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FOREST AREA AND TIMBER RESOURCE STATISTICS FOR STATE AND PRIVATE LANDS IN WESTERN MONTANA COUNTIES 1977

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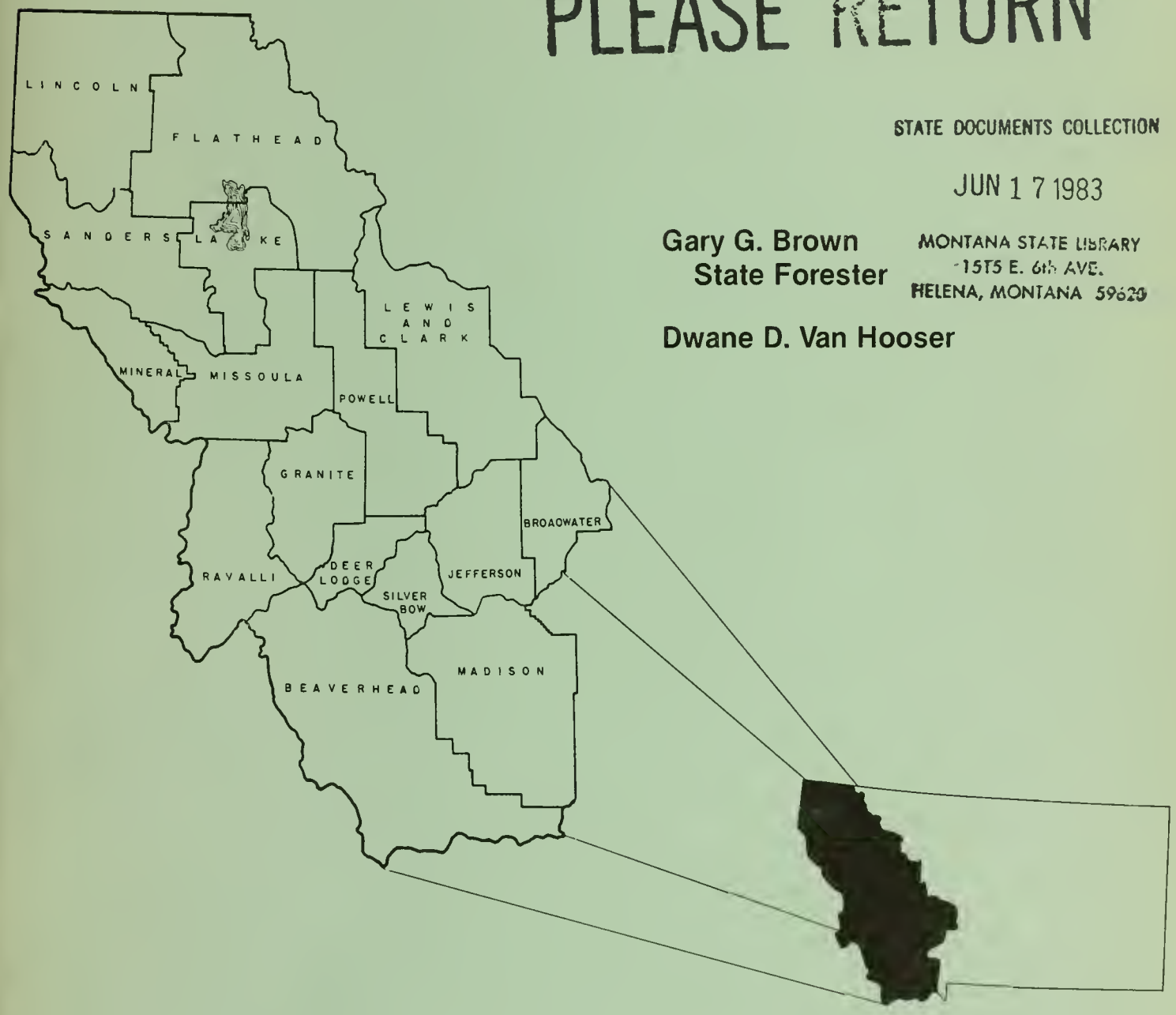
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THE AUTHORS

GARY G. BROWN is State Forester, Division of Forestry, Montana Department of State Lands, Missoula.

DWANE D. VAN HOOSER is Project Leader, Resources Evaluation Research Work Unit at the Intermountain Forest and Range Experiment Station in Ogden, Utah.

FOREWORD

This report presents the principal findings of the second forest inventory of State and private lands in western Montana (fig. 1). Data collection began in January 1977 and was completed in December 1978. This report does not note changes or trends since the first inventory of Montana. These items will be included in a State Analytical Report to be published in the near future.

The authors gratefully acknowledge the cooperation of the USDA Forest Service, Region 1. Appreciation is also expressed for the cooperation of other public agencies and private landowners in providing information and access to the sample locations.

SUMMARY

The 16 western Montana counties contain 3.7 million acres of commercial timberland in State and private ownership. These acres support 5.9 billion cubic feet of growing stock and more than 21.1 billion board feet of sawtimber. In 1976, the inventory increased nearly 130 million cubic feet after deducting 28.7 million cubic feet of mortality and some 125.6 million cubic feet of removals. Additional information on total land area, commercial timberland area, timber inventory, growth, and mortality data based on USDA Forest Service Resources Evaluation standards are presented.

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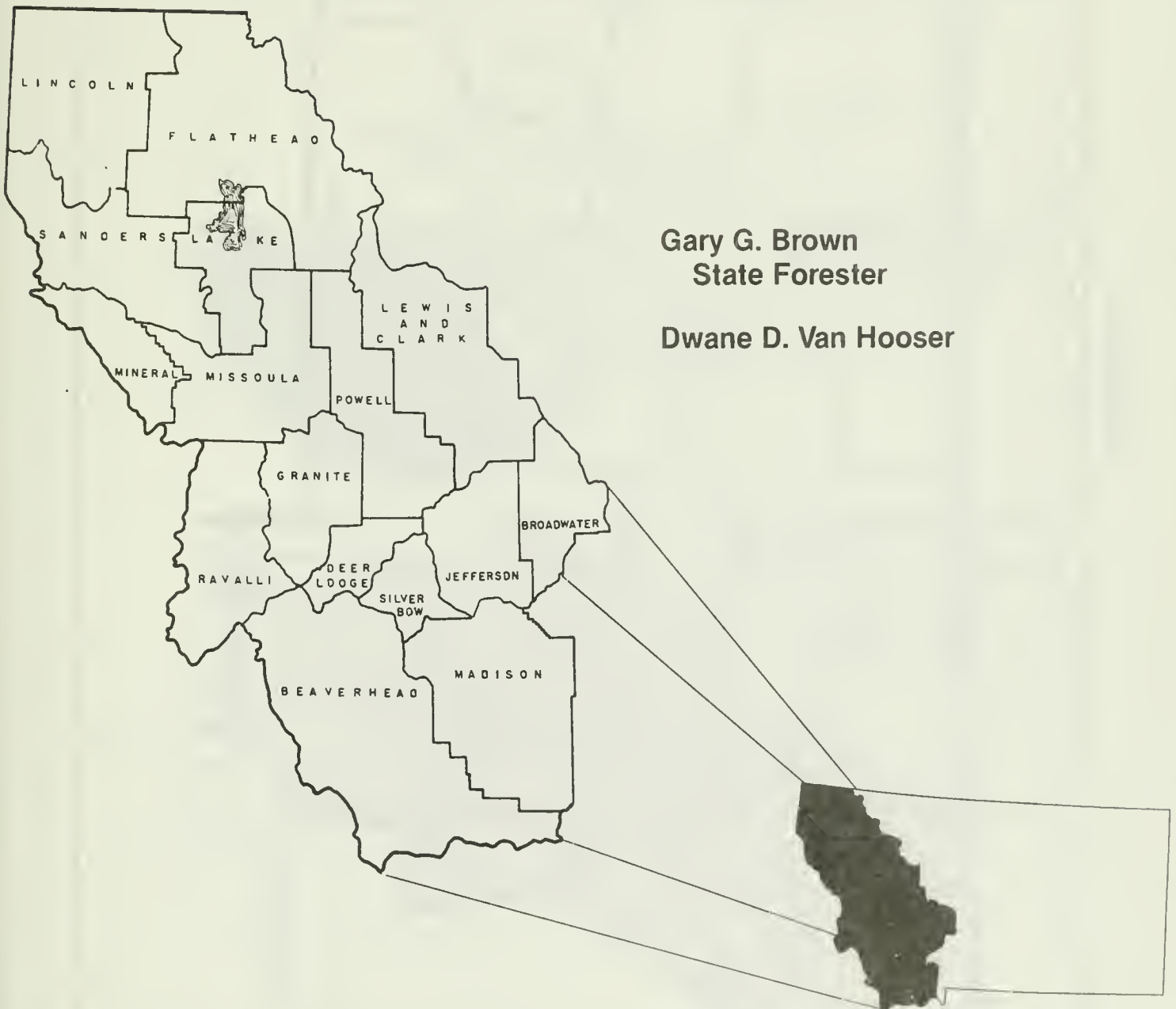
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FOREST AREA AND TIMBER RESOURCE STATISTICS FOR STATE AND PRIVATE LANDS IN WESTERN MONTANA COUNTIES 1977



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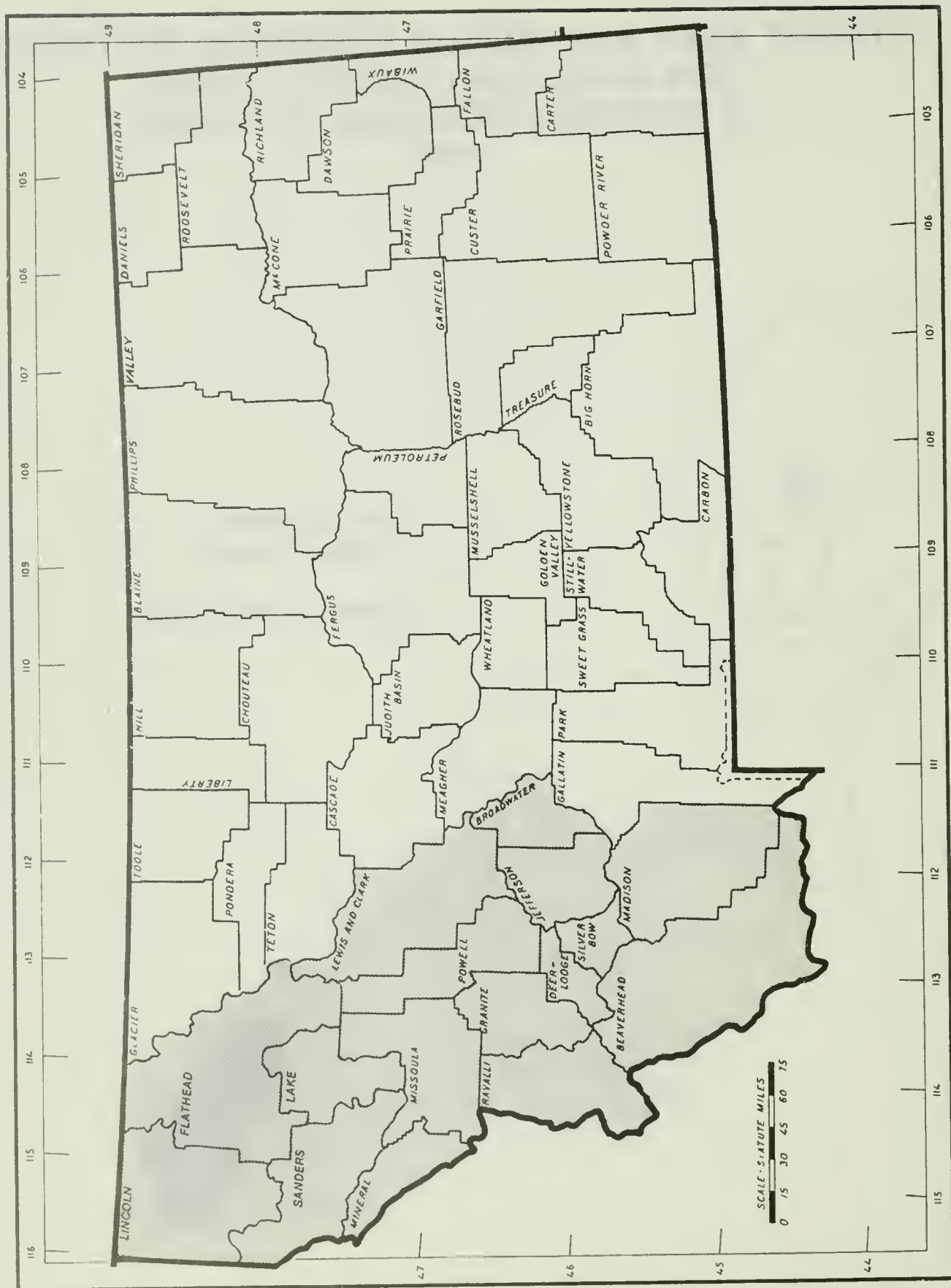


Figure 1.--Western Montana Counties; shaded portion represents area covered by this report.

HIGHLIGHTS

Area

- State and private lands account for 10.5 million acres, nearly 41 percent of the total land area in western Montana (fig. 2).
- Forests occupy 3.7 million acres, including reserved land, 35 percent of the total State and private land area in western Montana.
- Of the forest land, 3.6 million acres, 98 percent, are classified as commercial timberland.

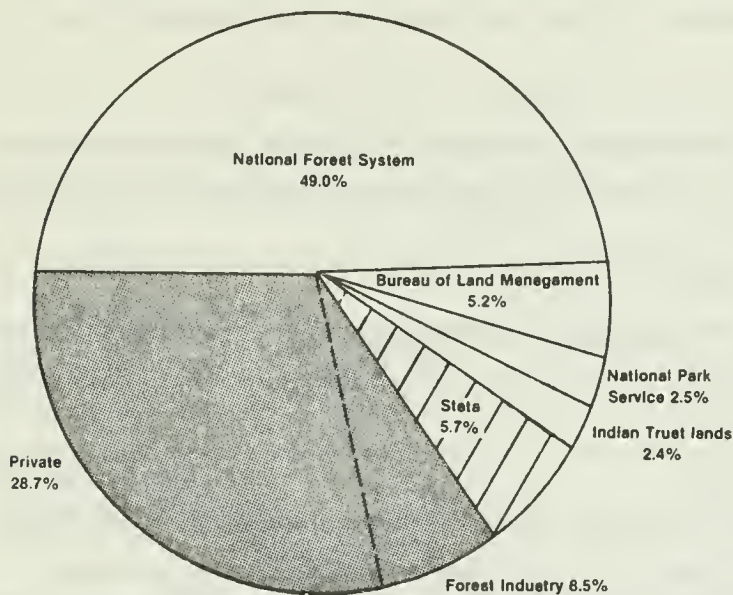


Figure 2.--Percent of total land area in western Montana by ownership, 1977 (shaded area represents sampled land).

- Private ownership accounts for 3.1 million acres, 84 percent of the commercial timberland.
- Douglas-fir is the predominant forest type on nearly half of the commercial timberland area. Lodgepole pine and ponderosa pine forest types together occupy about 30 percent of the commercial timberland.
- One-half the commercial timberland is in the 50- to 84-cubic foot productivity class.
- On the average, the commercial timberland is currently producing only about half its annual potential of 70 cubic feet/acre.
- About 30 percent of the commercial timberland is in old-growth stands.
- Stands that are fully stocked occupy about 30 percent of the commercial timberland.
- Some 46 percent of the commercial timberland is contained in only 3 of the 16 western Montana counties, namely Missoula, Flathead, and Lincoln.

Inventory

- Growing stock volume amounts to 5.9 billion cubic feet and sawtimber volume totals 21.2 billion board feet.¹
- An additional 395 million cubic feet of sound wood volume is contained in rough, rotten, and salvable dead trees.
- The most dominant single species-- Douglas-fir (Pseudotsuga menziesii [Mirb.] Franco)-- constitutes 2.2 billion cubic feet of growing stock and some 8 billion board feet of sawtimber.
- Forest industry controls 44 percent of the total growing stock and 46 percent of the sawtimber volume.
- Nearly 70 percent of the trees over 5.0 inches d.b.h. are poletimber size.
- But, nearly three-quarters of the growing stock volume is contained in sawtimber stands.
- Two-thirds of the growing stock volume is contained in stands dominated by either Douglas-fir or lodgepole pine.
- Flathead and Missoula counties combined account for more than one-third of the growing stock and sawtimber volume.

Components of Change

- Net annual growth amounted to 129.9 million cubic feet of growing stock and 461.6 million board feet of sawtimber.
- The annual mortality of 28.7 million cubic feet offsets 18 percent of total annual growth of growing stock.
- Mortality reduced the annual sawtimber increment by 89.7 million board feet--16 percent.
- Total removals from growing stock equaled 125.6 million cubic feet. This represents 2.1 percent of the standing inventory and 96.7 percent of the net annual growth.
- Removals from sawtimber amounted to 804.9 million board feet or 3.8 percent of standing inventory and 174.4 percent of net annual growth.

HOW THE INVENTORY WAS CONDUCTED

The inventory was designed to provide reliable statistics primarily at the State and study-area levels. Procedures were as follows:

1. Initial area estimates were based on the classification of 84,795 sample points systematically placed on the latest resource aerial photography available. The sample points were summarized and grouped into strata for subsequent field sampling. The photo points, adjusted to meet known land areas, were used to compute area expansion factors for the field samples.

2. Land classification and estimates of timber characteristics and volume were based on observations and measurements recorded at 2,512 ground sample locations. Sample trees were selected using a 10-point cluster that includes fixed plots (1/300 acre) for trees less than 5.0 inches diameter at breast height (d.b.h.) and variable plots (40 basal area factor) for trees 5.0 inches d.b.h. or larger.

¹In this report all reference to sawtimber volume is in International 1/4-inch rule.

3. For most species, volume and defect were computed using Kemp's equations.

4. All photo and field data were sent to Ogden, Utah, for processing. Final estimates were based on computer generated statistical summaries of the data.

DATA RELIABILITY

Individual cells within tables should be used with caution. Some are based on very small sample sizes, and so may result in a high standard error. The standard error percents shown in tables 1 and 2 were calculated at the 67 percent confidence level.

Table 1.--Area of State and private forest land in western Montana with percent standard error, 1977

Item	Softwoods		Hardwoods		All types	
	Acres	Percent standard error	Acres	Percent standard error	Acres	Percent standard error
Commercial timberland	3,532,017	±0.7	112,246	±10.4	3,644,263	±0.7
Productive reserved ¹	7,338		341		7,679	
Other forest land:						
Unproductive reserved ¹	1,683		120		1,803	
Unproductive nonreserved	65,973	±11.3	17,351	±24.1	83,324	±10.1

Table 2.--Net volume, net annual growth, and annual mortality of growing stock and sawtimber on State and private commercial timberland in western Montana with percent standard error

Item	Softwoods		Hardwoods		All species	
	Volume	Percent standard error	Volume	Percent standard error	Volume	Percent standard error
Net volume, 1977:						
Growing stock (M cubic feet)	5,773,036	±1.7	175,279	±10.9	5,948,315	±1.6
Sawtimber (M board feet)	20,634,733	±2.1	526,570	±12.9	21,161,303	±2.0
Net annual growth, 1976:						
Growing stock (M cubic feet)	125,815	±3.0	4,118	±11.8	129,933	±3.0
Sawtimber (M board feet)	443,650	±3.3	17,976	±19.2	461,626	±3.2
Annual mortality, 1976:						
Growing stock (M cubic feet)	28,020	±6.0	663	±34.2	28,683	±5.9
Sawtimber (M board feet)	87,701	±8.2	2,018	±50.1	89,719	±8.1

¹Reserved land areas are estimated from aerial photos without field verification; therefore, standard errors are not calculated.

TERMINOLOGY AND DATA TABLES

The following section contains definitions that are relevant to the timber resource data presented in this resource bulletin.

TERMINOLOGY

Land

Bureau of the Census.--Area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Resources Evaluation.--The same as the Bureau of the Census except minimum width of streams, etc., is 120 feet, and minimum size of lakes, etc., is 1 acre.

Water

Bureau of the Census.--Streams, sloughs, estuaries, and canals more than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds more than 40 acres in area.

Resources Evaluation.--The same as the Bureau of the Census except minimum width of streams, etc., is 120 feet, and minimum size of lakes, etc., is 1 acre.

Land Use Classes

Forest land.--Land at least 10.0 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Commercial timberland.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. (Areas qualifying have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood in natural stands. Currently inaccessible and inoperable areas are included.)

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Other forest land.--Forest land incapable of producing 20 cubic feet per acre per year of industrial wood in natural stands because of adverse site conditions; includes both reserved and nonreserved forest land.

Nonforest land.--Land that has never supported forests and lands formerly forested where use for timber management is precluded by development for other uses.

Public Ownership Classes

National Forest lands.--Federal lands legally designated as National Forest or purchase units and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Bureau of Land Management lands.--Federal lands administered by the Bureau of Land Management.

Miscellaneous Federal lands.--Federal lands other than the following: (1) National Forest lands; (2) lands administered by the Bureau of Land Management; and (3) Indian trust lands.

Indian trust lands.--Indian lands held in trust by the Federal Government, for Indian tribal groups or for individual allotments.

State lands.--Lands owned by States or lands leased to these governmental units for 50 years or more.

County and municipal lands.--Lands owned by counties and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Private Ownership Classes

Forest industry lands.--Lands owned by companies or by individuals operating wood-processing plants.

Farmer-owned lands.--Lands owned by farm operators. (These exclude lands leased by farm operators from such nonfarm owners as railroad companies and States.)

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

Forest Type and Tree Species

Forest types.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Forest trees.--Woody plants having a well-developed stem and usually more than 12 feet in height at maturity.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Softwoods.--Monocotyledonous trees, usually evergreen, having needles or scalelike leaves.

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Area Condition Classes

Stocking.--Stocking is an expression of the extent to which growing space is effectively utilized by present or potential growing stock trees of commercial species. "Percent of stocking" is synonymous with "percentage of growing space occupied" and means the ratio of actual stocking to full stocking for comparable sites and stands. Basal area is used as a basis for measuring stocking.

"Stocking percentages" express current area occupancy in relation to specified standards for full stocking based on number, size, and spacing of trees considered necessary to fully utilize the forest land.

Full utilization of the site is assumed to occur over a range of basal area. As an interim guide, 60 percent of the normal yield table values has been used to establish the lower limit of this range, which represents full-site occupancy. This is called 100-percent stocking. The upper limit of full stocking has been set at 132 percent. Sites with less than 100-percent stocking represent less than full-site occupancy. Overstocking is characterized by sites with 133 percent or more stocking.

Class 10.--Areas fully stocked (100 to 132 percent) with desirable trees and not overstocked (133 percent or more).

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

Class 30.--Areas medium to fully stocked (60 to 99 percent) with desirable trees and with less than 30 percent of the area controlled by other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

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

Class 50.--Areas poorly stocked (16.7 to 59 percent) 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 (less than 16.7 percent) 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 16.7 percent stocked with growing stock trees.

Productivity

Productivity class.--A classification of forest land in terms of potential growth in cubic feet of fully stocked natural stands.

Stand-Size Classes

Sawtimber stands.--Stands at least 16.7 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.

Poletimber stands.--Stands at least 16.7 percent stocked with growing stock trees in which half or more of this stocking is in poletimber and/or sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing stock trees in which more than half of the stocking is saplings and/or seedlings.

Nonstocked land.--Commercial timberland less than 16.7 percent stocked with growing stock trees.

Class of Timber

Growing stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees. (Excludes rough, rotten, and dead trees.)

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 before rotation age.

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

Rough trees.--(1) Live trees that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and/or do not meet Rocky Mountain regional specifications for freedom from defect primarily because of roughness or poor form; and (2) all live trees of noncommercial species.

Rotten trees.--Live trees that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and/or do not meet Rocky Mountain regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume (cubic-foot basis) in a tree is rotten.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Rocky Mountain regional standards.

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top. A 1-foot stump is used.

Upper-stem portion.--That part of the bole of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the central stem breaks into limbs, whichever occurs first.

Tree Size Classes

Seedlings.--Live trees less than 1.0 inch in d.b.h.

Saplings.--Trees 1.0 to 4.9 inches in d.b.h.

Poletimber trees.--Trees at least 5.0 inches in d.b.h., but smaller than sawtimber size.

Sawtimber trees.--Trees exceeding poletimber size. In the Intermountain States, the minimum d.b.h. for softwood sawtimber is 9.0 inches and for hardwoods 11.0 inches.

Volume

Cull volume.--Portions of a tree's volume that are not usable for industrial wood products because of rot, form, or other defect.

Net volume.--Gross volume less deductions for cull.

Growing stock volume.--Net volume in cubic feet of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Sawtimber volume.--Net volume in board feet of sawtimber trees of commercial species. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Components of Change

Net annual growth.--The increase in net growing stock or sawtimber volume of a specified size class for a specific year. (Components of net annual growth include the increment in net volume of trees at the beginning of the specific year surviving to its end, plus the net volume of trees reaching the size class during the year, minus the net volume of trees that died during the year, minus the net volume of trees that became rough or rotten trees during the year.)

Mortality.--Number or sound-wood volume of growing stock trees dying from natural causes during a specified period, usually annually.

Removals.--The net volume of growing-stock or sawtimber trees removed from the inventory by harvesting; cultural operations, such as timber stand improvement; land clearings; or changes in land use. Includes the unused portion of growing stock or sawtimber trees cut or killed by logging.

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FOREST SURVEY TABLES

Table 3.--Total land and water area in western Montana
by ownership class, 1977

Ownership class	Area
	- - - Acres - - -
Land:	
National Forest	12,543,715
Bureau of Land Management	1,347,784
National Park Service	645,287
Indian trust lands	616,451
State	1,449,728
Forest industry ¹	1,662,500
Private ²	7,363,906
	<hr/>
Total land area	25,629,371
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Census water	390,586
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Total land and water ³	26,019,957
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¹Forest industry is a component of private ownership, but because of its importance to the western Montana timber supply situation, area and resource statistics for forest industry are shown separately in this and other tables dealing with owner groups in this report.

²On this and all following tables, the private ownership category includes farmer-owned and other private ownerships, a small acreage of county and municipal ownership, and miscellaneous Federal ownership excluding National Park Service lands.

³U.S. Bureau of the Census, land and water area of the United States, 1980.

Table 4.--Total land area in State and private ownership in western Montana by major land class and ownership class, 1977¹

Land class	Ownership class			Total
	State	Forest industry	Private	
	- - - - -	- - - - - Acres - - - - -	- - - - -	- - - - -
Commercial timberland	567,528	1,484,617	1,592,118	3,644,263
Productive reserved forest land	902	1,856	4,921	7,679
Other forest land:				
Reserved	--	686	1,117	1,803
Nonreserved	12,573	6,252	64,499	83,324
Total	581,003	1,493,411	1,662,655	3,737,069
Nonforest land	868,725	169,089	5,701,251	6,739,065
Total land area	1,449,728	1,662,500	7,363,906	10,476,134

¹See footnote 2, Table 3

Table 5.--Area of State and private commercial timberland in western Montana by forest type, stand-size class, and productivity class, 1977¹

Forest type and stand-size class	Productivity class					Total acres
	165+	120-164	85-119	50-84	20-49	
----- Acres -----						
Douglas-fir:						
Sawtimber	--	59,061	192,035	667,578	227,550	1,146,224
Poletimber	--	3,474	18,262	153,943	93,519	269,198
Sapling and seedling	--	2,290	42,047	177,199	133,603	355,139
Nonstocked	--	--	--	9,799	17,680	27,479
Total	--	64,825	252,344	1,008,519	472,352	1,798,040
Western hemlock:						
Sawtimber	--	--	3,827	--	--	3,827
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	4,259	--	--	--	4,259
Nonstocked	--	--	--	--	--	--
Total	--	4,259	3,827	--	--	8,086
Ponderosa pine:						
Sawtimber	1,448	18,118	79,791	130,911	87,344	317,612
Poletimber	--	4,423	3,855	10,622	28,409	47,309
Sapling and seedling	--	733	7,098	37,955	30,748	76,534
Nonstocked	--	--	5,427	6,660	14,168	26,255
Total	1,448	23,274	96,171	186,148	160,669	467,710
Western white pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	3,998	--	--	--	3,998
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	3,998	--	--	--	3,998
Lodgepole pine:						
Sawtimber	--	6,990	57,173	104,558	37,467	206,188
Poletimber	5,011	13,227	60,664	158,565	44,776	282,243
Sapling and seedling	--	7,451	13,606	41,210	47,723	109,990
Nonstocked	--	--	--	5,319	--	5,319
Total	5,011	27,668	131,443	309,652	129,966	603,740
Western larch:						
Sawtimber	4,259	9,723	52,667	63,697	4,137	134,483
Poletimber	--	--	2,211	10,668	--	12,879
Sapling and seedling	--	--	10,214	31,618	14,454	56,286
Nonstocked	--	--	--	1,909	--	1,909
Total	4,259	9,723	65,092	107,892	18,591	205,557
Western redcedar:						
Sawtimber	--	--	24,402	8,512	--	32,914
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	24,402	8,512	--	32,914

(con.)

Table 5 (con.)

Forest type and stand-size class	Productivity class					Total acres
	165+	120-164	85-119	50-84	20-49	
- - - - - Acres - - - - -						
Whitebark-limber pine:						
Sawtimber	--	--	--	6,286	23,372	29,658
Poletimber	--	--	--	--	4,650	4,650
Sapling and seedling	--	--	3,526	--	7,463	10,989
Nonstocked	--	--	--	--	1,326	1,326
Total	--	--	3,526	6,286	36,811	46,623
Grand fir:						
Sawtimber	4,269	2,809	33,919	15,840	--	56,837
Poletimber	--	--	1,405	--	--	1,405
Sapling and seedling	--	4,426	6,486	3,292	--	14,204
Nonstocked	--	--	--	--	--	--
Total	4,269	7,235	41,810	19,132	--	72,446
Subalpine fir-spruce:						
Sawtimber	--	13,885	25,930	55,713	6,923	102,451
Poletimber	--	--	7,829	12,575	3,962	24,366
Sapling and seedling	--	--	5,463	47,445	20,366	73,274
Nonstocked	--	--	3,632	--	--	3,632
Total	--	13,885	42,854	115,733	31,251	203,723
Engelmann spruce:						
Sawtimber	--	8,316	36,693	14,068	--	59,077
Poletimber	--	2,912	3,827	9,110	--	15,849
Sapling and seedling	--	--	2,770	7,835	3,649	14,254
Nonstocked	--	--	--	--	--	--
Total	--	11,228	43,290	31,013	3,649	89,180
Aspen:						
Sawtimber	--	4,260	7,183	4,638	--	16,081
Poletimber	--	3,659	5,952	4,687	5,679	19,977
Sapling and seedling	--	--	1,345	--	9,659	11,004
Nonstocked	--	--	--	3,660	3,776	7,436
Total	--	7,919	14,480	12,985	19,114	54,498
Cottonwood:						
Sawtimber	--	--	7,207	14,779	22,685	44,671
Poletimber	--	--	--	--	3,266	3,266
Sapling and seedling	--	--	--	--	1,616	1,616
Nonstocked	--	--	--	--	3,975	3,975
Total	--	--	7,207	14,779	31,542	53,528
Other hardwoods:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	4,220	--	4,220
Nonstocked	--	--	--	--	--	--
Total	--	--	--	4,220	--	4,220
All types:						
Sawtimber	9,976	123,162	520,827	1,086,580	409,478	2,150,023
Poletimber	5,011	31,693	104,005	360,170	184,261	685,140
Sapling and seedling	--	19,159	92,555	350,774	269,281	731,769
Nonstocked	--	--	9,059	27,347	40,925	77,331
Total	14,987	174,014	726,446	1,824,871	903,945	3,644,263

¹ See footnote 2, Table 3

Table 6.--Area of State-owned commercial timberland in western Montana by forest type, stand-size class, and productivity class, 1977

Forest type and stand-size class	Productivity class					Total acres
	165+	120-164	85-119	50-84	20-49	
----- Acres -----						
Douglas-fir:						
Sawtimber	--	12,406	43,255	99,353	32,928	187,942
Poletimber	--	988	3,387	21,141	14,955	40,471
Sapling and seedling	--	443	6,715	17,573	9,901	34,632
Nonstocked	--	--	--	2,042	2,807	4,849
Total	--	13,837	53,357	140,109	60,591	267,894
Western hemlock:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--
Ponderosa pine:						
Sawtimber	1,448	5,092	10,357	16,452	12,092	45,441
Poletimber	--	18	1,482	13	3,113	4,626
Sapling and seedling	--	47	1,818	4,105	2,084	8,054
Nonstocked	--	--	124	320	903	1,347
Total	1,448	5,157	13,781	20,890	18,192	59,468
Western white pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	36	--	--	--	36
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	36	--	--	--	36
Lodgepole pine:						
Sawtimber	--	--	12,294	19,527	10,672	42,493
Poletimber	804	983	10,645	27,061	4,371	43,865
Sapling and seedling	--	3,244	62	6,936	4,531	14,773
Nonstocked	--	--	--	1,260	--	1,260
Total	804	4,227	23,002	54,784	19,574	102,391
Western larch:						
Sawtimber	79	1,441	6,697	16,785	1,453	26,455
Poletimber	--	--	2,211	1,121	--	3,332
Sapling and seedling	--	--	3,272	2,761	1,855	7,888
Nonstocked	--	--	--	833	--	833
Total	79	1,441	12,180	21,500	3,308	38,508
Western redcedar:						
Sawtimber	--	--	353	1,453	--	1,806
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	353	1,453	--	1,806

(con.)

Table 6 (con.)

Forest type and stand-size class	Productivity class					Total acres
	165+	120-164	85-119	50-84	20-49	
----- Acres -----						
Whitebark-limber pine:						
Sawtimber	--	--	--	1,584	4,783	6,367
Poletimber	--	--	--	--	714	714
Sapling and seedling	--	--	414	--	1,094	1,508
Nonstocked	--	--	--	--	1,326	1,326
Total	--	--	414	1,584	7,917	9,915
Grand fir:						
Sawtimber	--	2,809	4,335	2,838	--	9,982
Poletimber	--	--	1,405	--	--	1,405
Sapling and seedling	--	--	2,060	1,024	--	3,084
Nonstocked	--	--	--	--	--	--
Total	--	2,809	7,800	3,862	--	14,471
Subalpine fir-spruce:						
Sawtimber	--	1,404	10,422	15,096	4,202	31,124
Poletimber	--	--	682	1,712	1,743	4,137
Sapling and seedling	--	--	2,725	8,540	3,574	14,839
Nonstocked	--	--	94	--	--	94
Total	--	1,404	13,923	25,348	9,519	50,194
Engelmann spruce:						
Sawtimber	--	1,758	4,577	2,792	--	9,127
Poletimber	--	316	--	828	--	1,144
Sapling and seedling	--	--	--	1,684	590	2,274
Nonstocked	--	--	--	--	--	--
Total	--	2,074	4,577	5,304	590	12,545
Aspen:						
Sawtimber	--	80	320	564	--	964
Poletimber	--	--	621	519	916	2,056
Sapling and seedling	--	--	658	--	254	912
Nonstocked	--	--	--	591	450	1,041
Total	--	80	1,599	1,674	1,620	4,973
Cottonwood:						
Sawtimber	--	--	499	1,817	2,275	4,591
Poletimber	--	--	--	--	236	236
Sapling and seedling	--	--	--	--	90	90
Nonstocked	--	--	--	--	397	397
Total	--	--	499	1,817	2,998	5,314
Other hardwoods:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	13	--	13
Nonstocked	--	--	--	--	--	--
Total	--	--	--	13	--	13
All types:						
Sawtimber	1,527	24,990	93,109	178,261	68,405	366,292
Poletimber	804	2,341	20,434	52,395	26,048	102,022
Sapling and seedling	--	3,734	17,724	42,636	23,973	88,067
Nonstocked	--	--	218	5,046	5,883	11,147
Total	2,331	31,065	131,485	278,338	124,309	567,528

Table 7.--Area of forest industry-owned commercial timberland in western Montana by forest type, stand-size class, and productivity class, 1977

Forest type and stand-size class	Productivity class					Total acres
	165+	120-164	85-119	50-84	20-49	
----- Acres -----						
Douglas-fir:						
Sawtimber	--	33,596	97,664	305,796	60,246	497,302
Poletimber	--	377	2,744	50,644	24,763	78,528
Sapling and seedling	--	904	11,882	77,711	50,874	141,371
Nonstocked	--	--	--	7,160	3,289	10,449
Total	--	34,877	112,290	441,311	139,172	727,650
Western hemlock:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	4,259	--	--	--	4,259
Nonstocked	--	--	--	--	--	--
Total	--	4,259	--	--	--	4,259
Ponderosa pine:						
Sawtimber	--	520	29,930	40,513	13,872	84,835
Poletimber	--	--	422	2,743	2,939	6,104
Sapling and seedling	--	89	2,684	22,576	10,043	35,392
Nonstocked	--	--	4,607	5,743	4,964	15,314
Total	--	609	37,643	71,575	31,818	141,645
Western white pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--
Lodgepole pine:						
Sawtimber	--	6,990	17,474	50,935	8,836	84,235
Poletimber	--	4,320	26,678	87,536	13,400	131,934
Sapling and seedling	--	--	2,744	23,470	30,778	56,992
Nonstocked	--	--	--	36	--	36
Total	--	11,310	46,896	161,977	53,014	273,197
Western larch:						
Sawtimber	--	4,320	29,548	33,240	2,684	69,792
Poletimber	--	--	--	2,744	--	2,744
Sapling and seedling	--	--	6,942	22,943	12,599	42,484
Nonstocked	--	--	--	--	--	--
Total	--	4,320	36,490	58,927	15,283	115,020
Western redcedar:						
Sawtimber	--	--	8,538	7,059	--	15,597
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total			8,538	7,059	--	15,597

(con.)

Table 7 (con.)

Forest type and stand-size class	Productivity class					Total acres
	165+	120-164	85-119	50-84	20-49	
----- Acres -----						
Whitebark-limber pine:						
Sawtimber	--	--	--	535	7,407	7,942
Poletimber	--	--	--	--	1,057	1,057
Sapling and seedling	--	--	10	--	641	651
Nonstocked	--	--	--	--	--	--
Total	--	--	10	535	9,105	9,650
Grand fir:						
Sawtimber	4,269	--	21,660	13,002	--	38,931
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	4,426	4,426	217	--	9,069
Nonstocked	--	--	--	--	--	--
Total	4,269	4,426	26,086	13,219	--	48,000
Subalpine fir-spruce:						
Sawtimber	--	12,481	15,324	19,973	2,721	48,499
Poletimber	--	--	7,147	4,765	421	12,331
Sapling and seedling	--	--	2,738	29,439	8,514	40,691
Nonstocked	--	--	--	--	--	--
Total	--	12,481	23,209	54,175	11,656	101,521
Engelmann spruce:						
Sawtimber	--	--	24,070	7,007	--	31,077
Poletimber	--	--	--	4,320	--	4,320
Sapling and seedling	--	--	2,770	409	876	4,055
Nonstocked	--	--	--	--	--	--
Total	--	--	26,840	11,736	876	39,452
Aspen:						
Sawtimber	--	--	--	197	--	197
Poletimber	--	--	107	27	--	134
Sapling and seedling	--	--	90	--	2,435	2,525
Nonstocked	--	--	--	88	48	136
Total	--	--	197	312	2,483	2,992
Cottonwood:						
Sawtimber	--	--	3,255	1,711	570	5,536
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	98	98
Nonstocked	--	--	--	--	--	--
Total	--	--	3,255	1,711	668	5,634
Other hardwoods:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--
All types:						
Sawtimber	4,269	57,907	245,463	479,968	96,336	883,943
Poletimber	--	4,697	37,098	152,777	42,580	237,152
Sapling and seedling	--	9,678	34,286	176,765	116,858	337,587
Nonstocked	--	--	4,607	13,027	8,301	25,935
Total	4,269	72,282	321,454	822,537	264,075	1,484,617

Table 8.--Area of privately owned commercial timberland in western Montana by forest type, stand-size class, and productivity class, 1977¹

Forest type and stand-size class	Productivity class					Total acres
	165+	120-164	85-119	50-84	20-49	
----- Acres -----						
Douglas-fir:						
Sawtimber	--	13,059	51,116	262,429	134,376	460,980
Poletimber	--	2,109	12,131	82,158	53,801	150,199
Sapling and seedling	--	943	23,450	81,915	72,828	179,136
Nonstocked	--	--	--	597	11,584	12,181
Total	--	16,111	86,697	427,099	272,589	802,496
Western hemlock:						
Sawtimber	--	--	3,827	--	--	3,827
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	3,827	--	--	3,827
Ponderosa pine:						
Sawtimber	--	12,506	39,504	73,946	61,380	187,336
Poletimber	--	4,405	1,951	7,866	22,357	36,579
Sapling and seedling	--	597	2,596	11,274	18,621	33,088
Nonstocked	--	--	696	597	8,301	9,594
Total	--	17,508	44,747	93,683	110,659	266,597
Western white pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	3,962	--	--	--	3,962
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	3,962	--	--	--	3,962
Lodgepole pine:						
Sawtimber	--	--	27,405	34,096	17,959	79,460
Poletimber	4,207	7,924	23,340	43,968	27,005	106,444
Sapling and seedling	--	4,207	10,800	10,804	12,414	38,225
Nonstocked	--	--	--	4,023	--	4,023
Total	4,207	12,131	61,545	92,891	57,378	228,152
Western larch:						
Sawtimber	4,180	3,962	16,422	13,672	--	38,236
Poletimber	--	--	--	6,803	--	6,803
Sapling and seedling	--	--	--	5,914	--	5,914
Nonstocked	--	--	--	1,076	--	1,076
Total	4,180	3,962	16,422	27,465	--	52,029
Western redcedar:						
Sawtimber	--	--	15,511	--	--	15,511
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	15,511	--	--	15,511

(con.)

Table 8 (con.)

Forest type and stand-size class	Productivity class					Total acres
	165+	120-164	85-119	50-84	20-49	
----- Acres -----						
Whitebark-limber pine:						
Sawtimber	--	--	--	4,167	11,182	15,349
Poletimber	--	--	--	--	2,879	2,879
Sapling and seedling	--	--	3,102	--	5,728	8,830
Nonstocked	--	--	--	--	--	--
Total	--	--	3,102	4,167	19,789	27,058
Grand fir:						
Sawtimber	--	--	7,924	--	--	7,924
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	2,051	--	2,051
Nonstocked	--	--	--	--	--	--
Total	--	--	7,924	2,051	--	9,975
Subalpine fir-spruce:						
Sawtimber	--	--	2,184	20,644	--	22,828
Poletimber	--	--	--	6,100	1,798	7,898
Sapling and seedling	--	--	--	9,466	8,278	17,744
Nonstocked	--	--	3,538	--	--	3,538
Total	--	--	5,722	36,210	10,076	52,008
Engelmann spruce:						
Sawtimber	--	6,558	8,046	4,269	--	18,873
Poletimber	--	2,596	3,827	3,962	--	10,385
Sapling and seedling	--	--	--	5,742	2,183	7,925
Nonstocked	--	--	--	--	--	--
Total	--	9,154	11,873	13,973	2,183	37,183
Aspen:						
Sawtimber	--	4,180	6,863	3,877	--	14,920
Poletimber	--	3,659	5,224	4,141	4,763	17,787
Sapling and seedling	--	--	597	--	6,970	7,567
Nonstocked	--	--	--	2,981	3,278	6,259
Total	--	7,839	12,684	10,999	15,011	46,533
Cottonwood:						
Sawtimber	--	--	3,453	11,251	19,840	34,544
Poletimber	--	--	--	--	3,030	3,030
Sapling and seedling	--	--	--	--	1,428	1,428
Nonstocked	--	--	--	--	3,578	3,578
Total	--	--	3,453	11,251	27,876	42,580
Other hardwoods:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	4,207	--	4,207
Nonstocked	--	--	--	--	--	--
Total	--	--	--	4,207	--	4,207
All types:						
Sawtimber	4,180	40,265	182,255	428,351	244,737	899,788
Poletimber	4,207	24,655	46,473	154,998	115,633	345,966
Sapling and seedling	--	5,747	40,545	131,373	128,450	306,115
Nonstocked	--	--	4,234	9,274	26,741	40,249
Total	8,387	70,667	273,507	723,996	515,561	1,592,118

¹ See footnote 2, Table 3

Table 9.--Area of State and private commercial timberland in western Montana by stand volume and ownership class, 1977

Stand volume per acre	Ownership class			
	State	Forest industry	Private ¹	Total
	- - - - - Acres - - - - -			
Less than 1,500 board feet	102,425	303,610	430,215	836,250
1,500 to 4,999 board feet	172,235	453,422	612,864	1,238,521
5,000 to 9,999 board feet	154,314	419,621	365,119	939,054
10,000 board feet or more	138,554	307,964	183,920	630,438
All classes	567,528	1,484,617	1,592,118	3,644,263

¹See footnote 2, Table 3

Table 10.--Area of State and private commercial timberland in western Montana by forest type and area condition class, 1977

Forest type	Area condition class										All classes
	10	20	30	40	50	60	70	80	90	Nonstocked	
	Acres										
Douglas-fir	1,249	683	82,651	142,381	124,872	514,907	327,020	289,553	287,245	27,479	1,798,040
Western hemlock	--	--	3,827	--	--	4,259	--	--	--	--	8,086
Ponderosa pine	3,563	--	29,838	38,744	13,627	127,780	119,000	49,268	59,635	26,255	467,710
Western white pine	--	--	--	--	3,998	--	--	--	--	--	3,998
Lodgepole pine	6,988	45,493	6,274	130,878	184,066	60,885	42,103	17,027	104,707	5,319	603,740
Western larch	3,344	15,533	10,899	46,485	37,645	13,137	16,987	44,775	14,843	1,909	205,557
Western redcedar	--	--	--	7,160	4,282	4,269	4,423	4,268	8,512	--	32,914
Whitebark-limber pine	--	--	--	1,648	2,320	7,175	5,143	2,913	26,098	1,326	46,623
Grand fir	606	--	10,596	7,078	--	28,240	4,401	11,568	9,957	--	72,446
Subalpine fir-spruce	--	7,183	11,335	28,465	5,055	37,279	22,822	46,025	41,927	3,632	203,723
Engelmann spruce	--	2,913	9,336	2,118	10,896	31,234	--	26,961	5,722	--	89,180
Aspen	--	--	--	--	14,928	14,664	17,470	--	--	7,436	54,498
Cottonwood	--	--	--	1,616	8,885	3,448	31,117	--	4,487	3,975	53,528
Other hardwoods	--	4,220	--	--	--	--	--	--	--	--	4,220
All types	15,750	76,025	164,756	406,573	410,574	847,277	590,486	492,358	563,133	77,331	3,644,263

Table 11.--Area of State and private productive reserved and other forest land in western Montana by land class, ownership class, and forest type, 1977¹

Land Class	Forest type															
	Douglas- fir	Ponderosa pine	Lodgepole pine	Western larch	Whitebark- limber pine	Grand fir	Subalpine fir-spruce	Engelmann spruce	Juniper	Mixed softwoods	Total softwoods	Aspen	Cottonwood	Mixed hardwoods	Total hardwoods	All types
----- Acres -----																
Productive reserved area:																
State	371	55	169	113	--	37	100	26	--	18	889	--	--	13	13	902
Forest industry	404	35	634	31	686	21	19	11	--	12	1,853	--	--	3	3	1,856
Private	2,344	489	624	422	--	91	69	358	--	199	4,596	--	--	325	325	4,921
Total	3,119	579	1,427	566	686	149	188	395	--	229	7,338	--	--	341	341	7,679
Other forest land:																
Reserved:																
State	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Forest industry	--	--	--	--	686	--	--	--	--	--	686	--	--	--	--	--
Private	65	--	--	--	--	--	154	--	--	778	997	--	--	120	120	1,117
Total	65	--	--	--	686	--	154	--	--	778	1,683	--	--	120	120	1,803
Other forest land:																
Nonreserved:																
State	1,644	1,213	885	--	1,513	--	754	--	2,469	2,558	11,036	633	178	726	1,537	12,573
Forest industry	1,273	305	458	--	1,395	--	443	--	467	1,472	5,813	37	--	402	439	6,252
Private	9,619	8,345	4,746	--	6,986	--	1,706	--	15,222	2,500	49,124	7,319	2,569	5,487	15,375	64,409
Total	12,536	9,863	6,089	--	9,894	--	2,903	--	18,158	6,530	65,973	7,989	2,747	6,615	17,351	83,324
Total:																
State	2,015	1,268	1,054	113	1,513	37	854	26	2,469	2,576	11,925	633	178	739	1,550	13,475
Forest industry	1,677	340	1,092	31	2,767	21	462	11	467	1,484	8,352	37	--	405	442	8,794
Private	12,028	8,834	5,370	422	6,986	91	1,929	358	15,222	3,477	54,717	7,319	2,569	5,932	15,820	70,537
Total	15,720	10,442	7,516	566	11,266	149	3,245	395	18,158	7,537	74,994	7,989	2,747	7,076	17,812	92,806

¹ See footnote 2, Table 3

Table 12.--Number of growing stock trees on State and private commercial timberland in western Montana by species and diameter class, 1977

Species	Diameter class (inches at breast height)															29.0+	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	27.0-28.9			
									</								

Table 13.--Number of cull and salvable dead trees on State and private commercial timberland in western Montana by ownership class, and softwoods and hardwoods, 1977¹

Ownership class and species group	Cull trees			Salvable dead trees
	Sound	Rotten	Total	
- - - - - Thousand trees - - - - -				
State:				
Softwoods	1,557	1,163	2,720	9,287
Hardwoods	6	50	56	307
Total	1,563	1,213	2,776	9,594
Forest industry:				
Softwoods	3,341	2,268	5,609	21,124
Hardwoods	120	105	225	23
Total	3,461	2,373	5,834	21,147
Private:				
Softwoods	6,133	1,416	7,549	20,173
Hardwoods	238	619	857	1,422
Total	6,371	2,035	8,406	21,595
Total:				
Softwoods	11,031	4,847	15,878	50,584
Hardwoods	364	774	1,138	1,752
Total	11,395	5,621	17,016	52,336

¹See footnote 2, Table 3

Table 14.--Net volume of growing stock on State and private commercial timberland in western Montana by ownership class, forest type, and stand-size class, 1977¹

Ownership class	Forest type	Stand-size class				All classes
		Sawtimber	Poletimber	Sapling/seedling	Nonstocked	
----- Thousand cubic feet -----						
State:	Douglas-fir	375,437	54,431	21,434	492	451,794
	Western hemlock	--	--	--	--	--
	Ponderosa pine	66,878	4,270	3,529	326	75,003
	Western white pine	--	37	--	--	37
	Lodgepole pine	120,121	119,332	11,321	--	250,774
	Western larch	76,662	7,257	4,226	156	88,301
	Western redcedar	6,906	--	--	--	6,906
	Whitebark-limber pine	11,802	477	377	87	12,743
	Grand fir	30,025	1,210	1,278	--	32,513
	Subalpine fir-spruce	88,495	6,520	4,690	54	99,759
	Engelmann spruce	36,040	2,272	580	--	38,892
	Aspen	1,690	2,571	355	31	4,647
	Cottonwood	6,854	183	31	31	7,099
	Other hardwoods	--	--	5	--	5
	All types	820,910	198,560	47,826	1,177	1,068,473
Forest industry:	Douglas-fir	973,005	105,763	70,482	791	1,150,041
	Western hemlock	--	--	--	--	--
	Ponderosa pine	135,606	5,385	12,836	3,552	157,379
	Western white pine	--	--	--	--	--
	Lodgepole pine	224,536	369,905	22,633	--	617,074
	Western larch	179,024	5,414	23,179	--	207,617
	Western redcedar	68,364	--	--	--	68,364
	Whitebark-limber pine	22,997	702	110	--	23,809
	Grand fir	97,776	--	3,227	--	101,003
	Subalpine fir-spruce	147,147	24,625	13,923	--	185,695
	Engelmann spruce	98,534	7,941	509	--	106,984
	Aspen	45	120	872	3	1,040
	Cottonwood	12,134	--	35	--	12,169
	Other hardwoods	--	--	--	--	--
	All types	1,959,168	519,855	147,806	4,346	2,631,175
Private:	Douglas-fir	744,232	195,998	72,074	841	1,013,145
	Western hemlock	5,801	--	--	--	5,801
	Ponderosa pine	235,766	31,241	14,122	1,448	282,577
	Western white pine	--	4,067	--	--	4,067
	Lodgepole pine	189,601	267,358	26,054	--	483,013
	Western larch	113,199	11,546	3,886	--	128,631
	Western redcedar	23,459	--	--	--	23,459
	Whitebark-limber pine	30,174	2,229	1,951	--	34,354
	Grand fir	13,069	--	461	--	13,530
	Subalpine fir-spruce	60,373	11,078	6,094	2,017	79,562
	Engelmann spruce	46,724	23,186	4,413	--	74,323
	Aspen	31,279	24,532	437	226	56,474
	Cottonwood	44,900	2,345	501	280	48,026
	Other hardwoods	--	--	1,705	--	1,705
	All types	1,538,577	573,580	131,698	4,812	2,248,667
Total:	Douglas-fir	2,092,674	356,192	163,990	2,124	2,614,980
	Western hemlock	5,801	--	--	--	5,801
	Ponderosa pine	438,250	40,896	30,487	5,326	514,959
	Western white pine	--	4,104	--	--	4,104
	Lodgepole pine	534,258	756,595	60,008	--	1,350,861
	Western larch	368,885	24,217	31,291	156	424,549
	Western redcedar	98,729	--	--	--	98,729
	Whitebark-limber pine	64,973	3,408	2,438	87	70,906
	Grand fir	140,870	1,210	4,966	--	147,046
	Subalpine fir-spruce	296,015	42,223	24,707	2,071	365,016
	Engelmann spruce	181,298	33,399	5,502	--	220,199
	Aspen	33,014	27,223	1,664	260	62,161
	Cottonwood	63,888	2,528	567	311	67,294
	Other hardwoods	--	--	1,710	--	1,710
	All types	4,318,655	1,291,995	327,330	10,335	5,948,315

¹See footnote 2, Table 3

Table 15.--Net volume of sawtimber on State and private commercial timberland in western Montana by ownership class, forest type, and stand-size class, 1977¹

Ownership class	Forest type	Stand-size class				All classes
		Sawtimber	Poletimber	Sapling/seedling	Nonstocked	
----- Thousand board feet ² -----						
State:	Douglas-fir	1,627,498	93,590	82,588	1,871	1,805,547
	Western hemlock	--	--	--	--	--
	Ponderosa pine	308,219	9,525	11,332	1,785	330,861
	Western white pine	--	91	--	--	91
	Lodgepole pine	430,718	159,125	19,755	--	609,598
	Western larch	375,517	14,509	11,898	967	402,891
	Western redcedar	33,392	--	--	--	33,392
	Whitebark-limber pine	40,504	733	119	260	41,616
	Grand fir	128,805	2,302	5,826	--	136,933
	Subalpine fir-spruce	395,202	9,207	16,795	290	421,494
	Engelmann spruce	172,627	5,109	2,231	--	179,967
	Aspen	6,224	3,940	774	162	11,100
	Cottonwood	29,109	513	57	122	29,801
	Other hardwoods	--	--	6	--	6
	All types	3,547,815	298,644	151,381	5,457	4,003,297
Forest industry:	Douglas-fir	4,244,123	190,734	261,170	4,317	4,700,344
	Western hemlock	--	--	--	--	--
	Ponderosa pine	649,570	5,516	68,857	19,020	742,963
	Western white pine	--	--	--	--	--
	Lodgepole pine	769,795	435,586	41,548	--	1,246,929
	Western larch	840,241	7,877	105,317	--	953,435
	Western redcedar	313,918	--	--	--	313,918
	Whitebark-limber pine	108,687	1,072	99	--	109,858
	Grand fir	443,083	--	13,425	--	456,508
	Subalpine fir-spruce	686,425	54,711	44,481	--	785,617
	Engelmann spruce	476,427	16,893	1,259	--	494,579
	Aspen	158	253	4,466	17	4,894
	Cottonwood	52,587	--	63	--	52,650
	Other hardwoods	--	--	--	--	--
	All types	8,585,014	712,642	540,685	23,354	9,861,695
Private:	Douglas-fir	2,907,625	334,042	218,440	3,196	3,463,303
	Western hemlock	22,010	--	--	--	22,010
	Ponderosa pine	1,038,151	57,141	50,251	7,713	1,153,256
	Western white pine	--	9,968	--	--	9,968
	Lodgepole pine	670,767	366,153	10,969	--	1,047,889
	Western larch	447,202	21,112	4,843	--	473,157
	Western redcedar	77,576	--	--	--	77,576
	Whitebark-limber pine	108,590	3,903	1,132	--	113,625
	Grand fir	32,405	--	730	--	33,135
	Subalpine fir-spruce	223,376	18,821	16,852	10,885	269,934
	Engelmann spruce	191,402	46,590	17,703	--	255,695
	Aspen	115,707	48,305	2,263	1,180	167,455
	Cottonwood	198,803	6,598	912	1,094	207,407
	Other hardwoods	--	--	1,901	--	1,901
	All types	6,033,614	912,633	325,996	24,068	7,296,311
Total:	Douglas-fir	8,779,246	618,366	562,198	9,384	9,969,194
	Western hemlock	22,010	--	--	--	22,010
	Ponderosa pine	1,995,940	72,182	130,440	28,518	2,227,080
	Western white pine	--	10,059	--	--	10,059
	Lodgepole pine	1,871,280	960,864	72,272	--	2,904,416
	Western larch	1,662,960	43,498	122,058	967	1,829,483
	Western redcedar	424,886	--	--	--	424,886
	Whitebark-limber pine	257,781	5,708	1,350	260	265,099
	Grand fir	604,293	2,302	19,981	--	626,576
	Subalpine fir-spruce	1,305,003	82,739	78,128	11,175	1,477,045
	Engelmann spruce	840,456	68,592	21,193	--	930,241
	Aspen	122,089	52,498	7,503	1,359	183,449
	Cottonwood	280,499	7,111	1,032	1,216	289,858
	Other hardwoods	--	--	1,907	--	1,907
	All types	18,166,443	1,923,919	1,018,062	52,879	21,161,303

¹See footnote 2, Table 3

²International 1/2-inch rule.

Table 16.--Net volume of growing stock on State and private commercial timberland in western Montana by species and diameter class, 1977

Species	Diameter class (inches at breast height)														All classes
	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0+		
----- Thousand cubic feet -----															
Douglas-fir	240,861	299,439	321,368	321,840	244,811	222,198	175,821	114,292	79,869	52,914	36,203	25,028	40,746	2,175,390	
Ponderosa pine	22,446	47,510	66,249	79,083	89,374	75,182	65,905	55,658	50,908	44,061	30,872	20,703	57,758	705,709	
Western white pine	2,064	2,485	3,012	5,405	7,285	2,428	3,513	2,685	454	2,316	820	499	3,636	36,602	
Lodgepole pine	419,806	408,929	266,936	142,745	81,332	32,418	11,938	5,246	1,906	455	178	--	319	1,372,208	
Whitebark-limber pine	9,010	11,870	16,184	11,182	9,621	7,938	5,995	5,925	2,975	1,227	888	272	346	83,433	
Western larch	45,234	68,646	63,198	57,323	63,655	63,810	59,223	50,285	51,229	36,524	34,991	24,346	56,402	674,866	
Grand fir	14,258	18,507	20,963	20,774	19,251	16,267	13,530	8,929	5,972	2,144	1,837	1,474	661	144,567	
Subalpine fir	55,043	40,442	36,377	25,309	11,497	12,915	6,802	3,200	1,381	1,551	290	310	493	195,610	
Engelmann spruce	28,845	24,130	37,841	42,000	41,157	34,460	28,957	19,535	16,905	9,171	9,042	3,820	18,167	314,030	
Western hemlock	2,514	4,160	5,204	1,767	1,761	735	3,822	522	419	--	--	--	--	20,904	
Western redcedar	3,327	3,841	6,292	7,959	4,767	6,449	3,727	3,712	1,739	776	1,326	1,071	4,731	49,717	
Total softwoods	843,408	929,959	843,624	715,387	574,511	474,800	379,233	269,989	213,757	151,139	116,447	77,523	183,259	5,773,036	
Aspen	7,622	12,141	22,416	16,092	6,491	1,772	1,904	1,853	459	741	63	906	458	72,918	
Cottonwood	1,349	3,964	3,159	7,598	7,404	4,764	9,150	7,759	7,737	4,587	3,135	4,341	17,320	82,267	
Other hardwoods	6,633	6,394	3,666	1,115	615	1,109	93	242	--	227	--	--	--	20,094	
Total hardwoods	15,604	22,499	29,241	24,805	14,510	7,645	11,147	9,854	8,196	5,555	3,198	5,247	17,778	175,279	
All species	859,012	952,458	872,865	740,192	589,021	482,445	390,380	279,843	221,953	156,694	119,645	82,770	201,037	5,948,315	

Table 17.--Net volume of sawtimber on State and private commercial timberland in western Montana by species and diameter class, 1977

Species	Diameter class (inches at breast height)												All classes
	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	27.0-28.9	29.0+		
----- Thousand board feet, International 1/4-inch rule-----													
Douglas-fir	1,140,749	1,546,913	1,273,233	1,202,825	973,144	641,430	452,133	301,207	208,168	144,540	237,315	8,121,657	
Ponderosa pine	186,928	349,837	460,348	416,626	380,357	327,741	304,311	265,984	187,291	127,232	377,286	3,383,941	
Western white pine	13,371	29,867	41,122	13,501	19,295	14,736	2,553	13,314	4,760	2,926	21,541	176,986	
Lodgepole pine	1,084,997	828,633	467,525	182,061	65,655	28,533	10,438	2,511	993	--	1,799	2,673,145	
Whitebark-limber pine	65,152	64,285	54,825	44,305	32,701	32,042	16,229	6,755	4,946	1,525	1,940	324,705	
Western larch	280,309	340,748	381,161	382,240	354,571	301,026	311,351	227,121	218,824	151,932	349,229	3,298,512	
Grand fir	76,198	108,341	102,615	86,393	68,706	43,412	27,916	9,943	8,449	6,775	3,050	541,738	
Subalpine fir	139,077	132,263	60,793	68,008	35,798	16,956	7,524	8,621	1,631	1,784	2,854	475,309	
Engelmann spruce	152,980	230,360	223,507	184,728	153,284	102,907	90,446	51,001	51,457	22,484	111,571	1,374,725	
Western hemlock	18,170	8,025	8,958	3,739	20,344	2,807	2,298	--	--	--	--	64,341	
Western redcedar	23,828	39,623	23,718	31,875	18,033	17,743	8,148	3,602	6,124	4,933	21,987	199,614	
Total softwoods	3,181,759	3,678,895	3,097,805	2,616,301	2,121,888	1,529,333	1,233,347	890,059	692,643	464,131	1,128,572	20,634,733	
Aspen	XXXXX	84,280	33,719	8,987	9,503	9,057	2,198	3,521	295	4,265	2,155	157,980	
Cottonwood	XXXXX	38,906	37,615	23,489	44,095	36,249	35,292	20,675	14,071	19,780	81,103	351,275	
Other hardwoods	XXXXX	5,802	3,177	5,642	457	1,171	--	1,066	--	--	--	17,315	
Total hardwoods	XXXXX	128,988	74,511	38,118	54,055	46,477	37,490	25,262	14,366	24,045	83,258	525,570	
All species	3,181,759	3,807,883	3,172,316	2,654,419	2,175,943	1,575,810	1,270,837	915,321	707,009	488,176	1,211,830	21,161,303	

Table 18.--Net volume of growing stock and sawtimber on State and private commercial timberland in western Montana by ownership class and species, 1977¹

Ownership class	Species							
	Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark-limber pine	Western larch	Grand fir	Subalpine fir
								Engelmann spruce
GROWING STOCK								
								Thousand cubic feet
State	367,582	103,210	9,674	254,663	21,225	138,204	23,800	57,325
Forest industry	922,677	287,332	22,138	579,916	24,022	394,774	101,006	84,236
Private	885,131	315,167	4,790	537,629	38,186	141,888	19,761	54,049
Total	2,175,390	705,709	36,602	1,372,208	83,433	674,866	144,567	195,610
								314,030
SAWTIMBER								
								Thousand board feet ²
State	1,452,716	489,922	49,033	569,933	90,997	739,205	88,390	149,150
Forest industry	3,624,845	1,531,945	110,092	913,483	109,668	2,024,755	387,223	212,969
Private	3,044,096	1,362,074	17,861	1,189,729	124,040	534,552	66,185	113,190
Total	8,121,657	3,383,941	176,986	2,673,145	324,705	3,298,512	541,798	475,309
								1,374,725

Table 18 (con.)								
Ownership class	Species							
	Western hemlock	Western redcedar	Total softwoods	Aspen	Cottonwood	Other hardwoods	Total hardwoods	All species
GROWING STOCK								
								Thousand cubic feet
State	459	7,683	1,047,529	5,569	9,747	5,628	20,944	1,068,473
Forest industry	13,346	28,410	2,610,303	7,692	10,137	3,043	20,872	2,631,175
Private	7,099	13,624	2,115,204	59,657	62,383	11,423	133,463	2,248,667
Total	20,904	49,717	5,773,036	72,918	82,267	20,094	175,279	5,948,315
SAWTIMBER								
								Thousand board feet ²
State	1,030	31,933	3,943,432	11,069	40,409	8,387	59,865	4,003,297
Forest industry	41,169	118,995	9,804,135	10,612	40,604	6,344	57,560	9,861,695
Private	22,142	48,686	6,887,166	136,299	270,262	2,584	409,145	7,296,311
Total	64,341	199,614	20,634,733	157,980	351,275	17,315	526,570	21,161,303

¹See footnote 2, Table 3

²International 1/4-inch rule

Table 19.--Net volume of timber on State and private commercial timberland in western Montana by class of timber, and softwoods and hardwoods, 1977

Class of timber	Softwoods	Hardwoods	All classes
<i>- - - - - Thousand cubic feet - - - - -</i>			
Sawtimber trees:			
Saw-log portion	3,547,153	85,549	3,632,702
Upper-stem portion	452,516	22,386	474,902
Total	3,999,669	107,935	4,107,604
Poletimber trees	1,773,367	67,344	1,840,711
All growing stock trees	5,773,036	175,279	5,948,315
Sound cull trees	38,104	1,201	39,305
Rotten cull trees	26,099	2,036	28,135
Salvable dead trees	319,575	7,645	327,220
All timber	6,156,814	186,161	6,342,975

Table 20.--Net volume of growing stock on State and private commercial timberland in western Montana by forest type and species, 1977

Forest type	Species						
	Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark-limber pine	Western larch	Subalpine fir
Douglas-fir	1,840,365	246,555	1,829	214,664	5,667	211,066	15,815
Western hemlock	331	--	--	695	--	350	391
Ponderosa pine	72,967	415,865	--	11,006	189	11,542	555
Western white pine	--	--	812	1,498	--	--	--
Lodgepole pine	96,500	14,973	1,772	1,026,295	2,736	116,197	33,500
Western larch	76,720	18,020	3,840	45,013	--	236,444	12,702
Western redcedar	7,877	930	4,451	1,128	--	17,474	879
Whitebark-limber pine	2,728	--	--	1,873	53,805	--	--
Grand fir	27,903	1,839	16,056	6,084	--	13,399	59,311
Subalpine fir-spruce	34,446	--	5,917	36,670	21,036	36,101	2,844
Engelmann spruce	13,372	1,118	1,086	21,819	--	31,090	118,798
Aspen	1,843	4,490	839	4,248	--	--	7,421
Cottonwood	338	1,919	--	--	--	--	--
Other hardwoods	--	--	--	1,215	--	1,203	202
All types	2,175,390	705,709	36,602	1,372,208	83,433	674,866	144,567
							195,610
							314,030

Table 20 (con.)

Forest type	Species						
	Western hemlock	Western redcedar	Total softwoods	Aspen	Cottonwood	Other hardwoods	Total hardwoods
Douglas-fir	1,284	1,446	2,605,530	3,998	2,796	2,656	9,450
Western hemlock	3,183	--	5,801	--	--	--	--
Ponderosa pine	--	--	512,515	460	1,984	--	2,444
Western white pine	--	--	2,310	--	--	1,794	1,794
Lodgepole pine	320	2,371	1,328,484	17,889	3,835	653	22,377
Western larch	1,991	2,747	417,302	--	1,428	5,819	7,247
Western redcedar	8,569	33,911	96,878	495	1,224	132	1,851
Whitebark-limber pine	860	--	70,906	--	--	--	--
Grand fir	4,697	4,588	143,401	--	1,746	1,899	3,645
Subalpine fir-spruce	--	1,649	363,490	393	1,133	--	1,526
Engelmann spruce	--	2,525	207,079	2,597	6,533	3,990	13,120
Aspen	--	--	11,570	45,896	4,695	--	50,591
Cottonwood	--	480	6,555	931	56,893	2,915	60,739
Other hardwoods	--	--	1,215	259	--	236	495
All types	20,904	49,717	5,773,036	72,918	82,267	20,094	175,279
							5,948,315

Table 21.--Net volume of sawtimber on State and private commercial timberland in western Montana by forest type and species, 1977

Forest type	Species								
	Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark-limber pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce
	Thousand board feet ¹								
Douglas-fir	6,852,907	1,256,460	9,028	522,251	18,146	1,018,236	122,288	33,068	113,427
Western hemlock	1,585	--	--	1,027	--	2,079	2,123	2,079	2,404
Ponderosa pine	231,446	1,881,846	--	41,407	567	57,635	2,930	--	2,119
Western white pine	--	--	4,467	5,592	--	--	--	--	--
Lodgepole pine	331,429	79,791	2,822	1,739,093	8,342	521,153	27,108	63,469	86,587
Western larch	294,824	106,674	20,041	128,540	--	1,159,028	38,523	17,348	41,351
Western redcedar	35,767	4,961	25,027	--	--	85,133	78,652	4,062	21,265
Whitebark-limber pine	9,932	--	--	--	208,370	--	--	15,423	26,163
Grand fir	128,267	11,345	75,346	15,044	--	76,715	234,482	5,628	28,990
Subalpine fir-spruce	159,247	--	32,622	129,634	89,280	197,534	2,907	310,309	540,310
Engelmann spruce	65,256	6,659	6,147	70,358	--	174,312	32,785	23,923	499,685
Aspen	10,015	25,115	1,486	14,912	--	--	--	--	809
Cottonwood	982	11,090	--	--	--	6,687	--	--	11,610
Other hardwoods	--	--	--	1,907	--	--	--	--	--
All types	8,121,657	3,383,941	176,986	2,673,145	324,705	3,298,512	541,798	475,309	1,374,725

Table 21 (con.)

Forest type	Species						
	Western hemlock	Western redcedar	Total softwoods	Aspen	Cottonwood	Other hardwoods	Total hardwoods
	Thousand board feet ¹						
Douglas-fir	4,840	4,086	9,954,737	--	12,726	1,731	14,457
Western hemlock	10,713	--	22,010	--	--	--	--
Ponderosa pine	--	--	2,217,950	655	8,475	--	9,130
Western white pine	--	--	10,059	--	--	--	--
Lodgepole pine	--	5,510	2,865,304	28,366	10,746	--	39,112
Western larch	4,998	10,168	1,821,495	--	7,132	856	7,988
Western redcedar	19,021	142,048	415,936	2,622	5,640	688	8,950
Whitebark-limber pine	1,826	--	265,099	--	--	--	--
Grand fir	22,943	17,092	615,852	--	6,319	4,405	10,724
Subalpine fir-spruce	--	7,942	1,469,785	1,934	5,326	--	7,260
Engelmann spruce	--	10,918	890,043	12,903	25,214	2,081	40,198
Aspen	--	--	52,337	109,608	21,504	--	131,112
Cottonwood	--	1,850	32,219	1,892	248,193	7,554	257,639
Other hardwoods	--	--	1,907	--	--	--	--
All types	64,341	199,614	20,634,733	157,980	351,275	17,315	526,570
							21,161,303

¹ International 1/4-inch rule

Table 22.--Net annual growth of growing stock and sawtimber on State and private commercial timberland in western Montana by ownership class and species, 1976¹

Ownership class	Species								
	Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark-limber pine	Western larch	Grand fir	Subalpine fir	Engelmann Spruce
GROWING STOCK									
	Thousand cubic feet								
State	7,330	1,993	155	6,798	116	2,389	562	1,007	1,005
Forest industry	16,652	4,209	527	14,302	196	4,886	2,079	2,951	1,883
Private	21,812	7,068	367	15,813	583	3,593	325	2,057	2,921
Total	45,794	13,270	1,049	36,913	895	10,868	2,966	6,015	5,809
SAWTIMBER ²									
	Thousand board feet								
State	30,640	10,696	698	13,491	458	8,882	2,104	3,355	3,896
Forest industry	71,124	25,311	2,728	30,400	984	14,671	7,963	3,716	9,435
Private	84,645	37,078	656	38,448	2,497	16,487	2,404	3,820	8,470
Total	186,409	73,085	4,082	82,339	3,939	40,040	12,471	10,891	21,801

Table 22 (con.)

	Species					
	Western hemlock	Western redcedar	Total softwoods	Aspen	Cottonwood	All species
GROWING STOCK						
	Thousand cubic feet					
State	56	165	21,576	114	227	22,282
Forest industry	587	658	48,930	212	207	49,433
Private	424	346	55,309	1,057	1,350	58,218
Total	1,067	1,169	125,815	1,383	1,784	129,933
SAWTIMBER ²						
	Thousand board feet					
State	41	708	74,969	536	788	77,090
Forest industry	967	1,360	168,659	313	488	169,560
Private	2,526	2,991	200,022	7,502	7,348	214,976
Total	3,534	5,059	443,650	8,351	8,624	461,626

¹ See footnote 2, Table 3

² International 1/4-inch rule

Table 23.--Annual mortality of growing stock and sawtimber on State and private commercial timberland in western Montana by ownership class, and softwoods and hardwoods, 1976¹

Species group and ownership class	Growing stock	Sawtimber
	<i>Thousand cubic feet</i>	<i>Thousand² board feet</i>
Softwoods:		
State	4,751	15,031
Forest industry	15,337	50,174
Private	7,932	22,496
Total	28,020	87,701
Hardwoods:		
State	70	230
Forest industry	5	14
Private	588	1,774
Total	663	2,018
Total	28,683	89,719

¹See footnote 2, Table 3

²International 1/4-inch rule

Table 24.--Annual mortality of growing stock and sawtimber on State and private commercial timberland in western Montana by cause of death and species, 1976

Cause of death	Species												Total hardwoods	All species
	Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark- limber pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce	Western redcedar	Total Softwoods	Cottonwood		
GROWING STOCK														
	Thousand Cubic feet													
Insects	1,015	1,158	--	1,746	--	365	97	111	145	--	4,637	--	--	4,637
Disease	1,077	--	218	560	41	565	1,241	731	78	69	4,580	66	--	4,646
Fire	512	56	--	204	--	93	--	41	--	--	906	--	32	938
Animal	34	--	--	158	--	--	--	--	--	--	192	--	--	192
Weather	1,871	74	--	1,111	60	604	150	182	1,165	--	5,217	139	--	5,356
Suppression	79	8	--	329	--	--	--	--	--	--	416	--	--	416
Unknown	2,160	667	78	4,292	101	539	302	886	429	103	9,557	268	158	9,983
Logging	1,347	86	29	262	--	47	89	--	655	--	2,515	--	--	2,515
Total	8,095	2,049	325	8,662	202	2,213	1,879	1,951	2,472	172	28,020	473	190	28,683
SAWTIMBER														
	Thousand board feet, International 1/4-inch rule													
Insects	2,772	5,314	--	4,705	--	1,750	--	--	563	--	15,104	--	--	15,104
Disease	3,705	--	659	1,309	227	3,421	5,992	3,113	423	348	19,197	322	--	19,519
Fire	573	177	--	--	--	557	--	--	--	--	1,307	--	150	1,457
Animal	194	--	--	711	--	--	--	--	--	--	905	--	--	905
Weather	8,585	201	--	3,092	265	3,141	558	441	6,095	--	22,378	376	--	22,754
Suppression	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Unknown	8,114	2,709	424	5,871	163	1,972	1,234	2,289	1,905	507	25,188	568	602	26,358
Logging	1,381	180	158	389	--	--	455	--	1,059	--	3,622	--	--	3,622
Total	25,324	8,581	1,241	16,077	655	10,841	8,239	5,843	10,045	855	87,701	1,266	752	89,719

THE HISTORY OF THE CITY OF BOSTON

CHAPTER I.	
1630	First settlement of the city.
1631	First church established.
1632	First school opened.
1633	First public house.
1634	First printing press.
1635	First hospital.
1636	First library.
1637	First theatre.
1638	First university.
1639	First academy.
1640	First college.
1641	First seminary.
1642	First divinity school.
1643	First law school.
1644	First medical school.
1645	First engineering school.
1646	First agricultural school.
1647	First commercial school.
1648	First naval school.
1649	First military school.
1650	First scientific school.
1651	First literary school.
1652	First artistic school.
1653	First musical school.
1654	First dramatic school.
1655	First dancing school.
1656	First fencing school.
1657	First riding school.
1658	First boxing school.
1659	First wrestling school.
1660	First juggling school.
1661	First acrobatic school.
1662	First gymnastic school.
1663	First athletic school.
1664	First equestrian school.
1665	First archery school.
1666	First fencing school.
1667	First shooting school.
1668	First fishing school.
1669	First hunting school.
1670	First sports school.
1671	First games school.
1672	First pastimes school.
1673	First recreations school.
1674	First amusements school.
1675	First diversions school.
1676	First entertainments school.
1677	First pleasures school.
1678	First enjoyments school.
1679	First delights school.
1680	First pleasures school.
1681	First enjoyments school.
1682	First delights school.
1683	First pleasures school.
1684	First enjoyments school.
1685	First delights school.
1686	First pleasures school.
1687	First enjoyments school.
1688	First delights school.
1689	First pleasures school.
1690	First enjoyments school.
1691	First delights school.
1692	First pleasures school.
1693	First enjoyments school.
1694	First delights school.
1695	First pleasures school.
1696	First enjoyments school.
1697	First delights school.
1698	First pleasures school.
1699	First enjoyments school.
1700	First delights school.

COUNTY TABLES

Table 25.--Area of State and private commercial timberland in western Montana by county and ownership class, 1977¹

County	Ownership class			
	State	Forest industry	Private	Total
	- - - - - Acres - - - - -			
Beaverhead	23,130	966	46,142	70,238
Broadwater	2,605	2,896	54,646	60,147
Deer Lodge	21,468	1,446	50,475	73,389
Flathead	117,435	273,242	195,068	585,745
Granite	9,343	37,759	93,963	141,065
Jefferson	6,602	931	82,635	90,168
Lake	53,826	63,699	55,061	172,586
Lewis and Clark	50,089	18,207	243,412	311,708
Lincoln	57,644	304,587	123,090	485,321
Madison	10,507	43,322	67,768	121,597
Mineral	21,341	53,727	33,076	108,144
Missoula	79,356	407,710	151,406	638,472
Powell	29,415	81,198	157,695	268,308
Ravalli	25,149	16,856	94,889	136,894
Sanders	50,557	177,879	108,665	337,101
Silver Bow	9,061	192	34,127	43,380
All counties	567,528	1,484,617	1,592,118	3,644,263

¹See footnote 2, Table 3

Table 26.--Net volume of growing stock and sawtimber on State and private commercial timberland in western Montana by county and ownership class, 1977¹

County	Ownership class									
	State		Forest industry				Private		Total	
	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²
Beaverhead	40,813	131,259	2,094	6,625	79,492	258,766	122,399	396,650		
Broadwater	2,735	9,018	2,550	7,624	46,483	148,664	51,768	165,306		
Deer Lodge	39,282	117,115	2,693	9,102	89,915	285,803	131,890	412,020		
Flathead	267,587	1,094,000	580,113	2,290,088	275,549	783,960	1,123,249	4,168,048		
Granite	18,926	64,713	71,566	246,713	143,887	459,047	234,379	770,473		
Jefferson	6,765	22,088	745	2,512	91,312	289,728	98,822	314,528		
Lake	112,226	484,782	93,939	336,292	76,198	274,807	282,363	1,095,881		
Lewis and Clark	59,873	193,156	34,623	128,203	273,894	858,050	368,390	1,179,409		
Lincoln	118,913	453,479	572,832	2,251,667	165,960	478,637	857,705	3,183,783		
Madison	18,901	57,020	84,277	276,914	109,650	345,597	212,828	679,531		
Mineral	36,919	141,879	92,378	350,810	57,859	187,371	187,156	680,060		
Missoula	136,285	513,088	645,002	2,316,523	244,031	832,298	1,025,318	3,661,909		
Powell	57,496	190,917	148,060	526,851	254,983	813,485	460,539	1,531,253		
Ravalli	40,681	161,831	26,126	106,789	122,151	518,735	188,958	787,355		
Sanders	94,739	317,863	273,937	1,004,406	157,922	576,419	526,598	1,898,688		
Silver Bow	16,332	51,089	240	576	59,381	184,944	75,953	236,609		
All counties	1,068,473	4,003,297	2,631,175	9,861,695	2,248,667	7,296,311	5,948,315	21,161,303		

¹See footnote 2, Table 3

²International 1/4-inch rule

Table 27.--Net annual growth of growing stock and sawtimber on State and private commercial timberland in western Montana by county and ownership class, 1976¹

County	Ownership class									
	State		Forest industry				Private		Total	
	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²
Beaverhead	1,011	2,680	51	108	1,930	5,756	1,930	5,756	2,992	8,544
Broadwater	59	220	51	229	964	4,124	964	4,124	1,074	4,573
Deerlodge	1,060	2,459	62	164	2,247	5,783	2,247	5,783	3,369	8,406
Flathead	5,092	19,153	12,201	39,311	8,256	32,552	8,256	32,552	25,549	91,016
Granite	307	1,278	973	4,729	3,281	10,186	3,281	10,186	4,561	16,193
Jefferson	143	566	22	64	1,903	7,424	1,903	7,424	2,068	8,054
Lake	2,306	8,309	1,678	6,610	2,579	10,385	2,579	10,385	6,563	25,304
Lewis and Clark	1,137	4,840	378	2,081	5,708	21,741	5,708	21,741	7,223	28,662
Lincoln	2,831	10,326	12,627	39,875	5,203	20,420	5,203	20,420	20,661	70,621
Madison	487	1,119	2,002	4,939	2,732	7,781	2,732	7,781	5,221	13,839
Mineral	621	2,258	1,334	5,087	1,404	5,618	1,404	5,618	3,359	12,963
Missoula	2,330	8,847	10,280	35,946	5,830	24,321	5,830	24,321	18,440	69,114
Powell	1,018	4,005	1,901	9,698	5,725	17,922	5,725	17,922	8,644	31,625
Ravalli	695	2,713	810	2,777	3,601	15,218	3,601	15,218	5,106	20,708
Sanders	2,766	7,289	5,055	17,923	5,310	21,619	5,310	21,619	13,131	46,831
Silver Bow	419	1,028	8	19	1,545	4,126	1,545	4,126	1,972	5,173
All counties	22,282	77,090	49,433	169,560	58,218	214,976	58,218	214,976	129,933	461,626

¹See footnote 2, Table 3

²International 1/4-inch rule

Table 28.--Annual mortality of growing stock and sawtimber on State and private commercial timberland in western Montana by county and ownership class, 1976¹

County	Ownership class							
	State		Forest industry				Private	
	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²	Thousand cubic feet	Thousand board feet ²
Beaverhead	99	250	6	13	197	525	302	788
Broadwater	6	11	5	5	84	134	95	150
Deer Lodge	108	202	5	17	203	518	316	737
Flathead	1268	4,580	2,964	9,907	1,428	3,415	5,660	17,902
Granite	58	183	425	1,545	498	1,695	981	3,423
Jefferson	12	22	1	2	167	304	180	328
Lake	516	2,235	464	1,222	282	697	1,262	4,154
Lewis and Clark	123	288	237	813	561	1,444	921	2,545
Lincoln	462	1,436	2,613	8,369	840	2,023	3,915	11,828
Madison	55	106	186	521	267	625	508	1,252
Mineral	266	615	760	2,528	399	1,351	1,425	4,494
Missoula	1,082	2,851	5,348	17,908	1,636	5,683	8,066	26,442
Powell	188	574	952	3,231	894	3,005	2,034	6,810
Ravalli	296	699	96	288	329	1,012	721	1,999
Sanders	245	1,116	1,279	3,818	595	1,512	2,119	6,446
Silver Bow	37	93	1	1	140	327	178	421
All Counties	4,821	15,261	15,342	50,188	8,520	24,270	28,683	89,719

¹See footnote 2, Table 3

²International 1/4-inch rule

Table 29.--Annual removals from growing stock and sawtimber on State and private commercial timberland in western Montana by county and ownership class, 1976¹

County	Ownership class							
	State		Forest industry		Private		Total	
	Thousand cubic feet	Thousand board feet	Thousand cubic feet	Thousand board feet	Thousand cubic feet	Thousand board feet	Thousand cubic feet	Thousand board feet
Beaverhead	0	0	55	350	1,339	8,583	1,394	8,933
Broadwater	0	0	117	749	403	2,581	520	3,330
Deer Lodge	0	0	0	0	1,014	6,500	1,014	6,500
Flathead	1,721	11,031	16,059	102,942	7,253	46,499	25,033	160,472
Granite	0	0	3,422	21,937	881	5,649	4,303	27,586
Jefferson	0	0	351	2,249	1,527	9,786	1,878	12,035
Lake	673	4,316	2,230	14,292	3,408	21,844	6,311	40,452
Lewis and Clark	0	0	1,411	9,045	3,478	22,293	4,889	31,338
Lincoln	412	2,641	20,526	131,575	1,216	7,794	22,154	142,010
Madison	0	0	0	0	107	683	107	683
Mineral	82	529	2,822	18,090	805	5,163	3,709	23,782
Missoula	307	1,971	16,098	103,192	6,787	43,509	23,192	148,672
Powell	55	352	2,003	12,843	4,132	26,487	6,190	39,682
Ravalli	0	0	257	1,649	1,479	9,481	1,736	11,130
Sanders	16	101	12,605	80,804	9,939	63,709	22,560	144,614
Silver Bow	0	0	--	--	575	3,684	575	3,684
Total removals	3,266	20,941	77,956	499,717	44,343	284,245	125,565	804,903

¹ See footnote 2, Table 3

² International 4-inch rule

1000 copies of this public document were published at an estimated cost of \$1.50 per copy, for a total cost of \$1,500.00, which includes \$1,500.00 for printing and \$.00 for distribution.