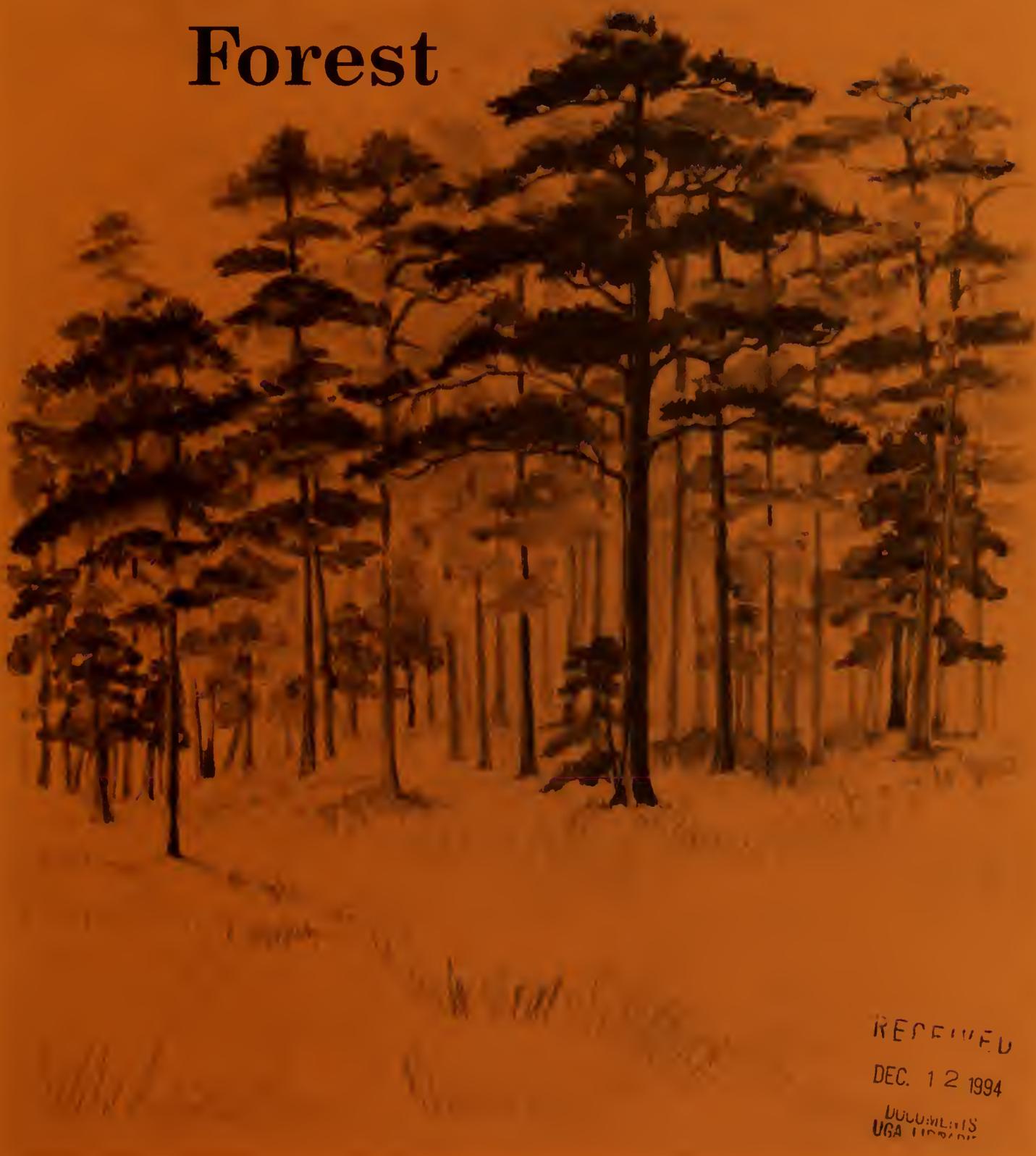


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Georgia's Fourth Forest



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Georgia Forestry Commission

JOHN W. MIXON
DIRECTOR

BOX 819 MACON, GEORGIA 31298-4599

GEORGIA'S FOURTH FOREST COMMITTEE

Richard L. Malm, Operations Manager
Savannah Region, Woodlands Division
Union Camp Corporation
P.O. Box 1391
Savannah, Ga. 31402

Dr. Sydney B. Kinne, III
Manager Forest Division
Inland - Rome Inc.
P.O. Box 100
Coosa, Ga. 30129

Dr. Fred Cabbage
University of Georgia
School of Forest Resources
Athens, Ga. 30602

Dr. Albert A. Montgomery
Senior Research Associate
Ga. State University
Suite 300
20 Pryor Street
Atlanta, Ga. 30303

Dr. Gary L. Tyre
Soil Conservation Service
Federal Bldg., Box 13
355 East Hancock Ave.
Athens, Ga. 30601

James I. Alfriend
Consulting Forester
P.O. Box 1270
Thomson, Ga. 30824

Lynn Hooven, Chief
Forest Management
Georgia Forestry Commission
P.O. Box 819
Macon, Ga., 31298-4599

John W. Mixon, Director
Georgia Forestry Commission
Chairman, Georgia's Fourth Forest
P.O. Box 819
Macon, Ga., 31298-4599

Dear Fellow Georgians:

Georgia's earliest settlers were dependent on our forests as they carved a civilization from the wilderness. Succeeding generations have benefited even more from our great natural resource.

Today, however, we are more dependent than ever on our forests as applied science and modern industry have worked together to bring about a wider array of products derived from the tree. We continue to utilize wood for buildings, energy and other basic needs as did the frontiersman when he lived in the midst of a plentiful forest, but technology has added so many new uses for wood in our daily lives that we are hard pressed to grow trees fast enough to satisfy current demands.

It is difficult to imagine wood technology that will surely come within the next two decades and beyond to bring about an even greater demand. It is also impossible to predict the number of new industries that will come to Georgia if sufficient forest raw material can be assured.

The publication "Georgia's Fourth Forest" describes the forest that is now being planted across the state - the forest that will determine how well we will meet the demands of the future. Within these pages are results of studies by forest scientists, statisticians, foresters and technicians that show where we stand today and the course we must take if the goals of tomorrow are to be achieved.

The Georgia Forestry Commission is grateful to the many who have contributed to this revealing and challenging publication.

Sincerely,


John W. Mixon
Director

JWM/js

* * *

This report was written by Walker Rivers, Management Dept., and Tommy Loggins, Research Dept., Georgia Forestry Commission. The data on which this report is based were taken from the regional report, "The South's Fourth Forest -- Alternatives For The Future", United States Dept. of Agriculture, Forest Service.

JIM L. GILLIS, JR.
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Georgia's forest resource is composed of a diverse mixture of commercially important species. Forest industries in all geographic regions of Georgia depend upon both softwood and hardwood species to supply their raw material needs for manufactured products that are used domestically, or are exported to foreign users.

EXECUTIVE SUMMARY

Forestry in Georgia is now the state's leading industry - an industry that funnels approximately \$8.74 billion into the economy and provides employment for more than 80,000 of its citizens. It is an industry represented mainly by the thousands of landowners across the state who plant, manage and harvest timber, those who transport the raw forest material to the industrial sites, and the many who convert wood into lumber, paper, veneer, plywood, poles and many other products.

A recently completed Southwide study provided a forecast of Georgia's timberland inventories, removals and future growth and revealed that the forested area of the state could decline from the current 23.5 million acres to 21.8 million acres by 2030.

Most of the projected acreage loss will be comprised of pine lands. Natural pine acreage is expected to decline from 6.97 million acres in 1985 to 3.14 million acres by 2030. Pine plantations, however, are expected to increase from 4.27 million

acres to 7.17 million acres. Modest shifts in acreage are also seen in the hardwood and mixed-pine forest area as well.

In timber removal predictions, softwood will decline slightly from the 1984 level by 2030, with a major shift from natural pine stands to plantations. Removals from forest industry lands are expected to increase substantially over the next 42 years and removals from lands owned by farmers and other private landowners will decrease, while public removals will remain constant.

Softwood timber inventories increased from 10,309 million cubic feet in 1952 to 15,743 feet in 1984, with a projected decrease to 14,309 feet by 2030.

Net annual softwood growth will remain reasonably constant near 1,200 million cubic feet, with pine plantation growth nearly tripling and natural pine growth declining by two-thirds. Pine plantation inventories will increase from 2,539 million cubic feet to 8,359 feet; natural pine will decrease from 9,914 to 2,305

million cubic feet by 2030.

Removals of hardwood timber are eventually expected to equal growth, but there will be a huge inventory of growing stock.

The study revealed that several excellent opportunities exist to increase timber supplies. Over 5 million acres of timberlands could be profitably managed to produce more wood, including converting cull and damaged stands to pine, harvesting and regenerating over-mature stands, and releasing established pine stands from hardwood competition.

Four million acres of Georgia's recently harvested timberland need some form of regeneration. The conversion of marginal cropland to pine, which has been encouraged greatly by the Conservation Reserve Program, offers opportunities for increasing pine plantation acres by 1.5 million acres. There is also the opportunity to enhance natural regeneration in Georgia through improved harvest planning and site preparation.

The great virgin forest that blanketed most of Georgia when the first settlers began to carve a civilization from a wilderness was considered the state's first forest. The abundant timber was used to build homes, animal shelters, forts, fences and to fill other basic needs before widespread exploitation and destructive fire eventually ended the era.

The second forest began to emerge in the early 1900s by natural regeneration on severely burned over and heavily logged lands across the state. It was the forest that amply supplied the state's rapidly expanding wood using industries and also ushered in conservation through the CCC (Civilian Conservation Corps) in the 1930s and the federally-sponsored Soil Bank Program in the 1950s.

The third forest is Georgia's present day forest. It resulted primarily from natural reseeding of pines on large tracts of abandoned farm land, as well as from intensive tree plantation development by private landowners and forest industries. The

third forest will continue to supply timber needs for most of the remainder of this century.

With an eye on the future, however, it is Georgia's fourth forest that is the subject of this report. It is the forest that is being established today to reach maturity beyond the turn of the century. The actions taken now by foresters, landowners, industrialists and others directly involved will determine whether anticipated demand for wood in the twenty-first century will be adequately satisfied.

Two-thirds of Georgia's land area is in forests and 64 percent of that vast acreage is the property of individual landowners. No state has a greater area devoted to forests or more timberland owned by private citizens. The broad base provides the state with standing timber valued in excess of \$12 billion. The timber harvested annually brings landowners more than \$400 million and has a value of more than \$1 billion at its first point of delivery!

Today, the high production of Georgia's

15 pulp and paper mills is an achievement that has made Georgia the nation's leader in the manufacture of paper. The state's 176 highly efficient sawmills have replaced hundreds of antiquated mills to turn out a superior product in greater quantity. The 21 veneer and plywood plants, 54 wood treating operations and hundreds of secondary manufacturers of wood products round out the enterprises that depend directly upon the forests for existence.

It is obvious that steps must be taken now for the state to continue to prosper from the forests and to increase the raw forest products to meet the demands of new and expanding industries. The work of many economists and forest specialists have gone into this report. With use of current data and highly sophisticated analytical techniques, they have provided the best possible projections.

The conclusion of "Georgia's Fourth Forest" presents some of the opportunities available for forestry improvement as the state moves into a new century.

PROJECTED ECONOMIC TRENDS AND WOOD FIBER DEMANDS

Although the timber projections in this report were based on a national econometric supply-demand-price model that predicted Southwide situations, the information was disaggregated to state levels from which Georgia was able to obtain vital data on forest inventory, growth, and removal. One of the primary objectives of this report, therefore, is to project changes in the state's total timber resource.

In addition to providing a means of identifying developing or future timber problems, the projections also affect decisions concerning investments in processing or manufacturing plants or other forest-related facilities. They can be used to encourage management practices that will largely determine the quality of the forests of the future. These projections provide data necessary for the analysis of the economic, social, and environmental implications of a wide range of policy and program options.

Changes in timber resources in Georgia will be determined in large measure by expansion in population, changes in timberland area, income and economic activities, and the intensity of management and the subsequent yield affected by that intensification.

Population trends and changes in their components have important effects on activity in the major timber products markets. They are principal sources of

pressures on forest lands for conversions to alternative uses, such as food and fiber production and recreation and urban development. During the past 55 years, population in the United States has doubled and now stands at about 240 million. Georgia's growth rate is expected to keep pace with and possibly exceed the national growth rate.

The levels of activity and long-run growth of the important timber-products markets are also dependent mainly on the overall strength of the U. S. economy. Analysis by the Bureau of Economic Analysis predicts a gross national product of \$5,440 billion (1982 dollars) in 2000 and a further increase to \$10,400 billion in 2030--nearly triple the current level of nearly \$3,575 billion. The associated projection of per-capita gross national product will rise to \$20,300 in 2020, or 2.3 times the average in 1985.

Advances in technology also affect the demand for Georgia's timber and as a result in recent years the varied uses of wood have been rising. The increased demand for wood has emerged despite competition with aluminum, iron, steel, plastics and other materials.

Economical water-resistant adhesives led to substantial increases in plywood consumption and was a major factor in holding down use of lumber in the 1950s and 1960s. More recently, development of other panel products, such as structural waferboard and oriented strand board, has resulted in displacement of plywood for many of the same uses in which it earlier replaced lumber. Four oriented strand

board plants are being built in Georgia at the present time. New technology also has engendered large increases in the use of hardwoods in pallets and other panel products, such as hardboard and particle board. Potential institutional and technological changes on the horizon could affect the demand for timber products at any time. Residential construction has been the most important market for most timber products in terms of volumes consumed.

An analysis based on projections of the factors that determine long-run demands for new housing units - household formations, replacement of units lost from the housing stock, and maintenance of an inventory of vacant units - indicated that a high level of demand will continue through the end of the century. Growth is expected in the use of wood products for the upkeep and improvement of existing housing units as the inventory and average age of these units increase.

A large quantity of wood will continue to be used in the construction of plants, offices, stores and churches. Construction of roads, dams, and other projects will require lumber and related wood products for concrete forming. Other increases for wood will include furniture, equipment, wooden pallets and containers.

It is projected that future pulpwood demand will increase for the manufacture of paper and related products.

Consumption and projected demands for other industrial timber products such as poles, piling, handles, etc. are expected to increase slowly through 2030, while

fuelwood demand will increase during much of the projection period and then begin to fall as competition for industrial roundwood products increases.

TIMBER RESOURCE TRENDS

Population growth will tend to reduce the timber growing land base and an increased demand for industrial products and fuelwood will lead to greater harvests and reduced inventory unless other factors occur.

Data for the following analysis of timberland area, timber inventory, growth and removals came from the 1982 forest inventory and analysis conducted by the U. S. Forest Service.

Timberland Area

The first statewide inventory of Georgia was conducted in 1936 and timberland totaled 21.3 million acres. An inventory in 1953 and 1961 recorded an increase to 26.3 million acres. The increase of 23 percent resulted from the natural reversion and planting of large areas of idle cropland and pasture to forest, with most of the increase in the Piedmont region.

Between 1961 and 1972, commercial timberland declined by 1.0 million acres. The latest inventory indicates that the declining trend is continuing and perhaps accelerating. Commercial timberland area dropped by 1.1 million acres between 1972 and 1982. Commercial timberland now totals about 23.5 million acres - slightly below 1953 levels - and covers 64 percent of Georgia's land.

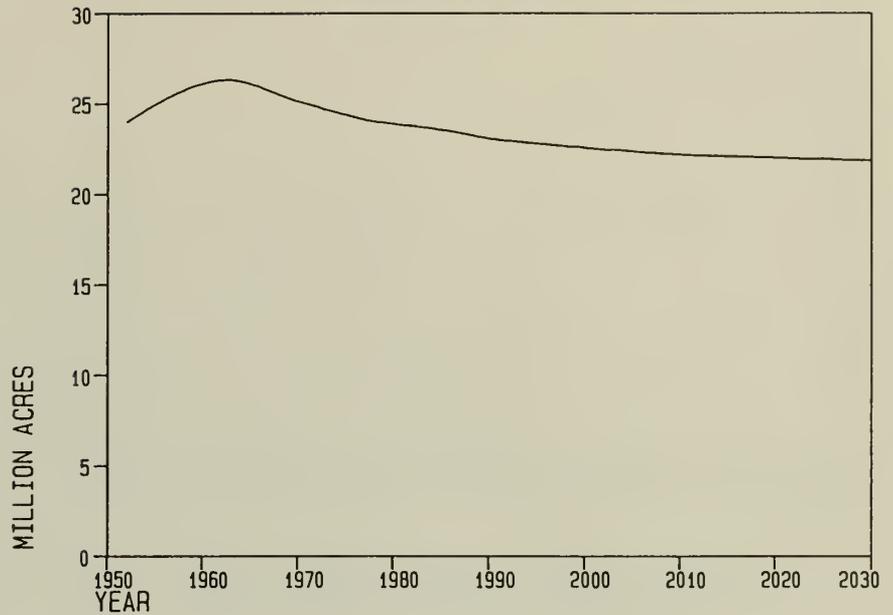
In making projections of area changes, it has been assumed that determinants such as population, income, agricultural crops and timber products would continue to influence land use changes. The projections of changes in area in Georgia are the product of the analytical system and assumptions modified by the judgment of experts from the major forestry interests in Georgia and the South. They show a slow declining trend. Total timberland in Georgia could decline from about 23.5 million acres in 1985 to 21.8 million acres in 2030.

Mixed pine-hardwood acreage in Georgia is estimated at 2.74 million acres in 1985, decreasing slightly to 2.42 million acres in 2030.

Upland hardwood acreage is expected to decrease slightly in Georgia from 5.98 million acres in 1985 to 5.65 million acres in 2030. Bottomland hardwood acreage will decline from 3.58 million acres in 1985 to 3.44 million acres by the year 2030.

It is predicted that pine plantation acreage will increase from 4.27 million acres in 1985 to an estimated 7.17 million acres in 2030. Natural pine acreage, estimated at 6.97 million acres in 1985, will decrease to 3.14 million acres

TIMBERLAND AREA



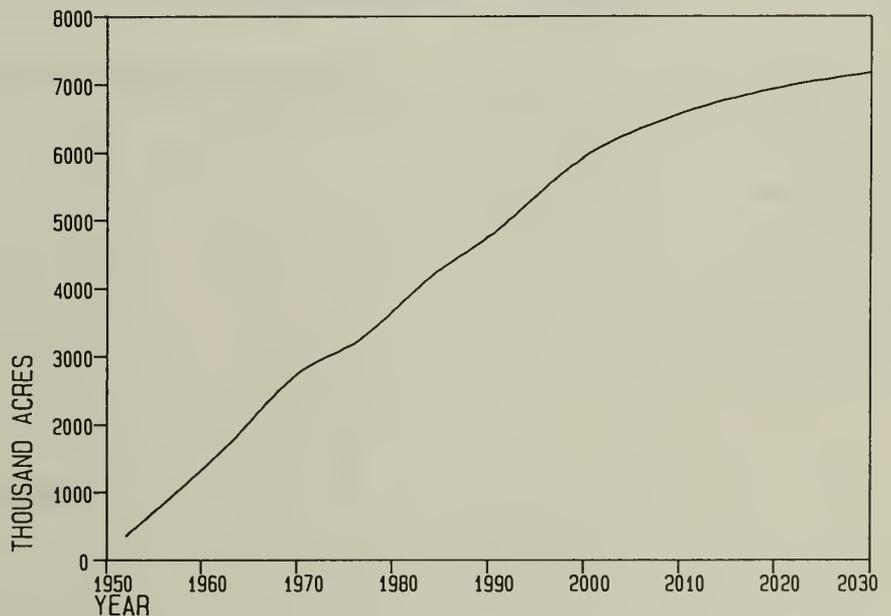
in 2030.

Significant ownership changes are seen in the farmer-owned private sector. From 5.36 million acres owned in 1985, the area is expected to decrease to 3.57 million acres in 2030. Acreage owned by forest industry is expected to remain constant at 6.19 million acres, and total public ownership of commercial timberland will

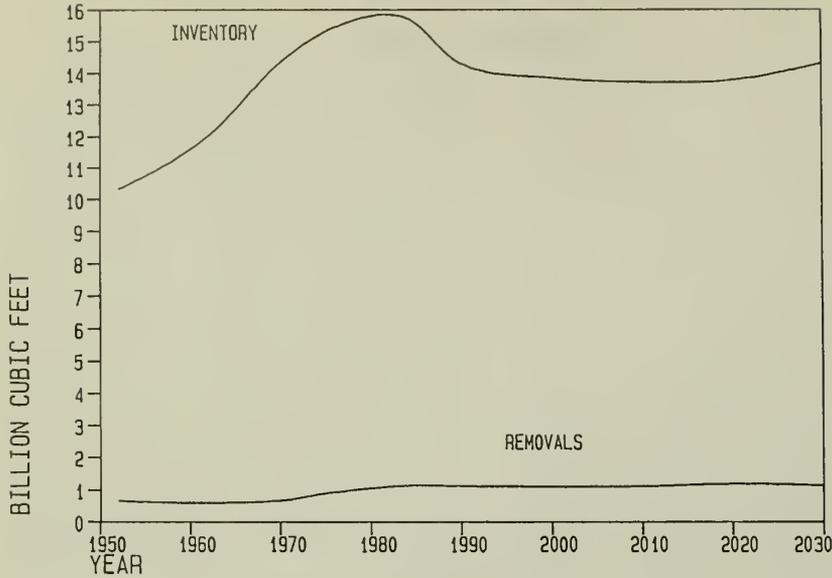
also remain practically constant, averaging 1.60 million acres.

Ownership in the non-forest industry, corporate category should increase from 1.58 million acres in 1985 to an estimated 2.06 million acres in 2030. In the other individual category, ownership will decrease slightly from 8.80 million acres in 1985 to 8.39 million acres in 2030.

PINE PLANTATION ACREAGE



SOFTWOOD INVENTORY AND REMOVALS



Softwood Timber Removals

Projections of softwood timber removals show a slight decrease from 1,132 million cubic feet in 1984 to 1,125 million cubic feet in 2030. A significant decrease in removals is projected on natural pine stands. From an estimated 797 million cubic feet in 1984, volume will drop to 430 million cubic feet in 2000. A further decrease to 211 million cubic feet will occur by 2030. Pine plantation removals are expected to increase significantly from the 1984 level of 199 million cubic feet to 757 million in 2030. Softwood removals in mixed pine-hardwood stands show a gradual decline from 102 million cubic feet in 1984 to 77 million cubic feet in 2030.

Forest industry ownership will increase timber removals from 349 million cubic feet in 1984 to 538 million cubic feet in 2030. Farmer-owned removal volume is anticipated to decrease from 339 million cubic feet in 1984 to 145 million cubic feet. Other private land, which includes farmers, corporate and other individual categories, shows removals declining from 724 million cubic feet in 1984 to 530 million cubic feet in 2030. Total public ownership softwood removals are estimated at 59 million cubic feet in 1984 and 57 million cubic feet in 2030.

Softwood Net Annual Growth

Annual growth in softwood was estimated at 1,160 million cubic feet in 1984, but that figure is expected to dip to 1,116 million cubic feet by the turn of the century. Growth will begin to climb, however, in the early years of the new century and annual production will be about 1,210 million cubic feet by 2030.

The projection indicates that removals will exceed growth in the 1990's, but a surplus will be realized by 2000.

Pine plantation growth will almost triple from 1984 to 2030, increasing from 307 million cubic feet to 860 million during the 46-year span. Natural pine stands, however, will decline in annual growth from 683 million cubic feet to 217 million cubic feet during the period. Softwood net annual growth in mixed pine-hardwood stands will decrease from 95 million cubic feet in 1984 to 70 million cubic feet in 2030.

Forest industry will increase net annual growth from 374 million cubic feet in 1984 to 596 million cubic feet in 2030. In the other private category, growth will decrease from 710 million cubic feet to 535

million cubic feet from 1984 until the turn of the century, and then show an increase to 557 million cubic feet in 2030. Government owned lands will show a decline from 76 million to 56 million cubic feet during the period.

Softwood Inventories

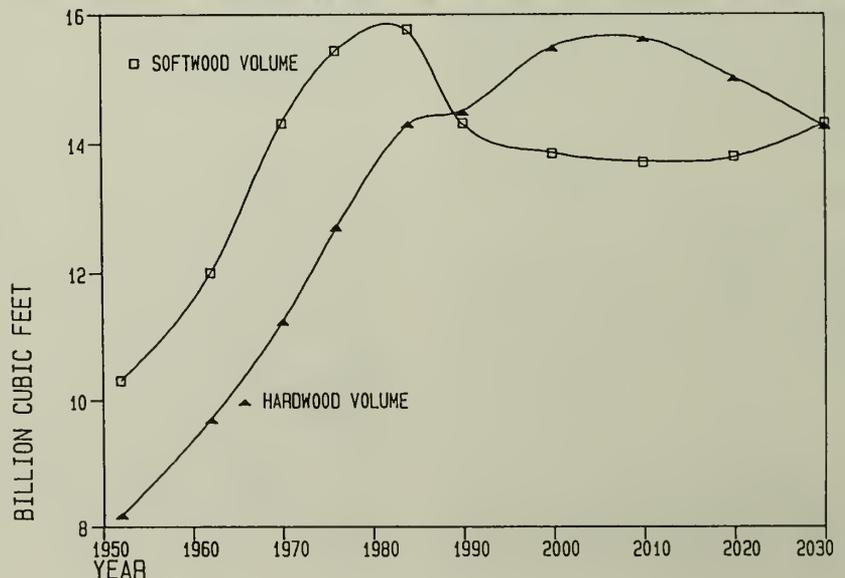
From 1952 to 1984, Georgia experienced a large increase in the inventory of softwood growing stock - from 10,309 million cubic feet in 1952 to 15,743 million cubic feet in 1984, an inventory increase of 53 percent. The inventory of softwood in Georgia in 2030 is projected at 14,309 million cubic feet.

National Forest inventory will decrease from 382 million cubic feet in 1984 to 367 million cubic feet in 2030. Other public timber inventory will decrease from 983 million cubic feet to 784 million, Forest industry inventory will increase from 3,936 million cubic feet in 1984 to 6,389 million cubic feet in 2030, a 62 percent increase. In the other private category, inventory decreases from 10,442 million cubic feet in 1984 to 6,769 million cubic feet in 2030.

By using forest management type for comparisons, pine plantation inventory is expected to increase from 2,539 million cubic feet in 1984 to 8,359 million cubic feet in 2030. Natural pine stand inventory will decrease from 9,914 million cubic feet in 1984 to 2,305 million cubic feet in 2030.

Pine inventory on lands classed as upland hardwoods type would increase from 665 million cubic feet in 1984 to 969 million cubic feet by 2030. Additionally total pine inventory from the bottomland hardwood type indicates 1,039 million cubic feet in 1984 which would increase to 1,936 million cubic feet in 2000, then decrease to 1,582 million cubic feet in 2030.

SOFTWOOD AND HARDWOOD INVENTORY OF GROWING STOCK



Hardwood Timber Removals

Hardwood timber removals in Georgia from 1952 to 1976 remained flat at about 265 million cubic feet per year. Removals are projected to increase to 505 million cubic feet by 2020, then decline to 491 million cubic feet by 2030. In 2030, of 491 million cubic feet removed, 354 million cubic feet, or 72 percent, will be obtained from other private holdings.

By 2030, 46 percent of removals will come from upland hardwood stands and 38 percent from bottomland hardwood stands. In 1984, 23 percent of removals came from upland hardwood stands and 21 percent came from bottomland hardwood stands.

Unlike the softwood resource, there are large quantities of hardwood volume in Georgia in rough and rotten trees 5.0 inches and larger at breast height. Although the inferior trees are not suitable for sawlogs or veneer logs, many can be used for fiber products such as pulpwood or for fuelwood.

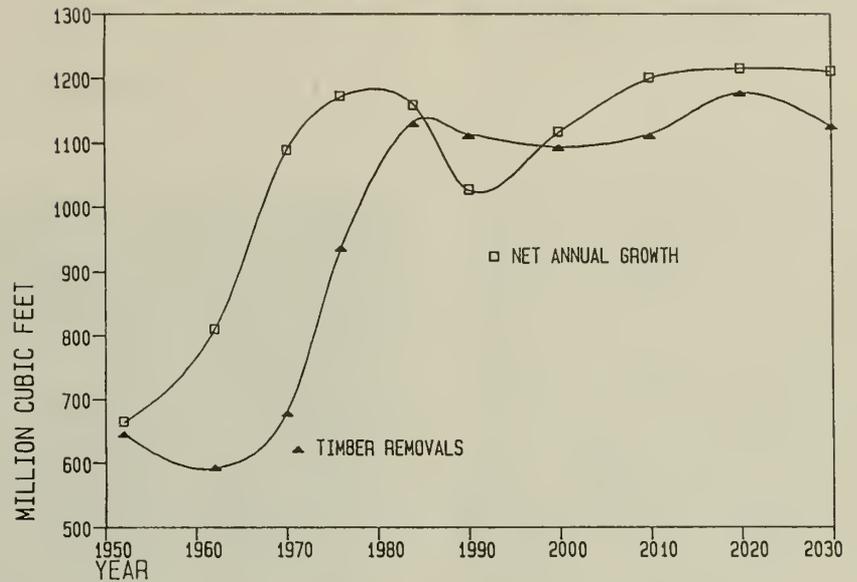
Hardwood Net Annual Growth

The rate of growth for hardwoods generally is slower than that of softwoods, and hardwood stands are grown on longer rotations. The net annual growth of hardwood greatly exceeds the annual removals and there has been a large buildup in hardwood inventories. There is a growing accumulation of old hardwood stands in Georgia and numerous hardwood stands are over 50 years old. Many are in the rugged southern Appalachian mountains or swamps of the Coastal Plain. These adverse sites limit both management and availability for harvest. The absence of strong hardwood markets has contributed to the buildup of older stands even in the Piedmont and on more accessible sites.

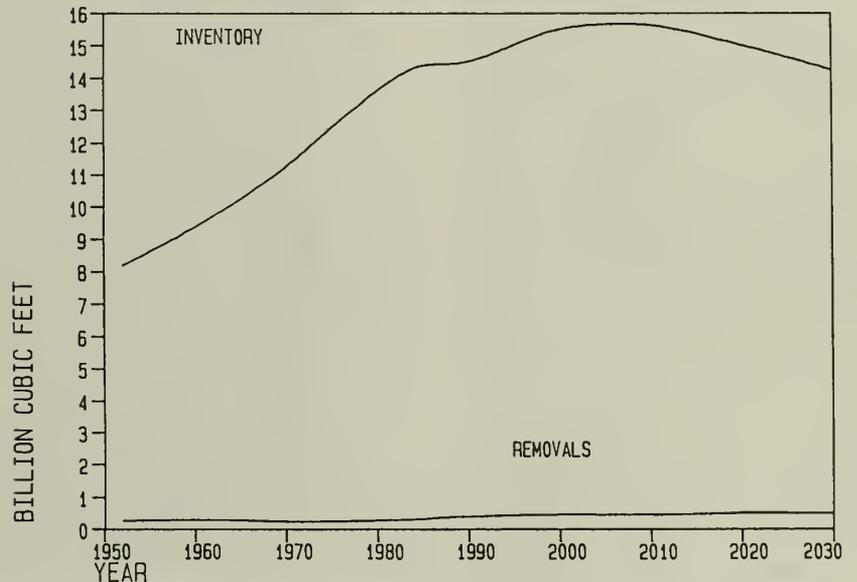
Many of the older stands show evidence of periodic high-grading in the past and a number of young hardwood stands have developed from hardwood encroachment on upland sites following the harvesting of pine. Some upland sites are not well suited for growing quality hardwood sawtimber and a further accumulation of hardwood stands will likely cause an increase in mortality and a decrease in growth.

Net annual growth of hardwood growing stock from 1952 to 1984 increased from 329 million cubic feet to 577 million cubic feet, or by 75 percent. In 1984, 425 million cubic feet, or 74 percent of net annual growth occurred on other private land. By 2030, 75 percent of hardwood growth is projected to occur on other private land. By forest management type, 76 percent of net annual growth occurred in upland hardwood and bottomland hardwood stand types combined in 1984 and is expected to increase to 82 percent

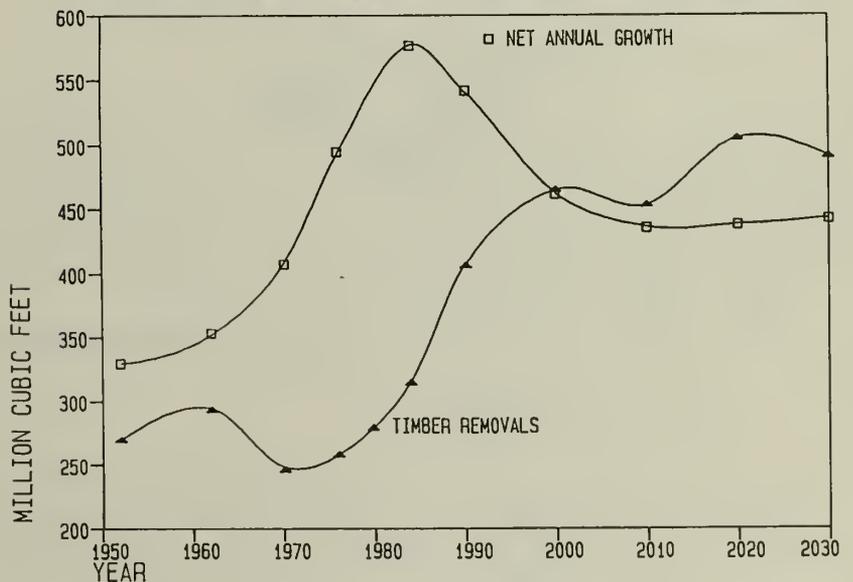
SOFTWOOD NET ANNUAL GROWTH AND REMOVALS



HARDWOOD INVENTORY AND REMOVALS



HARDWOOD NET ANNUAL GROWTH AND REMOVALS



by 2030. Overall net annual hardwood growth will decline to 436 million cubic feet by 2010, then increase slightly to 443 million cubic feet by the year 2030.

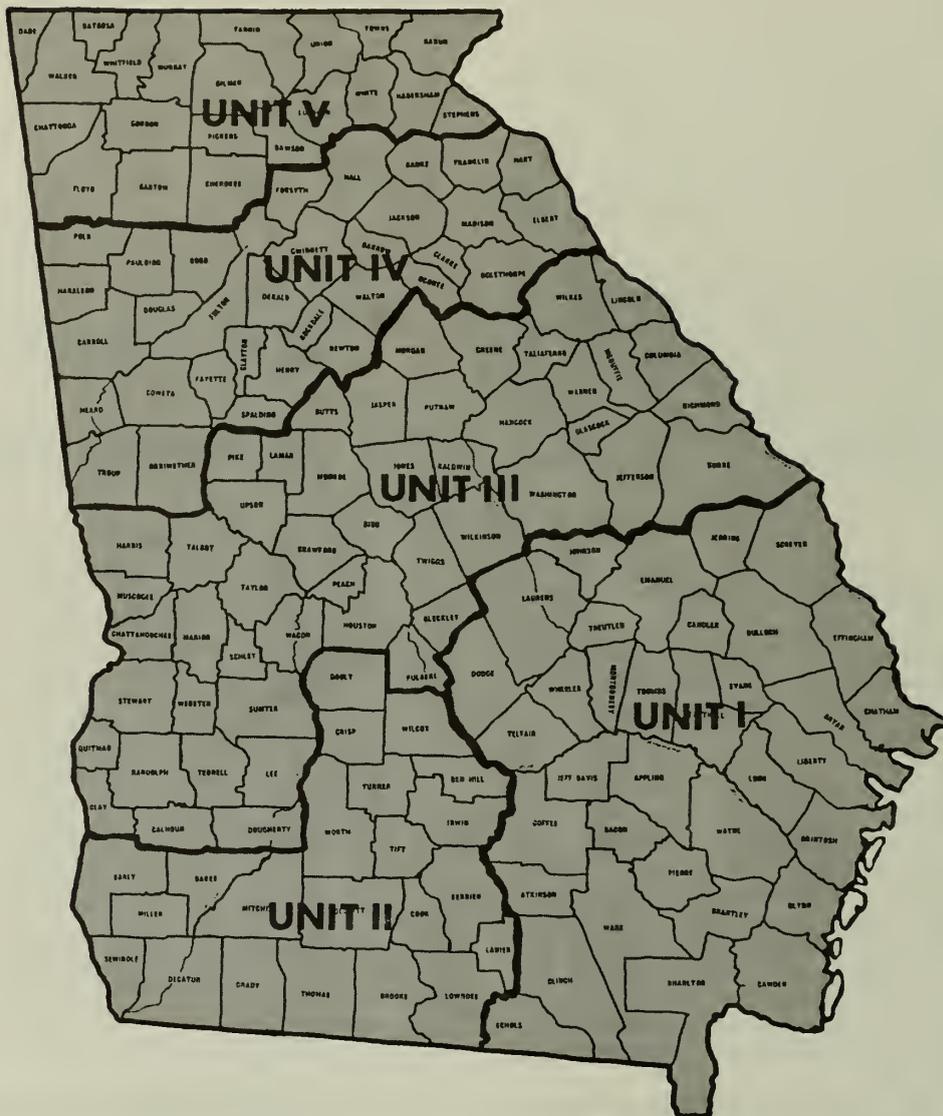
GEORGIA'S FOREST SURVEY UNITS

Hardwood Inventories

Hardwood inventories in Georgia rose from 8,191 million cubic feet in 1952 to 14,288 million cubic feet in 1984, a 74 percent increase. The steady increase resulted from an excess of growth over removals that has been sustained throughout the period. Not until 2000 are growth and removals projected to come into balance. Inventory in 2010 is projected to be 15,627 million cubic feet of hardwoods, decreasing to 14,245 million cubic feet in 2030. Although inventory does decrease somewhat, hardwood timber is predicted to remain in ample supply.

The natural successional trend over most of Georgia is toward hardwoods when the absence of intervention by humans is a factor. Most concerns about hardwoods are not with quantity, but with quality and availability. An important factor affecting hardwood availability is the mixture of many different species in many hardwood stands. Producers are often faced with the problem of harvesting and marketing large quantities of less desirable species in the process of harvesting certain select species. Many of the older hardwood stands reflect a history of periodic high-grading.

By ownership, 70 percent of the inventory of hardwood growing stock will be on other private land in 2030, with 72 percent of hardwood growing stock inventory on other private land in 1984. By forest management class, 81 percent of hardwood growing stock inventory was on bottomland hardwood and upland hardwood types combined in 1984, divided almost equally between the two types. This increases to 92 percent by 2030, with slightly over half of the combined volume found in upland hardwood stands.



Survey Unit Breakdowns of Growth and Removals

Softwood removals were estimated at 93 percent of growth on a statewide basis according to the 1982 Forest Survey of Georgia. Regionally, removals vary considerably. Overall, 1982 softwood removals ranged from 64 percent of growth in Unit V to a high of 101 percent in Unit III, with removals at an average of 94 percent of growth in Unit II.

The farmer category of ownership showed the greatest removal to growth ratio at 107 percent while industry showed a 97 percent removal.

Hardwood removal to growth ratio on a statewide basis is low compared to the softwood categories. The highest ratio occurs in Unit III where removals are

Georgia is divided into five distinct survey units by the U.S. Forest Service for statistical analysis of the state's forest resources. Inventory and growth data from forest surveys are combined from each unit to form a composite picture of the state's forest.

estimated at 60 percent of growth. The lowest ratio occurs in Unit V where removals are estimated at 28 percent of growth. On a statewide basis, removals are estimated at 50 percent of growth.

Industry removals are estimated at 70 percent of growth for hardwoods and the lowest removal to growth ratio for hardwoods is 35 percent for public ownership.

**ECONOMIC IMPLICATIONS
OF PROJECTED TIMBER
RESOURCE CHANGES**

A recent study conducted by Dr. Fred Cabbage of the School of Forest Resources, University of Georgia, found that Georgia pine sawtimber prices from 1952 to 1986 increased about one percent per year faster than the rate of inflation. Pulpwood prices during the period increased about one-half of one percent above inflation in South Georgia, while failing to keep pace with inflation in North Georgia.

As the demand for softwood grows and inventories in Georgia decline, stumpage prices will rise, according to the southern study. Both sawtimber and pulpwood stumpage are projected to increase at a rate equal to or greater than these historical trends, with sawtimber prices increasing at a greater rate than those for pulpwood.

The largest increases will occur between the present and the year 2010, a period in which the greatest declines in growth and inventory will take place. After 2010, many of the plantations being established now will be merchantable and the inventory will increase somewhat, thus slowing the rate of stumpage price increase.

Georgia presently has large hardwood inventories which continue to increase as annual growth exceeds removals. The availability of the vast supply should keep stumpage prices down until after 2000. At that point, removals will exceed growth, the supply will shrink, and prices should rise. The increases in stumpage price, however, may not be as great as those for softwood timber.

Higher stumpage costs would mean greater raw material costs for forest industries - costs that would be passed on to consumers. Rising prices could depress demand for timber and forest products growth in the forest industries could suffer. Softwood lumber production and pulp consumption will reflect this trend more than hardwood lumber and pulp because stumpage prices will rise faster for softwoods than hardwoods. The greatest increase in production will take place in hardwood pulp, as large inventories and little or no stumpage cost increases will stimulate more use of hardwoods for pulp.

The key to maintaining a healthy forest economy is to ensure an adequate inventory of timber. Plentiful supplies of timber will keep prices down and demand strong, and Georgia's forest economy will benefit as a result.

A recent study by Dr. Phillip A. Cartwright of the Georgia Economic Forecasting Project, University of Georgia, has shown that prospects for forest products industries in Georgia are bright. Growth in the industry may exceed the national rate

by 25 percent, with as many as 14,000 new jobs added to the industry by the end of the century.

A study by Dr. Albert A. Montgomery of the Department of Decision Sciences, Georgia State University, uses a complex computer model to predict future changes in Georgia's timber supply, prices and demand. His analysis indicates the potential for a healthy forest economy, but relates the potential to the inventory of timber available in the state. If removals continue to outstrip growth on an annual basis, the forest economy in Georgia will decline. On the other hand, should initiatives such as Georgia's current reforestation campaign be maintained or expanded, then timber inventories could be enlarged and annual growth could stay ahead of annual removals. This would create a sound, healthy, growing environment for Georgia's forest economy.

**OPPORTUNITIES TO INCREASE
GEORGIA'S TIMBER SUPPLY**

Although Georgia is one of the leading timber producing states in the nation, the state is growing timber far below its potential. If Georgia is to maintain its strong timber economy an increase in timber production is essential. Fortunately, many of the opportunities to increase the supply are profitable investments which could generate a long run return of over four percent above inflation, making them highly competitive with average investments in

the private sector. If all opportunities were taken, annual softwood growth could be increased by 50 percent over current levels.

Profitable opportunities are of three categories: improved management of existing woodlands, reforestation of pine on cutover woodland sites, and conversion of marginal and highly erodible cropland and pasture to pine plantations.

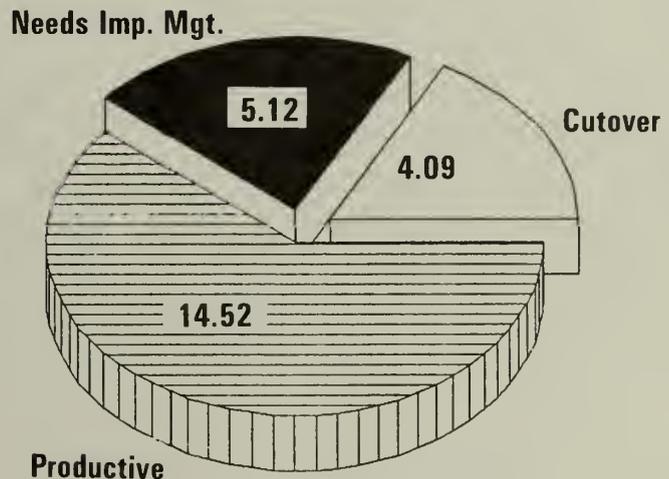
Improved Management of Existing Woodlands

Georgia presently has over five million acres of woodlands which could be managed to produce more wood. Management treatments would include converting cull and damaged stands to pine, harvesting and regenerating overmature stands, releasing established stands from excessive competition which limits their growth and thinning overstocked stands to allow full growth potential.

Approximately two million acres need some sort of harvest or conversion followed by pine regeneration. The other three million could be improved by limiting competition or by thinning. Some 74 percent of the profitable opportunities occur on privately owned lands.

It is estimated that an investment of \$331 million could be required to implement the needed management activities. The resulting change in the timber supply would be a net annual addition of 220 million cubic feet (2.7 million cords) of softwood timber.

**CURRENT CONDITION
of Georgia's Forests
Millions of Acres**



Regeneration of Cutover Woodlands

Surveys reveal that an alarming 17 percent, or four million acres of Georgia's timberland, has been cutover and needs some form of regeneration. If left as is, most of the acreage will grow up in low value stands with limited commercial potential. Although great strides have been made in recent years in regenerating cutover land, the net acreage of land in this condition is increasing by as much as 200,000 acres per year.

A total investment of \$446 million would be required to regenerate the four million acres to pine and add 199 million cubic feet (2.5 million cords) of softwood timber each year to the state's timber supply. More than 77 percent of these opportunities occur on nonindustrial, privately owned timberland.

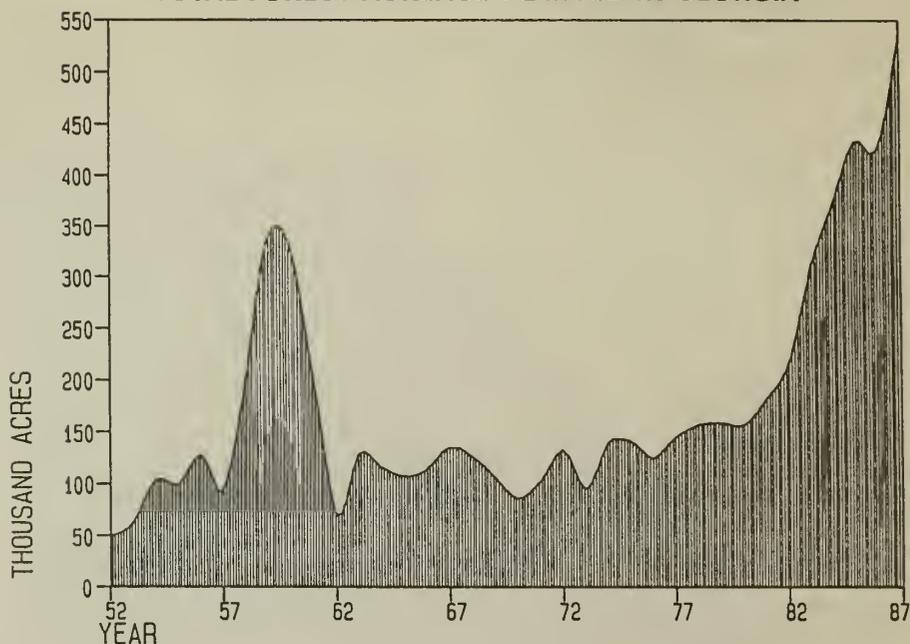
Conversion of Marginal Cropland and Pasture to Pine

Georgia currently has over one and a half million acres of cropland and pasture that are classed as highly erodible or marginal in productive capacity. It is acreage that is much better suited for growing trees than for other uses. It represents the most profitable opportunity for increasing Georgia's timber supply, as the per acre cost of conversion to pine plantations averages only \$60 per acre. Growth on these sites is usually excellent and the possible return from a planting investment usually exceeds inflation by more than ten percent.

Studies show that if \$90 million were invested in planting the acreage, an additional 160 million cubic feet (2 million cords) of softwood timber would be added annually to Georgia's timber supply.

Most of the erodible acres could probably qualify for tree planting under the Conservation Reserve Program. Administered by the USDA, in cooperation with the Georgia Forestry Commission, the program shares the cost of planting and provides landowners with annual rental payments for ten years when their land is converted to pine.

TOTAL FOREST ACREAGE PLANTED IN GEORGIA



Interest in the program has been high, as indicated in the table below. Georgia leads the nation in tree planting under the program, with 30 percent of the nation's total tree acreage assigned to the state.

Natural Regeneration of Pine

A well stocked, healthy and productive pine stand is usually best achieved through artificial regeneration methods, but natural regeneration may provide an opportunity to establish stands at a much lower cost. As many of Georgia's great natural pine stands are cut over, tremendous opportunities for natural regeneration will exist, but programs to encourage landowners to follow through with sound natural regeneration techniques will be needed.

Summary

A total of 10.7 million acres could be profitably managed to increase the state's net annual growth of softwood from the current level of 1160 million cubic feet (14.5 million cords) to 1739 million cubic feet (21.7 million cords), an increase of 50 percent! This increase would lead to a reversal of the current trend of removals exceeding growth. It would also lead to an improved economic climate for Georgia's forest related industries and ultimately the state as a whole would benefit.

The limiting factor in realizing the opportunities would be a reluctance on the part of private landowners to invest in good forestry. Since the bulk of the opportunities concern privately owned land, a substantial increase in the timber supply cannot

CONSERVATION RESERVE PROGRAM Tree Activity In Georgia

Sign Up Period	Acres Bid	Acres Accepted*	Final Acres**
3/3 - 14/86	78,635	38,843	27,723
5/5 - 16/86	65,865	51,101	40,227
8/4 - 15/86	102,562	87,300	66,872
2/9 - 27/87	169,767	161,830	125,583
7/20 - 31/87	88,836	83,775	50,152
2/1 - 19/88	214,940	***	***
Total	720,605	422,849	310,557

*Tentative acceptance pending field inspection

**Final acres under contract for tree planting (estimated)

***Figure not available at time of printing

occur until landowners are convinced that the investments are sound. Most of the opportunities could generate a real return on investment of four percent and many over ten percent. An expansion of public awareness efforts and a continuation of Georgia's successful reforestation program will be needed to convince private landowners to make the critical investment decisions.

Tax preferences for forestry investment expense and income would also encourage more private landowners to practice better forestry. State and federal incentives programs also could prove effective in generating a higher level of investment in forestry.

A CHALLENGE FOR THE FUTURE

Georgia is currently considered the national leader in forestry, but this comprehensive report on the state's fourth forest clearly shows that position cannot be maintained unless bold steps are taken to bolster timber production to meet the expanded demands of tomorrow.

Incentives for reforestation have included strong markets for timber stumpage, federally funded cost sharing payments under the Forestry Incentives Program, the

Agricultural Conservation Program. More recently, the Conservation Reserve Program. Other incentives were provided by a reforestation tax credit and provisions which allowed the rapid amortization of reforestation expenditures. The incentives have been successful in generating reforestation activity in Georgia, but they cannot be relied on exclusively to bring about an adequate long-term supply of wood.

In 1983, a highly successful reforestation campaign, consisting of a network of county committees across the state, was inaugurated. Today, the continuing drive involves the efforts of representatives of the Georgia Forestry Commission, Georgia Forestry Association, Georgia Cooperative Extension Service, Forest Farmers Association, Georgia Farm Bureau Federation, Soil Conservation Service, Agricultural Stabilization and Conservation Service, Soil and Water Conservation Commission, consultant foresters, forest industries, and, of course, the private landowner.

In 1987, the Georgia Forestry Commission further expanded its reforestation campaign to include publicity activities involving political leaders, improved communications between forest industry leaders and government officials, and a



number to make it more convenient for landowners to obtain information on forestry and reforestation.

In an effort to meet the ever increasing demand for tree seedlings, the Commission also created a new tree nursery which increased statewide production to 200 million seedlings in 1987.

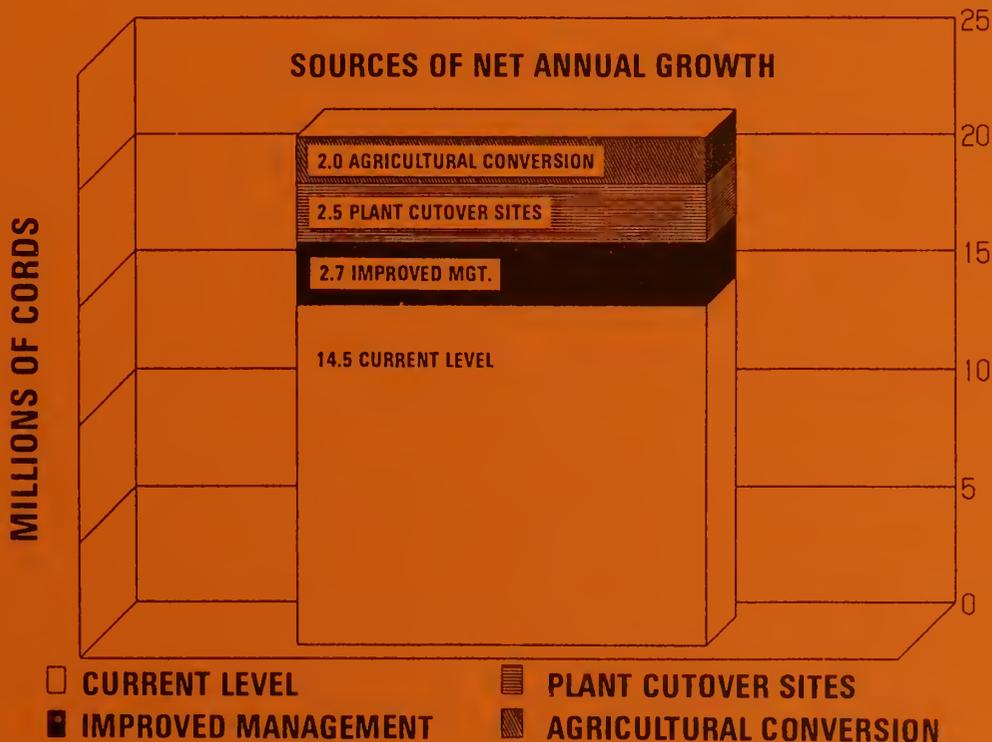
The new initiatives, combined with reforestation programs already in place, will do much to stimulate tree planting in the state, but additional efforts will certainly be needed if the acreage gap between planting and harvesting is to be eliminated.

In accepting the challenge of the future, it is of vital importance that all agencies and other organizations involved in forestry now resolve to greatly increase their informational and educational programs aimed at Georgia's private landowners. Additional landowner conferences, tree planting workshops, management seminars, field demonstrations, and other events that highlight the profitability of forests would be highly beneficial.

The bulk of Georgia's fourth forest will be harvested in the second and third decade of the next century, but the quality and quantity of that forest is being decided here in the 1980s.

* * *

POSSIBLE GROWTH ADDITIONS to Georgia's Woodlands through various forestry practices





John W. Mixon
Director