METRIC UNITS

U.S. Forest Facts and Historical Trends

http://fia.fs.fed.us

U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE

Note on Terminology

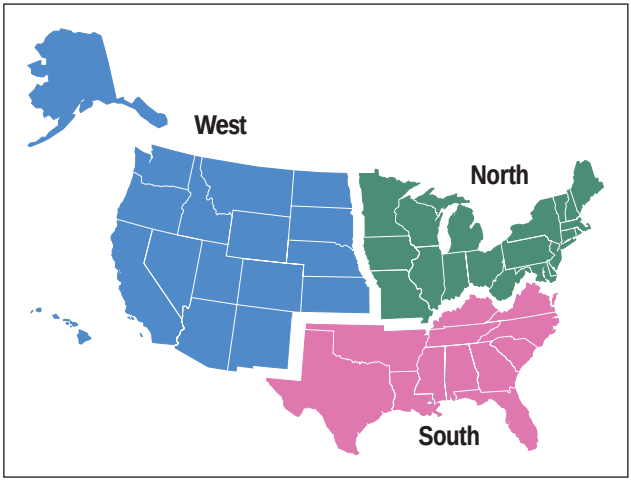
There are some general differences in terminology that are important to note before using the information in this report for international comparative purposes.

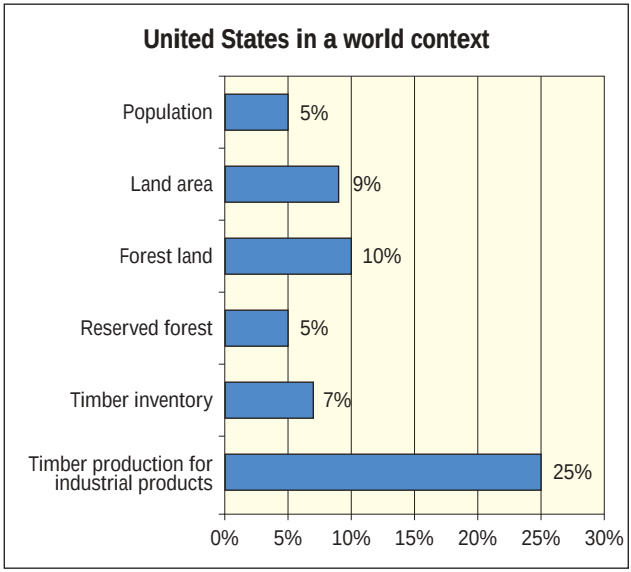
U.S. Term	International Term	Comparison
Forest = Timber land + reserved forest + other forest	Forest = Available forest + unavailable forest (reserved)	U.S. data includes international other wooded land as part of this category. *(see Other forest land below)*
Timber land	Available forest land	Same
Reserved forest	Unavailable forest land (reserved)	Same
Other forest land	Other wooded land	U.S. data includes this category as a subdivision of forest land on the basis of productivity of less than 1.4 m^3/ha/yr (20cf/ac/yr).
Growing stock = Volume of all sound trees of good form larger than 12.7 cm dbh from 0.3 m stump to top at 10 cm diameter outside bark.	Growing stock = Volume of all sound live trees from 0.3 m stump to tip of the central stem.	*U.S. data includes:* 1) Volume in live sound trees of good form larger than 12.7 cm (5 in) dbh to a 10-cm (4-in) top diameter outside bark. *U.S. data does not include:* 1) Volume of live sound trees of poor form (these cull trees account for about 6% of the current total live tree volume.) 2) Volume above 10-cm (4-in) bole top to stem tip for all live trees, or volume of live trees less than 12.7 cm (5 in) dbh.

The data presented in this brochure have been derived through a "soft" conversion of the information presented in the English unit version of the brochure (USDA, FS-696). This method converts each table cell separately and provides the most consistent comparsion between the English and metric versions of reports. The reader is cautioned that although this method allows the value of a given table cell to round to zero, the actual value of that cell is still accounted for in the row and column totals.

Introduction

The 2000 Renewable Resources Planning Act Assessment (2000 RPA Assessment) is the fourth assessment prepared in response to the mandate in the Forest and Rangeland Renewable Resources Planning Act of 1974, P.L. 93-378, 88 Stat. 475, as amended (RPA). The 2000 RPA Assessment consists of a summary report and supporting documents (available at http://www.fs.fed.us/pl/rpa/list.htm). Renewable resources in this assessment include outdoor recreation, fish and wildlife, wilderness, timber, water, range, and minerals. In addition, and for the first time, there is an assessment of the urban forest resource. Data presented in this brochure highlight the findings of the 2000 RPA Assessment regarding forest resource statistics: reserved forest land, timber land, forest landownership, forest composition, mortality, growth and removals, tree planting, products made from timber, and urban influences on forest land area. Regional data are reported geographically as North, South, and West.





Forest Inventory

Various attributes of the forest resource are inventoried by the U.S. Department of Agriculture Forest Service (USDA Forest Service) Forest Inventory and Analysis (FIA) Program and reported in the RPA Assessment and various supporting documents. To provide timely, scientifically reliable estimates of the status, condition, and trends of the Nation's forests, the FIA has conducted field inventories for more than 70 years using state-of-the-art technology. These inventories have provided critical information in the development and implementation of policies and practices that support sustainable forestry in the United States. Seven national reports based on FIA data have been produced since 1953.

Extensive field measurement from FIA inventories include over:

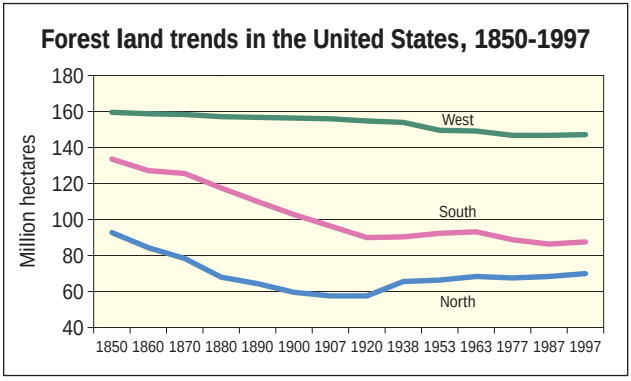
- 4.5 million remote sensing plots interpreted for land use
- 125,000 permanent field plots systematically located across all forest lands in the United States
- 100 characteristics measured at each plot location
- 1.5 million trees measured to evaluate volume, condition, and vigor

Additional information about FIA may be found at http://fia.fs.fed.us.

Land and Forest Area

It is estimated that—at the beginning of European settlement—in 1630 the area of forest land that would become the United States was 423 million hectares or about 46 percent of the total land area. By 1907, the area of forest land had declined to an estimated 307 million hectares or 34 percent of the total land area. Forest area has been relatively stable since 1907. In 1997, 302 million hectares—or 33 percent of the total land area of the United States—was in forest land. Today's forest land area amounts to about 70 percent of the area that was forested in 1630. Since 1630, about 120 million hectares of forest land have been converted to other uses—mainly agricultural. More than 75 percent of the net conversion to other uses occurred in the 19th century.

Stability, however, does not mean that there has been no change in forest land area. There have been shifts from agriculture to forests and vice versa. Some forest land has been converted to more intensive uses, such as urban uses. Even on areas where forest land has remained stable, there have been changes as forests respond to human manipulation, aging, and other natural processes. The effects of these changes are reflected in the information presented in this brochure.



Land and forest area trends in the United States[1]

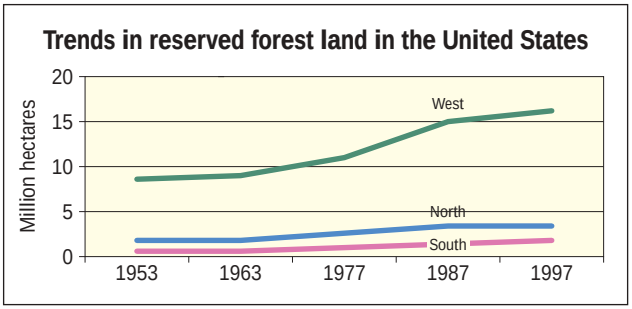
Category	Year	U.S.	Region		
			North	South	West
		Million hectares			
Land	1997	916	167	216	532
Of which:					
Forest	1997	302	69	87	147
	1987	299	67	85	147
	1977	301	66	88	147
	1963	308	67	92	149
	1953	306	65	91	149
	1938	307	64	90	154
	1907	307	56	95	156
	1630	423	120	143	159
Of which:					
Timber land	1997	204	65	81	58
	1987	197	62	80	54
	1977	199	62	81	56
	1963	208	63	84	61
	1953	206	62	83	61
Reserved forest	1997	21	3	2	16
	1987	19	3	1	15
	1977	14	2	1	11
	1963	11	2	1	9
	1953	11	1	1	8
Other forest	1997	77	1	4	72
	1987	83	1	4	77
	1977	87	2	6	79
	1963	89	2	7	79
	1953	90	1	8	80

Reserved Forest Land

Reserved forest land has doubled since 1953 and now stands at 7 percent of all forest land in the United States. This reserved forest area includes State and Federal parks and wilderness areas but does not include conservation easements, areas protected by nongovernmental organizations, and most urban and community parks and reserves. Significant additions to Federal forest reserves occurred after the passage of the Wilderness Act in 1964.

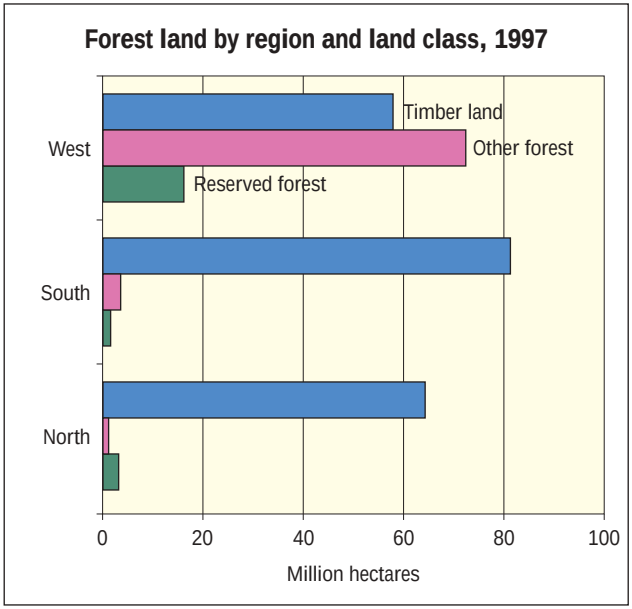
[1]In addition to the land area of the United States at that time, estimates for 1938 include forest area in the regions that would become the States of Alaska and Hawaii. Estimates for 1907 also include forest area in the regions that would become the States of Alaska, Arizona, Hawaii, and New Mexico. Estimates for 1630 represent the forest area in North America for regions that would become the 50 States within the current United States. Source for 1938: U.S. Congress (1941). Source for 1907 and 1630: R.S. Kellogg (1909).

While forest reserves are common in most western forest types, comprising 11 percent of their total forest area, only 3 percent of eastern forests are in reserves such as parks and wilderness.



Timber Land and Other Forest Land

Timber land is fairly evenly distributed among the three major regions of the United States. Other forest land, such as slow-growing forests of spruce in interior Alaska and pinyon-juniper in the interior West, dominate many western landscapes and comprise more than one-fourth of all U.S. forest land.



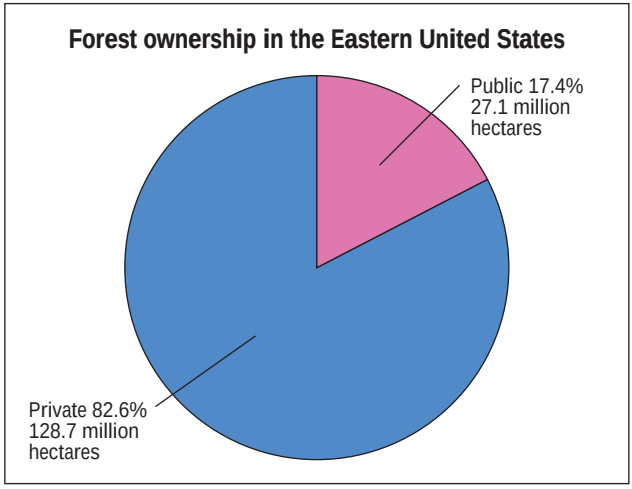
Ownership of Forest Land

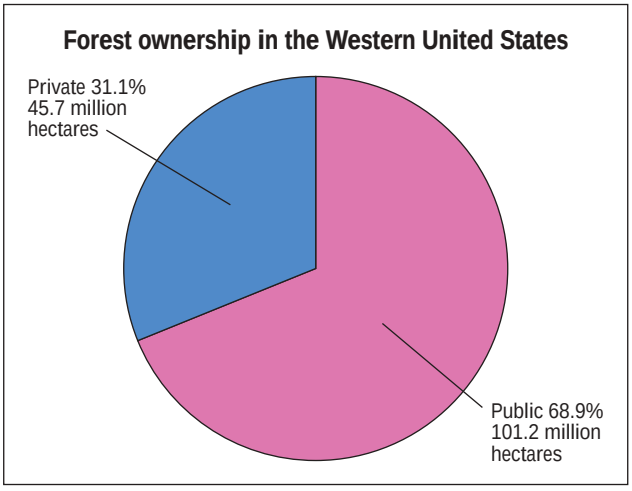
Ownership of forest land by region and land class, 1997

Owner class/ land class	U.S.	Region		
		North	South	West
	Million hectares			
National forest	**59**	**5**	**5**	**50**
Timber land	*39*	*4*	*4*	*31*
Reserved forest	*11*	*1*	*0*	*10*
Other forest	*9*	*0*	*0*	*9*
Other public	**69**	**12**	**5**	**51**
Timber land	*20*	*9*	*4*	*7*
Reserved forest	*9*	*3*	*1*	*6*
Other forest	*39*	*0*	*0*	*38*
Forest industry	**27**	**6**	**15**	**6**
Timber land	*27*	*6*	*15*	*6*
Reserved forest	*0*	*0*	*0*	*-*
Other forest	*0*	*0*	*0*	*0*
Other private	**147**	**46**	**61**	**39**
Timber land	*118*	*45*	*58*	*14*
Reserved forest	*0*	*0*	*0*	*0*
Other forest	*29*	*1*	*3*	*25*
All owners	**302**	**69**	**87**	**147**
Timber land	*204*	*65*	*81*	*58*
Reserved forest	*21*	*3*	*2*	*16*
Other forest	*77*	*1*	*4*	*73*

East vs. West

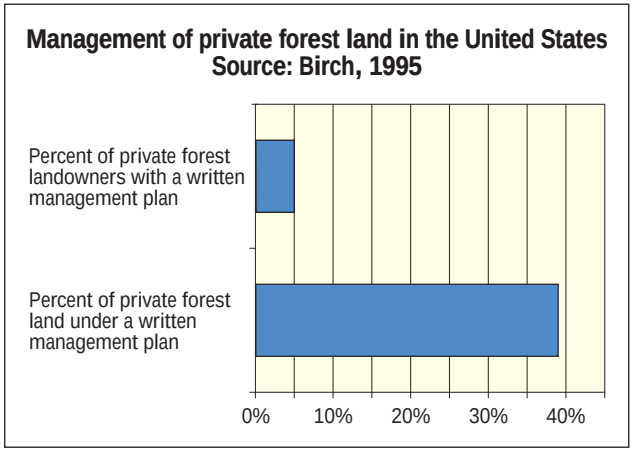
The ownership of forest land in the United States varies from East to West. While private forest land predominates in the East, public ownership is predominant in the West.





Public vs. Private Management Activity

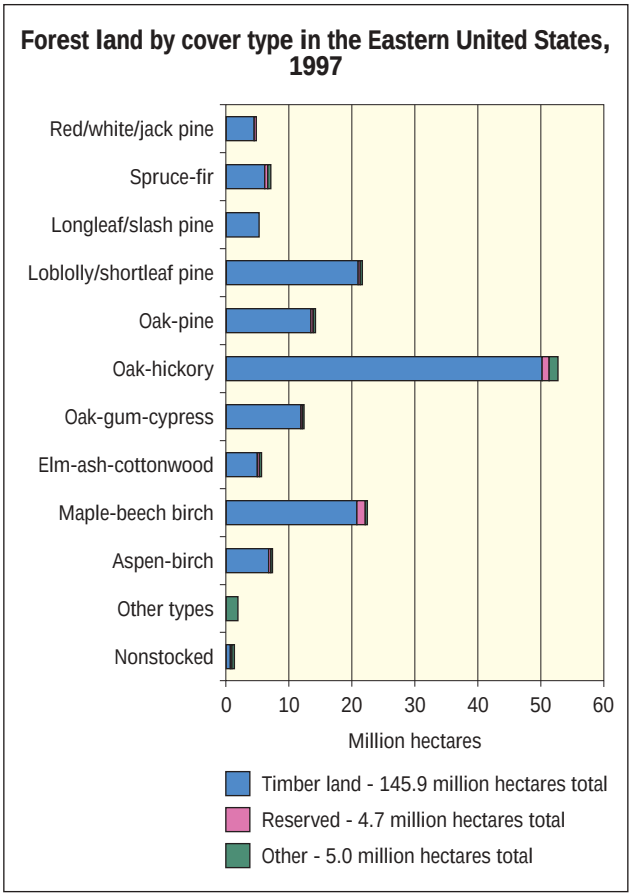
As timber production shifts from public to private land, there is an increasing need to have information on the management objectives of the private forest landowners. This information is critical to policies promoting sustainable forestry in the United States. Recent studies have shown that only 5 percent of the private forest landowners in the United States have a written management plan. However, these plans cover 39 percent of the private forest area in the United States. Private forests provided 89 percent of the Nation's timber harvest in 1996.

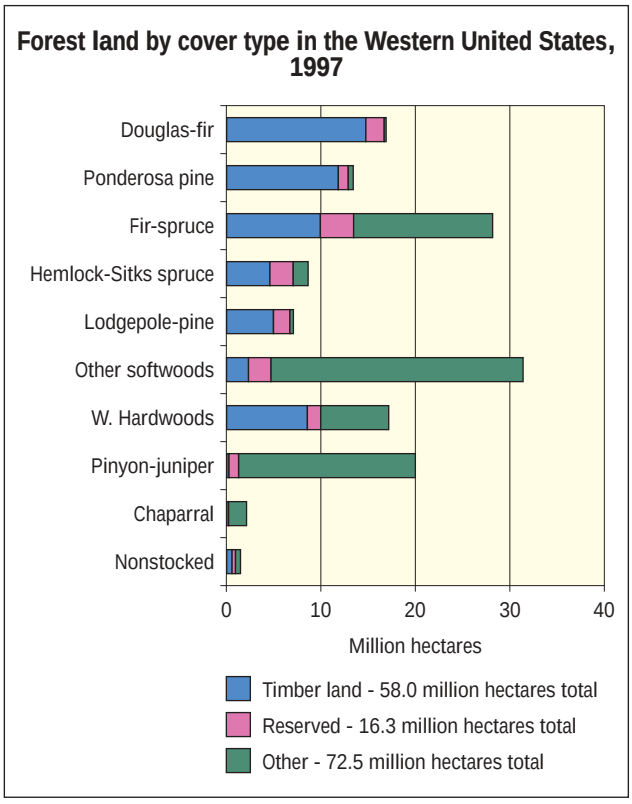


Forest Composition

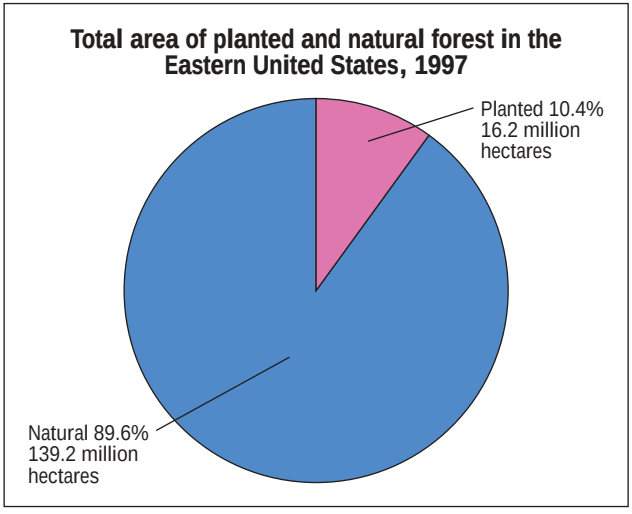
Forest Type and Stand Origin

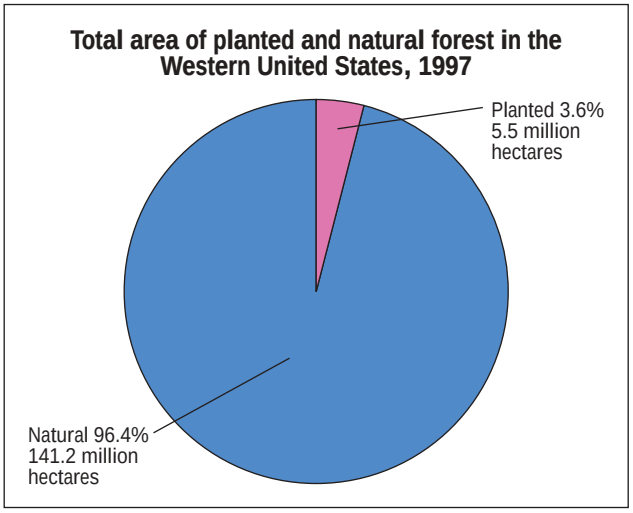
The forests of the United States are very diverse in composition and distribution—from the oak-hickory and maple-beech-birch forests that dominate the North to the expansive pine forests of the South to the majestic Douglas-fir and ponderosa pine forests of the West.





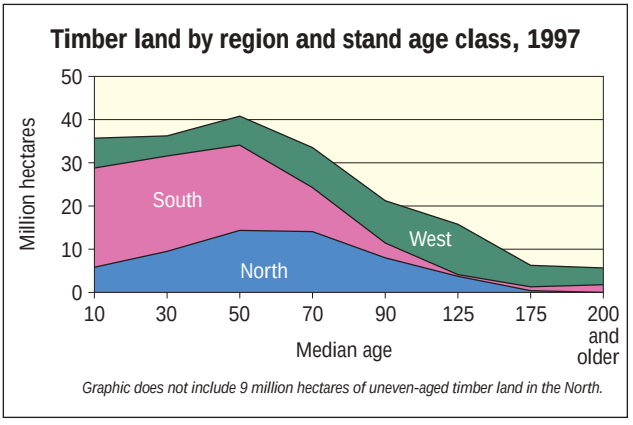
U.S. forests are predominantly natural stands of native species. Planted forest land is most common in the East and heavily comprised of planted stands of native pine in the South.





Stand Age and Average Annual Harvest Area

After intensive logging in the late 19th century and early to mid 20th century, 55 percent of the forests on the Nation' s timber land is less than 50 years old. Six percent of the Nation's timber land is more than 175 years old. *[Large areas of old forest are in designated reserves and are not depicted in the timber land graphic shown.*]



Trends in Growing Stock Volume, Mortality, Growth, and Removals

Growing stock inventory, growth, removals, and mortality on timber land by region and species group in the United States, 1953-1997

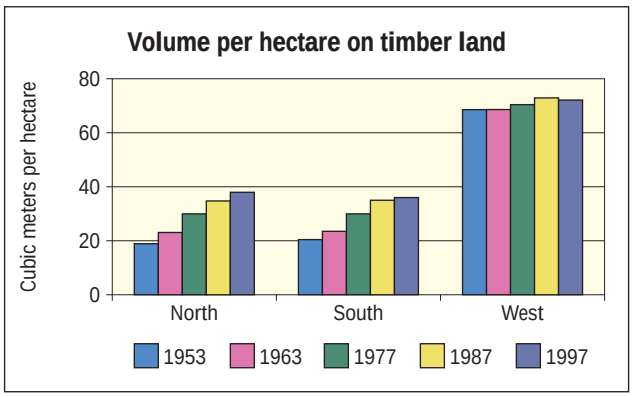
Volume category	Year	U.S.	Region		
			North	South	West
All species		*Million cubic meters*			
Inventory	1997	23,650	6,063	7,255	10,331
	1987	22,121	5,378	6,923	9,819
	1977	20,745	4,613	6,321	9,811
	1963	18,836	3,631	4,926	10,280
	1953	17,430	2,936	4,202	10,292
Growth	1996	666	153	303	210
	1986	641	156	283	202
	1976	621	151	320	149
	1962	473	125	229	119
	1952	394	105	189	99
Removals	1996	453	78	288	87
	1986	452	77	232	143
	1976	402	71	189	142
	1962	338	59	156	123
	1952	336	60	161	115
Mortality	1996	179	46	63	70
	1986	131	35	47	49
	1976	116	33	36	47
	1962	123	27	33	63
	1952	111	20	28	63
Softwoods					
Inventory	1997	13,693	1,397	2,967	9,329
	1987	13,232	1,348	2,989	8,896
	1977	13,215	1,241	2,864	9,110
	1963	12,728	953	2,125	9,651
	1953	12,220	766	1,711	9,743
Growth	1996	379	33	167	179
	1986	368	36	156	176
	1976	354	44	179	131
	1962	272	34	133	105
	1952	219	28	103	88
Removals	1996	285	19	183	83
	1986	310	21	150	139
	1976	283	20	126	138
	1962	216	15	80	121
	1952	220	18	88	114
Mortality	1996	103	13	29	60
	1986	79	10	24	45
	1976	70	9	18	43
	1962	78	8	11	59
	1952	75	6	9	60

Growing stock inventory, growth, removals, and mortality on timber land by region and species group in the United States, 1953-1997 *(continued)*

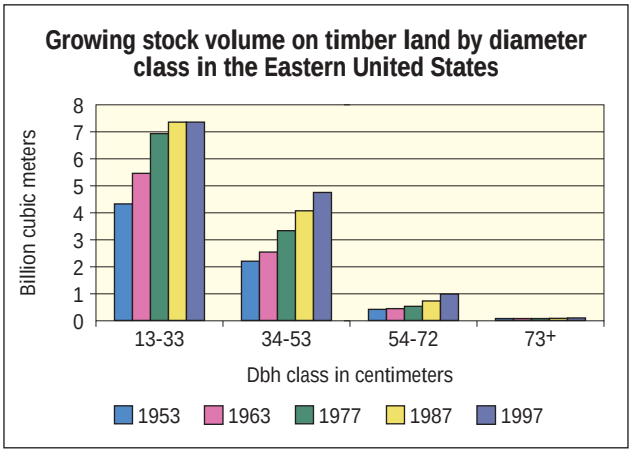
Volume category	Year	U.S.	Region		
			North	South	West
Hardwoods		*Million cubic meters*			
Inventory	1997	9,956	4,666	4,288	1,003
	1987	8,888	4,030	3,934	924
	1977	7,531	3,372	3,457	701
	1963	6,108	2,678	2,801	629
	1953	5,210	2,170	2,491	549
Growth	1996	287	120	136	31
	1986	272	120	127	26
	1976	267	107	142	18
	1962	201	91	96	14
	1952	175	78	86	11
Removals	1996	169	60	105	4
	1986	142	56	82	4
	1976	119	51	63	4
	1962	123	44	77	2
	1952	116	42	73	1
Mortality	1996	76	33	34	9
	1986	53	25	24	4
	1976	46	23	18	4
	1962	44	18	22	4
	1952	35	13	18	4

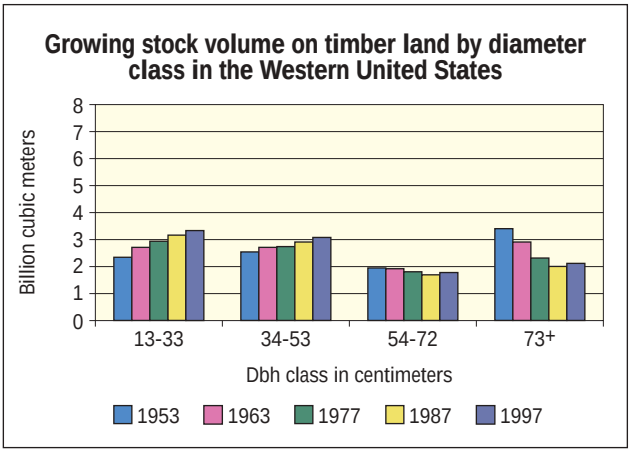
Growing Stock Volume

Average growing stock volume per hectare on timber land continues to rise across the United States. The rate of increase has leveled off, partially due to recent increases in mortality.



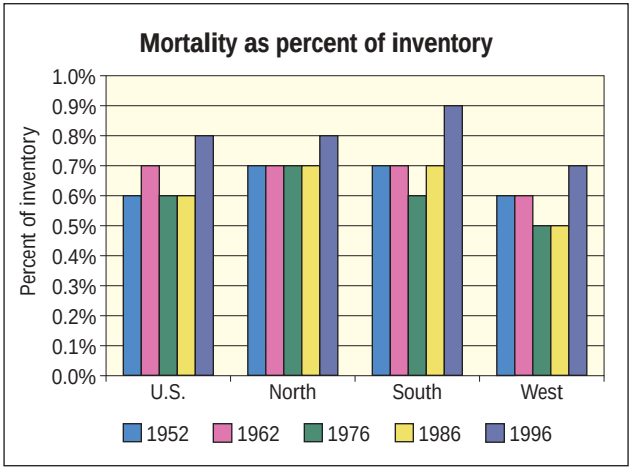
The average volume, and thus number of trees, on timber land in the United States continues to increase in most diameter classes. A slight decline in the 12.7- to 33-centimeter class in the East is expected to stabilize as trees planted on millions of Conservation Reserve Program hectares in the South reach this size. The decline in the 73+ centimeter class on timber land in the West is, in part, due to setting aside timber land into legal reserves in the 1970's. Although they are not harvested, these set-asides "remove" the trees from the timber land base. Recent increases in larger trees are due to policy shifts in the West that have curtailed harvesting of stands with larger trees.





Tree Mortality

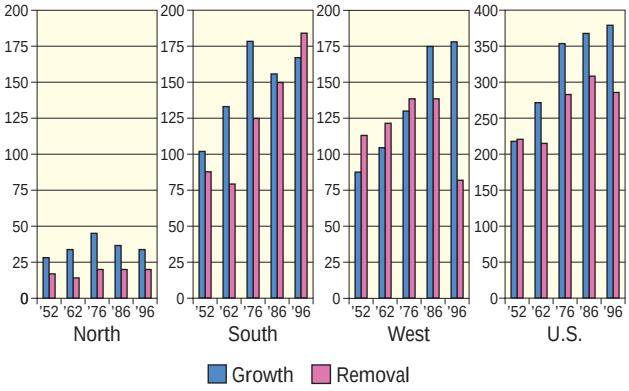
Tree mortality relative to standing inventory has fluctuated over the years and is currently at the highest level in 50 years. However, while current rates are high, much of the increase may be due to local effects. It is difficult to discern if they are beyond the range of normal variability from a national perspective.



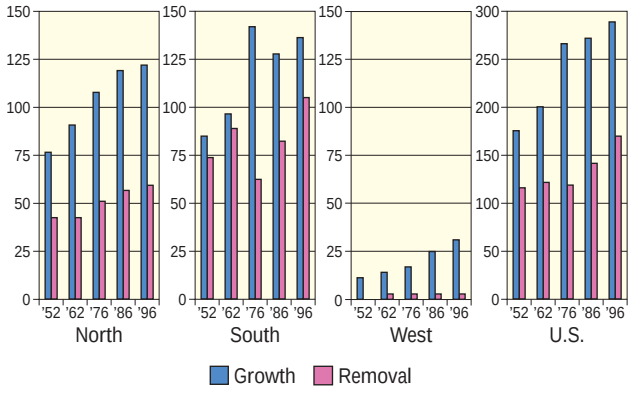
Growing Stock Growth and Removals

Over the past 50 years, growth has generally exceeded removals throughout the United States. While removal levels have leveled off in recent years, there has been a decided shift from public land in the West to private land in the East. In 1996, softwood removals in the South exceeded growth for the first time since 1952, when data were first reported.

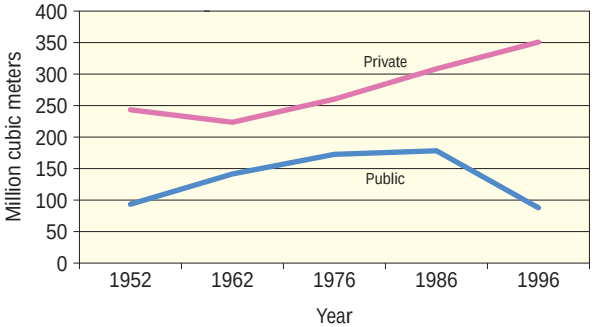
Softwood growing stock growth and removals by region (million cubic meters)

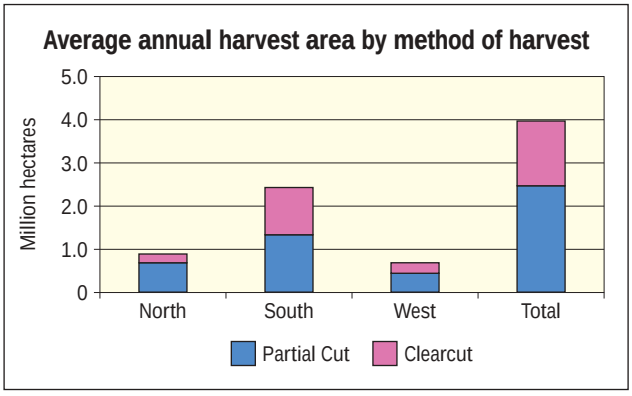


Hardwood growing stock growth and removals by region (million cubic meters)



Timber removals in the United States by owner group

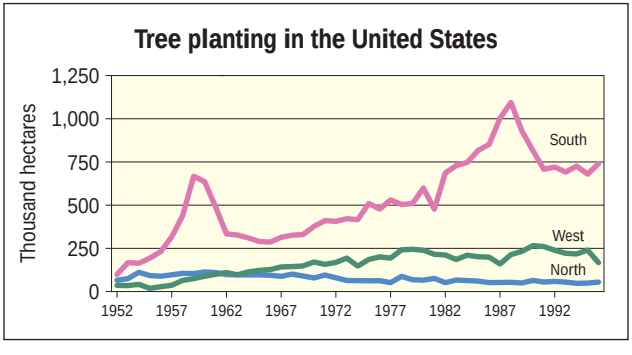




According to recent FIA State Reports, harvesting in the United States is approximately 62 percent selective felling and 38 percent clearfelling.

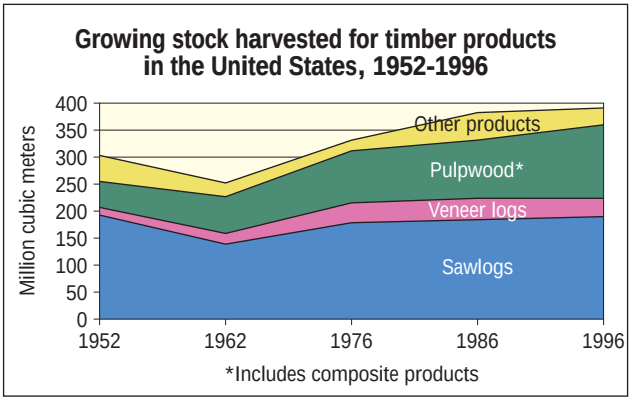
Tree Planting

Forest planting in the United States currently averages about 1 million hectares per year. The most dominant planting is pine species in the South. Spikes in planting occurred in the South in the1950's, due to the Soil Bank Program, and in the 1980's, as a result of the Conservation Reserve Program, which saw planting of nearly 1.2 million hectares of nonforest land. Western planting has subsided in recent years, mirroring reduced harvesting in that region.



Timber Products

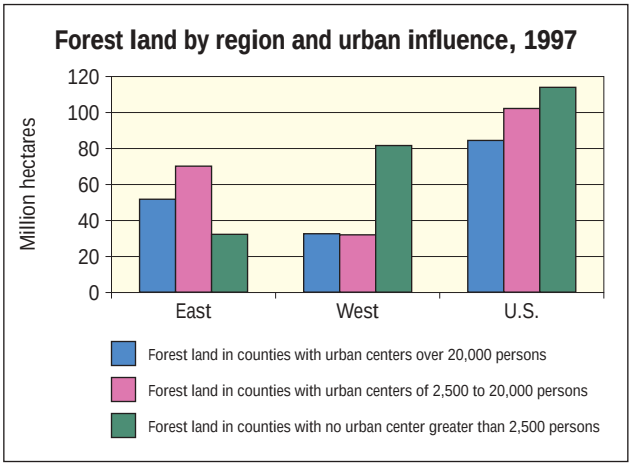
While most timber products harvested from U.S. forests have been increasing since 1976, the greatest gains have been in fiber for pulp and composite products. Much of this increase has been in hardwoods as new technologies improve utilization of these species.



Urban Influence on U.S. Forests

Urban influences include—

1. Twenty-eight percent of the Nation's forests are located in counties with urban centers of greater than 20,000 persons.
2. Urban areas (cities, towns, or villages with at least 2,500 people) occupy 3.5 percent of the total land area in the United States.
3. Urban areas have an average tree cover of 27.1 percent.
4. As landscapes become fragmented and more urbanized, more forests will be managed by urban residents and institutions.



Further Information

This brochure presents only some of the information available for the forest resource situation in the United States. For more information go to http://fia.fs.fed.us. and http://www.fs.fed.us/pl/rpa/list.htm.

Terms

Forest land—Land that is at least 10 percent stocked by forest trees of any size, including land that formerly had tree cover and that will be naturally or artificially regenerated. The minimum area for classification of forest land is 0.5 hectare.

Growing stock volume—Live trees of commercial species meeting specified standards of quality and vigor. Cull trees are excluded. Includes only trees 12.7 centimeters in diameter or larger at 1.37 meters above ground.

Growth (Net Annual)—The net increase in the volume of growing stock trees during a specified year. Components include the increment in net volume of trees at the beginning of the specific year that survive to the end of the year, plus the net volume of trees reaching the minimum size class during the year, minus the volume of trees that died during the year, and minus the net volume of trees that became cull trees during the year.

Hardwood—A dicotyledonous tree, usually broad-leaved and deciduous.

Logging residues—The unused portions of growing-stock trees cut or killed by logging and left in the woods.

Mortality—The volume of sound wood in growing stock trees that died from natural causes during a specified year.

National forest—An ownership class of Federal lands, designated by Executive Order or statute as a national forest or purchase unit, under the administration of the Forest Service.

Other Federal—An ownership class of Federal lands other than those administered by the Forest Service. Primarily lands owned by the Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and the Departments of Energy and Defense.

Other forest land—Forest land other than timber land and productive reserved forest land. It includes available and reserved forest land, which is incapable of annually producing 1.4 cubic meters per hectare of industrial wood under natural conditions because of adverse site conditions, such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other removals—Unutilized wood volume from cut or otherwise killed growing stock, from cultural operations such as precommercial thinnings, or from timber land clearing.

Removals—The net volume of growing stock trees removed from the inventory during a specified year by harvesting; cultural operations, such as timber stand improvement; or land clearing.

Reserved forest land—Forest land withdrawn from timber utilization through statute, administrative regulation, or designation.

Roundwood products—Logs, bolts, and other round timber generated from harvesting trees for industrial or consumer use.

Softwood—A coniferous tree, usually evergreen, having needles or scale-like leaves.

Timber land—Forest land that is capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation. (Note: Areas qualifying as timber land are capable of producing in excess of 1.4 cubic meters per hectare per year of industrial wood in natural stands.)

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