1,012.8	232.4	1,191.4	762.1
Knobcone pine	43,635.5	10,911.6	8,043.8	1,787.2	587.2	467.9	135.5	89.5	1,219.6	943.2
Limber pine	4,208.2	1,609.7	1,484.0	506.6	—	—	—	—	—	—
Lodgepole pine	301,403.0	30,759.7	121,385.0	14,661.9	1,021.9	427.7	1,074.2	356.0	17,911.3	7,912.0
Monterey cypress	1,094.1	1,114.7	148.6	151.4	—	—	—	—	—	—
Monterey pine	1,931.5	1,729.7	1,219.4	1,203.2	—	—	—	—	401.9	408.2
Mountain hemlock	53,907.2	10,699.0	18,426.7	5,417.2	56.2	41.7	211.4	163.4	222.3	105.1
Noble fir	404.6	232.7	79.8	56.6	—	—	—	—	—	—
Pacific yew	20,108.1	6,827.1	624.9	220.6	—	—	—	—	—	—
Ponderosa pine	595,273.5	29,631.4	112,875.2	10,830.9	923.6	231.6	3,241.3	505.8	10,209.5	3,298.2
Port-Orford cedar	10,080.5	3,617.7	355.9	175.4	6.2	6.1	—	—	—	—
Redwood	327,361.8	30,087.1	48,632.6	4,886.7	5,164.9	1,092.7	—	—	1,142.4	696.6

Table A2-122—Number of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Total number of live trees		Number of live trees with damage		Type of damage					
					Animal		Bark beetle		Cankers	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
					Thousand trees					
Sargent's cypress	7,102.1	4,417.4	222.9	192.8	—	—	—	—	—	—
Shasta red fir	52,047.4	15,228.3	13,945.5	6,722.2	462.3	461.2	—	—	84.5	56.1
Singleleaf pinyon	151,616.9	11,902.0	40,586.5	4,403.9	529.2	226.0	1,965.4	587.2	433.3	240.1
Sitka spruce	6,451.7	2,335.5	1,594.2	1,053.6	518.5	524.7	—	—	46.5	42.3
Subalpine fir	81.8	81.0	—	—	—	—	—	—	—	—
Sugar pine	125,870.0	10,157.0	26,997.0	2,962.6	189.6	84.1	332.2	137.6	4,761.5	1,192.3
Utah juniper	6,520.1	1,383.7	3,206.0	1,033.3	18.4	14.0	—	—	—	—
Washoe pine	3,578.1	3,052.0	1,356.6	1,032.5	121.2	99.7	—	—	6.1	6.1
Western hemlock	25,173.0	7,818.2	2,858.1	1,014.4	274.5	162.7	63.9	50.8	544.4	493.9
Western juniper	122,102.3	9,802.2	21,245.2	2,422.3	840.3	219.4	454.6	456.6	6.1	6.1
Western larch	48.3	43.0	48.3	43.0	—	—	—	—	—	—
Western redcedar	424.0	328.6	155.9	115.9	—	—	—	—	—	—
Western white pine	54,071.6	7,157.0	15,284.3	3,181.6	190.3	92.1	201.1	82.8	2,337.4	880.5
White fir	1,096,122.7	46,061.9	275,927.6	19,398.0	1,268.9	649.3	5,447.6	841.1	14,139.3	2,957.7
Whitebark pine	87,468.2	15,419.9	30,363.1	6,951.5	158.9	77.7	75.3	75.9	—	—
Total	5,644,780.1	107,341.9	1,216,860.8	40,192.1	17,561.0	2,012.0	18,726.7	1,710.6	84,959.4	10,731.7
Hardwoods:										
Ash spp.	5,522.3	5,273.9	5,328.0	5,271.0	—	—	—	—	—	—
Bigleaf maple	105,237.6	12,755.9	16,408.3	2,600.8	536.2	461.7	—	—	—	—
Bitter cherry	21,142.8	6,982.5	1,563.6	864.3	—	—	—	—	—	—
Black cottonwood	9,074.8	6,012.7	486.9	366.4	—	—	—	—	—	—
Blue oak	281,585.4	21,253.0	63,122.7	4,518.6	624.8	259.8	—	—	453.7	181.5
Boxelder	977.8	624.3	592.2	342.3	—	—	—	—	—	—
Buckeye spp.	464.0	469.4	—	—	—	—	—	—	—	—
California black oak	466,924.4	34,015.3	94,188.7	7,214.4	292.2	175.6	8.1	7.4	1,881.2	978.9
California buckeye	103,533.4	18,299.3	24,823.8	4,815.3	462.7	471.4	—	—	—	—
California live oak	137,145.7	19,982.1	43,001.2	4,812.4	745.5	314.0	—	—	590.2	297.5
California sycamore	2,084.4	790.1	480.2	226.3	—	—	—	—	—	—

Table A2-122—Number of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Total number of live trees		Number of live trees with damage		Type of damage					
					Animal		Bark beetle		Cankers	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
					Thousand trees					
California white oak	20,409.5	3,733.2	6,263.5	1,525.9	180.7	82.3	—	—	162.3	80.0
California-laurel	357,488.4	41,729.1	44,065.7	7,124.7	86.3	57.6	—	—	213.3	137.5
Canyon live oak	1,173,263.6	77,550.3	180,833.1	14,843.2	2,688.5	1,581.5	—	—	7,828.0	3,311.4
Cherry and plum spp.	2,251.0	1,530.2	837.1	619.8	—	—	—	—	—	—
Chinkapin oak	150.6	118.5	—	—	—	—	—	—	—	—
Chokecherry	7,372.8	6,809.8	—	—	—	—	—	—	—	—
Mountain mahogany	136,889.3	19,972.1	30,358.7	4,992.1	1,226.8	603.9	37.1	37.8	—	—
Engelmann oak	503.9	266.9	364.5	212.3	—	—	—	—	—	—
Eucalyptus spp.	401.3	410.2	109.4	111.9	—	—	—	—	—	—
Fremont cottonwood	1,665.9	759.5	1,099.7	526.3	—	—	—	—	121.9	75.1
Giant chinkapin	48,451.2	13,802.9	2,664.0	734.4	37.8	37.4	—	—	—	—
Interior live oak	539,736.7	50,528.8	91,122.5	10,078.7	871.9	572.1	—	—	2,122.3	967.6
California black walnut	36.9	37.4	—	—	—	—	—	—	—	—
Oregon ash	14,584.8	7,001.3	3,496.0	1,396.1	—	—	—	—	—	—
Oregon white oak	178,827.7	23,225.9	46,721.3	7,482.6	46.9	39.3	—	—	783.5	420.1
Pacific dogwood	115,698.2	17,021.4	9,812.6	3,405.5	93.0	84.7	—	—	—	—
Pacific madrone	221,347.7	21,636.3	43,518.0	5,761.8	224.6	138.0	—	—	847.7	291.7
Quaking aspen	74,981.1	21,384.6	17,540.2	8,205.6	143.7	73.3	—	—	115.3	84.8
Red alder	52,257.0	8,050.5	4,716.5	1,177.6	382.9	274.2	—	—	156.1	101.7
Rocky Mountain maple	116.9	113.8	—	—	—	—	—	—	—	—
Screwbean mesquite	723.9	630.9	149.6	150.9	—	—	—	—	—	—
Tanoak	1,239,042.8	68,575.6	134,183.7	12,327.2	1,580.4	751.0	—	—	3,437.8	1,246.4
Tasmanian bluegum	468.9	464.7	—	—	—	—	—	—	—	—
Walnut spp.	37.1	37.8	37.1	37.8	—	—	—	—	—	—
Mesquite	1,848.7	917.9	505.7	380.3	—	—	—	—	—	—
White alder	22,454.8	7,381.4	3,698.4	1,049.3	187.7	153.9	—	—	7.1	7.0
Willow spp.	11,390.2	10,667.5	—	—	—	—	—	—	—	—
Total	5,356,917.6	144,918.1	872,135.9	30,381.0	10,418.7	2,247.5	45.2	38.6	18,720.6	3,848.5
Total, all species	11,001,697.7	177,889.8	2,088,996.7	49,381.1	27,979.7	3,014.2	18,771.9	1,711.0	103,680.0	11,397.8

Table A2-122—Number of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage									
	Defoliators		Dwarf mistletoe		Leafy mistletoe		Foliage diseases		Stem decay	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees									
Softwoods:										
Bigcone Douglas-fir	—	—	—	—	—	—	—	—	50.0	29.2
Bishop pine	—	—	40.4	40.5	—	—	—	—	130.2	87.0
Brewer spruce	—	—	—	—	—	—	—	—	12.2	8.7
California juniper	—	—	—	—	1,547.2	640.8	7.3	7.1	77.0	54.6
California red fir	110.3	67.9	50,633.6	8,576.2	—	—	5,684.5	2,371.5	838.4	144.2
California torreya	—	—	—	—	—	—	—	—	287.7	161.1
Coulter pine	—	—	134.2	114.1	—	—	—	—	13.0	8.9
Douglas-fir	1,186.6	733.1	5,127.5	938.9	—	—	670.1	212.0	16,243.4	1,539.2
Engelmann spruce	—	—	74.2	74.0	—	—	—	—	—	—
Foxtail pine	—	—	—	—	—	—	—	—	197.2	98.0
Grand fir	52.3	45.6	—	—	—	—	—	—	14.3	9.6
Grey pine	—	—	5,875.7	1,434.2	—	—	213.3	132.6	620.6	248.7
Bristlecone pine	—	—	—	—	—	—	—	—	513.9	357.7
Incense cedar	538.2	465.5	—	—	3,134.6	877.9	12,757.6	3,127.2	1,944.2	268.4
Jeffrey pine	192.8	126.4	15,211.6	3,777.7	—	—	973.0	588.1	1,108.0	553.6
Knobcone pine	—	—	588.9	240.4	—	—	440.8	463.2	778.1	294.7
Limber pine	—	—	—	—	—	—	—	—	168.9	90.2
Lodgepole pine	38.4	38.6	15,372.0	4,955.6	—	—	1,960.9	768.5	3,074.1	844.6
Monterey cypress	—	—	74.3	75.7	—	—	—	—	37.1	37.8
Monterey pine	—	—	118.6	120.4	—	—	—	—	30.2	34.5
Mountain hemlock	—	—	2,113.6	867.7	—	—	567.8	349.4	246.8	82.2
Pacific yew	—	—	—	—	—	—	—	—	293.2	141.3
Ponderosa pine	1,732.9	975.9	13,127.0	2,465.3	—	—	965.4	285.4	2,245.2	882.9
Port-Orford cedar	—	—	—	—	—	—	—	—	58.4	57.2
Redwood	6.2	6.3	97.2	55.3	—	—	123.9	64.2	2,987.5	646.4
Shasta red fir	—	—	7,244.7	4,689.5	—	—	947.9	667.4	155.0	85.0
Singleleaf pinyon	—	—	9,637.9	1,853.6	—	—	38.5	38.4	802.1	213.4
Sitka spruce	—	—	30.9	28.1	—	—	6.4	6.5	57.2	43.2

Table A2-122—Number of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage									
	Defoliators		Dwarf mistletoe		Leafy mistletoe		Foliage diseases		Stem decay	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees									
Sugar pine	—	—	707.2	172.2	—	—	200.3	99.9	698.0	128.0
Utah juniper	—	—	—	—	183.1	134.3	—	—	61.2	42.4
Washoe pine	—	—	—	—	—	—	—	—	6.1	6.1
Western hemlock	—	—	779.0	561.2	—	—	—	—	50.1	40.6
Western juniper	117.5	66.0	—	—	4,135.8	1,221.0	2,270.5	977.3	3,096.0	809.5
Western redcedar	—	—	—	—	—	—	—	—	38.9	38.1
Western white pine	5.9	6.0	416.3	164.4	—	—	217.9	129.1	633.8	127.9
White fir	2,099.7	1,084.4	45,202.9	6,781.3	3,783.6	1,509.0	1,685.7	980.3	4,477.5	455.2
Whitebark pine	992.0	1,002.4	—	—	—	—	31.4	34.1	1,924.0	977.3
Total	7,072.8	2,285.7	172,607.6	14,211.7	12,784.3	2,227.1	29,763.1	4,485.4	43,969.5	2,650.6
Hardwoods:										
Bigleaf maple	340.9	229.6	—	—	—	—	—	—	3,458.6	963.3
Black cottonwood	—	—	—	—	—	—	—	—	252.1	251.2
Blue oak	6,857.3	1,807.8	400.6	124.5	4,761.4	788.7	209.3	108.4	11,747.8	1,462.8
Boxelder	—	—	—	—	—	—	—	—	461.9	249.3
California black oak	12,144.2	3,712.9	645.6	322.4	4,303.7	1,028.9	503.2	208.5	19,782.1	1,838.5
California buckeye	—	—	—	—	—	—	39.5	40.1	5,635.4	1,374.5
California live oak	1,240.3	552.7	6.5	6.3	226.4	126.6	215.7	133.4	14,679.1	1,990.6
California sycamore	—	—	—	—	—	—	—	—	170.9	95.9
California white oak	996.3	883.8	49.8	50.2	581.6	227.3	40.4	40.5	363.3	147.7
California-laurel	2,935.3	2,085.5	—	—	—	—	3,579.3	2,012.0	9,496.4	2,280.1
Canyon live oak	7,199.2	2,818.8	1,052.9	618.1	2,675.5	730.4	664.9	460.4	32,880.9	3,554.8
Cherry and plum Spp.	445.1	450.7	—	—	—	—	—	—	—	—
Mountain mahogany	291.0	196.2	—	—	—	—	2,050.8	2,024.1	1,044.0	473.4
Engelmann oak	—	—	—	—	—	—	—	—	16.8	10.3
Fremont cottonwood	—	—	—	—	—	—	121.9	75.1	296.3	172.0
Giant chinkapin	—	—	—	—	—	—	—	—	946.2	504.6
Interior live oak	8,209.8	4,173.9	2,289.5	2,006.0	4,275.3	1,561.6	605.4	454.1	25,594.2	3,550.1

Table A2-122—Number of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage									
	Defoliators		Dwarf mistletoe		Leafy mistletoe		Foliage diseases		Stem decay	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees									
Oregon ash	—	—	—	—	—	—	—	—	897.6	413.2
Oregon white oak	5,767.5	3,136.6	551.0	490.5	3,140.1	1,204.1	138.6	127.9	3,749.4	818.6
Pacific dogwood	—	—	—	—	—	—	45.5	42.1	317.4	121.2
Pacific madrone	8,143.9	4,941.6	—	—	—	—	49.9	42.8	10,077.2	1,334.1
Quaking aspen	—	—	—	—	—	—	—	—	1,400.9	765.5
Red alder	745.7	453.6	—	—	—	—	—	—	503.3	169.3
Tanoak	15,497.8	8,060.8	—	—	—	—	170.9	101.3	30,243.1	3,216.1
White alder	285.1	276.6	—	—	—	—	—	—	331.6	121.7
Total	71,099.5	12,893.0	4,995.9	2,251.9	19,963.9	2,528.6	8,435.5	2,947.8	174,383.6	7,930.7
Total, all species	78,172.2	13,186.1	177,603.5	14,384.2	32,748.2	3,374.1	38,198.7	5,401.0	218,353.1	8,390.7

Table A2-122—Number of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage							
	Other insects		Physical injury and defects		Root disease		Weather	
	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees							
Softwoods:								
Bigcone Douglas-fir	6.2	6.2	379.3	153.6	—	—	—	—
Bishop pine	—	—	2,120.8	1,377.2	—	—	—	—
Brewer spruce	—	—	102.8	61.6	—	—	—	—
California juniper	—	—	1,875.6	431.9	—	—	31.7	35.7
California red fir	216.2	114.7	55,802.5	7,925.6	42,039.8	7,863.9	14,243.4	6,403.3
California torreya	—	—	1,552.6	696.2	—	—	—	—
Coulter pine	—	—	721.3	262.5	6.5	6.3	—	—
Douglas-fir	563.0	462.8	116,389.1	6,560.9	10,997.8	4,075.8	435.6	264.3
Engelmann spruce	—	—	37.1	37.0	—	—	—	—
Foxtail pine	—	—	2,344.5	722.4	—	—	114.8	108.9
Giant sequoia	—	—	6.1	6.4	—	—	—	—
Grand fir	—	—	1,275.2	613.8	—	—	—	—
Grey pine	37.2	37.7	4,902.8	1,029.1	43.2	40.6	7.7	7.0
Bristlecone pine	—	—	981.0	465.1	—	—	612.1	625.1
Incense cedar	5.0	5.5	66,926.8	6,497.9	11,783.8	3,599.8	1,767.7	846.5
Jeffrey pine	859.7	524.9	33,690.9	3,051.7	4,115.0	1,384.7	1,089.6	551.7
Knobcone pine	—	—	4,811.9	1,212.8	367.2	305.7	75.5	93.0
Limber pine	—	—	1,339.0	486.7	—	—	197.3	126.2
Lodgepole pine	40.6	38.7	82,164.9	9,687.9	9,798.7	3,547.9	8,172.0	2,834.8
Monterey cypress	—	—	111.4	113.5	—	—	—	—
Monterey pine	—	—	777.9	755.2	—	—	—	—
Mountain hemlock	71.4	51.4	13,210.9	3,257.7	467.2	493.0	5,135.0	4,297.5
Noble fir	—	—	42.7	37.2	—	—	37.1	37.0
Pacific yew	—	—	583.8	217.0	—	—	—	—
Ponderosa pine	1,811.0	888.3	67,799.2	6,498.3	20,997.4	7,122.3	512.1	174.2
Port-Orford cedar	—	—	343.3	172.6	—	—	—	—

Table A2-122—Number of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage							
	Other insects		Physical injury and defects		Root disease		Weather	
	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees							
Redwood	—	—	42,091.3	4,541.6	22.1	23.8	1,148.9	986.0
Sargent's cypress	—	—	222.9	192.8	—	—	—	—
Shasta red fir	6.2	6.1	6,433.4	2,679.9	74.2	74.0	3,375.0	3,339.4
Singleleaf pinyon	732.5	687.7	25,885.9	3,091.8	4,990.1	2,485.8	598.7	527.5
Sitka spruce	—	—	998.2	568.3	—	—	—	—
Sugar pine	8.5	7.4	20,645.8	2,689.2	1,878.8	696.3	726.9	480.5
Utah juniper	—	—	3,041.6	1,026.5	49.7	43.5	—	—
Washoe pine	—	—	444.2	300.8	—	—	906.4	916.7
Western hemlock	—	—	1,629.6	650.0	—	—	—	—
Western juniper	216.8	154.6	12,156.4	1,580.3	72.0	51.6	202.4	107.1
Western larch	—	—	48.3	43.0	—	—	—	—
Western redcedar	—	—	149.4	113.8	—	—	—	—
Western white pine	34.3	35.7	11,525.6	2,609.1	200.0	111.3	1,490.6	948.1
White fir	678.7	240.9	127,175.6	6,996.1	109,359.7	15,499.4	7,827.8	4,708.2
Whitebark pine	—	—	27,701.0	6,660.3	—	—	3,275.1	1,942.7
Total	5,287.3	1,397.5	740,593.5	22,961.7	217,263.0	22,284.4	51,983.2	13,213.6
Hardwoods:								
Ash spp.	—	—	5,328.0	5,271.0	—	—	—	—
Bigleaf maple	—	—	13,079.8	2,227.7	—	—	36.0	39.5
Bitter cherry	—	—	1,563.6	864.3	—	—	—	—
Black cottonwood	—	—	404.8	296.4	—	—	—	—
Blue oak	1,524.8	900.8	47,435.8	3,845.4	48.7	43.5	31.1	35.6
Boxelder	—	—	375.9	173.9	—	—	—	—
California black oak	833.3	542.6	67,341.9	5,819.0	490.0	190.1	119.4	64.3
California buckeye	—	—	22,136.6	4,619.5	—	—	50.4	44.4
California live oak	39.5	40.1	34,408.8	4,335.2	—	—	192.6	168.9

Table A2-122—Number of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage							
	Other insects		Physical injury and defects		Root disease		Weather	
	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand trees							
California sycamore	—	—	398.5	211.7	—	—	—	—
California white oak	106.1	64.8	4,384.2	1,200.4	—	—	—	—
California-laurel	—	—	34,108.9	6,162.9	8.4	7.4	187.3	99.8
Canyon live oak	1,803.2	1,051.1	141,393.2	13,165.5	12.4	12.5	1,664.2	1,241.7
Cherry and plum Spp.	—	—	392.0	425.5	—	—	—	—
Mountain mahogany	147.4	90.5	27,149.3	4,486.5	76.1	75.1	136.8	114.8
Engelmann oak	—	—	347.8	212.0	—	—	—	—
Eucalyptus spp.	—	—	109.4	111.9	—	—	—	—
Fremont cottonwood	—	—	791.5	388.6	—	—	23.9	18.1
Giant chinkapin	—	—	2,257.3	673.1	—	—	38.5	38.3
Interior live oak	514.1	471.6	63,819.9	7,583.3	745.0	742.4	38.8	38.1
Oregon ash	104.6	64.5	3,285.3	1,389.4	—	—	—	—
Oregon white oak	430.1	355.1	34,642.6	6,172.5	—	—	—	—
Pacific dogwood	—	—	9,680.1	3,404.2	—	—	—	—
Pacific madrone	7.7	7.0	28,950.7	2,703.0	—	—	659.9	533.8
Quaking aspen	—	—	9,453.4	2,601.9	37.1	37.0	7,343.3	7,760.3
Red alder	39.8	39.0	3,377.1	847.7	40.2	39.6	—	—
Screwbean mesquite	—	—	149.6	150.9	—	—	—	—
Tanoak	123.4	69.2	96,913.0	8,446.9	472.2	501.4	1,130.8	508.5
Walnut spp.	—	—	37.1	37.8	—	—	—	—
Mesquite	—	—	505.7	380.3	—	—	—	—
White alder	—	—	3,144.0	966.8	—	—	108.2	82.3
Total	5,674.2	1,635.7	657,402.8	24,200.4	1,930.1	921.9	11,761.1	7,898.3
Total, all species	10,961.5	2,150.4	1,397,996.3	32,878.0	219,193.1	22,322.4	63,744.3	15,388.3

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = fewer than 50 trees were estimated.

[a] Includes number of live trees ≥1 inch diameter at breast height with one or more types of damage recorded.

Table A2-123—Gross volume of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010

Species	Total gross volume of live trees[a]		Gross volume of live trees with damage		Type of damage					
					Animal		Bark beetle		Cankers	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand cubic feet									
Softwoods:										
Bigcone Douglas-fir	63,130.6	18,402.0	27,639.8	9,261.5	—	—	—	—	374.4	391.0
Bishop pine	124,089.6	48,327.0	56,772.5	26,967.3	1,183.7	1,182.9	—	—	502.4	427.0
Brewer spruce	17,029.8	9,225.7	5,356.6	2,752.1	—	—	—	—	—	—
California juniper	98,270.9	15,154.6	22,059.1	6,228.4	719.1	499.2	—	—	—	—
California red fir	6,277,531.8	477,857.5	3,471,122.6	308,225.7	4,162.2	1,684.0	141,716.7	42,217.5	180,050.2	71,506.3
California torreya	13,918.7	4,437.1	6,906.4	2,484.2	—	—	—	—	—	—
Coulter pine	87,787.4	25,300.8	34,909.5	10,182.5	—	—	2,768.3	2,738.7	—	—
Cypress	1,159.1	1,071.9	—	—	—	—	—	—	—	—
Douglas-fir	23,205,591.8	707,681.8	5,949,201.8	276,432.8	77,982.5	20,385.9	13,461.3	4,457.9	266,528.8	37,679.4
Engelmann spruce	7,367.9	5,404.1	675.7	674.1	—	—	—	—	—	—
Foxtail pine	271,055.5	78,975.7	176,510.9	56,909.0	591.3	593.0	—	—	—	—
Giant sequoia	62,047.2	58,327.5	11,532.5	12,182.2	—	—	—	—	—	—
Grand fir	203,098.3	43,426.6	37,380.0	10,588.1	727.2	496.2	—	—	—	—
Grey pine	640,898.8	49,563.4	227,378.2	27,321.3	8,814.7	2,811.5	23,246.4	11,299.7	2,825.1	1,305.2
Bristlecone pine	61,772.9	30,546.3	52,726.9	26,096.9	654.2	647.2	—	—	—	—
Incense cedar	4,248,038.8	202,215.1	1,585,357.9	108,412.1	15,239.7	5,047.2	1,164.3	832.6	4,619.8	2,216.0
Jeffrey pine	4,703,856.6	247,065.8	1,745,388.1	112,427.9	24,999.0	8,212.0	67,918.9	19,713.7	8,385.2	3,547.0
Knobcone pine	156,822.3	30,398.0	67,041.1	13,834.4	1,736.6	1,547.5	3,293.0	2,131.2	3,327.6	1,672.8
Limber pine	83,912.2	31,088.0	46,709.6	17,561.9	—	—	—	—	—	—
Lodgepole pine	3,840,927.5	277,483.8	1,845,777.6	148,645.1	28,297.6	9,463.8	37,949.4	9,956.2	116,144.3	32,509.8
Monterey cypress	1,550.5	1,579.7	485.2	494.4	—	—	—	—	—	—
Monterey pine	62,551.6	45,746.6	28,457.3	25,598.9	—	—	—	—	16,139.8	16,391.8
Mountain hemlock	632,720.3	116,262.6	245,974.8	49,223.4	4,372.4	3,159.8	8,274.5	5,876.6	4,394.0	2,491.1
Noble fir	23,613.3	17,465.0	2,815.9	2,760.1	—	—	—	—	—	—
Pacific yew	8,951.1	2,383.1	2,597.6	891.4	—	—	—	—	—	—
Ponderosa pine	8,577,228.3	346,259.2	2,350,071.9	135,922.9	52,870.1	13,922.0	118,149.7	22,342.3	33,121.6	8,270.5
Port-Orford cedar	148,509.0	65,290.1	57,094.3	27,866.0	1,889.6	1,885.0	—	—	—	—
Redwood	8,359,557.9	853,647.0	2,776,007.0	417,705.8	117,157.0	25,411.3	—	—	27,206.3	14,763.8

Table A2-123—Gross volume of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Total gross volume of live trees[a]		Gross volume of live trees with damage		Type of damage					
					Animal		Bark beetle		Cankers	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
					Thousand cubic feet					
Sargent's cypress	5,095.0	3,787.4	1,320.6	1,188.3	—	—	—	—	—	—
Shasta red fir	812,413.9	201,688.4	188,442.7	51,771.7	—	—	—	—	509.4	342.6
Singleleaf pinyon	772,288.1	56,381.5	270,494.7	25,983.9	6,786.8	5,166.0	17,105.5	5,498.4	2,635.6	1,359.5
Sitka spruce	271,280.2	87,689.5	55,808.4	21,695.1	60.6	61.3	—	—	4,791.6	4,360.0
Subalpine fir	2,430.7	2,404.7	—	—	—	—	—	—	—	—
Sugar pine	4,102,712.3	230,698.5	1,360,705.0	116,630.3	1,499.1	907.1	6,281.2	3,226.3	84,979.4	18,612.6
Utah juniper	50,431.5	10,518.4	26,554.0	6,494.7	1,003.9	738.0	—	—	—	—
Washoe pine	47,590.4	30,422.2	28,147.5	21,086.6	6,576.0	5,409.5	—	—	335.3	336.7
Western hemlock	229,643.4	66,743.8	70,455.3	22,671.5	10,447.6	6,769.6	2,680.2	2,131.9	3,893.6	3,394.9
Western juniper	581,344.2	37,221.2	205,849.1	17,659.9	11,208.1	3,429.4	—	—	338.3	339.8
Western larch	395.2	351.6	395.2	351.6	—	—	—	—	—	—
Western redcedar	38,893.9	25,968.3	30,895.1	21,136.8	—	—	—	—	—	—
Western white pine	1,038,081.3	94,591.5	437,693.1	46,339.0	4,269.6	1,960.6	8,701.7	3,834.9	11,304.1	3,709.6
White fir	13,442,101.1	549,406.7	5,519,867.8	324,586.3	13,354.9	4,425.5	146,929.5	22,254.8	173,057.8	32,239.2
Whitebark pine	136,392.5	22,478.2	67,808.8	12,577.3	3,394.2	1,775.9	584.8	590.0	—	—
Total	83,520,119.2	1,429,217.8	29,102,459.5	750,337.4	399,997.5	43,043.4	600,225.6	62,266.9	945,464.7	98,846.0
Hardwoods:										
Ash spp.	1,927.7	1,664.3	358.6	354.7	—	—	—	—	—	—
Bigleaf maple	428,000.7	43,108.1	149,836.2	21,633.3	1,565.6	1,043.1	—	—	—	—
Bitter cherry	198.9	194.6	—	—	—	—	—	—	—	—
Black cottonwood	51,963.3	21,366.3	16,008.0	7,775.3	—	—	—	—	—	—
Blue oak	1,577,974.1	78,427.2	622,317.6	41,917.8	12,183.3	4,147.7	—	—	5,627.5	2,963.0
Boxelder	13,271.7	12,515.1	7,153.6	6,207.5	—	—	—	—	—	—
California black oak	3,625,798.5	160,287.0	1,367,878.6	74,938.4	11,628.6	6,931.7	1,215.7	1,106.5	28,702.5	9,565.3
California buckeye	70,730.4	10,888.6	45,658.8	7,942.2	—	—	—	—	—	—
California live oak	1,383,432.3	104,547.5	620,955.9	58,833.1	8,889.2	3,786.1	—	—	11,141.9	5,449.0
California sycamore	47,359.0	13,751.3	16,468.1	5,757.8	—	—	—	—	—	—
California white oak	405,882.8	62,294.1	122,427.0	21,688.8	12,994.9	6,688.7	—	—	853.0	501.8

Table A2-123—Gross volume of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Total gross volume of live trees[a]		Gross volume of live trees with damage		Type of damage					
					Animal		Bark beetle		Cankers	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
					Thousand cubic feet					
California-laurel	728,008.4	72,485.5	260,625.0	39,972.5	446.9	303.2	—	—	1,569.3	1,097.2
Canyon live oak	3,338,287.8	169,367.9	1,190,427.7	78,373.3	11,900.6	4,976.3	—	—	15,067.9	4,745.0
Chinkapin oak	677.4	507.3	—	—	—	—	—	—	—	—
Chokecherry	57.9	57.2	—	—	—	—	—	—	—	—
Mountain mahogany	152,117.2	19,035.8	71,058.0	13,189.3	4,077.0	1,615.9	185.9	189.4	—	—
Engelmann oak	15,825.5	7,341.0	11,434.9	5,199.4	—	—	—	—	—	—
Eucalyptus spp.	5,363.2	5,482.9	992.0	1,014.1	—	—	—	—	—	—
Fremont cottonwood	91,227.1	41,585.8	64,974.4	33,900.4	—	—	—	—	7,682.1	4,737.5
Giant chinkapin	212,763.7	51,009.9	57,139.3	14,745.0	282.3	279.3	—	—	—	—
Interior live oak	750,820.2	66,668.3	313,193.2	29,897.8	552.4	284.7	—	—	1,646.0	605.4
California black walnut	354.3	360.0	—	—	—	—	—	—	—	—
Oregon ash	30,531.9	12,279.4	15,342.9	6,047.3	—	—	—	—	—	—
Oregon white oak	635,533.3	65,831.0	202,422.3	25,626.2	1,591.1	1,263.8	—	—	4,132.5	2,045.0
Pacific dogwood	11,656.0	3,691.9	4,558.0	2,033.0	1,279.7	1,164.4	—	—	—	—
Pacific madrone	1,898,018.6	121,044.2	912,888.8	73,808.4	3,299.4	1,880.5	—	—	14,895.5	5,145.5
Quaking aspen	57,526.1	17,844.3	20,412.2	6,655.4	2,891.8	1,567.4	—	—	192.7	144.1
Red alder	508,732.9	82,172.2	67,689.7	14,411.5	6,613.7	4,878.9	—	—	1,176.3	771.7
Rocky Mountain maple	120.7	117.5	—	—	—	—	—	—	—	—
Screwbean mesquite	563.8	426.1	377.3	380.7	—	—	—	—	—	—
Tanoak	3,616,183.1	210,658.1	1,112,149.0	82,621.7	9,407.7	4,364.0	—	—	17,805.2	5,893.0
Tasmanian bluegum	2,094.9	1,508.7	—	—	—	—	—	—	—	—
Walnut spp.	154.8	157.7	154.8	157.7	—	—	—	—	—	—
Mesquite	10,176.2	4,992.1	3,579.0	2,770.1	—	—	—	—	—	—
White alder	151,316.3	27,224.8	48,257.8	13,099.9	2,757.0	2,440.2	—	—	1,210.2	1,183.0
Total	19,834,094.5	427,774.4	7,327,093.9	203,681.5	92,641.1	14,491.4	1,401.5	1,122.5	111,702.6	16,047.5
Total, all species	103,354,213.6	1,485,362.1	36,429,553.4	774,148.9	492,638.6	45,383.7	601,627.1	62,276.8	1,057,167.3	100,583.3

Table A2-123—Gross volume of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage							
	Defoliators		Dwarf mistletoe		Leafy mistletoe		Foliage diseases	
	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand cubic feet							
Softwoods:								
Bishop pine	—	—	510.4	511.3	—	—	—	—
California juniper	—	—	—	—	8,274.0	5,076.0	186.7	180.7
California red fir	6,398.6	6,838.6	1,407,092.3	219,511.1	—	—	341,253.4	94,476.4
Coulter pine	—	—	4,489.4	3,185.0	—	—	—	—
Douglas-fir	26,631.2	15,115.0	422,891.8	77,493.7	—	—	63,070.5	23,495.7
Engelmann spruce	—	—	675.7	674.1	—	—	—	—
Grand fir	107.8	94.0	—	—	—	—	—	—
Grey pine	—	—	75,647.6	14,551.0	—	—	7,408.3	5,010.9
Incense cedar	188.9	180.6	—	—	120,676.9	26,076.5	153,338.1	37,266.3
Jeffrey pine	2,693.1	1,910.9	313,939.8	49,894.5	—	—	75,953.0	29,389.6
Knobcone pine	—	—	9,813.0	6,422.8	—	—	—	—
Lodgepole pine	1,913.5	1,918.9	139,526.5	31,851.8	—	—	74,190.8	33,735.9
Monterey cypress	—	—	240.4	245.0	—	—	—	—
Monterey pine	—	—	4,433.1	4,502.3	—	—	—	—
Mountain hemlock	—	—	33,057.8	14,455.0	—	—	38,486.0	24,974.4
Ponderosa pine	14,583.4	10,510.4	308,557.2	45,951.9	—	—	31,273.0	8,264.8
Redwood	2,540.6	2,588.4	15,133.9	11,360.7	—	—	13,523.7	7,445.6
Shasta red fir	—	—	15,264.3	9,617.3	—	—	14,985.7	14,864.6
Singleleaf pinyon	—	—	58,157.1	11,825.3	—	—	47.1	46.9
Sitka spruce	—	—	16,576.9	15,083.8	—	—	2,541.4	2,571.7
Sugar pine	—	—	84,255.6	21,940.5	—	—	15,941.5	9,343.6
Utah juniper	—	—	—	—	1,577.4	1,541.6	—	—
Western hemlock	—	—	11,077.9	8,074.9	—	—	—	—
Western juniper	487.5	371.6	—	—	32,749.3	6,652.2	12,552.1	4,931.3
Western white pine	704.2	713.0	7,400.2	3,723.4	—	—	8,775.7	6,085.6
White fir	16,109.9	7,174.7	1,167,598.1	176,120.8	94,722.4	29,126.1	32,001.5	8,514.0
Whitebark pine	2,523.1	2,549.7	—	—	—	—	214.8	233.2
Total	74,881.9	21,407.7	4,096,338.9	311,336.1	258,000.0	39,780.8	885,743.5	123,387.0

Table A2-123—Gross volume of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage							
	Defoliators		Dwarf mistletoe		Leafy mistletoe		Foliage diseases	
	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand cubic feet							
Hardwoods:								
Bigleaf maple	7,952.2	5,677.0	—	—	—	—	—	—
Blue oak	50,835.8	13,808.8	8,916.4	3,994.9	66,659.4	10,763.5	5,086.5	3,403.0
California black oak	91,594.8	20,648.9	12,582.1	4,113.1	121,123.8	20,620.2	4,604.9	1,955.3
California buckeye	—	—	—	—	—	—	258.6	262.6
California live oak	15,097.5	8,290.8	1,648.9	1,604.6	11,731.3	4,616.5	6,236.6	3,192.0
California white oak	5,876.8	4,626.1	3,441.0	3,471.7	16,075.2	6,374.7	1,332.3	1,334.7
California-laurel	15,372.0	9,247.9	—	—	—	—	19,815.1	9,697.6
Canyon live oak	28,618.5	13,576.9	11,466.6	9,196.1	30,699.0	11,885.1	1,357.1	870.9
Mountain mahogany	1,065.3	667.2	—	—	—	—	5,784.3	5,738.7
Fremont cottonwood	—	—	—	—	—	—	15,681.5	9,670.6
Interior live oak	26,073.6	13,206.3	2,100.1	1,523.1	15,740.8	4,332.2	2,135.2	1,837.7
Oregon white oak	23,892.2	9,858.3	259.8	220.8	36,783.0	12,364.7	1,052.8	800.3
Pacific dogwood	—	—	—	—	—	—	60.0	55.4
Pacific madrone	37,549.6	16,946.3	—	—	—	—	2,059.7	1,469.7
Red alder	6,816.7	4,604.7	—	—	—	—	—	—
Tanoak	79,830.4	40,712.0	—	—	—	—	497.9	309.5
White alder	3,197.0	3,395.2	—	—	—	—	—	—
Total	393,772.4	73,911.6	40,415.0	11,774.3	298,812.5	30,912.8	65,962.6	16,154.6
Total, all species	468,654.3	78,470.9	4,136,753.9	311,506.8	556,812.5	50,310.8	951,706.1	124,581.3

Table A2-123—Gross volume of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage									
	Stem decay		Other insects		Physical injury and defects		Root disease		Weather	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand cubic feet									
Softwoods:										
Bigcone Douglas-fir	8,355.7	4,664.4	743.2	737.3	22,468.9	8,041.0	—	—	—	—
Bishop pine	8,122.0	5,604.4	—	—	51,379.1	26,023.6	—	—	—	—
Brewer spruce	1,512.0	1,144.0	—	—	4,309.9	2,548.1	—	—	—	—
California juniper	233.8	186.6	—	—	13,495.3	3,337.3	—	—	24.5	27.5
California red fir	154,340.3	27,527.8	1,459.1	914.9	1,804,542.8	153,715.7	920,785.8	168,758.5	47,122.0	14,571.8
California torreya	4,764.6	2,166.9	—	—	5,459.9	1,990.6	—	—	—	—
Coulter pine	1,522.5	1,048.6	—	—	24,793.3	7,564.5	5,626.8	5,524.3	—	—
Douglas-fir	1,663,695.9	128,225.1	11,306.0	7,442.6	3,852,719.3	202,438.0	261,422.1	77,544.9	34,222.2	13,257.4
Engelmann spruce	—	—	—	—	61.8	61.6	—	—	—	—
Foxtail pine	27,916.9	17,765.7	—	—	167,578.7	53,341.2	—	—	9,401.1	8,554.3
Giant sequoia	—	—	—	—	11,532.5	12,182.2	—	—	—	—
Grand fir	2,329.5	1,592.3	—	—	35,383.2	10,496.1	—	—	—	—
Grey pine	31,918.4	11,597.4	2,023.1	2,046.5	111,640.9	16,307.3	2,335.4	2,199.0	792.3	720.9
Bristlecone pine	22,493.9	14,746.6	—	—	37,298.8	17,766.1	—	—	18,185.4	18,085.8
Incense cedar	193,876.2	30,243.3	540.7	600.5	1,213,145.9	80,608.2	159,442.4	56,393.8	7,627.5	3,681.3
Jeffrey pine	99,154.7	23,404.9	4,596.4	2,476.1	1,275,384.1	85,737.8	169,701.5	38,762.4	28,398.6	8,440.4
Knobcone pine	15,091.2	5,532.6	—	—	42,728.8	9,797.8	5,415.8	4,513.3	1,414.9	1,743.3
Limber pine	11,010.8	5,545.1	—	—	42,704.4	16,869.3	—	—	5,926.0	3,484.7
Lodgepole pine	156,873.7	25,399.1	195.5	186.4	1,493,257.7	122,622.7	118,410.1	35,168.3	19,708.9	6,088.0
Monterey cypress	64.9	66.1	—	—	363.2	370.0	—	—	—	—
Monterey pine	1,726.5	1,973.9	—	—	10,138.9	7,367.0	—	—	—	—
Mountain hemlock	20,907.5	7,230.8	1,939.8	1,746.7	175,864.4	32,357.0	15,291.6	15,854.1	6,545.4	2,568.9
Noble fir	—	—	—	—	872.2	822.1	—	—	1,943.7	1,939.0
Pacific yew	1,409.1	652.8	—	—	2,139.2	773.2	—	—	—	—
Ponderosa pine	120,048.5	18,258.1	6,300.9	2,524.3	1,679,237.1	99,261.1	270,551.6	68,635.5	14,164.7	6,176.1
Port-Orford cedar	19,775.6	19,347.8	—	—	53,699.1	26,370.1	—	—	—	—

Table A2-123—Gross volume of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage									
	Stem decay		Other insects		Physical injury and defects		Root disease		Weather	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand cubic feet									
Redwood	275,655.9	85,453.0	—	—	2,574,583.7	415,714.4	4,756.8	5,122.7	14,124.4	6,407.3
Sargent's cypress	—	—	—	—	1,320.6	1,188.3	—	—	—	—
Shasta red fir	20,513.1	11,536.5	1,911.9	1,907.2	150,723.5	43,305.7	889.9	887.7	266.5	263.7
Singleleaf pinyon	14,177.9	3,640.4	649.6	570.0	193,634.6	20,694.3	20,955.3	8,358.8	1,508.1	894.3
Sitka spruce	4,366.7	2,643.3	—	—	34,379.3	14,999.8	—	—	—	—
Sugar pine	208,823.0	47,660.1	1,491.6	1,302.1	1,028,914.2	88,347.9	152,695.9	59,585.2	29,010.4	19,847.1
Utah juniper	1,037.4	755.5	—	—	24,392.3	6,231.2	13.7	12.0	—	—
Washoe pine	889.8	893.6	—	—	27,257.7	21,028.1	—	—	—	—
Western hemlock	5,334.4	3,939.8	—	—	53,110.2	16,255.7	—	—	—	—
Western juniper	50,325.7	7,856.9	743.3	551.7	131,562.2	12,812.8	124.6	93.4	3,923.3	1,847.3
Western larch	—	—	—	—	395.2	351.6	—	—	—	—
Western redcedar	14,567.9	14,252.8	—	—	28,450.6	19,475.8	—	—	—	—
Western white pine	108,791.7	21,947.2	892.7	928.0	339,911.1	39,249.2	8,213.7	4,708.4	13,552.0	4,645.5
White fir	319,418.8	39,519.0	20,676.5	8,281.0	3,274,983.6	186,254.5	1,786,332.9	230,454.7	51,160.7	10,020.6
Whitebark pine	9,121.0	3,315.5	—	—	60,982.5	11,828.4	—	—	3,717.9	1,594.3
Total	3,600,167.6	183,753.7	55,470.3	12,490.2	20,060,871.7	585,215.1	3,902,966.0	398,262.5	312,740.2	40,654.5
Hardwoods:										
Ash spp.	—	—	—	—	358.6	354.7	—	—	—	—
Bigleaf maple	60,178.1	13,569.5	—	—	111,215.2	17,971.3	—	—	421.1	462.1
Black cottonwood	4,467.8	3,430.8	—	—	13,561.1	7,250.4	—	—	—	—
Blue oak	225,906.9	23,608.7	4,630.6	1,781.5	388,773.0	30,471.1	172.1	153.7	953.4	1,090.5
Boxelder	6,276.1	5,312.5	—	—	2,482.1	1,248.3	—	—	—	—
California black oak	589,320.5	45,739.1	5,107.1	2,748.2	832,955.7	52,225.0	14,628.5	5,784.5	3,139.4	1,722.9
California buckeye	19,337.9	5,273.6	—	—	40,178.3	7,711.5	—	—	170.7	150.3
California live oak	306,266.0	39,085.6	139.4	141.6	437,572.1	46,391.4	—	—	4,247.2	2,940.4
California sycamore	9,472.3	4,359.2	—	—	15,476.4	5,675.4	—	—	—	—

Table A2-123—Gross volume of live trees[a] with damage on forest land, by species and type of damage, California, 2001–2010 (continued)

Species	Type of damage									
	Stem decay		Other insects		Physical injury and defects		Root disease		Weather	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand cubic feet									
California white oak	26,746.6	8,542.8	448.6	319.8	73,483.2	15,258.0	—	—	—	—
California-laurel	141,589.1	32,647.9	—	—	164,299.4	30,307.4	4,368.6	3,847.6	5,846.4	4,197.4
Canyon live oak	506,169.9	48,468.5	5,389.3	3,965.1	817,911.2	60,683.2	7,015.2	7,096.3	8,301.2	5,312.7
Mountain mahogany	2,921.9	1,534.3	541.9	465.4	62,403.6	11,743.3	30.1	29.7	309.0	227.6
Engelmann oak	3,399.8	2,301.9	—	—	8,035.1	4,662.1	—	—	—	—
Eucalyptus spp.	—	—	—	—	992.0	1,014.1	—	—	—	—
Fremont cottonwood	27,873.9	15,403.4	—	—	33,170.8	17,182.7	—	—	4,592.7	3,475.1
Giant chinkapin	17,217.0	5,852.4	—	—	41,987.2	11,647.2	—	—	3,239.4	3,223.3
Interior live oak	152,723.4	19,174.3	103.7	94.3	187,617.3	19,768.3	1,985.9	1,979.0	180.1	176.8
Oregon ash	4,574.4	1,932.0	681.8	420.5	12,968.7	5,875.6	—	—	—	—
Oregon white oak	55,133.0	11,436.3	2,668.2	2,224.8	129,382.2	19,033.6	—	—	—	—
Pacific dogwood	1,524.4	714.6	—	—	3,164.8	1,663.2	—	—	—	—
Pacific madrone	472,377.2	52,680.2	4,485.3	4,081.3	641,595.7	60,959.8	—	—	3,677.0	2,229.7
Quaking aspen	3,196.3	1,682.9	—	—	15,847.9	6,225.9	1,238.6	1,235.6	233.8	202.0
Red alder	9,721.5	3,719.5	135.7	133.1	45,093.9	10,689.7	4,628.3	4,558.2	—	—
Screwbean mesquite	—	—	—	—	377.3	380.7	—	—	—	—
Tanoak	534,115.3	52,219.8	646.1	451.6	707,459.3	54,631.1	5,661.8	5,387.3	3,895.9	1,569.7
Walnut spp.	—	—	—	—	154.8	157.7	—	—	—	—
Mesquite	—	—	—	—	3,579.0	2,770.1	—	—	—	—
White alder	9,539.9	3,425.2	—	—	38,652.2	11,856.6	—	—	174.9	153.3
Total	3,190,124.7	128,011.4	24,977.6	6,982.2	4,830,823.4	152,018.9	39,729.0	12,656.2	39,382.3	10,016.1
Total, all species	6,790,292.3	230,613.1	80,447.9	14,304.0	24,891,695.1	604,839.6	3,942,695.0	399,287.0	352,122.4	41,961.7

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 50 cubic feet was estimated.

[a] Includes gross volume of live trees ≥5 inches diameter at breast height with one or more damages recorded. Gross volume includes rotten, missing, and form cull volume.

Table A2-124—Area of forest land with more than 25 percent of basal area damaged, by forest type and type of damage, California, 2001–2010

Forest type	Total forest land		Forest land with damage		Type of damage					
					Animal		Bark beetle		Cankers	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres									
Softwoods:										
Bigcone Douglas-fir	5	5	5	5	—	—	—	—	—	—
Bishop pine	22	11	16	9	—	—	—	—	—	—
California mixed conifer	7,803	165	4,235	140	6	6	32	13	39	15
Coulter pine	28	12	9	7	—	—	—	—	—	—
Douglas-fir	1,054	71	505	52	24	12	—	—	1	1
Foxtail pine/bristlecone pine	111	25	111	25	—	—	—	—	—	—
Grand fir	4	4	4	4	—	—	—	—	—	—
Incense cedar	1	1	1	1	—	—	1	1	—	—
Jeffrey pine	912	70	427	49	10	7	13	9	5	6
Juniper woodland	402	49	125	28	—	—	—	—	—	—
Knobcone pine	52	18	11	8	—	—	—	—	—	—
Limber pine	42	15	42	15	—	—	—	—	—	—
Lodgepole pine	1,018	73	845	67	—	—	10	7	45	16
Misc. western softwoods	52	16	27	12	—	—	—	—	—	—
Mountain hemlock	154	29	134	28	—	—	—	—	—	—
Pinyon/juniper woodland	1,460	74	766	61	12	9	37	15	8	7
Ponderosa pine	1,301	82	455	50	15	6	14	8	1	1
Port Orford cedar	29	13	13	9	—	—	—	—	—	—
Red fir	646	60	487	52	—	—	16	10	17	10
Redwood	710	59	326	42	9	8	—	—	4	5
Sitka spruce	38	15	17	9	—	—	—	—	—	—
Subalpine fir	1	1	—	—	—	—	—	—	—	—
Western hemlock	8	7	8	7	—	—	—	—	—	—
Western juniper	1,535	83	747	63	22	11	—	—	—	—
Western white pine	167	31	110	25	—	—	—	—	6	6
White fir	1,232	82	768	66	—	—	29	13	24	12
Whitebark pine	226	35	177	31	—	—	—	—	—	—
Total	19,019	205	10,378	196	98	23	151	29	158	31

Table A2-124—Area of forest land with more than 25 percent of basal area damaged, by forest type and type of damage, California, 2001–2010 (continued)

Forest type	Total forest land		Forest land with damage		Type of damage					
					Animal		Bark beetle		Cankers	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
					Thousand acres					
Hardwoods:										
Aspen	75	19	48	16	10	7	—	—	—	—
Bigleaf maple	52	16	13	7	—	—	—	—	—	—
Blue oak	2,455	106	1,346	83	2	1	17	11	17	10
California black oak	1,486	90	779	67	—	—	—	—	17	10
California laurel	312	41	128	27	—	—	—	—	—	—
California white oak	222	34	116	26	—	—	—	—	—	—
Canyon live oak	2,311	111	1,155	80	11	8	—	—	—	—
Coast live oak	953	63	593	52	4	3	—	—	5	5
Cottonwood	35	14	29	13	—	—	—	—	—	—
Cottonwood/willow	9	5	5	5	—	—	—	—	—	—
Eucalyptus	2	2	—	—	—	—	—	—	—	—
Evergreen oak woodland	19	10	19	10	1	1	—	—	—	—
Giant chinkapin	62	19	—	—	—	—	—	—	—	—
Gray pine	486	53	281	40	4	4	6	6	—	—
Interior live oak	1,038	75	576	57	—	—	—	—	5	5
Mesquite woodland	38	15	15	9	—	—	—	—	—	—
Misc. woodland hardwoods	35	14	2	1	—	—	—	—	—	—
Mountain brush woodland	379	46	206	34	8	6	5	5	—	—
Oregon ash	8	7	—	—	—	—	—	—	—	—
Oregon white oak	573	56	334	44	—	—	—	—	2	3
Pacific madrone	294	41	152	30	—	—	—	—	—	—
Red alder	203	33	103	25	13	9	—	—	—	—
Tanoak	1,650	89	817	67	11	8	—	—	—	—
Willow	2	2	—	—	—	—	—	—	—	—
Other hardwoods	314	42	159	30	2	2	—	—	7	6
Total	13,013	211	6,878	177	66	18	29	13	52	17
Nonstocked	783	64	159	30	5	4	—	—	—	—
Total	32,815	201	17,415	241	168	30	179	32	210	35

Table A2-124—Area of forest land with more than 25 percent of basal area damaged, by forest type and type of damage, California, 2001–2010 (continued)

Forest type	Type of damage									
	Defoliators		Dwarf mistletoe		Leafy mistletoe		Foliar pathogen		Stem decay	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres									
Softwoods:										
Bigcone Douglas-fir	—	—	—	—	—	—	—	—	—	—
Bishop pine	—	—	—	—	—	—	—	—	—	—
California mixed conifer	4	5	462	52	75	21	71	21	167	32
Coulter pine	—	—	6	6	—	—	—	—	—	—
Douglas-fir	17	10	2	2	1	1	—	—	87	21
Foxtail pine/bristlecone pine	—	—	—	—	—	—	—	—	22	11
Grand fir	—	—	—	—	—	—	—	—	—	—
Incense cedar	—	—	—	—	—	—	—	—	—	—
Jeffrey pine	7	7	69	20	—	—	5	6	7	7
Juniper woodland	—	—	—	—	33	14	—	—	6	6
Knobcone pine	—	—	—	—	—	—	—	—	1	2
Limber pine	—	—	—	—	—	—	—	—	8	6
Lodgepole pine	—	—	73	21	—	—	22	12	1	1
Misc. western softwoods	—	—	—	—	—	—	—	—	—	—
Mountain hemlock	—	—	26	13	—	—	11	8	1	1
Pinyon/juniper woodland	—	—	151	29	15	10	—	—	34	14
Ponderosa pine	—	—	66	19	—	—	—	—	1	1
Port Orford cedar	—	—	—	—	—	—	—	—	6	6
Red fir	—	—	220	36	—	—	53	18	—	—
Redwood	—	—	—	—	—	—	—	—	6	7
Sitka spruce	—	—	1	1	—	—	1	1	—	—
Subalpine fir	—	—	—	—	—	—	—	—	—	—
Western hemlock	—	—	—	—	—	—	—	—	—	—
Western juniper	14	9	5	6	80	22	40	15	147	29
Western white pine	—	—	7	6	—	—	—	—	—	—
White fir	—	—	133	28	18	10	6	6	12	8
Whitebark pine	6	6	—	—	—	—	—	—	6	6
Total	48	17	1,221	83	223	36	210	35	513	54

Table A2-124—Area of forest land with more than 25 percent of basal area damaged, by forest type and type of damage, California, 2001–2010 (continued)

Forest type	Type of damage									
	Defoliators		Dwarf mistletoe		Leafy mistletoe		Foliar pathogen		Stem decay	
	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres									
Hardwoods:										
Aspen	—	—	4	5	—	—	—	—	8	7
Bigleaf maple	—	—	—	—	—	—	—	—	7	4
Blue oak	80	22	45	16	141	29	—	—	360	45
California black oak	28	13	5	6	42	15	2	2	187	34
California laurel	—	—	—	—	—	—	6	5	34	14
California white oak	13	8	8	7	14	9	—	—	12	8
Canyon live oak	33	14	36	15	23	11	5	6	258	39
Coast live oak	21	11	6	6	13	8	1	1	233	35
Cottonwood	—	—	—	—	—	—	—	—	17	11
Cottonwood/willow	—	—	—	—	—	—	—	—	—	—
Eucalyptus	—	—	—	—	—	—	—	—	—	—
Evergreen oak woodland	—	—	—	—	—	—	—	—	—	—
Giant chinkapin	—	—	—	—	—	—	—	—	—	—
Gray pine	10	7	59	19	—	—	—	—	37	15
Interior live oak	15	10	19	11	26	13	—	—	161	30
Mesquite woodland	—	—	—	—	—	—	—	—	—	—
Miscellaneous woodland hardwoods	—	—	—	—	—	—	—	—	2	1
Mountain brush woodland	—	—	—	—	—	—	6	6	5	5
Oregon ash	—	—	—	—	—	—	—	—	—	—
Oregon white oak	13	9	5	6	19	10	—	—	48	16
Pacific madrone	—	—	5	5	—	—	—	—	45	16
Red alder	4	5	—	—	—	—	—	—	—	—
Tanoak	23	12	—	—	—	—	—	—	187	33
Willow	—	—	—	—	—	—	—	—	—	—
Other hardwoods	—	—	—	—	6	6	6	6	70	20
Total	240	37	193	33	284	40	26	11	1,673	95
Nonstocked	2	2	3	3	6	6	—	—	5	6
Total	290	41	1,417	89	512	55	236	37	2,191	109

Table A2-124—Area of forest land with more than 25 percent of basal area damaged, by forest type and type of damage, California, 2001–2010 (continued)

Forest type	Type of damage							
	Other insects		Physical injury and defects		Root disease		Weather	
	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres							
Softwoods:								
Bigcone Douglas-fir	—	—	5	5	—	—	—	—
Bishop pine	—	—	12	8	—	—	—	—
California mixed conifer	11	8	2,618	116	446	51	14	8
Coulter pine	—	—	3	3	—	—	—	—
Douglas-fir	—	—	281	40	6	6	—	—
Foxtail pine/bristlecone pine	—	—	111	25	—	—	12	9
Grand fir	—	—	4	4	—	—	—	—
Incense cedar	—	—	—	—	1	1	—	—
Jeffrey pine	6	6	306	42	19	10	—	—
Juniper woodland	—	—	79	22	—	—	—	—
Knobcone pine	—	—	4	5	—	—	—	—
Limber pine	—	—	23	11	—	—	6	6
Lodgepole pine	—	—	718	62	44	17	20	10
Miscellaneous western softwoods	—	—	21	10	—	—	—	—
Mountain hemlock	—	—	125	27	5	5	5	5
Pinyon/juniper woodland	13	9	582	55	46	17	14	9
Ponderosa pine	3	3	274	39	44	16	—	—
Port Orford cedar	—	—	13	9	—	—	—	—
Red fir	—	—	274	40	96	24	4	5
Redwood	—	—	264	38	—	—	—	—
Sitka spruce	—	—	16	9	—	—	—	—
Subalpine fir	—	—	—	—	—	—	—	—
Western hemlock	—	—	—	—	—	—	—	—
Western juniper	12	9	506	53	—	—	18	11
Western white pine	—	—	97	23	—	—	—	—
White fir	—	—	529	55	192	33	—	—
Whitebark pine	—	—	153	29	—	—	22	11
Total	45	16	7,022	174	899	71	114	25

Table A2-124—Area of forest land with more than 25 percent of basal area damaged, by forest type and type of damage, California, 2001–2010 (continued)

Forest type	Type of damage							
	Other insects		Physical injury and defects		Root disease		Weather	
	Total	SE	Total	SE	Total	SE	Total	SE
	Thousand acres							
Hardwoods:								
Aspen	—	—	35	14	—	—	10	8
Bigleaf maple	—	—	7	6	—	—	—	—
Blue oak	11	8	895	69	—	—	—	—
California black oak	—	—	473	53	8	7	—	—
California laurel	—	—	81	21	—	—	—	—
California white oak	—	—	77	21	—	—	—	—
Canyon live oak	—	—	814	68	9	7	14	9
Coast live oak	—	—	466	47	—	—	—	—
Cottonwood	—	—	27	13	—	—	—	—
Cottonwood/willow	5	5	—	—	—	—	—	—
Eucalyptus	—	—	—	—	—	—	—	—
Evergreen oak woodland	—	—	19	10	—	—	—	—
Giant chinkapin	—	—	—	—	—	—	—	—
Gray pine	6	6	187	33	—	—	—	—
Interior live oak	—	—	333	44	7	6	—	—
Mesquite woodland	—	—	15	9	—	—	—	—
Misc. woodland hardwoods	—	—	—	—	—	—	—	—
Mountain brush woodland	—	—	195	33	—	—	—	—
Oregon ash	—	—	—	—	—	—	—	—
Oregon white oak	7	6	238	37	—	—	—	—
Pacific madrone	—	—	123	27	—	—	—	—
Red alder	—	—	81	22	—	—	—	—
Tanoak	—	—	526	55	—	—	—	—
Willow	—	—	—	—	—	—	—	—
Other hardwoods	6	6	121	27	—	—	9	8
Total	35	14	4,713	153	24	12	34	14
Nonstocked	14	9	123	26	—	—	6	6
Total	94	24	11,858	221	922	72	154	30

Note: Totals may be off because of rounding; estimates subject to sampling error; SE = sampling error; — = less than 500 acres was estimated.

Table A2-125—Total roundwood output by product, species group, and source of material, California, 2006

Product and species group	Source of material			
	Growing-stock trees			
	Sawtimber	Poletimber	Other sources	All sources
	Thousand cubic feet			
Sawlogs:				
Softwood	249,174	924	35,405	285,503
Hardwood	0	0	68	68
Total	249,174	924	35,473	285,571
Veneer logs:				
Softwood	26,000	96	1,459	27,555
Hardwood	0	0	0	0
Total	26,000	96	1,459	27,555
Pulpwood:				
Softwood	0	0	0	0
Hardwood	0	0	0	0
Total	0	0	0	0
Composite panels:				
Softwood	1,496	6	49	1,551
Hardwood	0	0	0	0
Total	1,496	6	49	1,551
Poles and posts:				
Softwood	1,055	0	11	1,066
Hardwood	0	0	0	0
Total	1,055	0	11	1,066
Other miscellaneous:				
Softwood	6	0	0	6
Hardwood	0	0	0	0
Total	6	0	0	6
Total industrial products:				
Softwood	277,731	1,026	36,924	315,681
Hardwood	0	0	68	68
Total	277,731	1,026	36,992	315,749
Fuelwood[a]:				
Softwood	58,557	217	87,903	146,677
Hardwood	0	1	4,854	4,855
Total	58,557	218	92,757	151,532
All products:				
Softwood	336,288	1,243	124,827	462,358
Hardwood	0	1	4,922	4,923
Total	336,288	1,244	129,749	467,281

Note: Estimates subject to sampling error.

[a] Includes residential fuelwood consumption reported by U.S. Energy Information Administration, http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=US#Consumption

Table A2-126—Volume of timber removals by type of removal, source of material, species group, California, 2006

Removal type	Source of material						All sources		
	Growing stock			Other sources					
	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total
	Thousand cubic feet								
Roundwood products:									
Saw logs	250,098	0	250,098	35,405	68	35,473	285,503	68	285,571
Veneer logs	26,096	0	26,096	1,459	0	1,459	27,555	0	27,555
Pulpwood	0	0	0	0	0	0	0	0	0
Composite products	1,502	0	1,502	49	0	49	1,551	0	1,551
Fuelwood[a]	58,774	1	58,775	87,903	4,854	92,757	146,677	4,855	151,532
Posts, poles, and pilings	1,055	0	1,055	11	0	11	1,066	0	1,066
Miscellaneous products	6	0	6	0	0	0	6	0	6
Total	337,531	1	337,532	124,827	4,922	129,749	462,358	4,923	467,281
Logging residues	17,330	0	17,330	91,974	45	92,019	109,304	45	109,349
Total, all removals	354,861	1	354,862	216,801	4,967	221,768	571,662	4,968	576,630

Note: Estimates subject to sampling error.

[a] Includes residential fuelwood consumption reported by U.S. Energy Information Administration, http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=US#Consumption

Table A2-127—Estimated area of forest land covered by the most abundant vascular plant nontimber forest products, by plant group and species, California, 2001–2010

Plant group and scientific name	Common name	Total	SE
Tree seedlings and saplings:		- - - - - - - - *Acres* - - - - - - - -	
Abies concolor	White fir	130,071	5,434
Abies magnifica	California red fir	44,545	3,444
Arbutus menziesii	Pacific madrone	30,232	2,975
Calocedrus decurrens	Incense cedar	104,686	6,117
Lithocarpus densiflorus	Tanoak	315,007	17,294
Pseudotsuga menziesii	Douglas-fir	135,729	6,682
Quercus kelloggii	California black oak	90,067	8,789
Sequoia sempervirens	Redwood	31,689	2,266
Shrubs:			
Amelanchier alnifolia	Saskatoon serviceberry	30,496	5,833
Arctostaphylos	Manzanita	77,177	10,189
Arctostaphylos manzanita	Whiteleaf manzanita	45,636	7,814
Arctostaphylos nevadensis	Pinemat manzanita	120,376	12,771
Arctostaphylos patula	Greenleaf manzanita	389,048	23,060
Arctostaphylos viscida	Sticky whiteleaf manzanita	266,870	23,106
Artemisia tridentata	Big sagebrush	249,510	15,135
Ceanothus	Ceanothus	28,529	5,082
Ceanothus velutinus	Snowbrush ceanothus	120,888	14,286
Chimaphila umbellata	Pipsissewa	28,062	3,470
Corylus cornuta	Beaked hazelnut	70,546	7,427
Gaultheria shallon	Salal	106,523	13,004
Holodiscus discolor	Oceanspray	46,552	5,739
Mahonia nervosa	Cascade barberry	34,438	4,957
Quercus vacciniifolia	Huckleberry oak	356,321	27,088
Rubus parviflorus	Thimbleberry	29,620	5,046
Rubus spectabilis	Salmonberry	31,673	9,974
Rubus ursinus	California blackberry	58,534	7,973
Salix	Willow	60,342	5,524
Symphoricarpos albus	Common snowberry	30,752	3,945
Umbellularia californica	California laurel	55,450	5,603
Vaccinium ovatum	California huckleberry	304,289	22,272

Table A2-127—Estimated area of forest land covered by the most abundant vascular plant nontimber forest products, by plant group and species, California, 2001–2010 (continued)

Plant group and scientific name	Common name	Total	SE
Herbs:		- - - - - - - - *Acres* - - - - - - - -	
Achillea millefolium	Common yarrow	19,332	3,103
Apocynum androsaemifolium	Spreading dogbane	12,658	1,786
Arnica	Arnica	4,354	1,382
Athyrium filix-femina	Common ladyfern	13,294	2,581
Balsamorhiza sagittata	Arrowleaf balsamroot	10,647	2,042
Blechnum spicant	Deer fern	5,483	1,427
Claytonia perfoliata	Miner's lettuce	14,886	4,929
Clinopodium douglasii	Yerba buena	3,621	1,006
Fragaria	Strawberry	6,325	930
Polystichum munitum	Western swordfern	234,691	19,159
Pteridium aquilinum	Western brackenfern	137,884	9,745
Rubus	Blackberry	28,067	4,851
Taraxacum	Dandelion	12,962	4,299
Xerophyllum tenax	Common beargrass	18,972	4,819

Note: Estimates subject to sampling error; SE = sampling error.

Table A2-128—Percentage of forested plots with selected lichen nontimber forest products present, by species, California, 2001–2005

Scientific name	Common name	Percent
Alectoria sarmentosa	Witch's hair lichen	13.5
Bryoria fremontii	Old man's beard	13.1
Letharia vulpina	Wolf lichen	53.8
Lobaria pulmonaria	Lungwort	6.9
Parmelia saxatilis	Crottle	1.5
Ramalina menziesii	Lace lichen	2.9
Usnea	Beard lichens	38.2
Usnea hirta	Beard lichen	1.1
Vulpicida canadensis	Brown-eyed sunshine lichen	8.4

Note: Estimates subject to sampling error.

292 forested plots were sampled.

Table A2-129—Estimated mean crown density and other statistics for live trees[a] on forest land, by species group, California, 2001–2010

Species group	Plots	Trees	Crown density		
			Mean	Minimum	Maximum
	Number		*Percent*		
Softwoods:					
Douglas-fir	89	701	40	0	85
Incense cedar	51	302	39	5	80
Lodgepole pine	21	269	40	10	70
Ponderosa and Jeffrey pines	103	743	42	5	95
Redwood	11	155	35	5	70
Sugar pine	38	132	39	0	75
True fir	93	1,145	44	0	99
Western hemlock	3	9	49	40	70
Western white pine	16	68	42	15	65
Woodland softwoods	15	89	50	10	90
Other western softwoods	63	326	41	0	85
Total	503	3,939			
Hardwoods:					
Cottonwood and aspen	4	38	39	10	85
Oak	152	1,949	35	0	85
Red alder	6	52	44	5	70
Woodland hardwoods	18	171	39	5	85
Other western hardwoods	72	956	36	0	85
Total	252	3,166			
All species	755	7,105			

Note: Estimates subject to sampling error.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-130—Estimated mean foliage transparency and other statistics for live trees[a] on forest land, by species group, California, 2001–2010

Species group	Plots	Trees	Foliage transparency		
			Mean	Minimum	Maximum
	Number		*Percent*		
Softwoods:					
Douglas-fir	89	701	19	0	70
Incense cedar	51	302	19	5	40
Lodgepole pine	21	269	19	5	55
Ponderosa and Jeffrey pines	103	743	22	5	70
Redwood	11	155	22	10	45
Sugar pine	38	132	19	5	35
True fir	93	1,145	17	0	99
Western hemlock	3	9	17	15	20
Western white pine	16	68	17	10	30
Woodland softwoods	15	89	19	5	30
Other western softwoods	63	326	19	5	85
Total	503	3,939			
Hardwoods:					
Cottonwood and aspen	4	38	30	5	60
Oak	152	1,949	24	5	99
Red alder	6	52	30	15	60
Woodland hardwoods	18	171	26	15	80
Other western hardwoods	72	956	23	5	99
Total	252	3,166			
All species	755	7,105			

Note: Estimates subject to sampling error.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-131—Estimated mean crown dieback and other statistics for live trees[a] on forest land, by species group, California, 2001–2010

Species group	Plots	Trees	Crown dieback		
			Mean	Minimum	Maximum
	Number		*Percent*		
Softwoods:					
Douglas-fir	89	701	1.1	0	90
Incense cedar	51	302	1.8	0	90
Lodgepole pine	21	269	3.1	0	45
Ponderosa and Jeffrey pines	103	743	1.5	0	80
Redwood	11	155	2.6	0	60
Sugar pine	38	132	1.7	0	50
True fir	93	1,145	2.2	0	99
Western hemlock	3	9	0.0	0	0
Western white pine	16	68	3.7	0	20
Woodland softwoods	15	89	4.8	0	40
Other western softwoods	63	326	2.5	0	95
Total	503	3,939			
Hardwoods:					
Cottonwood and aspen	4	38	8.9	0	95
Oak	152	1,949	5.5	0	99
Red alder	6	52	3.1	0	90
Woodland hardwoods	18	171	11.9	0	80
Other western hardwoods	72	956	2.8	0	99
Total	252	3,166			
All species	755	7,105			

Note: Estimates subject to sampling error.

[a] Includes all live trees ≥5 inches in diameter at breast height, consisting of growing stock, rough cull, and rotten cull tree classes.

Table A2-132—Estimated area of forest land covered by selected nonnative vascular plant species and number of sample plots[a], by life form and species, California, 2001–2010

Life form	Scientific name	Common name	Area covered		Number of plots
			Total	SE	
			- - - - - - - *Acres* - - - - - - -		
Shrubs					
	Cytisus scoparius	Scotch broom	9,504	4,349	19
	Erica lusitanica	Spanish heath	4,480	1,579	34
	Genista monspessulana	French broom	3,710	1,816	9
	Rubus armeniacus	Himalayan blackberry	42,016	6,861	101
	Rubus laciniatus	Cutleaf blackberry	1,645	789	7
Forbs					
	Carduus pycnocephalus	Italian plumeless thistle	4,338	1,502	17
	Centaurea solstitialis	Yellow star-thistle	22,476	4,402	84
	Cirsium	Thistle	26,502	3,690	295
	Cirsium arvense	Canada thistle	2,660	1,553	10
	Cirsium vulgare	Bull thistle	2,547	690	42
	Digitalis purpurea	Purple foxglove	1,027	680	7
	Hypericum perforatum	Common St. Johnswort	2,535	687	51
	Hypochaeris radicata	Hairy cat's ear	1,150	595	23
	Torilis arvensis	Spreading hedgeparsley	87,833	8,743	276
Grasses					
	Aira caryophyllea	Silver hairgrass	7,754	1,897	38
	Arundo donax	Giant reed	1,555	896	8
	Avena barbata	Slender oat	19,412	4,693	31
	Avena fatua	Wild oat	42,575	9,109	55
	Briza maxima	Big quakinggrass	19,393	6,623	36
	Bromus diandrus	Ripgut brome	111,163	13,230	202
	Bromus hordeaceus	Soft brome	84,514	11,845	128
	Bromus madritensis	Compact brome	14,954	3,547	46
	Bromus tectorum	Cheatgrass	185,304	13,273	630
	Cynosurus echinatus	Bristly dogstail grass	123,435	12,907	227
	Taeniatherum caput-medusae	Medusahead	64,487	9,384	135

Note: Estimates subject to sampling error; SE = sampling error. Estimates are likely low for all species because only plants present at > 3 percent cover on a subplot were recorded, and because most grasses and some forbs can be difficult to identify to species outside of their short flowering seasons.

[a] Total number of sample plots with accessible forest land was 5,575.

Table A2-133—Mean cover of understory vegetation on forest land, by forest type group and life form, California 2001–2010

	Life form											
	Seedlings + saplings		Shrubs		Forbs		Graminoids		All understory plants		Bare soil	
Forest type group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Percent											
Softwoods:												
California mixed conifer	6.1	0.2	17.2	0.5	5.4	0.2	3.4	0.2	30.6	0.6	3.9	0.2
Douglas-fir	8.6	0.6	24.9	1.5	9.6	1.0	5.8	0.7	45.3	1.8	2.8	0.4
Fir/spruce/mountain hemlock	3.3	0.2	17.0	1.1	6.5	0.5	3.0	0.3	28.4	1.2	4.2	0.4
Hemlock/Sitka spruce	1.7	0.4	23.6	4.9	28.2	7.4	9.7	3.7	56.6	12.4	1.3	0.9
Lodgepole pine	3.4	0.3	12.1	1.3	8.4	0.8	10.4	1.0	31.8	1.8	4.9	0.6
Other western softwoods	1.8	0.2	14.2	0.9	6.7	0.4	14.3	0.8	34.9	1.2	10.4	0.7
Pinyon/juniper	0.9	0.1	17.6	0.7	4.5	0.4	8.1	0.6	29.5	1.0	12.7	0.8
Ponderosa pine	2.9	0.2	23.3	1.1	6.4	0.4	7.9	0.5	38.7	1.2	4.6	0.3
Redwood	7.4	0.6	24.4	1.9	19.4	1.8	3.6	0.5	50.2	2.1	2.0	0.4
Western white pine	6.5	2.5	14.6	3.7	7.9	1.6	4.6	0.9	32.1	4.5	8.8	3.0
Total	4.5	0.1	18.0	0.3	6.7	0.2	6.1	0.2	33.4	0.4	5.5	0.2
Hardwoods:												
Alder/maple	6.1	1.0	36.1	3.8	20.6	2.9	3.4	0.8	59.3	3.7	1.6	0.5
Aspen/birch	13.4	2.9	23.9	3.8	11.1	2.3	9.5	1.6	54.1	6.8	3.0	1.0
Elm/ash/cottonwood	3.1	1.3	38.8	7.0	7.4	2.8	29.2	6.7	68.7	6.2	4.6	2.6
Exotic hardwoods	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	0.0	0.0
Other hardwoods	7.8	0.9	20.2	2.1	9.2	1.0	17.0	2.4	50.3	2.7	5.9	1.2
Tanoak/laurel	11.3	0.6	19.4	1.1	7.9	0.6	3.5	0.5	40.0	1.3	2.7	0.3
Western oak	3.9	0.1	20.2	0.5	13.4	0.4	28.1	0.7	58.5	0.7	3.5	0.2
Woodland hardwoods	2.3	0.5	19.0	1.8	6.1	0.8	9.2	1.4	35.3	2.5	14.0	2.4
Total	5.3	0.2	20.4	0.5	12.2	0.3	22.5	0.5	54.4	0.6	3.9	0.2
Nonstocked	1.2	0.2	27.0	2.2	9.5	1.1	11.1	1.4	46.3	2.4	12.8	1.5
All forest types	4.7	0.1	19.2	0.3	8.9	0.2	12.7	0.2	42.0	0.3	5.0	0.1
Chaparral on national forest	0.4	0.1	37.3	1.8	4.1	0.4	3.9	0.4	44.3	2.0	5.6	0.5

Note: Estimates subject to sampling error; SE = sampling error.

Table A2-134—Mean of understory vegetation by forest type class, age class group, and lifeform, California 2001–2010

Forest type class[a]	Lifeform											
	Seedlings + saplings		Shrubs		Forbs		Graminoids		All understory plants		Bare soil	
Age class group	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
	Percent											
Dry conifer:												
0–19	1.7	0.2	27.0	1.8	8.9	0.9	11.3	1.2	46.2	2.0	12.3	1.3
20–39	3.1	0.6	32.7	2.8	6.8	1.0	10.4	1.7	49.1	3.0	6.3	1.1
40–79	2.5	0.3	19.7	1.1	6.7	0.5	11.4	0.8	38.7	1.3	9.4	0.7
80–159	2.1	0.2	16.0	0.6	6.0	0.3	10.4	0.5	32.6	0.9	8.5	0.5
160+	1.8	0.2	12.0	0.9	6.2	0.6	6.7	0.6	25.2	1.3	6.9	0.7
All ages	2.1	0.1	18.4	0.5	6.6	0.2	10.1	0.3	35.3	0.6	8.8	0.3
Wet conifer:												
0–19	7.1	0.8	28.6	3.1	12.5	1.7	11.9	2.0	54.9	3.6	9.5	1.7
20–39	7.0	0.7	30.1	2.1	11.5	1.4	4.7	0.8	49.7	2.4	4.4	0.8
40–79	6.0	0.3	20.1	0.9	6.4	0.4	3.6	0.2	34.4	1.0	3.6	0.2
80–159	5.7	0.2	15.4	0.6	6.6	0.3	3.6	0.2	29.4	0.7	3.4	0.2
160+	5.7	0.3	18.5	1.0	6.5	0.4	2.4	0.2	31.4	1.1	3.6	0.3
All ages	5.9	0.2	18.3	0.4	6.9	0.2	3.6	0.1	32.9	0.5	3.7	0.1
Dry hardwood:												
0–19	8.3	0.7	27.5	1.9	14.9	1.4	24.0	2.1	66.7	1.9	6.7	1.0
20–39	6.2	0.6	23.8	1.5	12.1	1.0	22.4	1.8	58.5	1.7	2.8	0.3
40–79	5.4	0.2	20.8	0.8	10.0	0.5	18.2	0.9	49.7	1.1	3.3	0.2
80–159	4.1	0.2	18.0	0.7	13.3	0.5	27.3	0.9	55.9	0.9	3.9	0.3
160+	7.5	1.0	12.9	1.4	8.1	1.4	11.1	2.2	37.4	2.7	6.0	1.2
All ages	5.2	0.2	20.0	0.5	12.0	0.3	22.9	0.6	54.2	0.6	3.9	0.2
Wet hardwood:												
0–19	10.3	2.6	24.2	6.2	10.9	3.4	12.3	6.7	52.1	8.1	2.6	1.8
20–39	9.1	2.3	41.2	6.4	27.7	5.2	4.7	1.6	70.5	5.1	1.2	0.5
40–79	5.6	1.3	36.5	3.7	13.0	2.1	10.5	2.9	60.8	3.7	2.3	0.8
80–159	6.7	1.3	23.2	6.4	12.8	3.8	6.7	2.5	46.3	8.9	3.3	2.0
160+	3.9	0.5	13.5	5.0	5.6	1.9	5.9	1.0	28.2	5.2	6.0	3.0
All ages	7.1	1.0	34.1	2.9	16.9	2.1	8.1	1.5	59.6	3.0	2.3	0.5
All classes:												
0–19	5.2	0.4	27.4	1.2	11.9	0.7	16.5	1.1	55.8	1.3	9.5	0.7
20–39	6.0	0.4	27.5	1.1	11.8	0.7	15.7	1.1	55.5	1.3	3.7	0.3
40–79	5.0	0.2	20.6	0.5	8.2	0.3	11.8	0.5	42.5	0.7	4.6	0.2
80–159	4.2	0.1	16.6	0.4	9.1	0.3	14.6	0.4	40.7	0.5	4.8	0.2
160+	4.7	0.2	15.7	0.6	6.6	0.3	4.8	0.4	30.2	0.8	4.9	0.3
All ages	4.7	0.1	19.2	0.3	8.9	0.2	12.7	0.2	42.0	0.3	5.0	0.1

Note: Estimates subject to sampling error; SE = sampling error.

[a] Dry conifer includes the pinyon/juniper; ponderosa, western white, and lodgepole pines; other softwoods, mixed conifer, and nonstocked forest type groups. Wet conifer includes the Douglas-fir, fir /spruce/mountain hemlock, hemlock/Sitka spruce, and redwood forest type groups. Dry hardwood includes the western oak, tanoak/laurel, other hardwoods, and exotic forest type groups. Wet hardwood includes the elm/ash/cottonwood, aspen/birch, and alder/maple forest type groups.

Table A2-135—Summary of lichen community indicator species richness on forest land, by location, California, 1998–2001, 2003

Parameter	Location			
	California	Greater Central Valley	Greater Sierra Nevada	Northwest Coast[a]
Number of plots[b]	288	76	133	68
Number of plots by lichen species richness category:				
0 to 6 species	61	7	43	3
7 to 15 species	141	41	67	31
16 to 25 species	62	19	18	24
>25 species	24	9	5	10
Median	12	13	9	16
Range of species richness per plot (low–high)	0–39	2–31	0–34	1–39
Average lichen species richness per plot (alpha diversity)	12.59	14.38	9.87	17.21
Standard deviation of lichen species richness per plot	7.97	6.82	7.06	8.05
Species turnover rate (beta diversity)[c]	16.52	9.11	16.92	9.36
Total number of species per area (gamma diversity)	208	131	167	161

[a] The Northwest Coast borders the Greater Central Valey and covers northwestern California.

[b] Plot totals do not include quality assurance surveys or plots without lichens present.

[c] Beta diversity is calculated as gamma diversity divided by alpha diversity.

Table A2-136—Summary of lichen community indicator climate index parameters on forest land, for the moisture gradient of Jovan and McCune's (2004) model, California, 1998–2001, 2003

Parameter	Total	Greater Central Valley[a]	Greater Sierra Nevada[a]	Northwest Coast[b]
Number of plots surveyed[c]	264	76	121	67
Number of plots by climate index category[d]:				
Wettest (-2.28 to -0.71)	66	5	16	45
Wet (-0.71 to 0.13)	66	11	39	16
Dry (0.13 to 0.89)	68	25	40	3
Driest (0.89 to 2.22)	64	35	26	3
Climate index extremes	-2.28 to 2.22	-1.17 to 2.22	-2.20 to 2.13	-2.28 to 1.57
Average score on climate index	0.08	0.77	0.21	-0.92
Standard deviation on climate index	1.04	0.83	0.82	0.83

[a] The greater Central Valley (GCV) and greater Sierra Nevada are mapped in figure 7.

[b] The Northwest Coast borders the GCV and covers northwestern California.

[c] Plot totals do not include quality assurance surveys or plots without lichens present.

[d] Categories are based on data quartiles.

Table A2-137—Summary of lichen community indicator climate index parameters on forest land, for the temperature gradient of Jovan and McCune's (2004) model. California, 1998–2001, 2003

Parameter	Total	Greater Central Valley[a]	Greater Sierra Nevada[a]	Northwest Coast[b]
Number of plots surveyed[c]	264	76	121	67
Number of plots by climate index category[d]:				
Warmest (-2.59 to -1.04)	67	44	6	17
Warm (-1.04 to 0.01)	65	25	15	25
Cool (0.01 to 0.87)	66	5	43	18
Coolest (0.87 to 2.14)	66	2	57	7
Climate index extremes	-2.59 to 2.14	-2.59 to 2.10	-2.07 to 2.14	-2.46 to 1.27
Average score on climate index	-0.02	-0.96	0.73	-0.32
Standard deviation on climate index	1.13	0.79	0.88	0.92

[a] The greater Central Valley (GCV) and greater Sierra Nevada are mapped in figure 7.

[b] The Northwest Coast borders the GCV and covers northwestern California.

[c] Plot totals do not include quality assurance surveys or plots without lichens present.

[d] Categories are based on data quartiles.

Table A2-138—Summary of lichen community indicator air quality index parameters on forest land, by type of parameter, Greater Central Valley, California, 1998–2001, 2003

Parameter	Greater Central Valley	On-frame[a]	Off-frame[b]
Number of plots surveyed[c]	108	76	32
Number of plots by air quality index category:[d]			
1 (Worst) : -0.99 to 0.13	45	19	26
2: 0.13 to 0.55	23	19	4
3: 0.55 to 0.85	22	20	2
4 (Best): 0.85 to 1.58	18	18	0
Air quality index extremes	-0.99 to 1.58	-0.86 to 1.58	-0.99 to 0.70
Average score on air quality index	0.28	0.52	-0.27
Standard deviation on air quality index	0.61	0.50	0.46

[a] On-frame plots are on the Forest Inventory and Analysis sampling grid.

[b] Off-frame plots were located in cities, agricultural areas, and/or near air quality monitors.

[c] Plot totals do not include quality assurance surveys or plots without lichens present.

[d] Categories are based on the data quartiles for on-frame data.

Table A2-139—Summary of lichen community indicator air quality index parameters on forest land, by type of parameter, Greater Sierra Nevada, California, 1998–2001, 2003

Parameter	Greater Sierra Nevada	On-frame[a]	Off-frame[b]
Number of plots surveyed[c]	146	122	24
Number of plots by air quality index category:[d]			
1 (Best): -43.36 to -15.88	35	31	4
2: -15.88 to -8.22	31	30	1
3: -8.22 to 4.35	33	30	3
4 (Worst): 4.35 to 66.49	47	31	16
Air quality index extremes	-43.36 to 66.49	-43.36 to 66.49	-32.38 to 41.61
Average score on air quality index	-2.77	-5.13	10.27
Standard deviation on air quality index	19.28	18.32	19.60

[a] On-frame plots are on the Forest Inventory and Analysis sampling grid.

[b] Off-frame plots were located in cities, agricultural areas, and/or near air quality monitors.

[c] Plot totals do not include quality assurance surveys or plots without lichens present.

[d] Categories are based on the data quartiles for on-frame data.

Table A2-140—Ozone injury summary information from ozone biomonitoring plots, by year, California, 2000–2009

	Year of monitoring										
Ozone biomonitoring plots	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**All years**
Number of plots	22	29	61	65	65	65	66	65	62	66	566
Number of plots with injury	6	11	19	16	21	23	24	21	21	20	182
Number of plots by biosite index category[a] (percentage of plots):											
0 to 4.9 (least injured)	81.8	82.8	85.2	86.2	87.7	73.8	69.7	89.2	87.1	84.8	82.9
5.0 to 14.9	4.5	6.9	11.5	10.8	4.6	4.6	15.2	6.2	8.1	10.6	8.7
15 to 24.9	0	3.4	1.6	1.5	4.6	6.2	3	1.5	3.2	1.5	2.8
≥25 (most injured)	13.6	6.9	1.6	1.5	3.1	15.4	12.1	3.1	1.6	3	5.7
Average biosite index score	6.7	3.4	2.2	2.4	2.6	9.8	7.8	4.5	2.6	3.1	4.5
Average number of species per plot	1.8	2.1	2.1	2.2	2.3	2.2	2.3	2.4	2.5	2.5	2.3
Number of plants evaluated	1,078	1,486	3,813	4,279	4,329	4,118	4,514	4,794	4,447	4,760	37,618
Number of plants injured	98	114	177	119	135	254	185	100	106	88	1376
Number of plants evaluated by species:											
Blue elderberry	100	133	452	498	403	279	349	401	347	342	3304
California black oak	43	13	0	0	0	0	0	0	0	0	56
Evening primrose	0	0	0	0	0	0	30	90	30	30	180
Jeffrey pine	161	330	394	480	566	563	570	630	466	552	4,712
Mountain snowberry	170	204	612	772	720	700	754	835	805	795	6,367
Mugwort	120	187	599	600	602	675	780	786	660	706	5,715
Pacific ninebark	0	0	30	30	22	30	30	30	45	46	263
Ponderosa pine	325	428	979	1,011	1,109	1,067	1,033	972	1,104	1,098	9,126
Quaking aspen	159	166	228	288	322	313	348	390	360	340	2,914
Red alder	0	0	112	120	120	90	90	90	90	60	772
Red elderberry	0	0	30	30	47	30	30	30	30	30	257
Scouler's willow	0	25	100	90	60	90	120	120	120	120	845
Skunk bush	0	0	247	270	328	251	350	360	360	330	2,496
Spreading dogbane	0	0	0	0	0	0	0	0	0	251	251
Western wormwood	0	0	30	90	30	30	30	60	30	60	360

[a] The biosite index is based on the average injury score (amount X severity) for each species averaged across all species on the plot. Biosite categories represent a relative measure of tree-level response to ambient ozone exposure.

Table A2-141—Forest land area on which evidence of fire was observed, by year and ecosection group, California, 1995–2009

			Ecosection group									
			Northern Interior		West Central		Sierra		Coast		Southern California	
Year	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE	Total	SE
						Acres						
Land with evidence of fire:												
1995	177,206	32,254	59,264	19,014	1,118	1,095	103,018	24,581	6,488	6,423	7,318	5,669
1996	119,966	26,459	45,351	16,095	1,093	979	61,685	19,327	—	—	11,836	8,171
1997	106,331	25,179	22,645	11,913	22,457	11,465	53,340	17,859	—	—	7,889	6,453
1998	104,663	24,503	39,642	15,319	18,850	9,902	34,323	13,949	—	—	11,848	8,549
1999	241,807	38,066	104,990	24,862	16,449	9,183	85,924	23,198	10,200	8,119	24,245	11,951
2000	216,994	35,889	71,015	21,127	30,085	12,022	85,824	22,865	—	—	30,070	13,301
2001	233,523	39,039	120,206	28,188	2,406	2,261	88,837	24,087	—	—	22,074	12,080
2002	275,573	45,301	37,416	16,726	9,188	8,230	181,684	36,603	—	—	47,284	19,181
2003	204,764	40,857	43,115	19,154	—	—	45,720	18,992	47,594	20,810	68,335	22,598
2004	189,022	42,840	100,134	30,534	1,514	1,524	56,681	24,111	—	—	30,693	17,913
2005	131,126	40,133	9,014	11,085	31,949	19,614	41,405	21,877	—	—	48,758	24,988
2006	185,864	51,964	79,598	33,337	1,543	1,450	47,387	27,622	—	—	57,336	28,702
2007	325,367	79,036	22,261	21,843	42,195	29,561	108,127	45,838	18,617	19,093	112,850	44,776
2008	1,226,524	191,016	838,415	157,114	125,206	61,437	230,926	84,776	—	—	—	—
2009	—	—	—	—	—	—	—	—	—	—	—	—
Average	249,249	16,159	106,204	11,672	20,270	5,009	81,659	8,255	5,527	2,005	32,036	5,009

Note: Estimates subject to sampling error; SE = sampling error; — = less than 500 acres was estimated.

Pacific Northwest Research Station

Website	http://www.fs.fed.us/pnw/
Telephone	(503) 808–2592
Publication requests	(503) 808–2138
FAX	(503) 808–2130
E-mail	pnw_pnwpubs@fs.fed.us
Mailing address	Publications Distribution Pacific Northwest Research Station P.O. Box 3890 Portland, OR 97208–3890

Federal Recycling Program
Printed on Recycled Paper

U.S. Department of Agriculture
Pacific Northwest Research Station
1220 SW 3rd Ave.
P.O. Box 3890
Portland, OR 97208–3890