

GEORGIA FORESTRY  
COMMISSION



# Sustainability Report for Georgia's Forests: January 2024





# Executive Summary





**Georgia's forests are being sustainably managed to meet the numerous needs of our state today.** To ensure our forests will continue to meet the needs of present generations and the projected demands for future generations, many challenges must be addressed. Forest sustainability is dependent on both environmental and economic sustainability. A challenge to either element is a challenge to both elements. Success will depend on proactive decisions by our state leaders and the entire forestry and conservation communities addressing a myriad of forestry-related issues.

**Georgia boasts more than 24 million acres of forestland.** Georgia's forest inventory volumes are at an all-time high. We have 55 percent more cubic feet of wood growing in Georgia than we did 40 years ago. However, the state's population is increasing at a record rate and urbanization continues to be a threat to forest sustainability. Further, recent increases in population and changing land-use patterns have made ongoing forest management more difficult in some areas of the state. These and other trends threaten forest sustainability and the numerous economic, environmental, and social benefits that our forests provide. This report describes both forestland (change to all forests, including both commercially-available and those not available for commercial harvest) and timberland (a subset of forestland meaning only forests that are available for commercial harvest – 23.8 million acres). (GFC 2021)

**Georgia's forest area has remained stable over the past 50 years at about 24 million acres.** Approximately 89 percent of forestland acreage is privately owned, giving Georgia more privately-owned acres than any other state in the nation. Forest growth exceeds removals by 50% annually and is available to supply global and local markets. However, ownership patterns are changing and average parcel sizes are shrinking. This trend is due to a number of factors, including urbanization and the divestiture of forest industry-owned lands. For some new forestland owners, management objectives are not focused solely on timber production as a primary objective. Several issues, such as federal, state, and local tax structures and the strength of forest product markets, affect the economic viability of owning and managing forestland.

**Of Georgia's 159 counties, 104 counties have at least one primary wood-using mill.** Strong markets for forest products are crucial to the future of traditional pulp and paper, lumber, and pole supplies. In 2022, the economic impact of forestry was \$42.0 billion and almost 141,000 jobs. (GFC 2022) The development of a forest resource-based bioenergy industry is poised to contribute significantly to Georgia's economy and reduce our dependence on non-renewable fossil fuels.

**Georgia's forests provide valuable ecological services** that help supply our state with clean water, clean air, wildlife habitat, and recreation opportunities that benefit all Georgians. A University of Georgia (Warnell School) study valued these ecological services at \$37 billion annually, with clean water noted as one of the most important services that benefit society (Moore 2011). Because two out of every three raindrops in Georgia land on forestlands, the sustainable management of our forests is one of the most significant factors affecting the state's water quality and quantity. The General Assembly's adoption of the Statewide Water Management Plan recognizes Forestry Best Management Practices as a model program that other land-use practitioners should emulate. A GFC internal analysis (unpublished) of watersheds used for drinking water



## Executive Summary (cont.)

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indicates that 60.5 percent of these areas are forested, so these forests cleanse the water utilized by the majority of Georgians. Wildlife-associated recreation, which is greatly supported by healthy forest ecosystems, generates \$5.5 billion annually and supports 40,000 jobs.

**Forestry professionals ensure public safety by providing fire prevention services** in the form of prescribed fire as well as wildfire suppression. The health and sustainability of Georgia's forests are dependent on attention to both. Urbanization places more lives and property at risk from wildfire as growth expands into rural environments and greatly complicates the management of wildfires and prescribed fires. Georgia has averaged 1.2 million acres of prescribed fire per year for the past five years.

**Urbanization and fragmentation impact natural habitat and ecological services forests provide.** The loss of forestland to urbanization continues to be the greatest single factor for conversion to other (non-forest) uses. A system of public and private conservation strategies is needed to support forest and wildlife sustainability. Sustaining healthy forests, including the professional use of prescribed fire, is critical to maintaining the full suite of ecosystem services, traditional forest outputs and habitats required by native species. Expansion of the Georgia Land Conservation Program supports this goal, as do the State Wildlife Action Plan and the Forest Action Plan.

**Timber security is an important component of forest sustainability.** Forests are a valuable commodity and deserve sufficient protection under Georgia law. House Bill 790, passed in 2014, strengthened Georgia's timber security law and made great strides in protecting Georgia's forests. GFC law enforcement officers have investigated 799 timber complaints since July 1, 2014, when HB790 clarified GFC authority. These 799 complaints represent almost 31,106 acres of forestland with more than \$4.7 million of estimated losses. GFC has assisted landowners in recovering \$1,135,155 in damages, with many additional cases still pending judgement.

**Forestland valuations for tax purposes have been inconsistent across Georgia** and "highest and best use" land valuation threatens forest sustainability. Despite the implementation of conservation use tax programs – Conservation Use Valuation Assessment in 1991 (CUVA) and the Forestland Protection Act in 2008 (FLPA), property tax burdens on Georgia's timberland owners continue to exceed those in most other states. During the 2018 election, Georgia voters approved "Amendment 3," which creates more uniformity in the valuation process for timberland across the state's 159 counties. Legislation can still be developed to support the fair and equitable treatment of forestland to help ensure Georgia's forest resources for future generations.

**With the wise use of scientific knowledge and resources,** Georgia can keep its forests sustainable for present and future generations, providing tangible benefits to landowners, local economies, and forest industry, while continuing to provide vital environmental and ecosystem services from which all Georgians benefit.

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# Introduction

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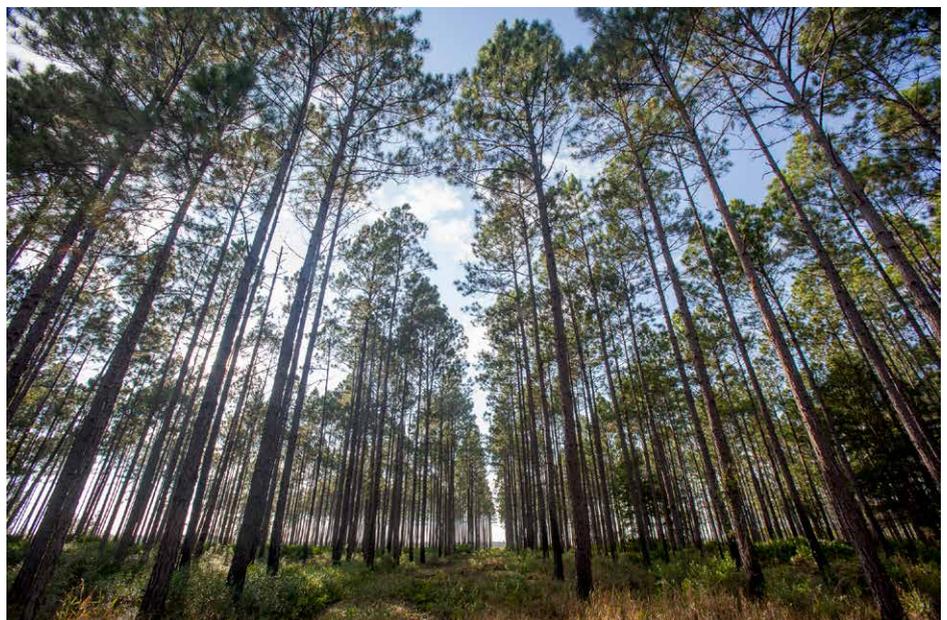
**In 2007, the Georgia General Assembly enacted into law Senate Bill 176.** It requires the Georgia Forestry Commission (GFC) to submit a report every five years which summarizes the sustainability of our state's forests. Specifically, the bill requests verification of "the ability of forest resources in this state to meet the needs of the present without compromising the ability to meet the needs of future generations."

Forest sustainability is dependent on both environmental and economic sustainability. A challenge to one is a challenge to the other. While we are maintaining acres of forests at a stable rate and growth is surpassing removals, it is increasingly important to maintain traditional markets and develop new markets for forest products, so landowners have incentives to keep forests in forests, rather than choose alternative uses for the land. A key component of helping landowners keep their working forests working will be

market prices that generate enough revenue to allow for an acceptable rate of return of the landowners' investment.

Georgia's population is increasing at record rates. Within 20 years, the number of people calling our state "home" is expected to jump to almost 15 million. In addition, the US Census shows that from 2000 to 2020, Georgia's population grew 31% to over 10.7 million. As we monitor the impacts of that growth, it is prudent to pay special attention to its effect on vital natural resources, including the state's water, air and wildlife. The one critical link that impacts the health of each of these resources is Georgia's 24.3 million acres of forestland.

**It is GFC's goal to help educate Georgians about their role in guaranteeing the sustainability of our precious forest resources - for the benefit of each of us today, and for every future generation.**



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# I. Georgia's Forest Today

I. Georgia's  
Forest Today



# Georgia's Forests Today

## An Overview

**Georgia's commercial timberland acreage has remained relatively stable** for more than 50 years and perhaps more importantly, timber volumes have increased. Georgia's timber volumes are at an all-time high since the forest inventory of Georgia began in the 1930s.

forests in the US, and has been in place since the 1930s. *All metrics pertaining to our forests and charts and diagrams are derived from this data. (GFC 2021)*

## Georgia's timberland remains relatively constant at almost 24 million acres, according to 2021 Forest Inventory and Analysis data.

This accounts for 63 percent of Georgia's total land area. (GFC 2021) (See figure 1)

However, sawtimber supply remains high in relation to demand. This presents a challenge for timberland owners considering a final harvest, due to depressed prices. Weak markets could pressure landowners to convert to non-timberland, subdivide large timber tracts in land sales, or delay reforestation and future timber sale revenue.

## Ownership of Georgia's Forests

The majority of Georgia's forests are privately owned, and we lead the nation in privately-owned timberland acres. Only eleven percent of our forestlands are public lands, including state and national forests, parks, and other federal, state, and local government lands. State and local tax structures, inconsistent valuation of forestland and struggling forest product markets, and land-use changes will have a major impact on these landowner decision-makers.

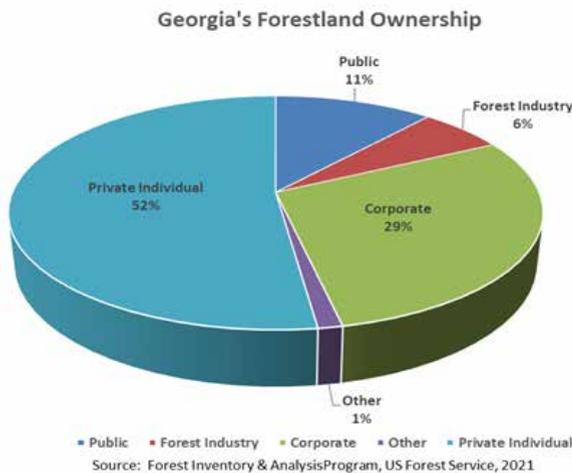
## Shrinking Parcel Sizes and Their Impacts

The shrinking size of forestland parcels is of concern. As forestland is passed to a new generation, it is often in jeopardy of being subdivided for a variety of reasons. Although large blocks of productive timberland are being purchased

Figure 1 - Georgia Timberland Acreage Trend



Figure 2 - Georgia's Forestland Ownership



NOTE: The Forest Inventory and Analysis (FIA) program of the US Forest Service is the system of ongoing measurements of our



by timber investment management organizations (TIMO's) and real estate investment trusts (REITS), many acres of forestland are being subdivided and converted to non-timberland uses and split into small timber parcels, which are inherently more difficult to manage.

**As landholdings get smaller,** the implementation of sound forest management often decreases, and the land is less likely to produce

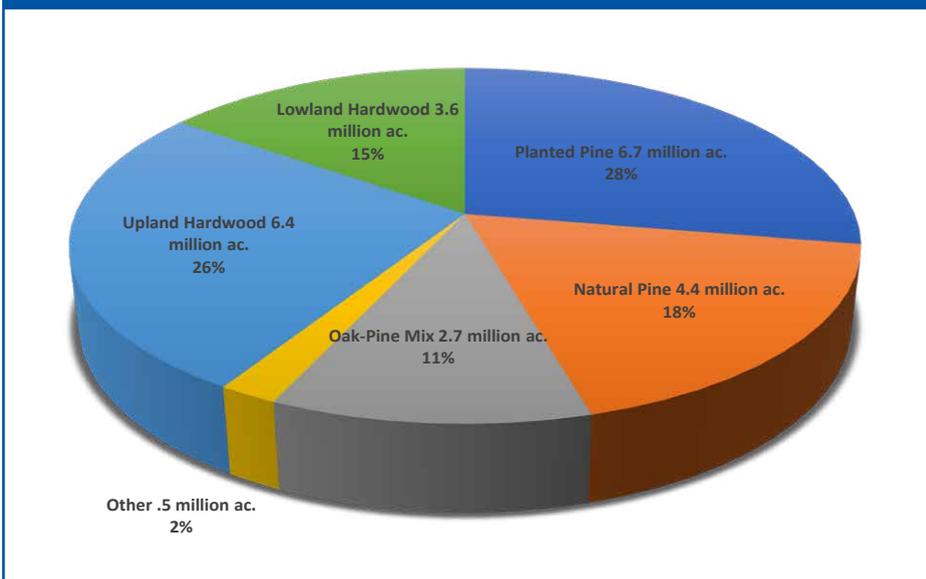
traditional forest products. Not only does it cost more for wood buyers and loggers to move in equipment needed to harvest small tracts, but efficient reforestation of these small woodlots is also difficult. These logistical challenges, coupled with the diverse management goals characteristic of small forest landowners, have contributed to recent declines in replanted acres. Smaller tracts also present challenges to wildfire

suppression, a priority for GFC. Reduced management (e.g. thinning) contributes to higher wildfire risks, and protection of homes becomes more difficult within a network of small woodlots.

### Composition of Georgia's Forests

Georgia's forest composition is diverse, with hardwood timber comprising 42 percent, softwood (mostly pine) 46 percent, and mixed oak/pine, 11 percent. Two percent of the timberland area is non-stocked, i.e. recently harvested land that has not yet seeded in or been planted with seedlings. (Figure 3)

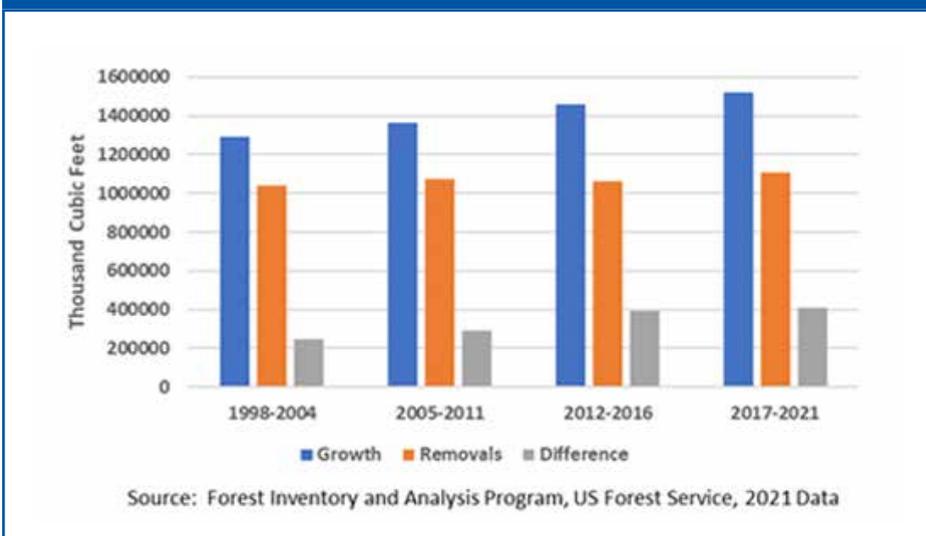
**Figure 3 - Georgia Forestland Acreage by Forest Type Group**



### Historical Growth, Harvesting and Reforestation

Georgia's forests are currently growing more wood than is being harvested on an annual basis. While acreage has remained stable for decades, timber volume shows a continued increase. Figure 4 shows softwood net growth and harvest removals on forestland for survey periods from 2004 through 2021. The increased growth to removals ratio reveals the impact of improved genetics and silviculture on forest productivity, particularly for pine plantations. *Although these plantations only comprise 28 percent of our forests, they are essential to the production of raw materials needed to sustain our forest products industry.*

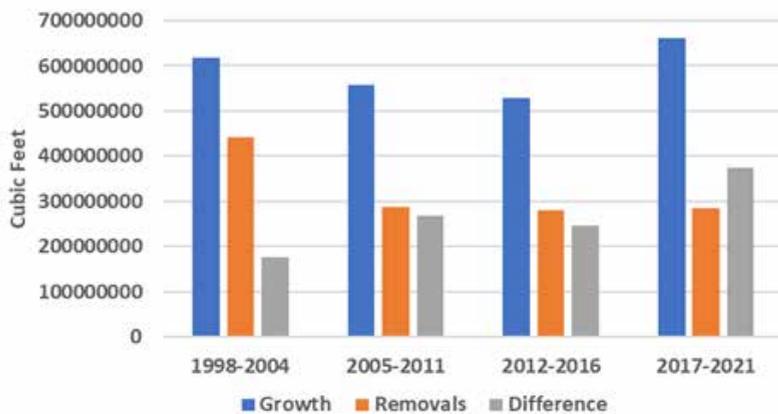
**Figure 4 - Georgia's Softwood Net Growth vs. Removals**



**Georgia hardwood growth on forestland continues to exceed removals at a higher rate, resulting in a net growth over removals of 131 percent from the 2004 to 2021 survey period, as shown in Figure 5.** Hardwood volume removals have decreased 35 percent over the same period. Perhaps one of the greatest



**Figure 5 - Georgia Hardwood Net Growth vs. Removals**

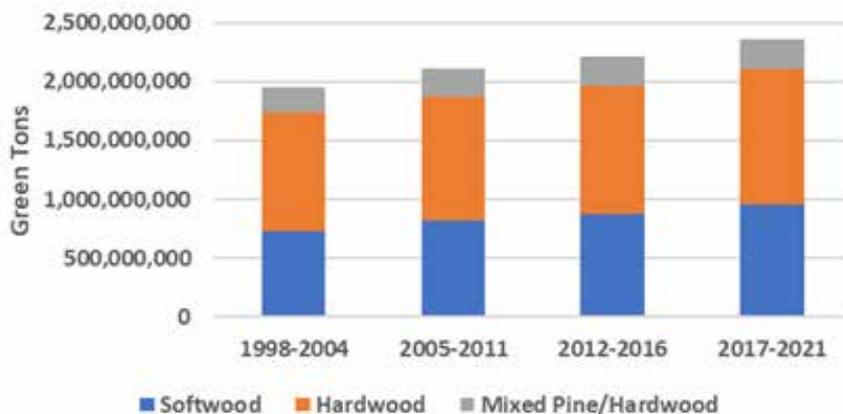


Source: Forest Inventory and Analysis Program, US Forest Service, 2021 Data

contributions to hardwood removals declining is a loss of demand for hardwood pulpwood, as digital options continue to replace writing and printing paper.

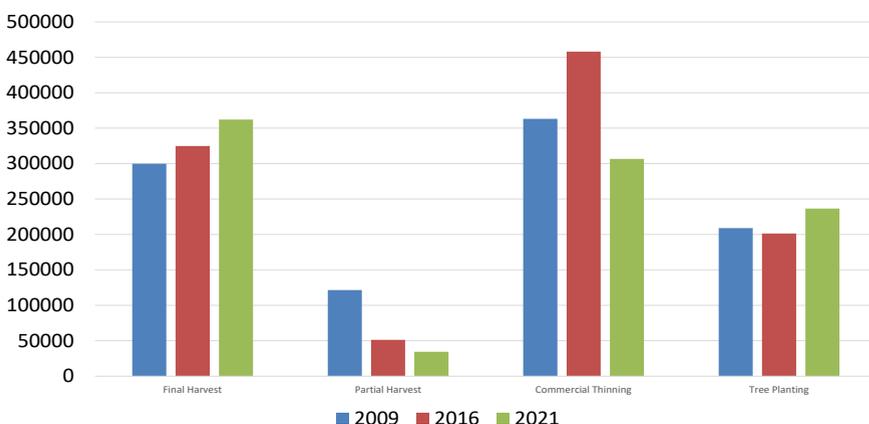
As seen in *Figure 6*, overall timber volume on forestland has increased by 21 percent from the 2004 to 2021 survey period. These total volume increases for softwood are 31 percent, 14 percent for hardwood, and 19 percent for mixed pine/hardwood, respectively.

**Figure 6 - Volume by Forest Type Group and Survey Period**



*Figure 7* shows changes by types of timber harvests from 2009 to 2021. The lumber market is strongly linked to construction activity. Residential construction was near an all-time high in 2004 and then, because of the economic recession, dropped significantly resulting in a large decrease in sawtimber demand. Following the recession, timber markets have improved with final harvests increasing 12 percent from 2016 to 2021. There was a decrease in thinning of 33 percent and an increase of 18 percent in acreage planted over the same period.

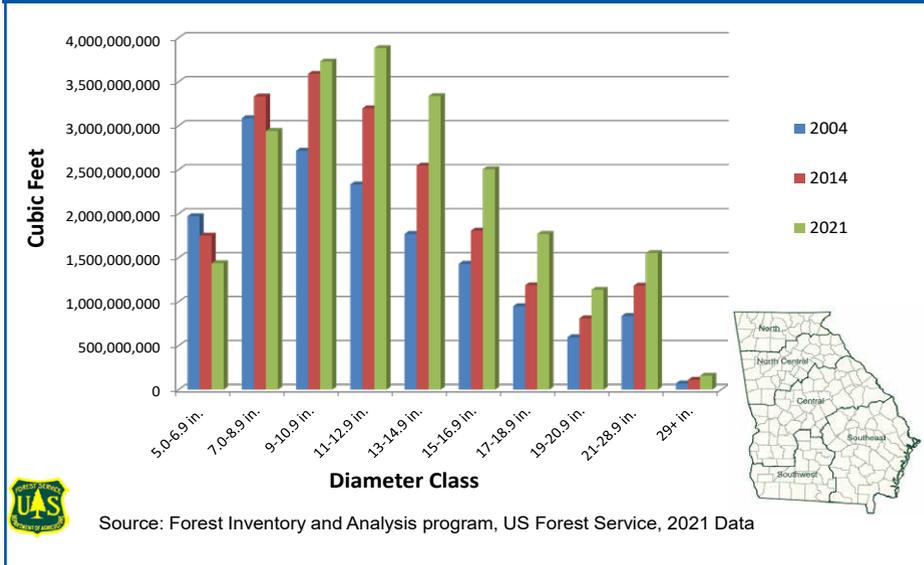
**Figure 7 - Average Annual Harvest and Reforestation**



Although Georgia's timber volumes are still increasing, continued replanting is necessary to ensure volume growth meets harvesting demands. Our long-term trend has shown we are growing 42 percent more pine volume per forestland acre when compared to 1998 data. However, ownership changes could result in less intensive objectives for wood production, and this trend could stabilize or reduce per-acre pine volume averages. (GFC 2021) More funding for tree planting or tax incentive programs would make replanting after harvest



Figure 8 - Trend in Pine Total Volume Statewide by Diameter Class & Survey Year



more economically feasible for private forest landowners, thereby increasing future wood supply. Some states in the Southeast offer one or both options to encourage forest investments. Also, some states have instituted a mill tax (where money is collected at the first point of roundwood scaling), state appropriations, or a combination of both. A portion of these funds are then used to finance forest management activities (such as tree planting) on timberlands to help sustain the resource. This does not include any reforestation cost-share programs funded by the federal government. A few states have income tax incentives specific to reforestation investments. (Unpublished survey, fall 2013 – management chiefs in the Southern Group of State Foresters.)

In the past, peaks in tree planting have coincided with federal tree planting cost-share programs, illustrating that cost-share programs can directly contribute to increases in future wood supply. However, many current federal programs are

offering lower incentives along with more specific requirements, which limits the ability of the programs to broadly affect reforestation across the landscape. Incentivizing tree planting with tax incentives or direct cost-share payments from a variety of sources should be considered.

**As a result of reduced tree planting compared to historical levels, we are starting to see slightly lower volumes in the smaller (pulpwood) diameter classes of southern yellow pine.** This reduced tree planting trend is hopefully reversing – see *Figure 7*. Also, volumes have increased across the other diameter classes throughout the state, and the statewide trend is shown in *Figure 8*. This figure also includes an inset map of the Forest Inventory and Analysis (FIA) regions of Georgia.

**Ownership Changes Impact Forest Sustainability**

The changing ownership patterns from traditional, rural-oriented landowners to landowners disconnected from agriculture

has contributed to a reduced understanding of basic forest management and the options available. There has also been a shift in ownership from the forest industry to privately held companies and small private owners. With an estimated 200,000 landowners who own 10 acres or more of timberland, the delivery of technical information is a tremendous obstacle. Outreach to these private forest landowners is a priority for GFC. State, federal, and private resource professionals should adapt and leverage all opportunities to provide technical assistance to this diverse sector. Proper management of the forest by every type of owner is critical to ensuring that our state has a sustainable wood supply.

Professional consulting foresters alone cannot meet the needs of the 200,000 forest landowners (owning at least 10 acres) across the state. The **Georgia Forestry Commission** can provide limited technical assistance through personal contact, landowner workshops, conferences, public meetings publications and other media. Private foresters also play a role in technical assistance but tend to serve larger landowners. Reaching a fraction of these owners is a daunting task and is perhaps a function in which the state should consider investing, since the ecosystem services our forests collectively provide benefit every Georgian. There is a huge demand for private foresters to manage larger land bases and provide the full suite of services some landowners need. State foresters are needed to assist in the critical functions of a government agency, such as protecting water quality and the health of our forests. GFC foresters also help implement



cost-share programs to landowners, which collectively provide direct payments of approximately \$11 million annually (GFC 2023). These cost-share payments directly benefit the forests of Georgia and aid in keeping them healthy and sustainable.

### Retaining and Maintaining Forestland

The **ad valorem tax structure** for timberlands is critical for forest owners to retain and manage our working forests. Taxes commensurate with this use are allowable in both CUVA and FLPA and should be embraced by counties to keep these working forests working. A UGA study (Dorfman 2006) concluded that lands enrolled in these programs still contribute more to the counties than they utilize in county services. Moreover, these working forests provide the ecosystem services (that benefit society) and

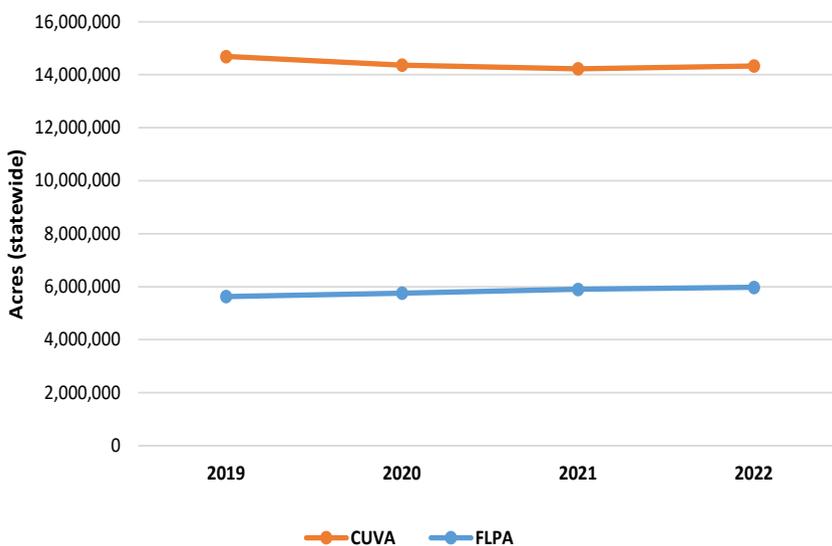
**Forestland valuations for tax purposes and local ordinances are inconsistent** across the state. Fair valuations will limit the need for forestland owners to divest themselves of this resource, helping to ensure an equal opportunity to manage and invest in forestry throughout our state. Private landowners considering investment in – and maintenance of – forest resources are greatly impacted by state and local rules.

**Land conservation programs** create opportunities for owners to reduce their tax burden by forgoing certain development and land-use rights. The state is positioned to enter conservation easements with forest landowners, as are a number of private land trusts and non-governmental organizations. While CUVA and FLPA

**Funding sources are quite limited**, and it will require the collaborative support of the state, non-governmental organizations and forest landowners if conservation easements are to contribute significantly to forest sustainability. Some forestlands are unique due to species diversity, location, recreational opportunities, historic significance, or other important characteristics. State acquisition of specific keystone properties requiring state funding should continue to be considered by the Georgia Land Conservation Council. Funding from the general assembly is needed to conserve significant properties statewide.

**Strong markets for forest products are necessary** to ensure forest landowners are able to maintain forestland. A key component of helping landowners keep their working forests working will be market prices that generate enough revenue to allow for an acceptable rate of return of the landowners' investment. Traditional pulp and paper, lumber and pole markets have been the mainstay in Georgia for decades and provide stable markets in most locations. Expansion of these markets, along with new markets for bioenergy, pellets for export mass timber construction and ecosystem services, would benefit the economy and encourage forest investment. **No other single characteristic for sustaining our forests is stronger than an active and viable forest products market.** By expanding existing markets and encouraging new market development, Georgia can continue to prosper and grow.

Figure 9 - Acreage Enrolled in Tax Programs



Source: Georgia Department of Revenue

forest products (which directly relate to jobs) critical to our state. Georgia Department of Revenue figures show that 20.3 million acres of the state's land base (53 percent) was enrolled in these programs in 2022.

provide short-term land restrictions on development, conservation easements provide a means to permanently protect forestland from conversion, thus serving as a valuable conservation tool.

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## II. Benefits of Georgia's Forests



## Forest Productivity and Sustainability

Georgia has 24,342,482 acres of forestland. Of this total, 23,753,271 acres is classified as timberland (i.e. forestland that is commercially-available with no timber harvesting restrictions). Eighty-nine percent of this timberland (21,566,122 acres) is privately-owned.

Forest sustainability can be viewed, measured and documented in many ways. Reports such as this one, which summarize metrics from sources including the US Forest Service Forest Inventory and Analysis, will be useful in communicating the ability of the state's forests to supply sustainable wood products for present and future generations.

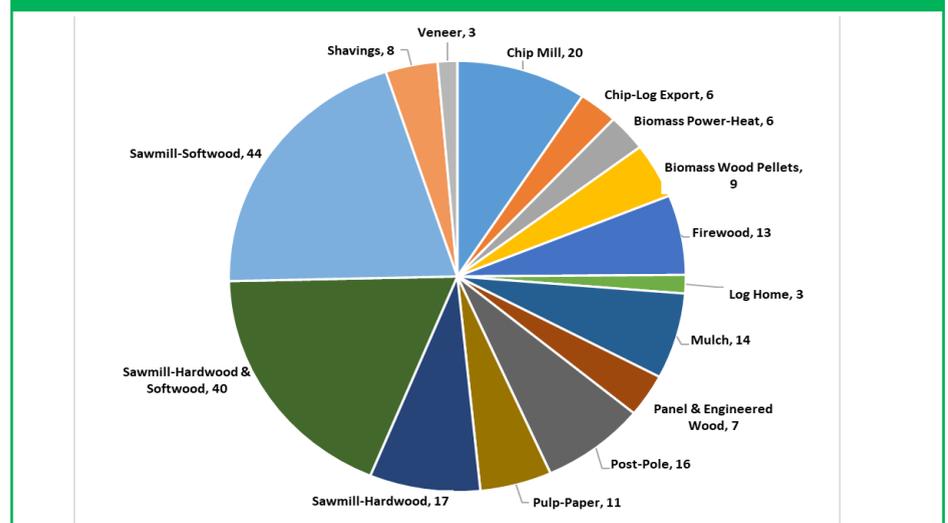
One measure of quantifying forest sustainability is comparing the amount of timber volume to the amount of timber utilized for products and other uses. According to the US Forest Service, Georgia's commercial timberlands grow 851 million cubic feet more wood per year, on average, than is harvested, resulting in growth exceeding

removals by 68 percent for all species combined. Softwood (pine) and hardwood growth exceeded removals by 43 percent and 186 percent according to 2021 data. Trees on Georgia's timberlands are adding volume at an incredible rate –growing 66 cubic feet per second!

Forest certification systems including the Sustainable Forestry Initiative® (SFI), Forest Stewardship Council (FSC) and American Tree Farm System (ATFS), provide established mechanisms for third-party verification of sustainable forest management. Of Georgia's 24.3 million forested acres, only 3,465,498 acres, or 14 percent of the state's forests, are enrolled in any of the three major forest certification systems: SFI – 2,282,897 acres; FSC – 115,200 acres; ATFS – 1,067,401 million acres.

Georgia's abundant, productive and sustainable forests are an integral part of the state's economy, as shown in the following sections, *Wood-Using Industries & Mill Productivity and Forest Industry Economic Impacts*.

**Figure 10 - Georgia Primary Wood-Using Mills by Total Product Type, 2021**





## Wood-Using Industries & Mill Productivity

Georgia’s forests support a forest products industry with 217 primary wood-using mills (2021) that convert logs into primary wood products, including lumber, veneer or sheathing, poles and posts, wood pulp and energy products such as wood pellets. There are more than 1,100 secondary wood-using mills that convert primary wood products into value-added products, including manufactured homes and buildings, furniture, molding, paper products, trusses, containers, cabinetry and more.

In 2022, Georgia’s primary wood-using mills processed 46,928,547 green tons of logs: 88 percent softwood and 12 percent hardwood; equating to 1.9 million truckloads of logs (assuming 25 tons per truckload) from forests to factories.

Since 2013, the number of primary wood-using industries operating in Georgia has fluctuated with the economy, averaging 207 mills for the period: 2013 – 179 mills; 2015 – 211 mills; 2017 – 207 mills, 2019 – 219 mills; and 2021 – 217 mills.

An important economic success story has been the growth of the



state’s forest biomass energy industrial sector. Since 2007 over one dozen bioenergy plants have been built. These companies convert renewable forest biomass into energy. Forest biomass includes wood and other organic materials, such as small diameter trees from timber harvests, logging residues, sawdust and other by-products of wood manufacturing facilities, and land-clearing debris. Bioenergy companies currently operating in Georgia include nine wood pellet mills and six biomass electricity plants, while several other companies are perfecting biomass conversion technologies to produce liquid transportation fuels and other high-value products.

### Forest Industry Economic Impacts

Georgia’s forests support a forest products industry that contributes more than \$42.0 billion annually to the state’s economy.

A recent study (Georgia Institute of Technology, 2022) reported on the economic benefits of Georgia’s forest industry, including output (revenue), employment and compensation:

- \$25.0 billion in total revenue output was generated by all forestry sectors combined.
- Georgia’s forest industry provided 57,228 jobs.
- Compensation (defined as wages and salaries including benefits) of forest industry workers equaled \$4.4 billion.
- The forest industry generated \$807 million in gross tax revenue for the state; net tax revenue totaled \$248 million.

Pulp and paper products was the dominant forest industry sector, generating 54 percent of total revenue output, 36 percent of employment, and 45 percent of compensation.

Total economic impacts (Georgia Institute of Technology, 2022) of the forest industry\* include:

- Total output - \$42.0 billion.
- Total employment – 140,787 jobs.
- Total compensation - \$9.1 billion in wages and salaries.

*\* Total economic impact of the forest industry includes dollars brought into the state, which recirculate through all major industry sectors (multiplier effect).*

In addition to the above data, urban and community forestry provides significant benefits to communities around the state. Overall, urban and community forestry companies in 2022 created and supported 52,812 jobs, with wages and salaries of \$2.6 billion and generated \$7.1 billion of economic activity.

Figure 11 - Number of Primary Mills

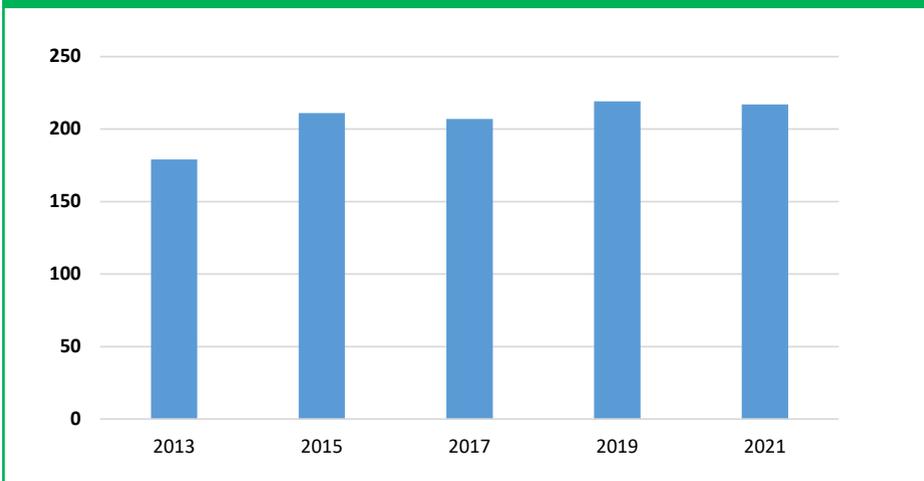
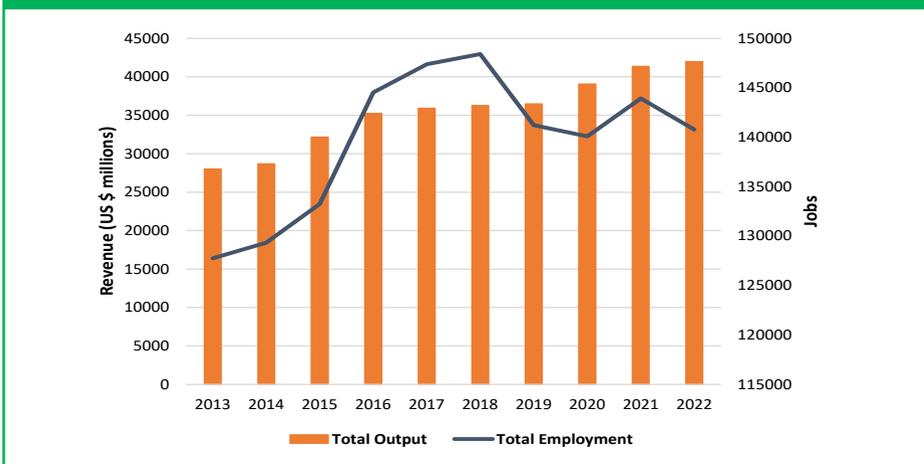




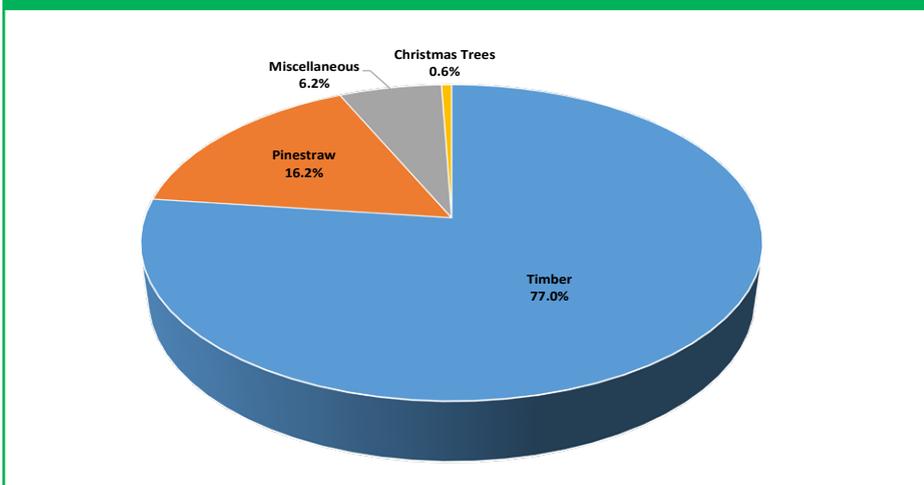
Figure 12 shows the total economic activity represented by output (revenue) and employment supported by the forest industry from 2013-2022.

Values from ecological services such as carbon offset credits, trading development rights, and ecosystem services payments provided by Georgia's forests may develop in the future and provide potential income streams for forest owners.

**Figure 12 - Total Economic Impacts, Output & Employment, 2013-2021**



**Figure 13 - Forest Products Farm Gate Value, 2021**





## Benefits of Georgia's Forests - Ecosystem Services

Georgia's 24.3 million acres of forests provide a vast amount of essential benefits outside of traditional timber products. Water filtration, clean air, erosion control, aesthetics, wildlife habitat and soil formation are just a few of the processes of nature that are of direct benefit to humans.



The monetary value of ecosystem services is difficult to estimate because few market opportunities for them exist. However, a 2011 report conducted by the University of Georgia, *Quantifying the Value of Non-Timber Ecosystem Services from Georgia's Private Forests*, estimated that these services provided by privately owned forestlands are worth more than \$37.6 billion every year. This metric does not include traditional economic impacts listed previously. Three major services - carbon sequestration, water quality, and wildlife habitat - were estimated in the 2011 study to be valued up to \$381/acre, \$8,196/acre, and \$251/acre, respectively.

### Georgia Carbon Sequestration Registry

Forests have the unique ability to absorb carbon dioxide, store carbon in the trees fiber, and replenish our atmosphere with oxygen. This carbon-capturing process, called carbon sequestration, is an important natural process that may serve to reduce the effects of climate change. Georgia's forests offset approximately 23 percent of the state's carbon dioxide emissions<sup>2,3</sup>, and can sequester one to four tons of carbon per acre, per year. In 2004, Georgia Senate Bill 356 established the Georgia Carbon Sequestration Registry ([www.gacarbon.org](http://www.gacarbon.org)) to promote environmental markets by enabling the voluntary reporting of carbon sequestration projects in Georgia, recognizing registry participants, advocating the importance of forestry in greenhouse gas emissions policy, and educating the public about carbon sequestration and other ecological services. In 2021, House Bill 355 authorized an amendment to the Carbon Registry that authorized the GFC to issue carbon credits to developers of commercial real estate in Georgia that utilized sustainable structural building materials such as lumber and mass timber in place of less sustainable materials.

Lack of greenhouse gas policy that includes forest-based offset projects has prevented this market from expanding, although some industries voluntarily attempt to reduce their environmental impact and may purchase offset-credits from participating landowners. Creating markets and programs offering payments to landowners for managing ecosystem services can help ensure the future sustainability of Georgia's forests.



### **Economic Impacts from Wildlife-Associated Recreation**

Healthy forest ecosystems make strong contributions toward maintaining clean water, clean air and abundant fish and wildlife populations. These resources not only enhance the quality of life in Georgia and make the state a desirable place to live, but also generate significant revenue from outdoor recreation and eco-tourism.

For example, fishing, hunting and wildlife-associated recreation have a large economic impact in Georgia, generating \$5.5 billion while supporting 40,000 jobs. Georgia has about 830,000 resident anglers and 400,000 resident hunters.

Georgia's rich and diverse forests provide and support these recreational opportunities, resulting in immeasurable value to the state's residents and visitors. Land use and management decisions that achieve sustainability by balancing growth and development with land conservation should be prudently considered now to ensure these opportunities and the associated economic returns remain available to both present and future generations.





## Benefits of Georgia's Forests - Water Quality

**Many of Georgia's 44,056 miles of perennial streams, 23,906 miles of intermittent streams, and 603 miles of ditches and canals begin in or flow through forestlands.** These forest streams filter and purify the water and make clean water available to millions of Georgians. In fact, water produced by these forest streams is much less expensive to treat at municipal water treatment plants than stream water flowing from land used for other purposes. Because an estimated 7,000 to 10,000 forestry operations are conducted on some 800,000+ acres per year statewide, it is important for forest landowners to follow Best Management Practices (BMPs) to protect these water resources.

which, when used properly, minimize or prevent non-point source pollution (primarily erosion and sedimentation) contributions.

**Georgia's BMPs for Forestry were first developed in 1981** and are periodically updated, most recently in 2019. Upon passage of the Clean Water Act (CWA) Amendments of 1987, the EPA issued guidance on the relationship of non-point source controls to water quality standards, as part of the Water Quality Standards Handbook.

The guidance states: *It is recognized that Best Management Practices, designed in accordance with a state approved process, are the primary mechanisms to enable the achievement of water quality standards. It goes on to state: It is intended that proper installation of state approved BMPs will achieve water quality standards and will normally constitute compliance with the CWA.*

**The Georgia Forestry Commission monitors BMP implementation at a state-level basis every two years.** GFC accomplishes this monitoring through random stratified surveys. The Statewide Water Management Plan recognizes GFC's Water Quality Program as a model for other land-use organizations.

### Ensuring Sustainability

Most forest industries in Georgia are members of the Sustainable Forestry Initiative (SFI) and require loggers who deliver forest products to their facilities to be Master Timber Harvester (MTH) trained. MTH training is an intensive educational process which includes instruction in water quality protection and BMPs. There is an annual education requirement to maintain MTH status.



### Best Management Practices

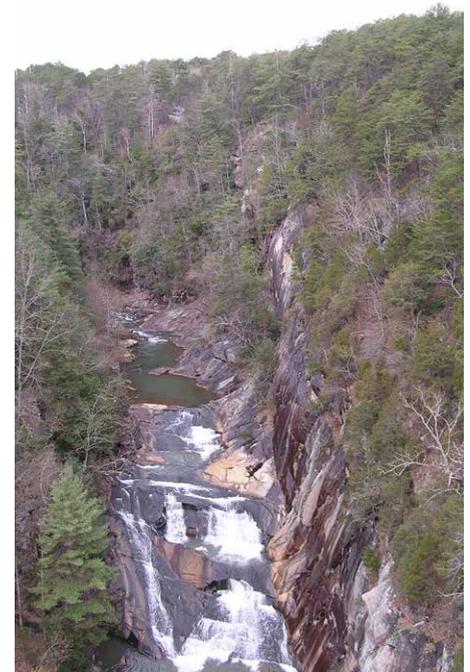
Since 1977, the Georgia Department of Natural Resources Environmental Protection Division has designated GFC as the lead agency to develop, educate, implement and monitor the use of Best Management Practices (BMPs) for forestry operations,



Loggers who do not follow BMPs can be reported to regulatory authorities and the SFI State Implementation Committee. Individual member companies can refuse to allow deliveries from these loggers. This self-regulation approach has been very effective in encouraging implementation of BMPs and, as a result, ensuring the future sustainability of water quality and quantity from Georgia's forestland.

### Opportunities

Conscientious conservation and natural resource management will need to be an integral part of community planning for improving water quality and quantity. Inclusion of green space in developments and requirements for minimum tree cover density will help mitigate the effects of storm water runoff.



- Conservation easements and other tax incentives can help protect environmentally sensitive riparian areas from development.
- State or local government purchase of sensitive tracts can help safeguard areas expected to be developed in the future.
- The adoption of consistent rules and regulations on land-disturbing activities and their enforcement can be effective.
- Funding is needed for the forestry community to provide technical assistance and educational programs to other organizations (federal, state, local agencies and non-governmental).
- Regional water planning councils should include representation by the forestry sector.

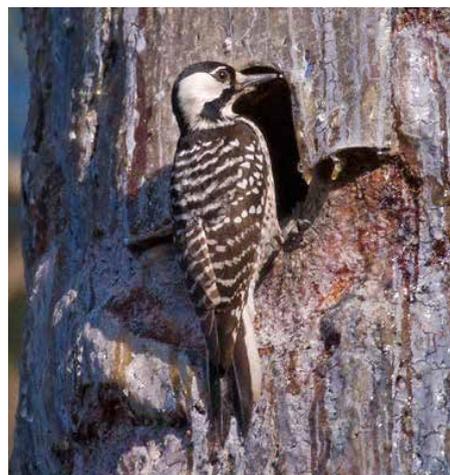


## Wildlife Benefits from Sustainable Forest Management

With some 4,440 species of native plants and animals, Georgia ranks sixth among all states in biodiversity, according to the Nature Conservancy. The Georgia Department of Natural Resources produces the State Wildlife Action Plan (SWAP). A 2015 revised list of 349 high-priority animal species and 291 high-priority plant species was developed as a result of this process. The current animal list includes 40 birds, 25 mammals, 17 amphibians, 18 reptiles, 78 fishes, 57 mollusks (freshwater mussels and gastropods), 24 crayfishes, seven aquatic insects or other invertebrates, and 83 terrestrial invertebrates. More information is available in the 2015 SWAP.

### Strategies for Sustainability

A primary tool for guiding efforts to sustain overall forest wildlife in Georgia is the “State Wildlife Action Plan” (SWAP). This document, was completed by the Wildlife Resources Division of the Georgia Department of Natural Resources in 2015, with



the help of many private and public stakeholders.

**The strategy focuses on those species and habitats believed to be most in need of conservation** attention because of population declines and continuing threats. A 2015 revised list of 349 high-priority animal species and 291 high-priority plant species was developed as a result of this process. The current animal list includes 40 birds, 25 mammals, 17 amphibians, 18 reptiles, 78 fishes, 57 mollusks (freshwater mussels and gastropods), 24 crayfishes, 7 aquatic insects or other invertebrates, and 83 terrestrial invertebrates. More information is available in the 2015 SWAP.

**The plan addresses the extent and condition of essential habitat types**, as well as habitat problems and conservation opportunities. It also addresses research, surveys, monitoring and habitat restoration needs, and provides an evaluation of existing conservation policies and programs. In addition, the strategy outlines partnership opportunities and prioritizes the implementation of specific conservation actions.

**Of a list of 25 “problem categories”** for high priority species and habitats, developed within the strategy and used in an overall assessment, four have direct ties to forest management activities: altered fire regimes, conversion of natural forests to agricultural and more intensive forestry objectives, forestry practices not meeting the standards of Best Management Practices and invasive/ alien species. Opportunities exist to address these problems and enhance sustainability.

### Development and Conversion Lead to Habitat Loss

High quality forest habitat is being lost through development and conversion to other uses in conjunction with our

growing population and changing society.

**Contributing factors include** urban sprawl, tax laws and economic factors that encourage subdivision and development, intensifying forest management demands on the land base, and widespread corporate divestiture of timberlands. Conservation of forest habitat through a system of public and private conservation lands, and through policies that encourage private landowners to keep and manage their forestlands, will be necessary to sustain Georgia’s wildlife.

### Prescribed Fire Enhances Wildlife Habitat

Fire is a natural and necessary part of our landscape and will continue to occur in our forests. Prescribed burning can be used as a tool to benefit forestry and wildlife habitat, as well as a means of protecting humans from the impacts of catastrophic fires.

**In the absence of prescribed fire**, some habitat types will degrade and some species will dwindle and disappear. Fuel will also accumulate and contribute to dangerous wildfire situations.

### Prescribed burning is becoming increasingly difficult to implement

in the face of land fragmentation, air quality regulations, and smoke management challenges. A sustainable approach to forest and wildlife management must promote the responsible use of prescribed fire at the appropriate scale and frequency. This is accomplished through landowner education and training, public relations and support from state and federal agencies, non-governmental organizations (NGOs) and private contractors. Progress continues to be made toward increasing the wise use of prescribed



fire as a management tool across Georgia's forests. The state has a very active Prescribed Fire Council comprised of state, federal, non-government organizations (NGOs) and private landowners and managers. GFC has worked closely with county commissioners to share information about the benefits of prescribed burning and the critical need to allow this vital tool to occur wherever possible. For the last five years an average of 1.2 million acres per year have been prescribed burned in Georgia. This is a decrease from the previous decade in which an average of 1.4 million acres were burned annually across the state.

### Looking Forward

The greatest challenge we face in sustaining forest wildlife populations in Georgia is to maintain the full suite of habitats required by native species, including those with very specialized requirements, in the face of continuous urban and suburban growth.

**Expanding urban areas** impact our ability to use prescribed fire by increasing the extent of smoke-sensitive areas and by generating air pollution that leads to smoke restrictions. The growing urban/wildland interface compounds other problems, including conflicts between

wildlife and humans, pets and/or livestock.

**The State Wildlife Action Plan (SWAP)** presents a strategy for working toward sustainable wildlife populations and stresses a comprehensive land conservation program as an essential element.

**Georgia's Forest Action Plan (FAP)**, written and maintained by GFC as part of the 2008 Farm Bill, highlights the challenges and opportunities for managing and protecting the array of (healthy) forested ecosystems. The plan was updated in 2015 as the Georgia Statewide Assessment of Forest Resources.

### Conservation and Preservation

One of our greatest opportunities for sustaining forest wildlife populations is to continue building a long-term statewide land conservation program consisting of more public lands and more private lands under permanent conservation easements. This will require significant ongoing funding, and the longer such a program is delayed, the fewer opportunities there will be for success.

**Other cooperative programs** on private land are also beneficial. Landowners can receive recognition and technical guidance through the Georgia DNR Forestry for Wildlife Partnership Program. Technical assistance provided to forest landowners from GFC's professional foresters is also of value. Landowner access to and involvement in assistance programs, such as the Bobwhite Quail Initiative and those available through the Farm Bill, is advantageous. Additionally, national conservation plans can be dovetailed with the SWAP and FAP and may be used to direct conservation efforts and leverage state and federal funding to achieve greater ecological benefits for landowners

and society at large. Examples of these include the *National Bobwhite Conservation Initiative*, *Partners in Flight - North American Landbird Conservation Plan*, and *Partners in Amphibian and Reptile Conservation - Habitat Management Guidelines for Amphibians Reptiles of the Southeastern United States*.

### How can State Government and Georgia's Forestry Community Address These Challenges?

The Georgia General Assembly can support sustainability by ensuring funding for essential forestry and wildlife conservation programs, including implementation of the Forest Action Plan and the State Wildlife Action Plan. Numerous opportunities for the conservation of lands exist, including the ad valorem tax structure which can encourage forest ownership and investments, permanent easement incentives, and public ownership.

It can also:

- Provide support for programs to fight invasive exotic species, promote practices which result in healthy forests, and facilitate prescribed burning.
- Develop outreach and incentive programs to encourage landowners to manage for various ecosystem services, link urban communities with rural communities, and facilitate ecosystem service markets, either in a compliance or voluntary market.
- Further fund research of ecosystem services - both detrimental effects of fragmentation and urbanization and precise valuation of important ecological services.
- Support technical forestry funding to ensure landowners have the knowledge to manage their forests wisely.
- Promote funding to prevent pest introductions.

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# III. Threats to Forest Sustainability in Georgia



## Threats to Forest Sustainability in Georgia

There are many challenges at hand for Georgia's thriving forest system and the people who manage it.

### Logging Infrastructure

The logging industry bore significant consequences from the COVID-19 pandemic and the dynamic market trends in housing and remodeling, the logging industry bore significant consequences. Loggers grappled with diminished production, workforce infections, and the dual challenge of securing and retaining employees. Additionally, they faced the increased



expenses of fuel, trucking, and insurance. To counter these issues, the Georgia State Legislature passed H.B. 189, a measure subsequently signed into law by Governor Brian Kemp in 2023, elevating the allowable gross weight capacity for trucks hauling forest products to 88,000 lbs.

While the forest products industry heightened its output in response to the impacts of COVID-19 on lumber supply, concerns linger regarding the constraints imposed by reduced logging capacity due to the shrinking workforce. To restore pre-pandemic operational levels, projections indicate a need for a fresh pool of

logging business owners in Georgia within the next 10–15 years to coincide with the retirement of the current generation (Conrad, Greene, Hiesl, 2023, p.9). Proactive efforts by logging business owners, loggers' associations, the forest industry, forestry associations, and university extension programs are imperative to tackle the challenges confronting this pivotal segment of the wood supply chain in Georgia.

Anticipating this changing landscape calls for collective action to make the logging industry financially enticing for prospective business owners and employees. Recruitment and retention hurdles for logging workers and log truck drivers persist nationwide. However, offering secure employment coupled with competitive salaries is crucial to initiate the recovery of the industry's diminished capacity.

### Forest Pests & Invasive Species

There are numerous native insects, diseases and environmental stressors that can impact forest health, and the GFC monitors them and takes action as appropriate to minimize their impacts. The southern pine beetle (SPB) and other pine bark beetles continue to represent the largest threat to pine timber in Georgia and the South. GFC monitors SBP activity annually and takes measures to thwart its spread. There has been a moderate level of SPB outbreaks in Georgia in 2023, totaling 272 confirmed spots. These spots ranged from less than an acre to 35 acres in size. Ips beetles (a less destructive bark beetle) was also observed in





spots around the state this year, but at a much lower rate than SPB. GFC is mandated to monitor our forests for the presence of insect and disease outbreaks and is charged with taking action if warranted to suppress or limit the damage of these pests.

### **Invasive Plants**

Invasive plants such as cogongrass are finding their way into Georgia. Cogongrass destroys wildlife habitat, spreads aggressively, and overcomes native grasses and herbaceous browse. It burns extremely hot, increasing the threat of wildfires, and provides no forage for wildlife or domestic livestock. Georgia's treatment program assists landowners across the state, and through continued monitoring 88% of all known cogongrass spots in Georgia are considered inactive. There are currently 241 active spots being treated in Georgia.



Established invasive plants including Chinese privet, Chinaberry, kudzu and Japanese climbing fern, have increased an average of 16 percent in total population over the past two years. These invasive plants will continue to actively compete with and displace native plants, and populations are expected to continue increasing in acreage in the future. New invasive species continue to appear, with species such as Nepalese browntop showing a 25 percent increase in acreage in Georgia over a two-year

period. Other invasive species that have been established in Georgia, such as Chinese tallow tree and non-native olive are showing increases of 43 percent and 25 percent respectively, in acreage over the same two-year period. The ongoing challenge is to survey native forest for health issues and aggressively monitor and respond to new insects and disease in the forest, urban landscapes, and at points of entry. Management efforts are far more effective when action is taken early to mitigate infestations while they are small and the chances of eradication or control are greatest.

In today's global market, the potential is very real for non-native insects, plants and disease organisms to find their way into Georgia and cause widespread damage. Global markets in Georgia have increased with the Port of Savannah becoming the fastest-growing container port in the nation. New introductions of non-native invasive insects have been attributed to facilities accepting and shipping international cargo containing solid wood packing material. These new introductions have the potential to devastate our native environments. The detection of new non-native invaders, with no natural enemies, is imperative. The Early Detection Rapid Response (EDRR) Program aims to capture introduced pests in the immediate vicinity of Georgia's ports, coastal and inland. The goal is to detect invasive pests at the beginning of their introduction, before they become established with breeding populations.

Legislative support and policies to prevent the introduction and spread of non-native exotic plants, animals and pathogens should

be considered. Interagency cooperation on invasive species management can also be increased through the development and implementation of a statewide invasive species management plan and continued support by the state Invasive Species Task Force. Continued efforts are also needed to strengthen partnerships with Animal Health Inspection Service (APHIS), Customs and Border Protection (CBP), and state agencies in Georgia to function as the first line of defense at our port of entry. Ongoing education is needed for the general public regarding the ecosystem and impacts of non-native invasives. Strengthened Interagency partnerships can influence the control and sale of invasive species in garden centers and retail establishments across Georgia.

### **Wildfire & Prescribed Fire Restrictions**

Fire is a natural part of Georgia's landscape and must be managed for a positive influence on forest sustainability. Wildfire suppression has been Georgia's management strategy for over a century and is essential for public safety and the protection of property. Wildfires can destroy millions of acres of forestland and threaten lives and property if left unchecked. Prescribed fire is a safe way to apply a natural process, ensure ecosystem health and reduce wildfire risk. It is an integral part of sustainability and is supported and promoted by natural resource managers. Prescribed fire offers a proactive approach, providing many benefits for healthy forests in addition to reducing damage from wildfire. Many of our forest ecosystems, flora and fauna, benefit from prescribed fire.



Urbanization places lives and property at risk from wildfire and reduces options for proper fire management. The greatest fire management challenge for forestry professionals is to ensure public safety by providing fire prevention services in the form of prescribed fire and wildfire suppression. The sustainability of Georgia's forest is dependent on attention to both prescribed fire and wildfire suppression.

### Urbanization

Urbanization is a major threat to forest sustainability, and continues to be the largest single reason forests are converted to non-forest uses. According to US Forest Service assessments, urbanization and fragmentation are the leading threats to the Southern forest. At present, 84 percent of Georgia's population live in either in urbanized or wildland urban interface (WUI) areas. Research has shown that in areas where population density exceeds 150 people per square mile, ongoing timber management ends. This land use change indicates a lack of economic support for local ongoing forestry operations on a significantly increasing land area. This trend is expected to continue. The GFC's Urban & Community Forestry group will embark on a canopy change study from 2017-2024 that will show urban versus agriculture forest loss with a high degree of accuracy. The study will be completed in June of 2025. Studies like this will further assess the change in rural land acreage and the pressure of urban growth on the sustainable wood products market.

Urbanization increases apprehension about fire. Air quality has become a major concern in Georgia, and prescribed fire has been targeted as one of many



sources of harmful emissions. Drift smoke from prescribed fire and wildfires concerns urban dwellers. An important challenge is to help Georgians understand the life-sustaining properties of healthy forests, and the natural role fire plays in ecosystems.

These changes permanently remove acreage from forest cover, thereby increasing storm runoff, water quality issues and flooding. It also has negative impacts on air quality, aesthetics and local climate.

Another impact of the change in land use is the previously-mentioned issue of forest fragmentation. Fragmentation results in less efficient management units, which contribute to cost increases and resource management difficulties. Though fragmentation may not result in forest canopy loss, in many cases the resources on the tract become unavailable to markets.

### Natural Disasters

Natural disasters pose a constant threat to our forest resources. Some of Georgia's most recent natural disasters are as follows:

- On April 12 -13, 2020, a severe weather event extended across Georgia. This weather event spawned 30 confirmed tornados affecting 31 Georgia Counties. The counties with the largest amount of timber damage were Washington, Jefferson, Burke, Chattooga, Walker, and Upson Counties. The tornados damaged 5,218 acres with an estimated timber value of \$3,692,960.
- On March 25-26, 2021, an EF-4 tornado touched down in the west central piedmont region of the state. The counties affected were Heard, Coweta, and Fayette. The tornado caused damage to 4,745 acres with an estimated timber value \$2,731,600.
- On April 5-6, 2022, a severe weather event extended across Central and South Central Georgia. This weather event spawned multiple tornados. The counties with timber damage were Bryan, Twiggs, Houston, Early, Brooks, Macon, Taylor, and Dooly Counties. The tornados caused damage to 2,546 acres with an estimated timber value of \$1,888,832.



- On January 12, 2023, eight tornados struck Central Georgia. The counties with the most timber damage were Butts, Henry, Jasper, Meriwether, Newton, Pike, and Spalding Counties. The tornados caused damage to 21,170 acres with an estimated timber value of \$14,772,063.
- On August 30, 2023, Hurricane Idalia brought heavy rain and winds (20-70 miles per hour) through southeast Georgia. It is estimated that Hurricane Idalia damaged 11,079 acres of timber with an estimated value of \$9,260,171.



### Markets for Timber

In many parts of the State, forest landowners are growing timber at a rate faster than markets can absorb it. This is either because of improved forest management or a paucity of markets for specific timber product classes. This has led to depressed prices that landowners receive for their timber. The high cost of replanting after harvest presents a challenge to landowners who in some cases choose not to replant the forest or in cases convert the land use to other options such as agriculture, solar farms, or development.

### Conclusion

Georgia's forests are being sustainably managed at peak efficiency for the delivery of vital products and benefits. And while more trees are planted and grown than are harvested, the pressures of population increases and changing land use patterns are presenting mounting challenges. Inflation, a shrinking ready workforce, and urbanization, among

other elements, are now having tangible effects on the forest industry. As the forestry community utilizes technology and expertise to take on these changes, it is clear that only focused strategies on growth and economic realities will make marked differences moving forward. Decisions made today will surely impact timber supply and outcomes tomorrow.

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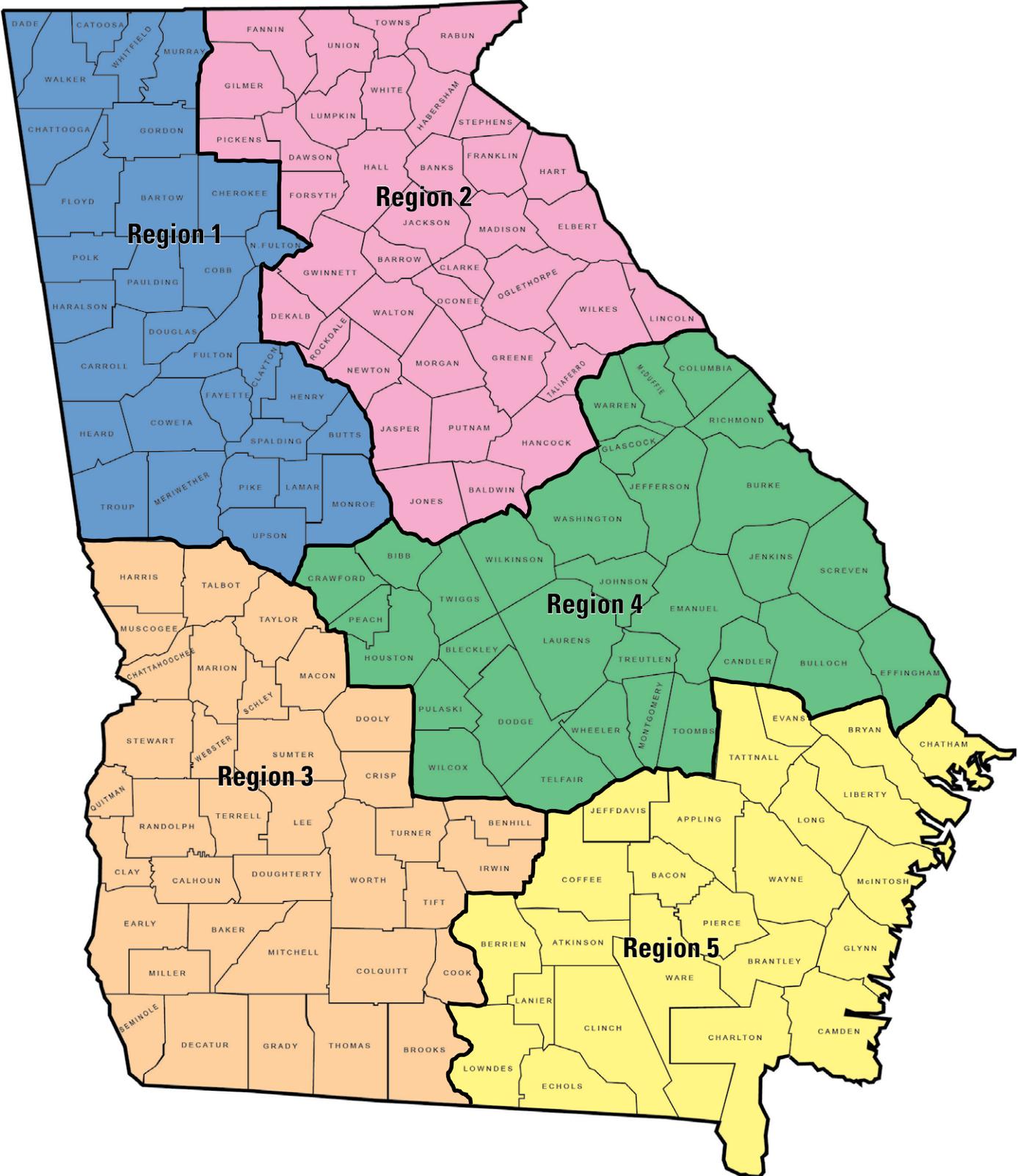


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# Appendix Map - GFC Regions



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