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South Dakota's Timber Resources

Dennis C. Collins
Alan W. Green



PREFACE

The primary objective of Forest Survey—a continuing, nationwide undertaking of the Forest Service, U.S. Department of Agriculture—is to provide an assessment of the renewable resources for the forest lands of the Nation. Fundamental to the accomplishment of the objective are the periodic State-by-State resource inventories. Originally, Forest Survey was authorized by the McSweeney-McNary Act of 1928. The current authorization is through the Renewable Resources Research Act of 1978.

The Intermountain Research Station with headquarters in Ogden, UT, conducts the forest resource inventories for the Rocky Mountain States of Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, western South Dakota, Utah, Wyoming, western Texas, and Oklahoma's Panhandle. These inventories provide information on the extent and condition of the forests—their volume of wood and stand dynamics as expressed by growth, removals, and mortality for State, privately owned, and most other forest lands not in the National Forest System. These data, when combined with similar information on National Forest lands, provide a basis for forming forest policies and programs and for the orderly development and use of the resources.

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RESEARCH SUMMARY

The 1.7 million acres of forest land in South Dakota is less than 4 percent of the State's total land and water area. The bulk of this forest land is concentrated in the State's Black Hills area. Growing-stock volume, which is primarily ponderosa pine, is just less than 2 billion cubic feet. More than 50 percent of the State's forest land is in the National Forest System.

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INTRODUCTION

This report presents basic information on South Dakota's forest area, volume, growth, mortality, and removals. This information was derived from inventory data collected on all lands except National Forests east of the 103d meridian by Forest Survey, North Central Research Station, in 1979 (Raile 1980) and west of the 103d meridian by Forest Survey, Intermountain Research Station, in 1983. Statistics for the National Forests are based on the latest data available from the Black Hills and Custer National Forests.

AN OVERVIEW

In terms of geography and forests, east meets west in South Dakota in a rather dramatic way. The Prairie Plains in the east gradually give way to the grasslands of the Great Plains in the west as elevation increases by some 1,500 feet between the Minnesota border and Rapid City.

The forests in the Plains regions are primarily associated with water—reservoirs, lakes, and the dominating Missouri River and its major tributaries such as the Belle Fourche, Cheyenne, and Big White. Collectively these forests make up only 10 percent of the total forest land in the State and consist primarily of tree species associated with the eastern hardwood forests—elm, ash, basswood, and so forth.

In the far western portion of the State and spilling over into northeastern Wyoming are the Black Hills. This isolated mountainous island of granite, limestone, and metamorphic rock thrust up through the western plains is a national geologic landmark treasured for its beauty and history. It is roughly 100 miles long and 60 miles wide and rises from the surrounding plains to an elevation of 7,242 feet at the top of Harney Peak. The forests in the Black Hills and at higher elevations west of the 103d meridian to the southeast and north of the "Hills" are typically "western," consisting principally of ponderosa pine.

About 90 percent of the forest land in South Dakota occurs west of the 103d meridian, and most of it is in the Black Hills. Three counties, Pennington, Lawrence, and Custer, account for most of the State's forest area, which totals roughly 1.7 million acres.

The public owns 64 percent of South Dakota's forest land (fig. 1). The Black Hills and Custer National Forests administer about 90 percent of the public forest land. The rest

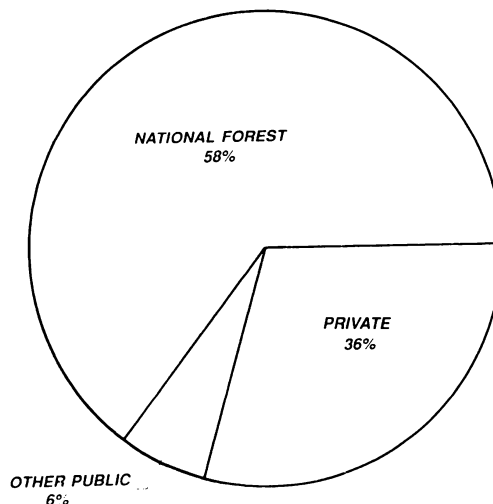


Figure 1—Distribution of forest land by ownership class.

is under the jurisdiction of the State and the U.S. Department of the Interior, Bureau of Land Management (BLM). Most of the State-owned land is in the Custer State Park. East of Rapid City the 226,300 acres of forest land is primarily privately owned. An overview of forests in South Dakota condenses to:

South Dakota's 1.7 million acres of forest, representing only 3.4 percent of its total area of 49.3 million acres. . .

is dominated by ponderosa pine that occupies 1.4 million acres or 82 percent of the forest land. . .

most of which is in the Black Hills and surrounding area. . .

and the Black Hills National Forest administers most of it.

Or: anything to do with South Dakota's forests probably has to do with ponderosa pine in the Black Hills, and the Black Hills National Forest administers more of it than anyone else.

Tables 1-22, grouped at the end of this bulletin, give detailed data on the State's timber resources.

AREA

Nonreserved timberland is the primary component of the State's forest land and occupies 1,670,000 acres. Woodland covers an additional 17,400 acres. Of the forest land, 1 percent contained primarily in National Parks is reserved from harvesting wood products (table 1).

Ponderosa pine is the State's predominant species, occupying 1.4 million acres or 82 percent of the total forest land. The second most predominant species group occurs in the bottomland hardwood group, elm/ash, and makes up only 6 percent or 95,700 acres.

Sawtimber stands (fig. 2) occupy 964,700 acres, which is more than half the total forested area; 675,000 acres of this area is found on National Forests (fig. 3). Poletimber stands account for a fifth of the timberland base, and sapling and seedling stands



Figure 2—This stand of ponderosa pine sawtimber is typical in the Black Hills.

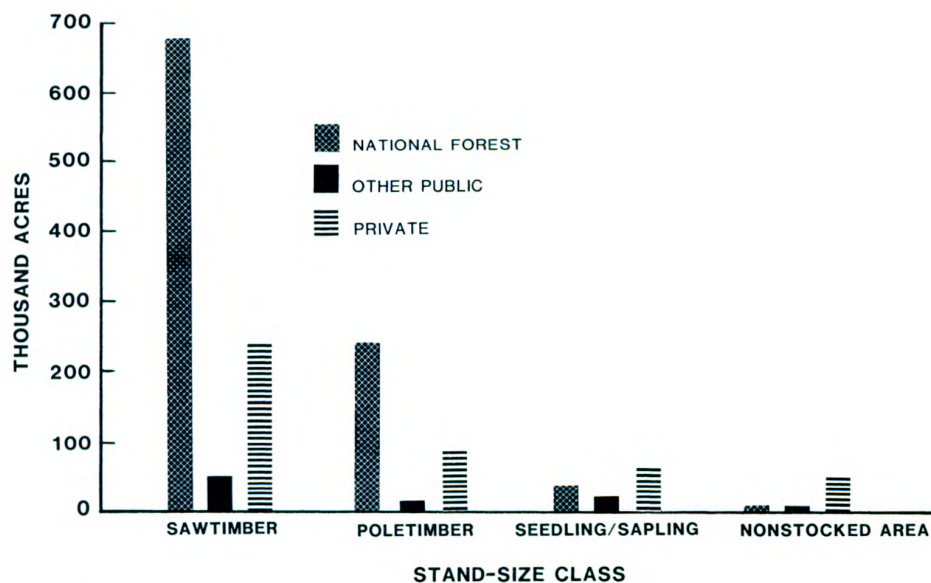


Figure 3—Area of timberland by stand size class and ownership class.

account for an additional 118,700 acres of timberland. Nonstocked areas total 65,500 acres, which is 3 percent of the total timberland. The majority of these nonstocked lands are privately owned.

South Dakota's timberland is not very productive when compared to other Western States. Of timberland, 73 percent or 1.2 million acres falls in the 20 to 49 cubic foot per acre per year productivity class (fig. 4). East of the 103d meridian over 50 percent of timberland produces only 20 cubic feet or less per acre per year. Just 16 percent of the State's timberland has the potential to produce greater than 50 cubic feet per acre per year. However, this is not to say that the State's timberland and in particular the Black Hills area has not been a good timber producer. The Black Hills has, for nearly a century, been successfully producing and supplying sawlogs, fuelwood, pulpwood, posts, and poles.

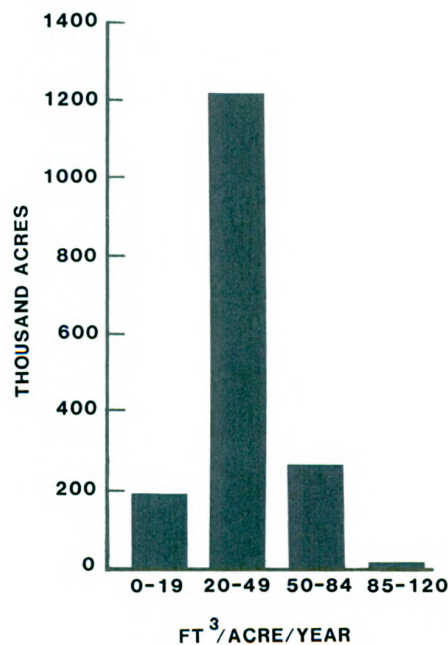


Figure 4—Area of timberland by productivity class.

VOLUME AND STAND COMPOSITION

In spite of the relatively small area of forest, there is a substantial volume of wood, some 1.8 billion cubic feet in trees 5 inches diameter at breast height (d.b.h.) and larger. How much is that really? If it were in a single log 20 feet in diameter, the log would reach from Rapid City to Cleveland—and the part stretching between Rapid City and Chicago would be ponderosa pine. Of the net volume of ponderosa pine growing stock, 50 percent is found in the 10-, 12-, and 14-inch d.b.h. classes each containing close to 300 million cubic feet (fig. 5). Of the State's total net volume of growing stock, 73 percent is administered by National Forests. Private lands account for 400.2 million cubic feet or 22 percent of the total. The average net volume per acre of growing stock on timberland is 1,111 cubic feet.

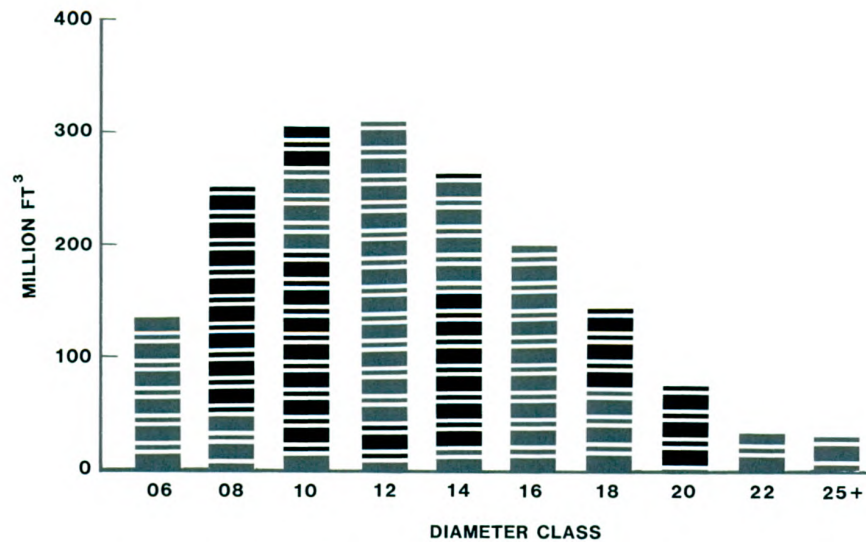


Figure 5—Net volume of ponderosa pine growing stock by diameter class.

Ponderosa pine, being the most abundant tree species in the State, accounts for 94 percent of the net volume of growing stock. Hardwood net volume is only 66.5 million cubic feet (fig. 6).

The net volume of sawtimber is roughly 6.5 billion board feet (International 1/4-inch rule). Almost three-fourths of the State's sawtimber volume is in trees between 10- and 16-inch d.b.h. class. The average net volume of sawtimber is 3,873 board feet per acre.

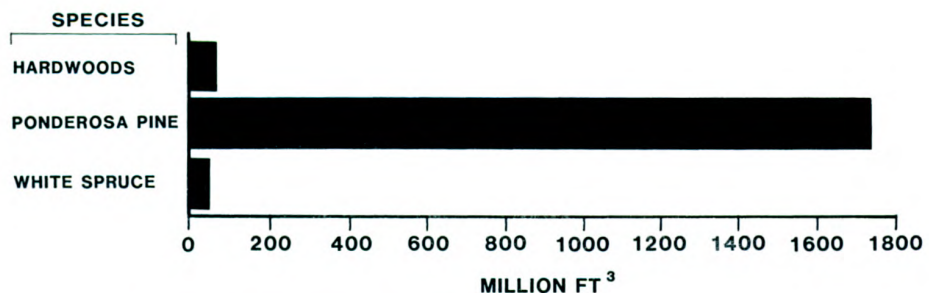


Figure 6—Net volume of growing stock by species.

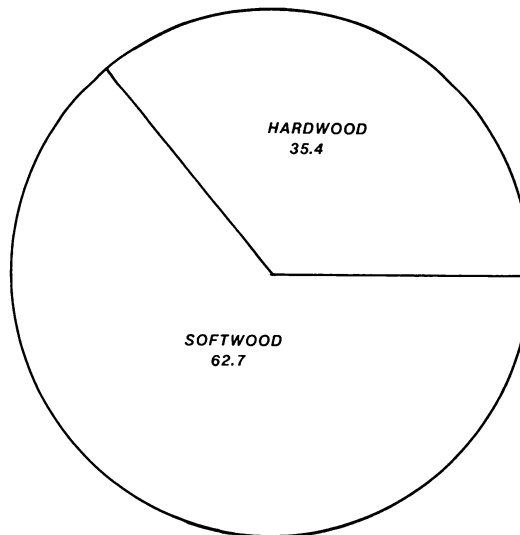


Figure 7—Net volume of cull and salvable dead trees, million cubic feet.

Cull and salvable dead trees contain 98.1 million cubic feet of volume of which 35 million cubic feet are hardwoods (fig.7). Dead trees that are salvable contain 53.3 million cubic feet of sound volume.

There are 576 million growing-stock trees, of which 94 percent are ponderosa pine. Ponderosa pine saplings, the predominant size class, account for 58 percent of the growing-stock trees. Only 13 percent of the total growing-stock trees are sawtimber. Hardwoods are only 3 percent of the total growing-stock trees. As stated, over half the State's timberland is occupied by sawtimber stands. This can be misleading when compared to the total number of sawtimber trees. This is due in part to how sawtimber stands are computed. For example, in certain conditions sawtimber size trees may occupy only a fourth of the total stand stocking, but the entire stand would be considered a sawtimber stand.

White spruce, ash, and aspen trees represent 4 percent of the State's growing-stock trees. Ash is the most common plains tree species.

The average number of growing-stock trees per acre is 345. Of ponderosa pine growing-stock trees, 86 percent are less than 9 inches d.b.h. (fig. 8).

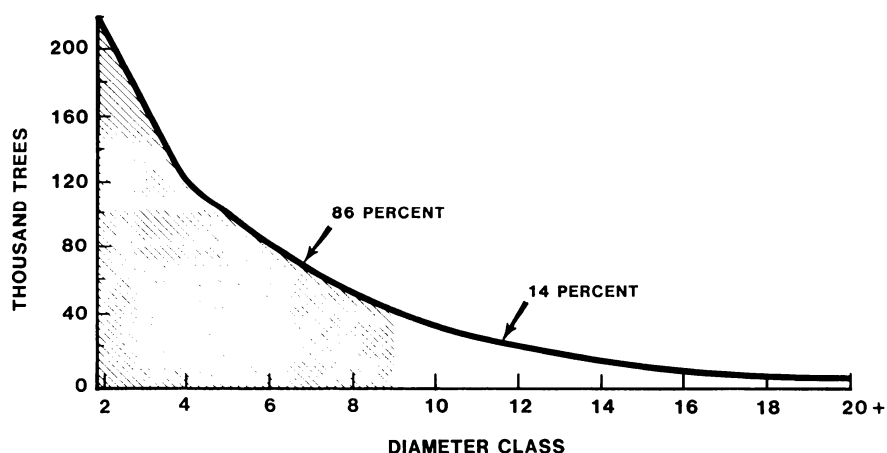


Figure 8—Number of ponderosa pine growing-stock trees on timberland by diameter class.

GROWTH AND MORTALITY

The net annual growth of growing stock is 41.8 million cubic feet or 2 percent of the net volume of growing stock. All but 5 percent of the State's net annual growth occurs in ponderosa pine.

National Forests account for 31 million cubic feet or 75 percent of the net annual growth of growing stock (fig. 9). Private lands contain 64 percent of the total net annual growth of hardwoods.

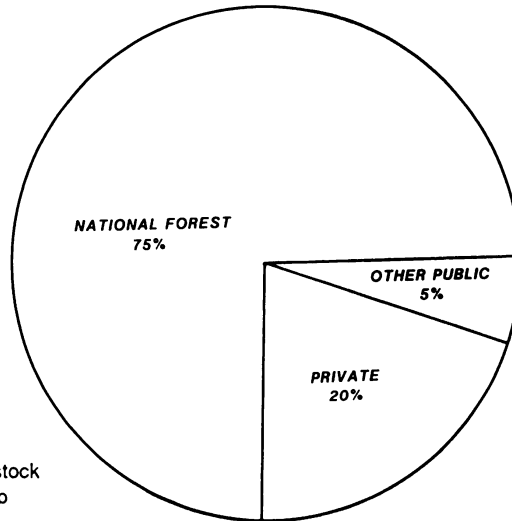


Figure 9—Percentage net annual growth of growing stock on timberland by ownership class.

The average net annual growth on timberland is 25 cubic feet per acre, which is less than the average potential net annual growth of 37 cubic feet per acre (fig. 10).

Forests managed by National Forests are currently obtaining 33 cubic feet per acre of net annual growth, which is close to the potential of 38 cubic feet per acre. Current net annual growth on other public lands is 24 cubic feet per acre, 17 cubic feet less than the potential of 41 cubic feet per acre. On private lands current net annual growth per acre is 19 cubic feet, which is less than half the potential of 45 cubic feet per acre.

The difference between current and potential net annual growth on private and other public timberland can be in part attributed to the "condition" of the timberland stands. Nonstocked, poorly stocked, and old-growth stands occupy over 50 percent of

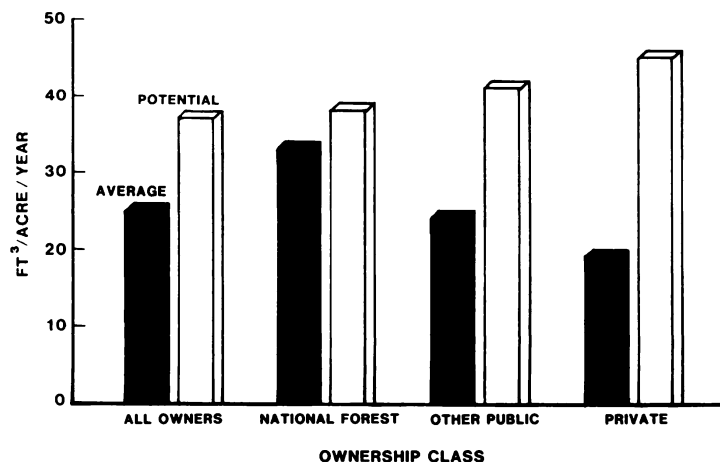


Figure 10—Net annual growth on timberland.

private and other public timberland in South Dakota (table 6). These conditions contribute little to net annual growth.

Annual mortality of growing stock on timberland resulted in a loss of 5.9 million cubic feet of volume, which is 14 percent of the net annual growth. Weather caused over 65 percent of the total mortality (fig. 11 and table 16). In 1982, a wet snowfall in the Black Hills caused extensive mortality to ponderosa pine trees (fig. 12). The Black Hills National Forest accounted for most of the weather-caused mortality. However, table 15 does not reflect this loss, which has been estimated to be 50 million board feet (Fowler 1986).

Sawtimber volume loss due to such agents as fire, insects, disease, and weather is 23.5 million board feet (International $\frac{1}{4}$ -inch rule). This represents 12 percent of the sawtimber growth. Weather accounts for 62 percent of the sawtimber volume loss.

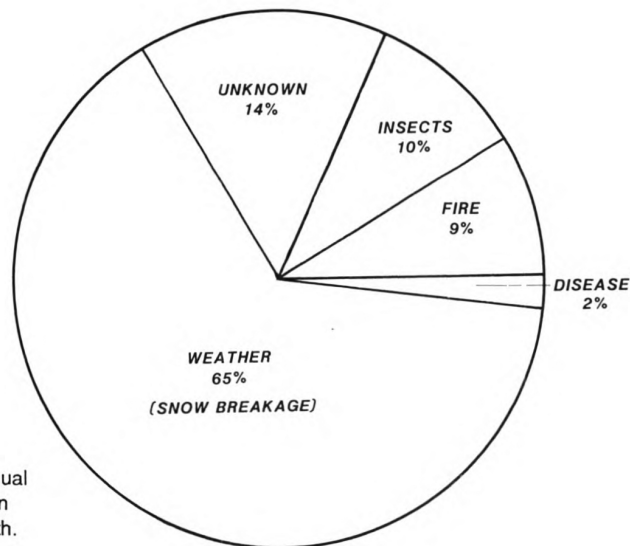


Figure 11—Percentage annual mortality of growing stock on timberland by cause of death.



Figure 12—Damage caused by heavy snowfall in a stand of small sawtimber-sized ponderosa pine.

Fire and insects were responsible for 6.1 million board feet of annual mortality of sawtimber. Disease was the primary cause of death of hardwoods resulting in annual mortality of 285,000 board feet of sawtimber.

REMOVALS

Removals from growing stock amounted to 26.8 million cubic feet, which is 1 percent of the net volume of growing stock and 64 percent of the net annual growth of growing stock. Removals from National Forests account for 20 million cubic feet (fig. 13).

Of the 27.5 million cubic feet of harvested roundwood products, 81 percent were sawlogs, which represents an increase of more than 50 percent over the 1974 sawlog harvest (Green 1978). The Black Hills Area accounted for 98 percent of the State's sawlog harvest.

The 4.0 million cubic feet of fuelwood harvested from South Dakota in 1983 represents an increase of over 1.0 million cubic feet since the early 1970's. Of fuelwood removals, 82 percent, or 3.4 million cubic feet, came from nongrowing stock with dead

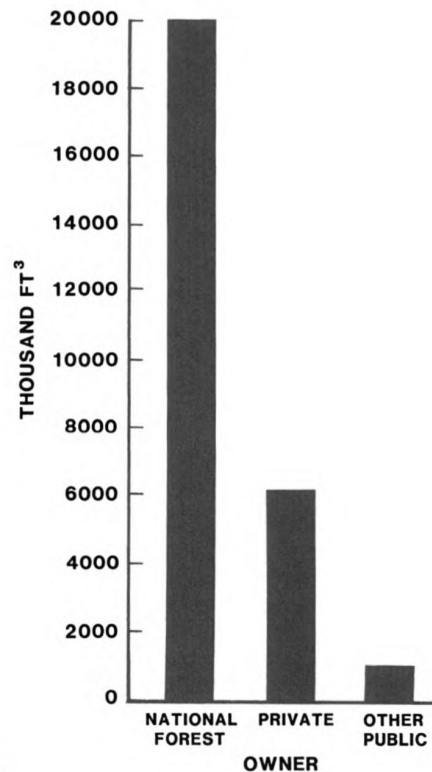


Figure 13—Annual removals of growing stock by ownership class.

timber species as the primary source (fig. 14). Ponderosa pine accounts for 63 percent of the fuelwood removals with elm a distant second at 13 percent. Depending on availability, dead and cull trees, estimated to contain 98.1 million cubic feet of volume in 1983, could handle an increase in future fuelwood harvest.

More than 50 percent of the fuelwood harvest was from private lands with Pennington and Lawrence Counties accounting for most of it (McLain in press).

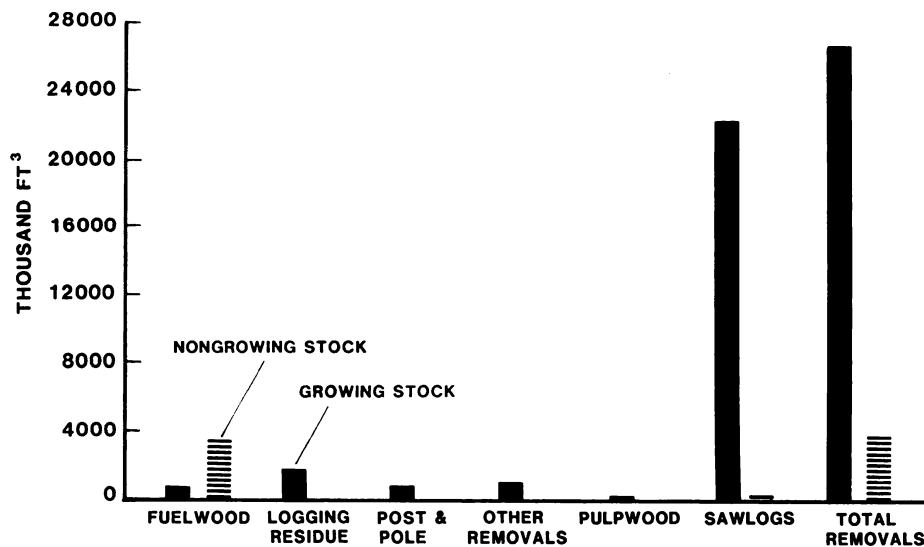


Figure 14—Removals from forest land.

DATA RELIABILITY

Individual cells within tables should be used with caution. Some are based on small sample sizes resulting in high sampling errors. The standard error percentages shown in tables 21 and 22 were calculated at the 67 percent confidence level.

STANDARD FOREST SURVEY TERMINOLOGY

Acceptable trees—Growing-stock trees meeting specified standards of size and quality but not qualifying as desirable trees.

Area condition class—A classification of timberland reflecting the degree to which the site is being utilized by growing-stock trees and other conditions affecting current and prospective timber growth (see Stocking):

Class 10—Areas fully stocked with desirable trees and not overstocked.

Class 20—Areas fully stocked with desirable trees but overstocked with all live trees.

Class 30—Areas medium to fully stocked with desirable trees and with less than 30 percent of the area controlled by other trees, or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees, or both.

Class 40—Areas medium to fully stocked with desirable trees and with 30 percent or more of the area controlled by other trees, or conditions that ordinarily prevent occupancy by desirable trees, or both.

Class 50—Areas poorly stocked with desirable trees but fully stocked with growing-stock trees.

Class 60—Areas poorly stocked with desirable trees but with medium to full stocking of growing-stock trees.

Class 70—Areas nonstocked or poorly stocked with desirable trees and poorly stocked with growing-stock trees.

Class 80—Low-risk old-growth stands.

Class 90—High-risk old-growth stands.

Nonstocked—Areas less than 10 percent stocked with growing-stock trees.

Basal area—The cross-sectional area of a tree expressed in square feet. For timber species the calculation is based on diameter at breast height (d.b.h.); for woodland species it is based on diameter at root collar (d.r.c.).

Christmas tree grade—Pinyon species are classified as Christmas trees using the following guidelines:

Premium—Excellent conical form with no gaps in branches and a straight bole.

Standard—Good conical form with small gaps in branches and bole slightly malformed.

Utility—Conical in form with branches missing and bole bent or malformed

Cull—Not meeting one of the above classifications or over 12 feet in height.

Cord—A pile of stacked wood equivalent to 128 cubic feet of wood and air space having standard dimensions of 4 by 4 by 8 feet.

Cull trees—Live trees that are unmerchantable now or prospectively (see Rough trees and Rotten trees).

Cull volume—Portions of a tree's volume that are not usable for wood products because of rot, missing or dead material, or other cubic-foot defect.

Deferred forest land—Forest lands within the National Forest System that are under study for possible inclusion in the Wilderness System.

Desirable trees—Growing-stock trees (1) having no serious defect in quality to limit present or prospective use for timber products, (2) of relatively high vigor, and (3) containing no pathogens that may result in death or serious deterioration within the next decade.

Diameter at breast height (d.b.h.)—Diameter of the stem measured at 4.5 feet above the ground.

Diameter at root collar (d.r.c.)—Diameter equivalent at the point nearest the ground line that represents the basal area of the tree stem or stems.

Diameter classes—Tree diameters, either d.b.h. or d.r.c., grouped into 2-inch classes labeled by the midpoint of the class.

Farmer/rancher-owned lands—Lands owned by a person who operates a farm or a ranch and who either does the work or directly supervises the work.

Forest industry lands—Lands owned by companies or individuals operating a primary wood-processing plant.

Forest lands—Lands at least 10 percent stocked by forest trees of any size, including lands that formerly had such tree cover and that will be naturally or artificially regenerated. The minimum area for classification of forest land is 1 acre. Road-side, streamside, and shelterbelt strips of timber must have a crown width at least 120 feet wide to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if less than 120 feet wide.

Forest trees—Woody plants having a well-developed stem or stems, usually more than 12 feet in height at maturity, with a generally well-defined crown.

Forest type—A classification of forest land based upon and named for the tree species presently forming a plurality of live-tree stocking.

Gross annual growth—The average annual increase in the net volume of trees during a specified period.

Growing-stock trees—Live sawtimber trees, poletimber trees, saplings, and seedlings of timber species meeting specified standards of quality and vigor; excludes cull trees.

Growing-stock volume—Net cubic-foot volume in live poletimber-size and sawtimber-size growing-stock trees from a 1-foot stump to a minimum 4-inch top (of central stem) outside bark or to the point where the central stem breaks into limbs.

Growth—See definition for Net annual growth.

Hardwood trees—Dicotyledonous trees, usually broad-leaved and deciduous.

High-risk old-growth stands—Timber stands over 100 years old in which the majority of the trees are not expected to survive more than 10 years.

Indian lands—Indian lands held in trust by the Federal Government.

Industrial wood—All commercial roundwood products except fuelwood.

Land area—The area of dry land and land temporarily or partially covered by water such as marshes, swamps, and river flood plains, streams, sloughs, estuaries, and canals less than 120 feet wide; and lakes, reservoirs, and ponds less than 1 acre in size.

Logging residues—The unused portions of growing-stock trees cut or killed by logging.

Low-risk old-growth stands—Timber stands over 100 years old in which the majority of the trees are expected to survive more than 10 years.

Miscellaneous Federal lands—Lands administered by Federal agencies other than the U.S. Department of Agriculture, Forest Service, or U.S. Department of the Interior, Bureau of Land Management.

Mortality—The net volume of growing-stock trees that have died from natural causes during a specified period.

National Forest lands—Public lands administered by the U.S. Department of Agriculture, Forest Service.

National Resource lands—Public lands administered by the U.S. Department of the Interior, Bureau of Land Management.

Net annual growth—Gross annual growth minus average annual mortality.

Net dead volume—Total net volume of dead trees plus the net volume of dead material in live trees.

Net volume in board feet—The gross board-foot volume in the sawlog portion of growing-stock trees, less deductions for cull volume.

Net volume in cubic feet—Gross cubic-foot volume in the merchantable portion of trees less deductions for cull volume. For timber species, volume is computed for the merchantable stem from a 1-foot stump to a minimum 4-inch top diameter outside bark (d.o.b.), or to the point where the central stem breaks into limbs. For woodland species, volume is computed outside bark (o.b.) for all woody material above d.r.c. that is larger than 1.5 inches d.o.b.

Nonforest lands—Lands that do not currently qualify as forest land.

Nonindustrial private—All private ownerships except forest industry.

Nonstocked areas—Forest land less than 10 percent stocked with live trees.

Old-growth stands—Stands of timber species over 100 years old.

Other private lands—Privately owned lands other than forest industry or farmer-owned.

Other public lands—Public lands administered by agencies other than the U.S. Department of Agriculture, Forest Service.

Other removals—The net volume of growing-stock trees removed from the inventory by cultural operations such as timber-stand improvement, by land clearing, and by changes in land use, such as a shift to wilderness.

Poletimber stands—Stands at least 10 percent stocked with growing-stock trees, in which half or more of the stocking is sawtimber or poletimber trees or both, with poletimber stocking exceeding that of sawtimber (see definition for Stocking).

Poletimber trees—Live trees of timber species at least 5 inches d.b.h. but smaller than sawtimber size.

Posts—Juniper and oak species are evaluated for post potential using the following criteria:

- Line post—A 7-foot minimum length with 5 to 7 inches diameter at the butt, 2.5 inch minimum small end diameter, and reasonably straight and solid.
- Corner post—An 8-foot minimum length with 7 to 9 inches diameter at the butt, 2.5 inch minimum small end diameter, and reasonably straight and solid.

Potential growth—The average net annual cubic-foot growth per acre at culmination of mean annual growth attainable in fully stocked natural stands.

Primary wood-processing plants—Plants using roundwood products such as sawlogs, pulpwood bolts, veneer logs, and so forth.

Productivity class—A classification of forest land that reflects biological potential. For timberlands the index use is the potential net annual growth at culmination of mean annual increment in fully stocked natural stands. For woodland, characteristics that affect the land's ability to produce wood, such as soil depth and aspect, are used. Furthermore, woodland is classified as high site where sustained wood production is likely, or low site where the continuous production of wood is unlikely.

Removals—The net volume of growing-stock trees removed from the inventory by harvesting, cultural operations, land clearings, or changes in land use.

Reserved forest land—Forest land withdrawn from tree utilization through statute or administrative designation.

Residues:

Coarse residues—Plant residues suitable for chipping, such as slabs, edgings, and ends.

Fine residues—Plant residues not suitable for chipping, such as sawdust, shavings, and veneer clippings.

Plant residues—Wood materials from primary manufacturing plants that are not used for any product.

Rotten trees—Live poletimber or sawtimber trees with more than 67 percent of their total volume cull (cubic-foot) and with more than half of the cull volume attributable to rotten or missing material.

Rough trees—Live poletimber or sawtimber trees with more than 67 percent of their total volume cull (cubic-foot) and with less than half of the cull volume attributable to rotten or missing material.

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

Salvable dead trees—Standing or down dead trees that are currently merchantable by regional standards.

Saplings—Live trees of timber species 1 to 4.9 inches d.b.h. or woodland species 1 to 2.9 inches d.r.c.

Sapling and seedling stands—Timberland stands at least 10 percent stocked on which more than half of the stocking is saplings or seedlings or both.

Sawlog portion—That part of the bole of sawtimber trees between a 1-foot stump and the sawlog top.

Sawlog top—The point on the bole of sawtimber trees above which a sawlog cannot be produced. The minimum sawlog top is 7 inches d.o.b. for softwoods and 9 inches d.o.b. for hardwoods.

Sawtimber stands—Stands at least 10 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Sawtimber trees—Live trees of timber species meeting regional size and defect specifications. Softwood trees must be at least 9 inches d.b.h. and hardwood trees 11 inches d.b.h.

Sawtimber volume—Net volume in board feet of the sawlog portion of live sawtimber trees.

Seedlings—Established live trees of timber species less than 1 inch d.b.h. or woodland species less than 1 inch d.r.c.

Softwood trees—Monocotyledonous trees, usually evergreen, having needle or scalelike leaves.

Standard error—An expression of the degree of confidence that can be placed on an estimated total or average obtained by statistical sampling methods. Standard errors do not include technique errors that could occur in photo classification of areas, field measurements, or compilation of data.

Stand-size classes—A classification of forest land based on the predominant size of trees present (see Sawtimber stands, Poletimber stands, and Sapling and seedling stands).

State, county, and municipal lands—Lands administered by States, counties, and local public agencies, or lands leased by these governmental units for more than 50 years.

Stocking—An expression of the extent to which growing space is effectively utilized by present or potential growing-stock trees of timber species.

Timberland—Forest land where timber species make up at least 10 percent stocking.

Timber species—Tree species traditionally used for industrial wood products. In western South Dakota these include aspen and cottonwood hardwood species and all softwood species except pinyon and juniper. In eastern South Dakota these include all hardwood and softwood species tallied.

Timber stand improvement—Treatments such as thinning, pruning, release cutting, girdling, weeding, or poisoning of unwanted trees aimed at improving growing conditions for the remaining trees.

Upper-stem portion—That part of the main stem or fork of sawtimber trees above the sawlog top to a minimum top diameter of 4 inches outside bark or to the point where the main stem or fork breaks into limbs.

Water—Streams, sloughs, estuaries, and canals more than 120 feet wide, and lakes, reservoirs, and ponds more than 1 acre in size at mean high water level.

Wilderness—An area of undeveloped land currently included in the Wilderness System, managed so as to preserve its natural conditions and retain its primeval character and influence.

Woodland—Forest land where timber species make up less than 10 percent stocking.

Woodland species—Tree species not usually converted into industrial wood products. Common uses are fuelwood, fenceposts, and Christmas trees.

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FOREST SURVEY TABLES

Table 1--Total area by land class and forest type, South Dakota, 1984

Land class and forest type	Area
- - <u>Thousand acres</u> - -	
Forest land:	
Nonreserved:	
Ponderosa pine	1,375.6
White spruce	18.9
Oak	44.5
Elm-ash	95.7
Aspen	26.4
Cottonwood	29.2
Other hardwoods	14.3
Nonstocked	65.5
Subtotal	1,670.1
Oak woodland ¹	17.4
Total all types	1,687.5
Reserved:	
Ponderosa pine	10.0
Juniper	2.3
Elm-ash	2.7
Juniper woodland ¹	1.0
Oak woodland ¹	0.3
Total all types	16.3
Total forest land	1,703.8
Nonforest land	46,905.4
Total land area	48,609.2
Census water	744.9
Total land and water area ²	49,354.1

¹Woodland area is reported on this table only. No volume tables will be included in this report on woodland.

²U.S. Bureau of the Census, land and water area of the United States, 1980.

Table 2--Area of timberland by ownership class and productivity class, South Dakota, 1984

Ownership class	Productivity class				All classes
	85-119	50-84	20-49	0-19	
	----- <u>Thousand acres</u> -----				
National Forest	5.1	104.7	842.7	29.2	981.7
Other public	--	18.6	72.9	7.6	99.1
Private ¹	1.3	138.9	298.6	150.5	589.3
All owners	6.4	262.2	1,214.2	187.3	1,670.1

¹Forest industry has been combined with private to avoid disclosure of an individual owner.

Table 3--Area of timberland by forest type and ownership class, South Dakota, 1984

Forest type	Ownership class			All owners ²
	National Forest	Other public	Private ¹	
	<u>Thousand acres</u>			
Ponderosa pine	912.6	79.8	299.1	1,291.5
White spruce	18.4	--	--	18.4
Oak	--	--	4.5	4.5
Elm-ash	--	1.3	44.1	45.4
Aspen	19.5	0.2	6.1	25.8
Cottonwood	--	3.5	25.7	29.2
Other hardwoods	--	3.4	9.6	13.0
Nonstocked	2.0	3.3	49.7	55.0
All types ²	952.5	91.5	438.8	1,482.8

¹Forest industry has been combined with private to avoid disclosure of an individual owner.

²Does not include 187,300 acres of timberland in the 0-19 productivity class as this information was not available by ownership class/forest types. National Forests and eastern South Dakota (east of the 103rd meridian) account for 176,600 acres. Western South Dakota (west of the 103rd meridian) accounts for the remaining 10,700 acres.

Table 4--Area of timberland by stand-size class and ownership class, South Dakota, 1984

Stand-size class	Ownership class			All owners ²
	National Forest	Other public	Private ¹	
	- - - - - Thousand acres - - - - -			
Sawtimber stands	674.9	52.7	237.1	964.7
Poletimber stands	238.3	16.3	89.8	344.4
Sapling and seedling stands	37.3	19.2	62.2	118.7
Nonstocked areas	2.0	3.3	49.7	55.0
All classes ²	952.5	91.5	438.8	1,482.8

¹Forest industry has been combined with private to avoid disclosure of an individual owner.

²Does not include 187,300 acres of productivity class 0-19 as this information was not available by stand-size class for this report. National Forests and eastern South Dakota (east of the 103rd meridian) account for 176,600 acres. Western South Dakota (west of the 103rd meridian) accounts for the remaining 10,700 acres.

Table 5--Area of timberland by forest type, stand-size class, and productivity class, South Dakota, 1984

Forest type and stand-size class	Productivity class				Total acres ¹
	85-119	50-84	20-49	0-19	
- - - - - <u>Thousand acres</u> - - - - -					
Ponderosa pine:					
Sawtimber	2.6	171.5	711.4		885.5
Poletimber	--	35.7	279.0		314.7
Sapling and seedling	--	14.7	76.6		91.3
Total	2.6	221.9	1,067.0	84.1	1,291.5 ¹
White spruce:					
Sawtimber	2.5	13.6	2.3		18.4
Poletimber	--	--	--		--
Sapling and seedling	--	--	--		--
Total	2.5	13.6	2.3	0.5	18.4 ¹
Oak:					
Sawtimber	--	1.6	1.6		3.2
Poletimber	--	--	--		--
Sapling and seedling	--	--	1.3		1.3
Total	--	1.6	2.9	40.0	4.5 ¹

(cont.)

Table 5 (cont.)

Forest type and stand-size class	Productivity class				Total acres ¹
	85-119	50-84	20-49	0-19	
- - - - - <u>Thousand acres</u> - - - - -					
Elm-ash:					
Sawtimber	1.3	3.0	9.9		14.2
Poletimber	--	1.9	12.2		14.1
Sapling and seedling	--	1.7	15.4		17.1
Total	1.3	6.6	37.5	50.3	45.4 ¹
Aspen:					
Sawtimber	--	4.7	8.8		13.5
Poletimber	--	--	10.3		10.3
Sapling and seedling	--	--	2.0		2.0
Total	--	4.7	21.1	0.6	25.8 ¹
Cottonwood:					
Sawtimber	--	3.1	23.5		26.6
Poletimber	--	--	2.6		2.6
Sapling and seedling	--	--	--		--
Total	--	3.1	26.1	--	29.2
Other hardwoods:					
Sawtimber	--	--	3.3		3.3
Poletimber	--	1.3	1.4		2.7
Sapling and seedling	--	--	7.0		7.0
Total	--	1.3	11.7	1.3	13.0 ¹
Nonstocked	--	9.4	45.6	10.5	55.0 ¹
All types:					
Sawtimber	6.4	197.5	760.8		964.7
Poletimber	--	38.9	305.5		344.4
Sapling and seedling	--	16.4	102.3		118.7
Nonstocked		9.4	45.6		55.0
Total	6.4	262.2	1,214.2	187.3	1,482.8 ¹

¹Does not include 187,300 acres of productivity class 0-19 as this information was not available by stand-size class for this report. National Forests and eastern South Dakota (east of the 103rd meridian) account for 176,600 acres. Western South Dakota (west of the 103rd meridian) accounts for the remaining 10,700 acres.

Table 6--Area of other public and privately owned timberland by forest type and area condition class, South Dakota, 1984

Forest type	Area condition class										All classes
	10	20	30	40	50	60	70	80	90		
	----- <u>Thousand acres</u> -----										
Ponderosa pine	--	--	--	6.3	81.8	157.4	86.8	--	57.3	389.6	
Aspen	--	--	--	--	--	--	6.3	--	--	6.3	
Cottonwood	--	--	--	--	3.2	3.0	12.5	--	10.7	29.4	
Oak	--	--	--	--	--	1.7	2.9	--	--	4.6	
Elm-ash	--	--	--	--	3.9	11.4	30.3	--	--	45.6	
Other hardwoods	--	--	--	--	--	3.0	10.1	--	--	13.1	
Nonstocked	--	--	--	--	--	--	53.2	--	--	53.2	
All types	--	--	--	6.3	88.9	176.5	202.1	--	68.0	541.8	

Table 7--Number of growing-stock trees on timberland by species and diameter class, South Dakota, 1984

Species	Diameter class (inches at breast height)														All classes
	1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9		
----- Thousand trees -----															
Ponderosa pine	216,414	119,755	80,041	51,937	32,686	19,616	10,881	5,643	3,004	1,152	386	269	8	541,792	
White spruce	6,173	2,360	1,419	1,138	785	468	237	213	81	42	22	8	--	12,946	
Eastern redcedar ¹	1,438	311	138	65	12	--	2	--	--	--	--	--	--	1,966	
Total softwoods	224,025	122,426	81,598	53,140	33,483	20,084	11,120	5,856	3,085	1,194	408	277	8	556,704	
Oak	754	886	181	128	60	63	28	26	6	3	--	2	--	2,137	
Basswood	--	--	--	13	41	27	--	--	--	--	--	--	--	81	
Soft maple	--	--	--	--	--	--	5	4	--	3	--	--	1	13	
Elm	663	136	456	225	132	28	34	11	7	8	2	5	--	1,707	
Ash	2,546	1,117	816	486	270	171	38	56	29	16	6	6	--	5,557	
Aspen	403	450	2,984	586	509	83	44	--	--	--	--	--	--	5,059	
Cottonwood	--	148	256	13	129	76	410	34	168	79	116	52	34	1,515	
Willow	--	--	--	--	11	6	4	3	6	--	--	2	--	32	
Hackberry	166	464	38	56	--	--	--	--	--	--	--	--	--	724	
Other hardwoods	1,226	190	667	393	130	16	21	10	10	5	10	3	2	2,683	
Total hardwoods	5,758	3,391	5,398	1,900	1,282	470	584	144	226	114	134	70	37	19,508	
All species ²	229,783	125,817	86,996	55,040	34,765	20,554	11,704	6,000	3,311	1,308	542	347	45	576,212	

¹Eastern redcedar on all species tables includes a small amount of other softwoods.

²Does not include the number of trees on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 8--Net volume of growing stock on timberland by species and ownership class, South Dakota, 1984

Species	Ownership class			All owners ²
	National Forest	Other public	Private ¹	
----- Million cubic feet -----				
Ponderosa pine	1,297.4	96.2	345.6	1,739.2
White spruce	47.5	0.1	2.5	50.1
Eastern redcedar	--	--	0.6	0.6
Total softwoods	1,344.9	96.3	348.7	1,789.9
Oak	--	0.2	2.8	3.0
Basswood	--	0.2	0.4	0.6
Soft maple	--	--	0.6	0.6
Elm	--	0.1	3.8	3.9
Ash	--	0.3	11.4	11.7
Aspen	5.5	0.2	6.4	12.1
Cottonwood	--	5.1	23.2	28.3
Willow	--	--	0.7	0.7
Hackberry	--	--	0.3	0.3
Other hardwoods	3.4	--	1.9	5.3
Total hardwoods	8.9	6.1	51.5	66.5
All species ²	1,353.8	102.4	400.2	1,856.4

¹Forest industry has been combined with private to avoid disclosure of an individual owner.

²Does not include net volume on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 9--Net volume of growing stock on timberland by species and diameter class, South Dakota, 1984

Species	Diameter class (inches at breast height)											All classes ¹
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0+	
	----- Million cubic feet -----											
Ponderosa pine	135.2	249.6	304.1	307.7	262.3	199.4	143.1	73.3	32.7	30.4	1.4	1,739.2
White spruce	4.8	7.0	8.0	8.0	6.2	7.5	3.5	2.5	1.8	0.8	--	50.1
Eastern redcedar	0.3	0.2	0.1	--	(2)	--	--	--	--	--	--	0.6
Total softwoods	140.3	256.8	312.2	315.7	268.5	206.9	146.6	75.8	34.5	31.2	1.4	1,789.9
Oak	0.3	0.5	0.4	0.6	0.4	0.5	0.1	0.1	--	0.1	--	3.0
Basswood	--	0.1	0.3	0.2	--	--	--	--	--	--	--	0.6
Soft maple	--	--	--	--	0.1	0.1	--	0.2	--	--	0.2	0.6
Elm	0.7	0.8	0.7	0.3	0.5	0.2	0.1	0.3	0.1	0.2	--	3.9
Ash	1.5	2.0	1.8	2.0	0.6	1.4	1.1	0.6	0.3	0.4	--	11.7
Aspen	3.9	2.4	4.2	0.8	0.8	--	--	--	--	--	--	12.1
Cottonwood	0.6	0.1	1.0	0.8	5.3	0.8	3.9	2.3	4.2	4.0	5.3	28.3
Willow	--	--	0.1	0.1	0.1	0.1	0.2	--	--	0.1	--	0.7
Hackberry	0.1	0.2	--	--	--	--	--	--	--	--	--	0.3
Other hardwoods	1.1	1.2	1.0	0.1	0.2	0.2	0.4	0.2	0.4	0.2	0.3	5.3
Total hardwoods	8.2	7.3	9.5	4.9	8.0	3.3	5.8	3.7	5.0	5.0	5.8	66.5
All species ¹	148.5	264.1	321.7	320.6	276.5	210.2	152.4	79.5	39.5	36.2	7.2	1,856.4

¹Does not include net volume on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

²Less than 0.05 million cubic feet.

Table 10--Net volume of sawtimber on timberland by species and ownership class,
South Dakota, 1984

Species	Ownership class			All owners ²
	National Forest	Other public	Private ¹	
- - - Million board feet, International 4-inch rule - - -				
Ponderosa pine	4,480.5	362.6	1,199.2	6,042.3
White spruce	210.2	0.4	12.1	222.7
Eastern redcedar	--	--	0.7	0.7
Total softwoods	4,690.7	363.0	1,212.0	6,265.7
Oak	--	0.8	9.0	9.8
Basswood	--	0.4	1.1	1.5
Soft maple	--	--	3.0	3.0
Elm	--	0.4	7.4	7.8
Ash	--	0.4	31.5	31.9
Aspen	0.5	0.3	6.8	7.6
Cottonwood	--	23.3	106.4	129.7
Willow	--	--	2.6	2.6
Hackberry	--	--	--	--
Other hardwoods	6.8	--	3.1	9.9
Total hardwoods	7.3	25.6	170.9	203.8
All species ²	4,698.0	388.6	1,382.9	6,469.5

¹Forest industry has been combined with private to avoid disclosure of an individual owner.

²Does not include net volume on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 11--Net volume of sawtimber on timberland by species and diameter class, South Dakota, 1984

Species	Diameter class (inches at breast height)									All classes ¹
	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	23.0-28.9	29.0+	
- - - - - Million board feet, International 4-inch rule - - - - -										
Ponderosa pine	828.2	1,263.8	1,266.5	1,069.9	818.9	435.6	179.0	172.4	8.0	6,042.3
White spruce	44.7	45.2	36.7	43.5	21.2	15.3	11.1	5.0	--	222.7
Eastern redcedar	0.6	--	0.1	--	--	--	--	--	--	0.7
Total softwoods	973.5	1,309.0	1,303.3	1,113.4	840.1	450.9	190.1	177.4	8.0	6,265.7
Oak	XXXXX	3.3	2.0	2.9	0.9	0.4	--	0.3	--	9.8
Basswood	XXXXX	1.5	--	--	--	--	--	--	--	1.5
Soft maple	XXXXX	--	0.6	0.3	--	1.4	--	--	0.7	3.0
Elm	XXXXX	1.2	2.2	0.9	0.8	1.0	0.4	1.3	--	7.8
Ash	XXXXX	9.5	3.0	7.1	5.3	2.8	1.9	2.3	--	31.9
Aspen	XXXXX	3.5	4.1	--	--	--	--	--	--	7.6
Cottonwood	XXXXX	3.7	25.6	4.3	18.7	11.2	20.3	19.6	26.3	129.7
Willow	XXXXX	0.5	0.3	0.4	0.8	--	--	0.6	--	2.6
Hackberry	XXXXX	--	--	--	--	--	--	--	--	--
Other hardwoods	XXXXX	1.0	1.3	1.0	1.6	0.7	1.7	1.0	1.6	9.9
Total hardwoods	XXXXX	24.2	39.1	16.9	28.1	17.5	24.3	25.1	28.6	203.8
All species ¹	873.5	1,333.2	1,342.4	1,130.3	868.2	468.4	214.4	202.5	36.6	6,469.5

¹Does not include net volume on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 12--Net volume of timber on timberland by class of timber, and softwoods and hardwoods, South Dakota, 1984

Class of timber	Softwoods	Hardwoods	All classes ¹
- - - - - Million cubic feet - - - - -			
Sawtimber trees:			
Sawlog portion	1,235.7	32.0	1,267.7
Upper-stem portion	157.2	9.5	166.7
Total	1,392.9	41.5	1,434.4
Poletimber trees	397.0	25.0	422.0
All growing-stock trees	1,789.9	66.5	1,856.4
Sound and rotten cull trees	13.2	31.6	44.8
Salvable dead trees	49.5	3.8	53.3
All timber ¹	1,852.6	101.9	1,954.5

¹Does not include class of timber on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 13--Net annual growth of growing stock on timberland by species and ownership class, South Dakota, 1983

Species	Ownership class			All owners ²
	National Forest	Other public	Private ¹	
- - - - - Thousand cubic feet - - - - -				
Ponderosa pine	30,166	2,137	7,392	39,695
White spruce	297	-10	-258	29
Eastern redcedar	--	--	16	16
Total softwoods	30,463	2,127	7,150	39,740
Oak	--	2	55	57
Basswood	--	1	13	14
Soft maple	--	--	16	16
Elm	--	-4	221	217
Ash	--	12	351	363
Aspen	518	7	192	717
Cottonwood	--	50	362	412
Willow	--	--	24	24
Hackberry	--	--	9	9
Other hardwoods	158	--	103	261
Total hardwoods	676	68	1,346	2,090
All species ²	31,139	2,195	8,496	41,830

¹Forest industry has been combined with private to avoid disclosure of an individual owner.

²Does not include net annual growth on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 14--Net annual growth of sawtimber on timberland by species and ownership class, South Dakota, 1983

Species	Ownership class			All owners ²
	National Forest	Other public	Private ¹	
- - - Thousand board feet, International 4-inch rule - - -				
Ponderosa pine	125,091	12,638	44,261	181,990
White spruce	9,287	-36	-804	8,447
Eastern redcedar	--	--	14	14
Total softwoods	134,378	12,602	43,471	190,451
Oak	--	46	208	254
Basswood	--	--	47	47
Soft maple	--	--	289	289
Elm	--	7	438	445
Ash	--	7	2,082	2,089
Aspen	9	120	2,931	3,060
Cottonwood	--	214	1,879	2,093
Willow	--	--	141	141
Hackberry	--	--	--	--
Other hardwoods	605	--	288	893
Total hardwoods ²	614	394	8,303	9,311
All species	134,992	12,996	51,774	199,762

¹Forest industry has been combined with private to avoid disclosure of an individual owner.

²Does not include net annual growth on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 15--Annual mortality of growing stock and sawtimber on timberland by species group and ownership class, South Dakota, 1983

Species group	Ownership class			All classes ²
	National Forest	Other public	Private ¹	
GROWING STOCK				
	<u>Thousand cubic feet</u>			
Softwoods	3,491	76	2,192	5,759
Hardwoods	--	6	160	166
All groups ²	3,491	82	2,352	5,925
SAWTIMBER				
	<u>Thousand board feet, International 4-inch rule</u>			
Softwoods	15,418	263	7,551	23,232
Hardwoods	--	2	316	318
All groups ²	15,418	265	7,867	23,550

¹Forest industry has been combined with private to avoid disclosure of an individual owner.

²Does not include annual mortality on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 16--Annual mortality of growing stock on timberland by species and cause of death, South Dakota, 1983

Species	Cause of death					All causes ¹
	Insects	Disease	Fire	Weather	Unknown	
----- <u>Thousand cubic feet</u> -----						
Ponderosa pine	569	--	515	2,935	483	4,502
White spruce	--	--	--	919	337	1,256
Eastern redcedar	--	--	--	--	1	1
Total softwoods	569	--	515	3,854	821	5,759
Oak	--	--	--	--	3	3
Basswood	--	--	--	--	1	1
Soft maple	--	5	--	--	--	5
Elm	--	51	--	--	3	54
Ash	--	30	--	--	31	61
Aspen	--	--	--	--	--	--
Cottonwood	--	14	--	--	17	31
Willow	--	--	--	--	1	1
Hackberry	--	--	--	--	1	1
Other hardwoods	--	--	--	--	9	9
Total hardwoods	--	100	--	--	66	166
All species ¹	569	100	515	3,854	887	5,925

¹Does not include annual mortality on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 17--Annual mortality of sawtimber on timberland by species and cause of death, South Dakota, 1983

Species	Cause of death					All causes ¹
	Insects	Disease	Fire	Weather	Unknown	
----- Thousand board feet, International 4-inch rule -----						
Ponderosa pine	2,786	--	3,382	9,577	2,410	18,155
White spruce	--	--	--	5,076	--	5,076
Eastern redcedar	--	--	--	--	1	1
Total softwoods	2,786	--	3,382	14,653	2,411	23,232
Oak	--	--	--	--	12	12
Basswood	--	--	--	--	4	4
Soft maple	--	--	--	--	--	--
Elm	--	55	--	--	--	55
Ash	--	167	--	--	2	169
Aspen	--	--	--	--	--	--
Cottonwood	--	63	--	--	--	63
Willow	--	--	--	--	10	10
Hackberry	--	--	--	--	--	--
Other hardwoods	--	--	--	--	5	5
Total hardwoods	--	285	--	--	33	318
All species	2,786	285	3,382	14,653	2,444	23,550

¹Does not include annual mortality on 176,600 acres in the 0-19 productivity class reported by National Forests and the North Central Station.

Table 18--Output of timber products from roundwood by species and product, South Dakota, 1983

Species	Sawlogs		Other products ¹	Fuelwood	All products
	Thousand board feet ²	Thousand cubic feet	Thousand cubic feet	Thousand cubic feet	Thousand cubic feet
Ponderosa pine	133,622	21,778	938	2,601	25,317
White spruce	2,341	382	13	--	395
Eastern redcedar	2	--	45	--	45
Total softwoods	135,965	22,160	996	2,601	25,757
Oak	14	2	--	--	2
Basswood	--	--	--	--	--
Soft maple	6	1	--	--	1
Elm	259	45	--	536	581
Ash	288	48	--	8	56
Aspen	--	--	--	123	123
Cottonwood	1,187	207	--	479	686
Black walnut	15	2	--	--	2
Boxelder	--	--	--	9	9
Other hardwoods	58	10	--	358	368
Total hardwoods	1,827	315	--	1,513	1,828
All species	137,792	22,475	996	4,114	27,585

¹Other products include posts, poles, and pulpwood.

²International 1/4-inch rule.

Table 19--Output of timber products and timber removals by products, species group, and source of material, South Dakota, 1983

Products and additional removals	Species group	Standard Units	Output of roundwood products				
			All sources roundwood products	Growing stock	Non growing-stock ¹	Output from sawtimber	
			Number of units	Thousand cubic feet	Thousand cubic feet	Thousand cubic feet	Thousand board feet ²
Sawlogs	Softwoods	Thousand board feet	135,965	22,160	21,931	229	133,217
	Hardwoods		1,827	315	303	12	1,638
Total			137,792	22,475	22,234	241	134,855
Pulpwood	Softwoods	Standard cords	3,075	223	223	--	--
	Hardwoods		--	--	--	--	--
Total			3,075	223	223	--	--
Other products ³	Softwoods	Thousand pieces	966,278	773	762	11	638
	Hardwoods		--	--	--	--	--
Total			966,278	773	762	11	638
Fuelwood	Softwoods	Standard cords	35,871	2,601	360	2,241	2,136
	Hardwoods		22,596	1,513	361	1,152	1,089
Total			58,467	4,114	721	3,393	3,225
Total all products	Softwoods	-----	-----	25,757	23,276	2,481	135,991
	Hardwoods	-----	-----	1,828	664	1,164	2,727
Total	All species	-----	-----	27,585	23,940	3,645	138,718
Additional removals: Logging residues	Softwoods	-----	-----	-----	1,762	-----	1,893
	Hardwoods	-----	-----	-----	57	-----	182
Total			-----	-----	1,819	-----	2,075
Other removals	Softwoods	-----	-----	-----	105	-----	309
	Hardwoods	-----	-----	-----	921	-----	2,462
Total			-----	-----	1,026	-----	2,771
Total removals	Softwoods	-----	-----	-----	25,143	-----	138,193
	Hardwoods	-----	-----	-----	1,642	-----	5,371
Total			-----	-----	26,785	-----	143,564

¹Output from nongrowing-stock sources is not shown for additional removals except in combined form.

²International 4-inch rule.

³Includes posts and poles.

Table 20--Annual removals of growing stock and sawtimber on timberland by ownership class, and softwoods and hardwoods, South Dakota, 1983

Ownership class	Growing stock			Sawtimber		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	- - - Thousand cubic feet - - -			- - - Thousand board feet ¹ - - -		
National Forest	19,954	5	19,959	111,083	30	111,113
Other public	782	6	788	4,477	17	4,494
Private	4,407	1,631	6,038	22,633	5,324	27,957
All classes	25,143	1,642	26,785	138,193	5,371	143,564

¹International 4-inch rule.

Table 21--Area of other public and privately owned forest land with percent standard error in western South Dakota, 1984¹

Item	Softwoods		Hardwoods		All types	
	Acres	Percent standard error	Acres	Percent standard error	Acres	Percent standard error
Timberland	402,755	± 5.8	24,542	±59.2	427,297	± 4.4
Woodland	--	--	17,427	±60.0	17,427	±60.0
Reserved forest land: ²						
Timberland	8,605		--		8,605	
Woodland	1,020		255		1,275	
Total forest land	412,380		42,224		454,604	

¹Individual cells within tables should be used with caution. Some are based on small sample sizes and so result in high sampling errors.

²Reserved land areas are estimated from aerial photos without field verification. Therefore, standard errors are not calculated.

Table 22--Net volume, net annual growth, and annual mortality of growing stock and sawtimber on other public and privately owned timberland with percent standard error in western South Dakota¹

Item	Softwoods		Hardwoods		All types	
	Volume	Percent standard error	Volume	Percent standard error	Volume	Percent standard error
Net volume, 1984:						
Growing stock (Thousand cubic feet)	433,081	±11.2	17,640	±56.7	450,721	±10.6
Sawtimber ² (Thousand board feet)	1,535,685	±13.4	59,417	±74.3	1,595,102	±12.9
Sawtimber ³ (Thousand board feet)	1,268,280	±13.6	49,984	±74.4	1,318,264	±13.1
Net annual growth, 1983:						
Growing stock (Thousand cubic feet)	8,918	±17.8	321	±43.9	9,239	±17.0
Sawtimber ² (Thousand board feet)	53,634	±21.2	3,588	±85.8	57,222	±20.2
Sawtimber ³ (Thousand board feet)	42,232	±21.1	3,155	±85.0	45,387	±20.1
Annual mortality, 1983:						
Growing stock (Thousand cubic feet)	2,258	±43.9	--	--	2,258	±43.9
Sawtimber ² (Thousand board feet)	7,808	±41.5	--	--	7,808	±41.5
Sawtimber ³ (Thousand board feet)	6,661	±41.4	--	--	6,661	±41.4

¹Individual cells within tables should be used with caution. Some are based on small sample sizes and so result in high sampling errors.

²International 4-inch rule.

³Scribner rule.

Collins, Dennis C.; Green, Alan W. 1988. South Dakota's timber resources. Resour. Bull.INT-56. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 28 p.

Presents land area, timberland area, timber volume, and components of change for forest lands in South Dakota.

KEYWORDS: forest survey, timberlands, inventory volume

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