UNIVERSITY OF FLORIDA
EXTENSION
Institute of Food and Agricultural Sciences

CIR1433

Florida's Renewable Forest Resources[1]

Douglas R. Carter and Eric J. Jokela[2]

Florida's forests are a vigorous and dynamic resource, covering 16.2 million acres or 47% of Florida's total land base, contributing over $7 billion annually to the state's economy. These forests are desired by a diversity of clientele for a multitude of market and nonmarket goods and services. Knowledge of the history, ownership, structure, uses and trends of the resource enables forest landowners to better understand not only demands on forest resources and their contributions to our economy in general, but also the current state and future trends in forest policies and regulations that can impact them directly.

Resource Base

Forestland Acres

Forests cover 47 percent of Florida (Figure 1), constituting 16.2 million acres of Florida's 34.6 million acre land base, sharing with other uses such as urban areas, wetlands, orchards, pastures and crops. Ninety one percent of forestland in the state is considered commercially productive or timberland, 3% is reserved timberland, and 6% is classified as woodland (i.e., unproductive forestland). The average county in Florida is roughly 51% forested, ranging from 3% in Broward county to 96% in Liberty county.

The USDA Forest Service classifies forestland into one of 5 broad management classes, and 11 forest types in Florida. The management classes are: pine plantations, natural pine, oak-pine, upland hardwoods, and bottomland hardwoods. The current statewide distributions of these types (Figure 2) shows approximately 32% of all forestland in Florida is classified as pine plantations (4.6 million acres in 1995), 19% as natural pine (2.8 million ac), 10% as oak-pine (1.5 million ac), 14% as upland hardwood (2.0 million ac), and 25% as bottomland hardwood (3.7 million ac). Florida has more pine plantations, as a percentage of the forestland base (32%), than any other southern state.

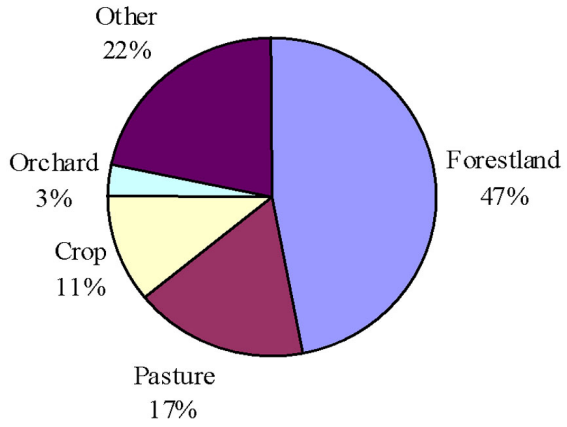

Figure 1. Land Uses in Florida.

1. This document is CIR1433, one of a series of the School of Forest Resources and Conservation, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. First published December 2002. Please visit the EDIS Web site at http://edis.ifas.ufl.edu.
2. Douglas R. Carter, Associate Professor and Eric J. Jokela, Professor, School of Forest Resources and Conservation, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611.

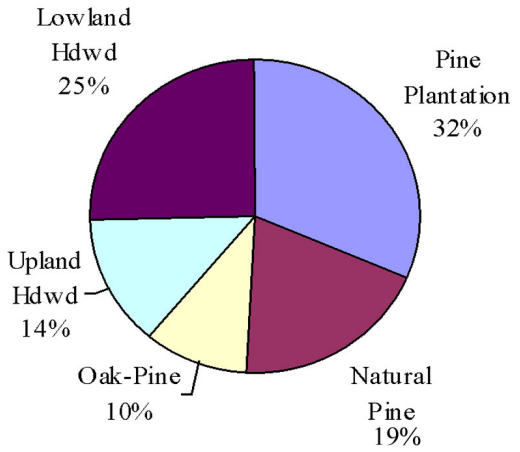

Figure 2. Broad Forest Management Types.

The forestland base in Florida is nearly equally divided between softwood and hardwood forest types (Figures 3 and 4) (i.e., 50% each). Slash pine (5.1 million ac) makes up the large majority of softwood forest types, followed by loblolly pine (807 thousand ac), longleaf pine (740 thousand ac), and sand pine (634 thousand ac). Of the hardwood types, oak-gum-cypress is the most common (3.7 million ac), followed by oak-pine (1.5 million ac), oak-hickory (1.4 million ac), and scrub oak (575 thousand ac) forest types.

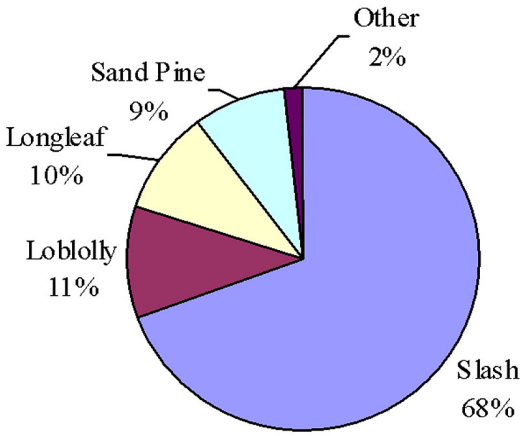

Figure 3. Softwood Forest Types.

Cypress

An important forest type and species deserving of special attention is cypress. Although cypress is actually classified as a softwood species, it is grouped as a sub-component of the oak-gum-cypress hardwood forest type. Cypress is a wetland indicator species, and the overall abundance of cypress habitat

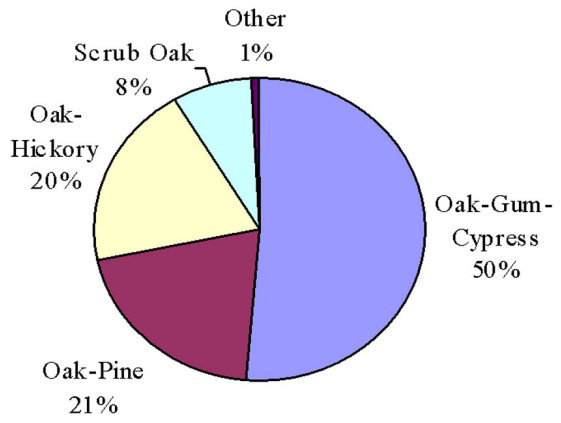

Figure 4. Hardwood Forest Types.

(cypress domes) with its unique habitat qualities is considered critically important to the state. The area of forestland covered by an individual species within a forest type is not available, but the total volume of cypress in 1995 was 2,329 million cubic feet, which is approximately 25% of the total volume of softwood growing stock, and 15% of the total volume of softwood and hardwood growing stock in all forest types. Further, as noted above, there are 3.7 million acres of the oak-gum-cypress forest type. About 33% of the volume in the oak-gum-cypress forest type is cypress.

Forestland Ownership

Ownership plays an extremely important role in forestland management because different owner classes have different management objectives. Owners range from small non-industrial private woodlot owners having less than 10 acres to large institutional investors and forest products companies with many thousands of acres. In general, institutional investors seek to maximize financial returns from long-term timber production, which is considered a private good. To a large degree, forest industry ownerships also seek to maximize returns from timber production, although they may also consider their land holdings as an integral part of a vertically integrated forest products company. State and federal ownerships generally do not seek to maximize financial returns from commodity wood production, but consider timber production as just one of many forest outputs and services, and attempt to optimize multiple objectives (a combination of private and public goods). Non-industrial forestland

owners appear to run the spectrum of objectives. Some attempt to maximize financial returns from timber production, while others might seek to focus on recreational or aesthetic benefits.

Of the total state acreage of forestland, about 35% is owned by (noncorporate) nonindustrial private forestland owners, and 18% is owned by nonindustrial corporate landowners and institutional investors, for a total of 53% ownership by nonindustrial private forest landowners (NIPFs). Forest industry owns 27% of forestland. Local and state ownership is roughly 8%, and the remainder (11%) is federally owned. Federal ownership is largely in four National Forests in Florida—Ocala, Apalachicola, Osceola, Choctawhachee (covering 1.25 million acres)---and military reservations. Thirty-six State Forests cover 749 thousand acres and Water Management Districts control nearly 750 thousand acres.

Between 300 and 350 thousand individuals own forestland in the state, with most owning relatively small acreages of land (Figure 5). Indeed, 69% own less than 9 acres of forestland. Only 7% of landowners own forestland greater than 50 acres. Yet ownerships greater than 50 acres comprise nearly 85% of the total forestland base, while acreages less than 10 acres comprise only 4% of the forestland base (Figure 6). Such a dichotomy in ownership patterns clearly impacts public perceptions of forestry, management objectives, forest fragmentation issues, and education and extension efforts.

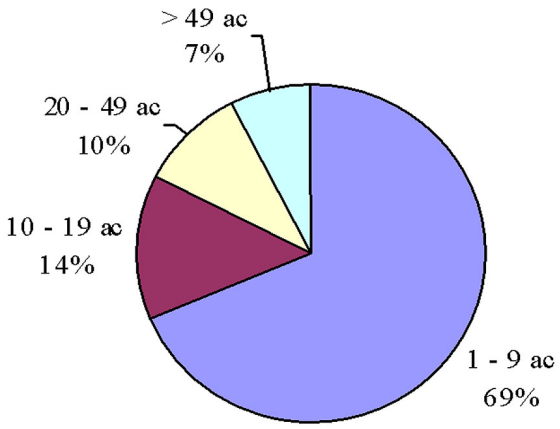

Figure 5. Percentage of Ownership Units by Size Class.

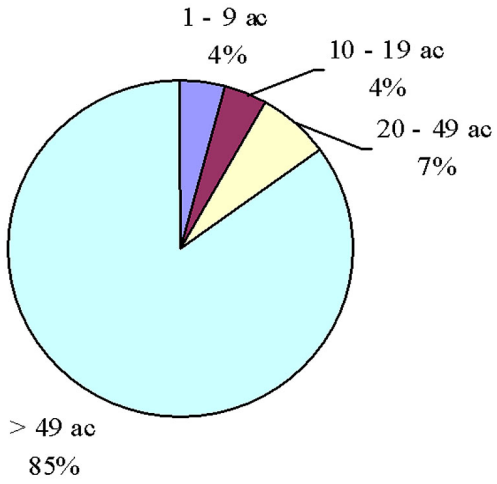

Figure 6. Percentage of Total Forestland Area by Size Class.

Regional Acreage Differences

Florida can be divided into roughly four regions (See Table 1). Most of Florida's forest resource is located in the northern half of the state, in proximity to the forest products industry. This is important because a large proportion of Florida's urban population is located in the central and southern parts of the state. Hence, many Floridians may be unfamiliar with the nature and extent, or the ecological and economic importance of forest resources in Florida.

Age Class Distributions

In managed forests, a forest's age class is ultimately determined by the rotation age of individual trees. The age class structure has been related to the quality of nontimber forest benefits, such as wildlife habitat, aesthetics and water quality. Age class distributions are used to illustrate how management strategies can affect age class structure (Figures 7 and 8). Pine plantations (Figure 7) exhibit younger current age class distributions and are indeed harvested at younger ages than are, for instance, lowland hardwood stands (Figure 8). This is directly related to some of the economic aspects of industrial forest management. While the average age of a hardwood or cypress stand might exceed 50 years, rotation ages for pine plantations now rarely exceed 30 years.

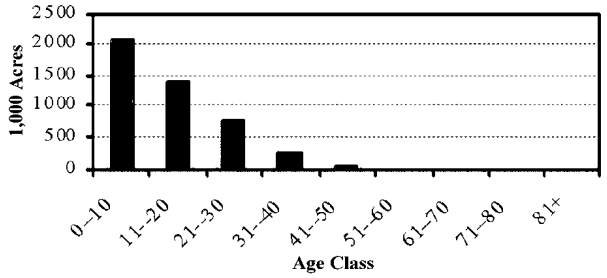

Figure 7. Pine Plantation Age Class Distribution.

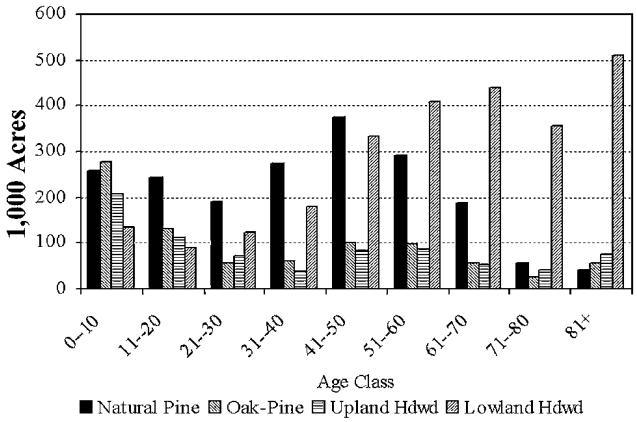

Figure 8. Age Class Distributions by Forest Type.

Socio-Economic Contributions

Commercial Timber Benefits

North Florida has a vibrant and thriving timber-based economy. Florida is an important contributor to the southern U.S. timber-based economy, which is currently the leading timber producing region in the U.S. (exceeding production in the Northeast, Lake States, and Pacific Northwest), and one of the most important timber producing regions of the world.

Forest products are processing intensive, thus approximately 132,000 people, of which 60,000 are direct, are employed by the timber industry in Florida. Although the timber harvest is concentrated in north Florida, secondary processing facilities can be found throughout the state. For example, Dade county in southern Florida has almost 14,000 direct and indirect employees attributable to the timber-based economy, far more than the statewide county average.

Most of the economic contributions from the timber industry are in the form of value-added processing. Although the actual value of timber harvested is about $450 million per year, the value of manufacturing output and value added exceeds $7 billion per year. Still, in many north Florida counties, the value of timber harvest far exceeds the value of all other agricultural crops combined, including livestock.

Nearly 90% of the annual timber harvest in Florida (498 million cu ft) comes from softwood sources, while only 10% is hardwood. About 60% of all timber harvested goes into the production of wood pulp, which is used to make paper and related products. About 34% goes into dimension lumber (29%) and veneer (5%). The remainder (6%) is in the form of, for example, posts, pilings, mulch and fuelwood. There are 6 pulpmills, 4 veneer mills, and numerous (68+) sizes and types of sawmills in Florida.

Of the 498 million cu ft of timber harvested in Florida each year, about 97 million cu ft is exported to other states, mostly in the form of pulpwood. At the same time, nearly 92 million cu ft is imported from other states, also mostly in the form of pulpwood.

Additional Products and Benefits

Florida's forests provide a multitude of other commercial products and benefits. Recreation is an important source of income for the state. In 1996, 1.8 million people traveled to Florida's parks, forests and natural areas, spending $1.7 billion. Twenty percent (20%) of Florida's residents and 8% of the states 40 million tourists participate in camping, picnicking, hunting and nature study recreation; outdoor recreation takes place on over 10 million acres of the state.

In addition to managing for timber, forest landowners in Florida also benefit economically from a number of other products. Leasing land for cattle grazing and hunting leases can provide income up to $10 per acre per year. A relatively new product, pine-straw landscape mulch, can yield from $50 to $100 per acre per year. Other forest products include Shiitake mushrooms, firewood, fee fishing and specialty products such as Spanish moss and pine cones for floral arrangements. The recent discovery of the medicinal value and development of an

industry harvesting saw-palmetto berries in Central and South Florida shows the potential that the diversity of Florida's 3,500 plants can offer.

Florida's forests provide aesthetically appealing greenspaces that contribute visual relief and variety to the observing public, as well as many ecological services, including clean water, wildlife habitat, utilizing carbon dioxide and producing oxygen, biodiversity, moderating climate, and preventing soil erosion. The concern over the greenhouse effect and global warming brings forests into the spotlight. The increase in CO_2 primarily generated from the burning of fossil fuels and deforestation can be partially offset by forests.

Along with two other states in the U.S., Florida has the highest overall level of biodiversity -- the greatest numbers of plant and animal species. Yet many populations are threatened or declining; nearly half of all Florida's non-marine vertebrates are known or suspected to be declining. And some forest types such as the scrub, longleaf pine, pine rocklands and tropical hammocks are threatened.

Trees and other vegetation protect water quality by acting as filters for nutrients, debris, and sediment before water reaches streams, lakes and estuaries. Forest canopies over streams and rivers provide shade and help stabilize water temperatures. With harvest, these benefits have the potential to be reduced. Currently, forestry Best Management Practices (BMPs) ensure that Streamside Management Zones are retained for stream protection.

Resource Trends

Ownership

The distribution and ownership patterns of forestland in Florida are dynamic and have been subject to development pressures from an increasing population. An important trend shows that between 1987 and 1995, the area of forestland within the state decreased more than 332,000 acres (2% net loss or approximately 41,500 acres per year), with additional losses expected to continue into the future (see Figure 9). This deforestation trend has existed since at least the early 1950s. Although recent forestland decreases occurred throughout the State's peninsula region, some forestland increases were noted in the panhandle. Over 50% of the land diversions were associated with urban and related land uses and about 25% went into agriculture. The forestland base is also becoming increasingly more fragmented as urbanization segments the acreage base. Fragmentation has important implications for the type and quality of forest management and natural habitats.

Industrial ownership decreased 16% from 5.5 to 4.6 million acres during this same period. The reduction in industrial owned forestlands likely represents the combination of sales of unique conservation lands to state agencies and land divestitures. Approximately 16% of the diverted forestlands were reclassified as reserved (all within public ownership) and withdrawn from harvesting. Most forestland additions (95%) came from non-forest sources such as cropland and pasture, mainly in the panhandle.

NIPF ownership increased by 2%, primarily from gains in the institutional investor category, which have acquired considerable acreage in Florida. There is a growing awareness of management opportunities by NIPFs, as the number of landowners in the Forest Stewardship Program has grown to 1125 participants between 1992 and 1998, with nearly 295,000 acres being managed under approved plans.

Florida ranks second among all southern states in the area of publicly owned forests and first in the South in state-owned forestlands. Public ownership increased by 16% between 1987 and 1995, mostly by acquisitions of state and federal agencies through conservation initiatives (e.g., Save Our Rivers, CARL, Preservation 2000, Florida Forever). In the case of the four Florida National Forests, emphasis in the last decade has shifted dramatically from having a strong timber objective toward habitat conservation of endangered species and recreational activities. The new paradigm on public lands seeks to balance commodity production with maintenance of biological diversity, sustainable productivity, and multiple-use benefits that transcend scales from the individual stand to the landscape. Declining receipts from timber harvesting document the broadening management model being implemented on public lands. Similar trends have occurred on state-owned

lands. These trends place more pressure on private lands to meet raw material needs and to allow lands to be conserved for other values.

Forest Type Conversion

The area of pine plantations (4.6 million acres, 32% of all forestland) continues to increase in Florida (Figure 9), representing the highest proportion of any southern state. In the last 10 years, the area of natural pine stands decreased by 20% to 2.8 million acres, with most reductions occurring in longleaf pine. Of the remaining types, oak-pine stands have increased 22% to 1.5 million acres and hardwood stands have decreased 8% to 5.7 million acres (about 39% of Florida's timberland).

Most pine plantations are found on industrial ownerships because of management objectives. For example, pine plantations compose 54% of the total forestland base on industrial ownerships, 23% on NIPF ownerships, and 18% on public ownerships.

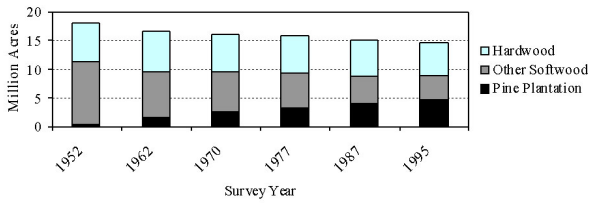

Figure 9. Area of Timberland by Broad Forest Type.

Cypress

From 1970 to 1987, both acreage in the oak-gum-cypress forest type and the volume of cypress growing stock had been increasing (Figure 10). Since 1987, however, the trend reversed itself. Cypress inventory has declined 12.5%. Similarly, the acreage of oak-gum-cypress forest types declined 13.8%. Part of the decline in cypress may be due to overharvesting of cypress (i.e., net annual removals exceed net annual growth), and some may be due to forest type conversion (e.g., acreage losses due to urbanization). How much of this total is due to each activity is an open question.

Specialization of Forest Uses

As noted previously, North America forestry is changing at an unprecedented rate. The multiple pressures and demands placed on the forest resource

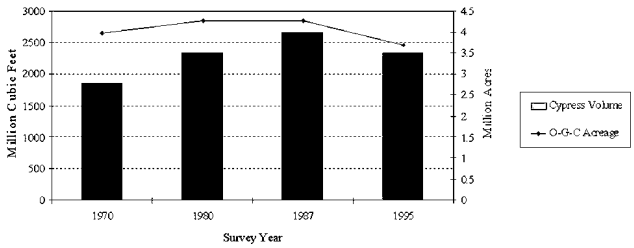

Figure 10. Acres in Oak-Gum-Cypress (O-G-C) and Volume of Cypress Growing Stock.

continue to grow in complexity, especially in rapidly urbanizing states such as Florida. National trends suggest that designation and intended use of forestlands will become more clearly defined in the future. For example, three models in forestry, all involving active management, can coexist in space and time on a landscape: tree-crop forestry, multiple-benefits forestry, and preservation forestry. The primary goal of tree-crop forestry would focus on wood production in intensively managed plantations. On multiple-benefits forestlands (e.g., public ownerships), active management would foster ecosystem function using natural regeneration systems, while preservation lands would be typified by minimal human intervention. Even with these designations, however, various constraints (ecological, social and economic) will interact with changing public attitudes regarding the future management, conservation and protection of our forest resource.

Demographics

Between the 1980 and 1990 Censuses, the population of Florida grew by 31%. Recent projections by the Census Bureau indicate that Florida's population would further increase by 46% between 1995 and 2025 (to 20.7 million). Approximately 92.9% of Florida's population reside inside a metropolitan area, compared to 79.8% nationwide. Such trends commonly contribute to a "disconnect" of the general public's appreciation of the land, its forests and their management. The highest population densities occur in the southern peninsula and this distribution is generally inversely correlated with those regions supporting the highest acreage of timberland (Table 1). Expanding urban population centers will place additional pressures on the land area available for forestry, especially

relocation from south to north Florida, further contributing to landscape fragmentation.

Resource Values

Florida forests have values that stem from a number of functions. As in the past, forests continue to provide timber and fiber for industry. National and global demands for timber products, such as paper products, continue to rise. Some of the paper demand is being met by recycling as the industry has set a goal of obtaining 50% of raw material from recycled sources. Nevertheless, demand for virgin fiber will continue.

Florida's forests are increasingly being valued for non-traditional functions. With the continuing growth in population and income levels, Florida's forests are being valued for their ecological functions. Additionally, the Florida population and visitors value the forest landscape for recreational and amenity values. Public and private forests see increasing numbers of users every year, and private concessionaires see provision of services as profitable businesses. Studies based on user willingness to pay give per person-per day values ranging from $10 to $50, depending on the activity.

Forces of Change

Demographics and Changing Resource Values

With the dramatic increase in Florida's population has come an increase in educational level and incomes. Both of these lead to a greater awareness and interest in environmental issues and management. When combined with the sheer increase in population, these factors lead to active interest in Florida's landscape. This increase in active interest means that both public and private forest lands will be managed for a broad range of commodity and non-commodity values. Demographic determinants will continue to be a major influence on the way forests are managed.

Issues of management will be explored through both private and public institutions. Markets for both forest products and other forest services will play a major role. Likewise, public agencies will be active in representing diffuse public values. Practicable sustainability will evolve from such institutional give and take. Conflict resolution techniques will likely play as great a role in forest management as biophysical technologies.

The specific determinants of change are often not obvious. A wide range of institutional factors can initiate change. An example is the shift in North Florida from row crops to forest land use. While economics of both crop and timber production play a role, it may be that the Conservation Reserve Program and the aging of landowners played a more dominant role.

Regulatory and Non-Regulatory Initiatives to Improve and Protect Forests

Domestic and global concerns for sustaining and enhancing environmental quality have led to the development of multiple initiatives that range from acquisition of sensitive lands to articles of legislation (e.g., Endangered Species Act) that address ecosystem protection at various levels of organization and function. Florida is one of the few states in the eastern U.S. that still contains large natural areas. In the last 50 years, however, more than 8 million acres (24% of the state) of forest and wetland habitats have been modified and/or lost to accommodate increasing population demands. Over the years, the state has implemented a number of land acquisition programs to protect native habitats from development. In the case of Preservation 2000, the $3 billion land preservation fund has acquired more than 1 million acres in 60 Florida counties. The state has further committed to spend $3 billion over ten years through the Florida Forever program to conserve environmentally sensitive agricultural and forest ecosystems. These represent some of the most aggressive land acquisition programs in the country.

Florida's Rural and Family Lands Protection Act of 2001 promises to further land conservation efforts through complete acquisition, less-than-fee acquisition, agricultural protection agreements, and conservation easements. Recent resource conservation programs in the 2002 Farm Bill (Federal Farm Security and Rural Investment Act of 2002) such as FLEP (Forest Land Enhancement Program) provide incentives for forest landowners to adopt conservation practices. Cost-share assistance of up to

75% is offered for approved activities and practices, such as afforestation, reforestation, improvement of poorly stocked stands, and other timber stand improvement activities. Finally, state level regulatory mechanisms such as state-level BMPs (Best Management Practices), established as a result of the 1972 Federal Clean Water Act, are substantial and widespread in Florida. They were designed to mitigate the impacts of forest management on water quality and wildlife habitat.

Despite much progress, there are continuing environmental concerns in forestry regarding issues of defining sustainable forest management and stewardship. Unlike several other states (e.g., Oregon), Florida has not imposed a Forest Practices Act (Code) that provides and regulates forest operations such as harvesting, reforestation, and road construction. However, recent voluntary initiatives by forest industry (e.g., AF&PA Sustainable Forestry Initiative), as well as international organizations (e.g., FSC Certification), have addressed environmental concerns and are being used to develop sustainable forest management guidelines. Increased emphasis on environmental regulation in the forestry and natural resource sector is expected to continue.

Technology

Today, the average American uses nearly 700 lbs of paper each year, representing a doubling in per capita consumption since 1960. During the period from 1964-1997, the amount of wood harvested in the U.S. increased 48%, from about 12 billion cubic feet to about 17.6 billion cubic feet. Concomitant with increased demands for forest resources in the U.S., have been substantial increases in net growth rates, rising about 30% during this same period. These increases in net growth are largely the result of technological gains that have encouraged the use of more intensive management practices on non-reserved forestlands (e.g., nutrient management and understory competition control). Growth responses to such treatments have been dramatic, often resulting in the doubling or tripling of growth rates compared to less intensively managed stands. Meeting domestic and world wood fiber demands on fewer, but more intensively managed lands will likely reduce wood production pressures from reserved lands and those dedicated for multiple-benefits.

Improved forest products utilization technology will continue to play an important role in producing more useable materials from a stand of trees and from a given volume of wood harvested (e.g., waferboard, fingerjointing, wood preservatives). These technologies offer the ability to reduce the demand for virgin wood fiber and more efficiently make use of small diameter thinnings, construction scraps and building demolition materials.

Wood and paper recycling will also continue to play an important role in reducing the need for virgin fiber, especially for papermaking. Over the last 35 years, the proportion of paper recovered through recycling programs increased from about 20% in 1964 to about 45% today.

Summary

Florida's forests, covering 16.2 million acres or 47% of the total land base, are a renewable and dynamic resource undergoing significant pressures from a dramatically increasing Florida population. The forestland base is diverse, composed of lowland and upland hardwood stands, oak-pine stands, natural pine stands, and pine plantations. Softwood and hardwood forest types equally divide the total forestland base. Statistics show that forest industry owns 27% of Florida's forests, non-industrial private owners control 53%, while 19% (of which 11% is federal) is publicly owned. The amount of public ownership has increased dramatically over the last several years (16% since 1987), due to various state conservation initiatives. The amount of land owned by forest industry has decreased by about 16% since 1987.

Florida's forests support a vibrant and thriving timber industry. Florida is an important contributor to the southern U.S. timber-based economy, which is currently the leading timber producing region in the U.S., and one of the most important timber producing regions in the world. Harvesting operations and primary processing facilities are principally located in the northern half of the state. The industry employs more than 132,000 persons, 60,000 of which are direct employees. The total annual contribution of

forestry to the Florida economy (>$7 billion) is mainly in the form of value-added processing. Still, the value of timber harvested from many north Florida counties exceeds the value of harvest from any other agricultural sources, including livestock.

Florida's forests provide a multitude of other commercial and non-commercial products and benefits, from recreation and hunting, to aesthetics, biodiversity, wildlife habitat, and carbon sequestration benefits. Some benefits are quantifiable in dollar terms, while many others are not. Forests also enhance the quality of water reaching Florida's rivers, lakes and estuaries. Florida ranks first in the South in state-owned forests and has aggressive land acquisition and conservation programs.

Trends show that the area of forestland in the state continues to decline. Since 1987, the forestland base has diminished some 332,000 acres (41,500 acres per year). Over 50% of the diversions were associated with urban and related uses. Fragmentation of the forest land base has important implications for the type and quality of management that can be conducted (e.g., prescribed burning). National trends suggest that designation and intended use of forestlands will become more clearly defined in the future for meeting raw materials needs and to allow lands to be conserved for other values.

Today, the average American uses nearly 700 lbs of paper each year, representing a doubling in per capita consumption since 1960. From 1964-1997, the amount of wood harvested in the U.S. increased by 48%. Increased harvesting outputs have been a consequence of increased growth rates (increases of 30%), resulting from technological inputs such as intensive silviculture, forest tree domestication, and improved forest products utilization technology.

In the 21st century, Florida's forests will be increasingly valued for both traditional and non-traditional functions. With continuing growth in population and income levels, the citizenry of Florida will place heightened demands and expectations on this important renewable natural resource. Demographic determinants will also continue to influence the way forests are managed. Because 92.9% of Florida's population reside inside metropolitan areas, a “disconnect” commonly exists in the general public's perception and appreciation of the land, its forests and their management. Future management activities on both public and private lands will involve consideration and representation of diffuse public values.

References

Bowyer, J.L. 1999. The effect of changing product technology on demand for wood and wood fiber. In: Proc. 1998 Society of American Foresters Annual Meeting. Traverse City, Mich. Sept. 19-23, 1998.

Brown, M.J. 1996. Forest statistics for Florida, 1995. USDA For. Serv. Res. Bull. SRS-6. 48 pages.

Carter, D.R. 1996. Cypress resource trends in Florida between 1970 and 1995. School of Forest Resources and Conservation, University of Florida. 21 pages.

Division of Recreation and Parks. 1994. Outdoor recreation in Florida — 1994. Department of Environmental Protection, Tallahassee. 400 pages.

Florida Biodiversity Task Force. 1993. Conserving Florida's Biological Diversity. A Report to Governor Lawton Chiles. 43 pages.

Bentley, J.W., T.G. Johnson, and E. Ford. 2002. Florida's timber industry—An assessment of timber products output and use, 1999. USDA For. Serv. Res. Bull. SRS-77. 37 pages.

Powell, D.S., J.L. Faulkner, D.R. Darr, Z. Zhu, and D. MacCleery. 1993. Forest resources of the United States, 1992. USDA For. Serv. Gen. Tech. Rep. RM-234. 132 pages.

Salwasser, H. 1990. Gaining perspective: forestry for the future. Journal of Forestry. 88:32-38.

Southwick Associates. 1998. The 1996 economic benefits of watchable wildlife recreation in Florida. Florida Game and Fresh Water Fish Commission, Tallahassee. 17 pages.

Table 1. Timberland Acreage by Region and Broad Management Class

	Northwest Region		*Northeast Region*		*Central Region*		*Southern Region*	
	Timberland Acres (1,000s)	% of Total Land Base	Timberland Acres (1,000s)	% of Total Land Base	Timberland Acres (1,000s)	% of Total Land Base	Timberland Acres (1,000s)	% of Total Land Base
Pine Plantation	1,914	26.5	2,508	26.2	187	1.9	24	0.3
Natural Pine	1,191	16.5	1,041	10.9	435	4.4	135	1.7
Oak-Pine	652	9.0	582	6.1	221	2.2	24	0.3
Upland Hardwood	623	8.6	896	9.3	469	4.7	25	0.3
Lowland Hardwood	1,113	15.4	1,529	16.0	810	8.1	268	3.4
Total	**5,493**	**76.0%**	**6,557**	**68.4%**	**2,123**	**21.4%**	**478***	**6.1%***

* In the southern region, 21.4% of the total land base is actually classified as "forestland", which includes timberland (6.1%), woodland (11.8%), and reserved timberland (3.5%). This is the only region where such a large disparity between "forestland" acreage and "timberland" acreage exists, indicating that most of the forestland is nonproductive from a timber production perspective.