

GEORGIA FORESTRY
COMMISSION



2012 Annual Report



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Forest Management

Forestry-related technical information and assistance is provided to Georgia's private forest landowners by the Forest Management Department to enhance their woodlands for economic, social, and environmental benefits. This system is delivered to private landowners through professional foresters, some of which are assigned counties and deal directly with the public. Other foresters help implement and deliver regional and/or statewide programs including: water quality, forest stewardship and legacy, urban and wildland-urban interface, forest health, cost share programs, and forest inventory and analysis. By statute, the GFC is authorized to take action pertaining to the nurture and culture of Georgia's forests, to monitor and suppress forest insect and disease outbreaks, and by authority granted by the Georgia Environmental Protection Division the GFC is the authority to monitor and investigate water quality issues pertaining to any type of silvicultural activities.

The Georgia Forestry Commission also manages several state forests for multiple objectives including traditional forest products, clean water, wildlife habitat, and recreational opportunities. Assistance is also given to other state agencies with the management of forest lands they own and these include: Georgia Department of Natural Resources, Georgia Department of Transportation, University of Georgia, and Georgia Department of Corrections. Assistance to these other agencies vary from developing management plans to meet the owning – agency's objectives to conducting a variety of silvicultural treatments (timber sales, site preparation, tree planting, prescribed burning, and planning and implementing road improvements).

COST SHARE INCENTIVE PROGRAMS

Cost share incentive programs play an important role in assisting Georgia landowners with properly managing their forests. GFC partners with the Farm Service Agency (FSA), Natural Resources Conservation Service (NRCS), U. S. Forest Service (USFS), U.S. Fish & Wildlife Service (USFWS) and the Georgia Department of Natural Resources (DNR) to deliver these programs. GFC takes the lead role on some programs and serves as the technical agency responsible for determining specifications necessary for landowners to install a range of forestry practices. GFC efforts

have resulted in a total of \$7 million going to landowners to help fund completed practices. See *Table 1* for a breakdown of the dollars by incentive program.

The following is an overview of GFC accomplishments within each incentive program:

Conservation Reserve Program (CRP) - CRP was primarily created to provide soil erosion protection and crop base reduction but was expanded to improve wildlife habitat. GFC provided assistance on 2286 CRP cases covering 84,767 acres. As a result of this work, approximately \$874,000 went to GA landowners to help fund forest management practices. Also, these participants will receive rental payments for a total \$1.8 million annually for the next 10-15 years depending on the contract length. The total dollar impact for the year is \$2.69 million.

Emergency Forest Restoration Program (EFRP) - Recent tornadoes resulted in the funding of EFRP. GFC foresters assisted FSA with the planning and oversight of contracts to restore damaged/destroyed forests. GFC provided oversight to 13 forest restoration contracts covering 309 acres. As a result of these services landowners received approximately \$63,000 in cost share payments.

Environmental Quality Incentives Program (EQIP) - The Georgia Forestry Commission assists the NRCS in implementing the EQIP forestry practices. Assistance was provided on initial prescription plans for 338 practices covering 12,586 acres. The performance of 294 practices was also certified covering 12,028 acres. As a result of these services landowners received approximately \$1.2 million in cost share payments.

Wildlife Habitat Incentives Program (WHIP) - The Georgia Forestry Commission assists the NRCS in implementing the WHIP forestry practices. Assistance was provided on initial prescription plans for 294 practices covering 13,595 acres. There were 415 practice performance inspections completed covering 17,406 acres. As a result of these services landowners received approximately \$2.2 million in cost share payments.

Southern Pine Beetle Prevention & Restoration Program (SPBPR)

– In cooperation with the USFS, GFC offers cost share to help minimize the impacts of the southern pine beetle. The grant is primarily utilized for direct cost-share payments to landowners to implement several prevention practices to treat high risk stands and for several restoration practices. Landowners deal directly with their county GFC forester for all phases of the program (application, needs determination, practice supervision, performance check, final reporting and payment requests) and payments are made directly from the GFC Administration Department in Macon.

Assistance was provided on initial prescription plans for 922 practices covering 53,301 acres. There were 293 practice performance certifications completed covering 37,745 acres. As a result of these services landowners received approximately \$696,925 in cost share payments.

Invasive Species Plant Control Program (ISPC) - The USFS has provided federal grants in this program area to help control invasive plants in Georgia. These grants were primarily utilized for direct cost-share payments to Georgia landowners to help control privet, Japanese climbing fern, tallow tree, multiflora rose and olive spp.

Assistance was provided on 131 initial prescription plans covering 4096 acres. GFC personnel went on to certify the performance of 47 plans covering 1,084 acres. As a result of these services landowners received approximately \$43,688 in cost share payments.

Partners for Fish & Wildlife Program - The GFC assists the USFWS with the technical side of this program. The focus of the program is the restoration of longleaf pine ecosystems, riparian/stream habitat & endangered species habitat.

Assistance was provided on nine initial prescription plans covering 513 acres. GFC personnel went on to certify the performance of six plans covering 292 acres. As a result of these services landowners received approximately \$65,700 in cost share payments.

Table 1: Cost shares Provided Directly to GA landowners related to GFC services

Program	2012 Fiscal Year
CRP	\$ 2,692,297
EFRP	\$ 63,008
EQIP	\$ 1,204,806
WHIP	\$ 2,238,387
SPB	\$ 696,925
Invasive Plant	\$ 43,688
Partners	\$ 65,700
Totals	\$ 7,004,811

FOREST WATER QUALITY

The Georgia Forestry Commission has a contract with the Georgia Department of Natural Resources Environmental Protection Division (GAEPD) to coordinate the state's forestry water quality program. The major responsibilities include Best Management Practices (BMP) education in an effort to minimize erosion and sedimentation from all silvicultural practices; complaint investigation and remediation; and BMP monitoring. The Commission's program is managed with four full-time regional water quality forester positions and nine part-time district water quality forester positions to assist in this statewide effort to keep Georgia's waters clean during forestry operations.

During FY2012, 149 BMP talks were given to over 6,300 people. Six of the talks were presented to 285 new loggers and foresters participating in the American Forest and Paper Association sponsored Sustainable Forestry Initiative's Master Timber Harvesters' Program (MTH). Participants are able to interact with various experts speaking on the sustainable forest initiative, silviculture, wildlife habitat, endangered species, wetlands, water quality, harvest planning, business management, OSHA rules, workers' compensation, and safety management.

In order to deliver wood to SFI participating mills, MTH participants are required to complete twelve hours of Continuing Logger Education (CLE) classes every two years. Four of the hours must be environmental, which includes BMP related training. The GFC provided 42 BMP talks at continuing logger education classes during the year. These presentations included BMP talks forest industry sponsored workshops, forest landowner workshops, Southeastern Wood Producers Association (SWPA) sponsored meetings, Society of American Foresters Chapter meetings, and various other state or local government meetings. Topics focused on stream crossing BMPs and strategies for loggers, proper forest road building techniques, along with updates on current regulatory issues and challenges for the forestry community from the local, state, and national level.

The GFC maintains a list of MTH timber buyers who have completed this training on its web site and a link to the UGA MTH list of all participants. The BMP manual is also on the web site at: gatrees.org. During the year, GFC entered into a partnership with SWPA to develop an online logger training capability. The goal was set to develop two to four online modules that would be available any time to loggers needing CLE credits. The project is ongoing with hopes of realizing the goals during next fiscal year.

The Water Quality Program received 70 documented water quality complaints related to forestry practices during the year. Approximately 156 site visits were made by the GFC district water quality foresters to investigate and mediate those complaints.

GFC district water quality foresters made approximately 200 BMP pre-harvest advice site visits. Sample timber sale contracts and invitations to bid, which include specific BMP language, are available at all GFC offices.

In an effort to determine if our educational efforts are effective, the GFC conducts a statewide BMP implementation survey every other year. The sites are selected to meet a stratified random sample which is based on the volume of wood harvested by county and the number of acres treated by the different ownerships (non-industrial private, forest industry and public lands). The sites have to experience forestry activities within the past two years, preferably within the last six months. Sites cover all geographic regions of the state.

During the year, GFC has completed the 2011 BMP survey and completed the final report. The full 2011 BMP Implementation report, along with a highlights brochure is available at *GaTrees.org*.

The GFC plows approximately 30,000 miles of firebreaks annually. The potential for erosion and stream sedimentation could be great if BMPs are not installed properly. Violations of water quality standards (sediment) could subject landowners to hefty fine by GAEPD. Therefore the GFC has an aggressive implementation and evaluation policy to ensure firebreaks are in compliance with BMPs. During the year, GFC personnel evaluated approximately 1,540 miles of pre-suppression and wildfire firebreaks on 814 sites for BMPs. Results indicate that GFC has made great strides in learning to install firebreaks according to BMPs in order to protect soil and water resources. BMP implementation averages 94 percent as determined from the 814 sites inspected across the state.

In it's biennial reports, on Georgia's water quality in streams and other water bodies, the GAEPD continues to identify stream segments impaired by various pollutants. Georgia continues to be under a federal court consent order requiring the development of over 1,100 Total Maximum Daily Load (TMDL) plans to provide strategies to improve conditions in these streams. Many of these segments are impaired due to sediment inputs attributed to nonpoint sources of pollution, which can include silvicultural operations. Additional segments are impaired because of low dissolved oxygen levels attributed to nonpoint sources of pollution as well. The GAEPD has contracted with many of the Regional Development Councils to write TMDL Implementation Plans to meet the TMDL requirements and is expecting the GFC to assist in the development of the forestry component for those plans.

URBAN & COMMUNITY FORESTRY

GFC, through a partnership with the USDA Forest Service, provides assistance to communities with planting, protection

and maintenance of community trees and forests. In FY-2012, Georgia had 138 Tree City USA communities, nine Tree Campus USA schools and one Tree Line USA utility.

Funds from the Urban & Community Forestry Assistance program were redirected in FY-2012 due to an overall decrease in Federal funds and fewer applications from new partners. To continue to strategically reach communities and help them acquire storm mitigation plans, management plans, tree ordinances, arborist assistance and new local tree groups, the GFC used the federal funding to contract with the Georgia Urban Forest Council and three circuit-rider arborists to make personal visits and assist communities to develop community forestry programs that will be effective and efficient in managing their forest resources. In addition, 167 trees were planted at four elementary schools and three pocket park playgrounds using the GFC's "Making the Shade" grant.

To celebrate Arbor Day, SCFP sponsored Tim Womick's "Trail of Trees" educational programs. Nine elementary schools and a community event hosted eleven programs in which over 2,400 students and adults were informed about the benefits of trees.

The SCFP also continued to provide technical advice through the Ask the Arborist (ATA) project to communicate more effectively with homeowners across the state and to provide citizens with timely, unbiased information from a GFC-certified arborist. The project, which is web-based, had more than 150 contacts in the third year. Several publications were added to the website including, "Is My Tree Safe?" and "What's My Tree Worth?".

GFC received funding to help create and expand the American Grove, *AmericanGrove.org*, a social networking website that reaches consumers with tree benefits messages and encourages them to take action and plant trees. The American Grove has more than 3,000 members nationwide.

The Okefenokee Swamp and surrounding coastal plain region is a biologically diverse area that includes working forests and farms, pristine estuaries and coastal communities. Rapid growth, development and conversion of these natural areas to other uses threaten this unique region. With Redesign funding, a Green Infrastructure (GI) Management System Guidebook to identify, link and collectively manage these diverse ecosystems was developed in partnership with the Coastal Regional Commission. In FY-2012, approximately two million acres were mapped and identified as critical habitat to be used for potential hubs, corridors and multi-use sites. Three presentations were provided to partner organizations on the coast.

Storm mitigation planning workshops were held in Gainesville, Marietta and Mansfield to introduce communities to the GFC's Community Forestry Storm Mitigation Plan Workbook and

Template. Approximately 40 communities from across the state participated in these workshops which incorporated Georgia Emergency Management Agency Area Coordinators, an overview of the workbook and template, and a storm mitigation mapping exercise for each community represented.

FOREST INVENTORY & ANALYSIS (FIA)

The Forest Inventory and Analysis Program in Georgia collected data on 1045 plots from October 1, 2011 through September 30, 2012. Of these plots, 46 were NFS Intensification Plots on rugged National Forest land that included a Downed Woody Material (DWM) survey on each subplot (all of these plots had to be newly installed, which adds time). Also of the total, 26 of the plots were DWM Plots which had normal P2 variables collected with Downed Woody Material variables added. P2 Plus took the place of P3 this year, and of the total 1045 plots, 62 were P2 Plus, which adds a veg. profile, DWM and extra crown variables to the normal P2 variables.

The average for all of Georgia's plots that were check cruised in FY-2012 was an excellent average score of 96.70%. Georgia's QA score average is consistently among the highest in the south. We had 2 new cruisers added to our team this year and they are still improving in their cruising skill. Most of our cruisers have 4+ years of experience.

Data collection of Cycle 10, Subcycle 2 (Inventory Year 2011) was completed on September 15, 2011. Data collection of Cycle 10, Subcycle 3 began September 15th without delay. All 1172 plots in Inventory Year 2011 were completed and transmitted. Georgia began data collection of Cycle 10, Subcycle 3 (Inventory Year 2012) on September 15, 2011. As of September 30, 2012 we had completed 1041 of the 1131 plots in the Inventory Year 2012 plot list. All plots will be completed by the end of October. We began working on our Felled Tree Study Plots after our August training and will continue working on those through the end of the Cycle.

We continue to work with 6 – 2 person crews of full time Foresters with degrees. The added NFS Intensification Plots and DWM Plots in and around our National Forests have added about 1 month to each subcycle in which we have collected them. Hiring extra people is not an option with states reducing budgets, the cost of fuel and benefits rising and funds received from the USFS only enough to cover our current personnel and operating costs. We continue to make steady progress in our data collection efforts and fulfilling our part in the agreement. The USFS is adding yet more time consuming variables in Version 6.0 of the FIA Manual, which we will start using in Inventory Year 2013 (starting mid – October, 2012 for Ga.). This will add more time to each plot, especially as our Foresters get used to the new data collected.

Most of our FIA Foresters have over four years experience. Experienced crews can do around 1.5 times the work of a new crew. We hired two new FIA Foresters this FY. We had one Forester transfer from another job within the GFC who started November 1, 2011. The other new Forester began November 16, 2011. Both of them passed the FIA Certification Plot this FY.

Two Southern State FIA Coordinators' meetings were held in FY-2012: A fall conference call on November 4, 2011 and an in person meeting in Knoxville, Tennessee the week of March 26, 2012. A fall conference call continues to work better than having two face to face meetings each year. This saves a good amount of time and travel expense and still allows us to stay informed as to how the program is changing and voice concerns.

P2 Plus Training took the place of P3 Training this year. The training took place in Macon on May 9, 2012 with a combination of webinar and field exercises with the USFS QA Foresters. We had a Felled Tree Study Training in Cartersville, Ga. in August, 2012 to refresh our Foresters on the processes and data entry changes with the program. We attended a 3 day training session for the transition to Version 6.0 of the FIA Manual at the end of September, 2012.

No FIA vehicles were replaced this year. We maintained our current vehicles, GPS units, measurement tools/supplies and digital hypsometers for all the FIA crews. We purchased new laptops for the FIA Foresters and Coordinator this year. All Georgia Forestry Commission vehicles are still pushed past 150,000 miles before replacement is considered. Expensive repairs on vehicles with over 120,000 miles continue to eat into the operating funds.

The Georgia's Forests, 2009 publication, which should have been ready by 2011 is still in progress and hopefully reaching the final stages of writing and ready to enter the proofing/printing stage. I don't expect to see it until late 2013 or 2014. We continue to debate the usefulness of such a lengthy document that contains four to five year old data in it by the time it is published. The FIA web tools and yearly fact sheets remain very useful for querying the most recent data.

FOREST STEWARDSHIP PROGRAM (FSP)

Forestry-related technical information and assistance is provided to Georgia's private forest landowners by the Forest Management Department to enhance their woodlands for economical, social, and environmental benefits.

The Stewardship Program completed its 22nd year of program delivery. This past year the program continued to undergo some significant changes. First and foremost, only plans that

are current, meaning less than 10 years old are counted for annual reporting purposes. Second, with the completion of the statewide assessment and subsequent strategy, consultant plan contracting is limited to funds appropriated for designated priority areas. Currently the cumulative enrollment is 2,827 landowners covering 813,633 acres in Georgia. The cornerstone of the Forest Stewardship Program is the Forest Stewardship Plan developed for each landowner in the program. These plans evaluate the landowner's timber, wildlife, soil, water, scenic, and recreational resources – making specific recommendations on how these resources can be best managed. A total of 220 plans covering 81,476 acres were written in FY12.

Through its Certified Steward designation, FSP also recognizes landowners who demonstrated commitment to forest stewardship by doing an outstanding job of management on their property. 36 new Certified Stewards were recognized in FY12 covering 18,057 acres.

Forest Stewardship Program Accomplishments - 2012:

- Provided assistance to the Georgia Envirothon and Regional FFA Field Days.
- Strengthened a partnership with the National Wild Turkey Federation (NWTf) by developing several Stewardship Field days, a seed/habitat program, and the hiring of a part time biologist to assist landowners in developing management plans.
- Created over 500 acres of habitat improvement on Georgia forest land through the seed/habitat program, which cost-shared over 20,000 pounds of seed.
- Enhanced the partnership with the Quality Deer Management Association (QDMA) through a field day/ seminar.
- Developed a web page for Stewardship and GROWS where landowners can obtain information.
- Created new displays for meetings and other public events with new partners.
- Participated in a TV show on conservation easements and stewardship.
- Finalized the Central Georgia strategic outreach effort.

FOREST HEALTH

The Forest Health Management Group provides statewide leadership and guidance to consulting firms, industry, natural resource managers, landowners, and Georgia Forestry Commission (GFC) foresters on a wide range of forest health related issues. This information and technology transfer allows a diverse group to increase awareness of forest health issues in Georgia and become additional resources in the fight against forest pests. Our forest health staff is increased by each person trained and our team grows by communicating information. Our

goal is to train more than our personnel and staff inside the GFC, our goal is to create cooperative partnerships meeting the needs of the landowners and forestry professionals in Georgia.

The GFC foresters incorporated insect, disease, or invasive species advice into 797 management cases involving 53,128 acres for the year. Each Stewardship and Tree Farm plan written in the State of Georgia incorporates advice to landowners concerning forest health issues, and insect and disease advice is incorporated in each plan; 298 plans were presented to landowners with a total acreage of 140,419 acres.

Statewide, forest health training was provided to foresters, resource managers, loggers, public works departments (state and county), nurserymen, regulatory agencies, and landowners on 82 occasions with 3,931 attendees being reached. This training included field days, exhibits, demonstration plots, field training, hands-on education, and classroom presentations. These sessions involve most of the program areas listed in this report.

Our forest health staff conducted five radio interviews with Georgia Public Radio (GPR), and National Public Radio (NPR), nine television interviews were also conducted in the Albany and Atlanta areas in 2012. Our goal is to share our message of Forest Health Management that "Protecting the health of our forest is a top priority of The Georgia Forestry Commission and the people of Georgia."

SPECIAL NOTES OF INTEREST

Pine Health Issues

Significant pine health issues in natural pine stands and pine plantations have been observed in various areas in Georgia in recent years. Much of the mortality of pine trees can be attributed to the causes documented in this report including: prolonged drought, annosum root disease, southern pine engraver beetles (*Ips* species), and the southern pine beetle (*Dendroctonus frontalis*). However, the factors associated with thin crowns, declining growth rates, and mortality in some mature loblolly stands and younger loblolly pine plantations, especially in southwestern Georgia and central Alabama, are unclear and have been brought to the attention of Georgia Forestry Commission foresters, among others. Many predisposing factors, biological organisms, and cultural practices may be involved in pine health problems and the role that each may play is a topic of considerable discussion and controversy.

Georgia Forestry Commission forest health foresters and forest health specialist actively participated in discussions concerning pine health issues in the Southeast, and were instrumental in the formation of an "ad hoc Pine Health Working Group" involving University of Georgia and USDA Forest Service scientists. Georgia Forestry Commission participated in a number of

meetings, conference calls, a field trip to Southwest Georgia to observe a number of problem stands on private land, which resulted in the USDA Forest Service, Southeastern Research Station funding an ambitious research project lead by Dr. Kamal Gandhi, UGA forest entomologist. The objectives this project is to determine the extent and causes of declining pine growth and pine mortality in Alabama and Georgia. The Georgia Forestry Commission has offered to facilitate the location of potential research sites.

Rhizoctonia Seedling Blight

Rhizoctonia Seedling Blight of longleaf pine was first observed in Georgia in 2010 causing mortality in seedlings with symptoms appearing first in the grass stage. It was determined that prolific seeding of Partridge Pea created excessive shading conditions of the forest floor, restricted available sunlight and possibly created a microclimate conducive to the success of the unwanted fungus. Rhizoctonia Seedling Blight has been found in Georgia and the Longleaf Alliance has found Rhizoctonia Seedling Blight across Alabama.

Once the problem was recognized as a regional issue, The Longleaf Alliance initiated field studies to recommend herbicide application rates to control partridge pea spread, and a forest health pest alert was issued for the occurrence of Rhizoctonia blight in longleaf pine. Postings can be found on the Georgia Forestry Commission's public web site: (**Rhizoctonia blight in longleaf pine**). <http://www.gatrees.org/forest-management/forest-health/alerts-and-updates/LongleafPineMortalityRhizoctoniablightAug2010.pdf>

In 2012, the occurrence of Rhizoctonia in young Longleaf plantations has decreased, and many landowners are following the recommendation for using partridge pea in native warm season grass plantings. There have been reports in middle to west Georgia from landowners having problems with reseeding of Partridge Pea. The standard recommendation is to mow infested fields early in spring to restrict Partridge Pea growth and seeding. This appears to be a viable recommendation, but normally mortality has occurred by the time the landowner mows.

This is not a widespread problem and the mortality was limited to relatively small areas in 2012.

Tremex woodwasp

A new first introduction of Tremex woodwasp (*Tremex fuscicornis*) was identified during warehouse trapping in the summer of 2012. This new woodwasp was collected in Elberton, Georgia when a container shipment was opened. The warehouse contact indicated that live wasp were in the container and when opened two of the live wasp were knocked down for collection, several of the remaining wasp left the container and entered the wooded area adjacent to the facility. The samples were submitted to Dr.

Rick Hoebeke, Collection Manager, Museum of Natural History, University of Georgia, who initially identified them as a male and female Tremex woodwasp (*Tremex fuscicornis*). This initial identification was confirmed by the USDA-ARS Systematic Entomology Laboratory (SEL).

Six early detection baited funnel traps were located around the warehouse where the Tremex woodwasp was found, but to date no Tremex woodwasp have been captured. In 2013, a series of delimit traps will be established around, and inside, the warehouse site to detect any populations that may have established in the area.

The Tremex Woodwasp *Tremex fuscicornis* is an insect pest of broadleaf trees. This species prefers stressed trees that are dead or dying in its native range, but in Chile, where it has been introduced, it has caused severe damage to healthy trees. Some of the preferred hosts are: Beech, Poplar, Elm, Maple, Willow, and Oak. From this list of potential host and the introduction area of North Georgia; The Georgia Forestry Commission is taking this new introduction very seriously and has identified this area as a prime site for Early Detection trapping in 2013.

Southern Pine Beetle Pheromone Trapping / Pine Beetle Aerial Survey

The Georgia Forestry Commission (GFC) participates annually in the southern pine beetle (SPB) trapping program, which enables foresters to predict seasonal SPB population levels. This insect has the potential to cause more forest destruction in the southeastern states than all other forest pests combined, so anticipating potential damage is important. Insect traps are deployed in early spring by GFC foresters and are checked weekly for at least four weeks. A model developed by Dr. Ronald Billings (Texas Forest Service) is used to predict population levels. The model is based on the number of southern pine beetles captured and the number of Clerid beetles, a SPB predator, caught in the traps. The history of the trapping program over the past 20 years indicates this model is more than 75 percent accurate.

In the spring southern pine beetle prediction survey, conducted as a cooperative effort between U.S.D.A. Forest Service, Department of Defense (Fort Stewart), and Georgia Forestry Commission a total of 37 traps were placed statewide. All prediction traps in Georgia indicated low SPB populations/activity for 2012, (See 2012 Southern Pine Beetle Prediction Map) <http://www.gatrees.org/forest-management/forest-health/pine-bark-beetles/SouthernPineBeetlePredictionTrapping-2012.pdf>

Based on the trapping data alone, GFC did not expect to see significant SPB activity in the state this year, and these predictions proved accurate with the low SPB numbers revealed during the aerial survey; with the exception of three counties in South Georgia. One large tract located on the Tattnall/Toombs county

line suffered a severe outbreak of SPB in early August 2012 with an estimated 50-60 individual infestation over a 3,000 acre tract. Four additional SPB infestations were discovered in Coastal Bryan County near Richmond Hill, Georgia. (These infestations will be discussed under the Aerial Survey portion of this report)

In 2012, GFC Forest Health Specialists flew a 40% statewide survey to detect the presence of southern pine beetle activity. During the early detection flights, in July, little to no mortality was observed due to active beetle infestation across the state. This lack of activity could have been attributed to increased rainfall across the state. In early August a twenty-five acre outbreak of southern pine beetle was reported on the Tattnell/Toombs county line. The tract had a past history of SPB in 2010 with 100 acres harvested to control an infestation. The landowner was given management advice to mitigate future problems, but failure to follow GFC thinning recommendations resulted in the stands growing beyond 20 years old, never thinned, with a basal area in excess of 200 square feet per acre; a prime location for a SPB infestation. To date over 1,000 acres has been salvaged on this tract due to southern pine beetle and the landowner is thinning the remaining stands.

Three additional southern pine beetle infestations have been identified on private landowners in Coastal Bryan County in 2012. These spots were reported by a consultant forestry group and salvage operations have been performed. Fort Stewart reported one additional infestation on the federal military reservation in the vicinity of the coastal Bryan County spots. This area has been harvested and buffers have been established.

Annosum Root Disease

Widespread damage in recently thinned pine plantations (slash and loblolly) was first detected in 2005, and the disease continues to cause ongoing damage with new sites being reported in 2012. Although the incidence of Annosum Root Disease has declined we continue to get calls to investigate infected stands. The primary region with the highest incidence and most severe mortality is a zone from Augusta to Columbus and south for about 75 miles (correlating to the sandhill and upper coastal plain regions). Ongoing educational outreach programs and many one-on-one field visits with professional land managers have resulted in most foresters being able to diagnose this condition.

Michelle Cram, Plant Pathologist, USDA Forest Service and Dr. Sarah Covert Associate Dean of Academic Affairs, University of Georgia's Warnell School of Forestry and Natural Resources have plans to work with *Phlebiopsis gigantea* as a biological control agent for Annosum root disease of pines in Washington County this coming year.

Although GFC field foresters perform the majority of field inspections, the forest health staff responded to 196 forest

industry/consultant/GFC forester requests requiring field visits throughout the state. Annosum root disease and pine bark beetles were the primary concern in many of these inspections.

Hemlock Woolly Adelgid

A survey for the hemlock woolly adelgid (HWA) was conducted for the ninth year. One temporary employee worked on this survey, concentrating on the western front of the spread and the isolated pocket of hemlocks in the Northwest corner of the state. HWA has now spread throughout the entire natural range of hemlock in Georgia. Many of the eastern stands are experiencing rapid decline and mortality. The counties with HWA include Rabun, Towns, Union, White, Habersham, Stephens, Lumpkin, Dawson, Fannin, Gilmer, Pickens Murray, Dade, and Walker.

The GFC provided assistance to the predator beetle rearing labs at Clemson University, University of Georgia, North Georgia College and State University and Young Harris College. Activities include foliage collection, scouting and preparing beetle release locations, and releasing predators. GFC played a critical role in the logistics of delivering foliage to the labs and getting predators to the forest as the location of these activities moves greater distances from the labs. GFC scouted for suitable foliage collection sites and infested branches were delivered as needed from December through early June.

GFC assisted the USDA Forest Service in scouting and mapping a new Hemlock Conservation Area needed to fill a gap in the geographic distribution of these areas. GFC assisted in scouting and flagging some of the 2012 predator release areas on the Chattahoochee National Forest, scouting 18 areas and releasing predators in twelve of those areas.

The GFC continued to serve in an advisory capacity working with the Georgia Department of Natural Resources (DNR) to help survey and protect hemlocks on state lands. Much work was done on the Wildcat Tract of the Dawson Forest to develop a long range plan for the hemlocks on this property. A mix of chemical and biological control recommendations were offered. A partnership was developed with the Mountain Stewards, a non-profit group active in the area, and local volunteers to chemically treat thousands of trees according to the plan that was produced. Seven predator release areas were scouted on state lands with predators released in two of those areas. The GFC also began scouting predator release areas on US Army Corp of Engineers lands on Carters Lake.

The GFC assisted numerous cities, communities, homeowner associations and individuals regarding HWA. Kioritz injectors are available at GFC offices in Habersham, Union, Lumpkin, Gilmer, Fannin, Murray, and Pickens Counties. One injector was also placed in Rabun County at the UGA Cooperative Extension Office. Most counties reported frequent use of the

tool with some counties having a waiting list. All Kioritz soil injectors were rebuilt and repaired in 2012, with internal parts being rebuilt and calibration tests conducted to insure proper metering of chemicals. An additional injector will be available for use in Northwest Georgia in 2013; this resource will be located in Walker County. At least ten presentations were made to the public on HWA. GFC continued to work with UGA researchers and others to gather the most up to date information on HWA. GFC public website postings were added and updated in an effort to relay this information. <http://www.gatrees.org/forest-management/forest-health/hemlock-woolly-adelgid/>

Walnut Twig Borer / Thousand Canker Disease

The Georgia Forest Health Staff is concerned about the rapid spread of the walnut twig borer and the associated thousand cankers disease from its recent introduction near Knoxville, Tennessee. Ten locations were chosen across north Georgia to deploy pheromone traps to detect the presence of walnut twig borer. The sites were either black walnut plantations or bottomland forests with a large component of black walnut. Four sites were in the Chattahoochee National Forest, four were on state property, one was in a county park, and one on private property. The initial survey began in mid-June and lasted through four 2 week periods. The samples were collected every two week and sent to Dr. Rick Hoebeke, Collection Manager, Museum of Natural History, University of Georgia, for identification.

Additional information was forthcoming in late summer identifying mid-August to late September as the peak flight season for the walnut twig borer. The forest health staff collected three additional two week samples during the peak flight season.

Results of the first eight weeks (four, two week periods) of sampling were negative. Results of the later six weeks (three, two week periods) are still pending.

Laurel Wilt Disease

Laurel wilt is a disease of plants in the Lauraceae family in the United States caused by the fungus *Raffaelea lauricola* that is vectored by *Xyleborus glabratus*, the redbay ambrosia beetle (RAB), both of which originated in Asia. Since laurel wilt disease (LWD) was first recognized near Savannah in 2002, it has spread rapidly through the abundant redbay trees (*Persea borbonia*) in the maritime and coastal plain forests of Georgia, north through South Carolina into southeastern North Carolina, and south nearly to the southern tip of the Florida peninsula. The disease has also killed numerous sassafras trees, *Sassafras albidum*, as it spread inland. Other plants in the laurel family known to be susceptible to varying degrees include: camphor (*Cinnamomum camphora*), avocado (*Persea americana*), pondspice (*Litsea aestivalis*), and pondberry (*Lindera melissifolia*). In recent years, LWD has been confirmed in several distant locations to the west including: Jackson County Mississippi (2009) in the Pascagoula

River drainage, Bay County in the Florida Panhandle (2010), Mobile County, Alabama (2011), and Marengo County, Alabama (2011) where it was killing sassafras in the absence of redbay. The 2011 discovery of LWD in Dade County, Florida poses a serious threat to the avocado industry in South Florida.

The advance of LWD in Georgia has been documented through contacts with landowners, directed road surveys, and assessments of monitoring plots by Georgia Forestry Commission (GFC) Forest Health personnel. The presence of LWD in previously uninfected counties has been confirmed by submitting wood samples from symptomatic trees to Steve Fraedrich, USDA Forest Service, Athens, GA, for laboratory culture and identification of the pathogen, *Raffaelea lauricola*. LWD was confirmed in one new county in 2011 and nine new counties through September 2012, five of which were from sassafras trees in areas where redbay is scarce or absent.

As of October 2012, the disease front in Georgia extends about 120 miles to the northwest, 80 miles to the west, and 155 miles to the southwest from where it was originally discovered near Savannah and includes 39 counties, where approximately seven million acres of forest have been subjected to the disease. The rate of spread has varied along the advancing disease front in Georgia from over 17 miles/year in the southern coastal plain, where redbay trees are well distributed, to less than 9 miles/year to the west in the upper coastal plain where host plants is widely scattered. The rate of spread in Georgia appears to have slowed in areas with sparse host. Many new disease infections along the northwestern advancing front have occurred in sassafras trees, indicating that LWD can infect sassafras in the absence of redbay and may spread beyond previously predicted limits. At least five isolated disease incidents well beyond the previously known distribution of LWD have been documented in Georgia, which likely resulted from human-assisted dispersal of the RAB vector via movement of infested wood.

An Environmental Monitoring project supported by the USDA Forest Service was initiated in 2009 by the Georgia Forestry Commission to document the spread of laurel wilt in Georgia and further our understanding of the disease process in both redbay and sassafras. Standardized permanent plots were established in redbay and sassafras habitats behind, at, and beyond of the advancing disease front to document the LW disease progress, vegetation changes, and survival of host regeneration in southeast Georgia. Sixteen redbay and eight sassafras plots were established in the winter/spring of 2009 and each plot has been reassessed six times through early spring 2012.

Redbay trees with symptoms of LWD die rapidly and are colonized by ambrosia beetles within a several months. Nearly all redbay trees greater one inch DBH are killed by laurel wilt and the disease process from the first symptomatic trees to inactivity in an area usually ranges from about 3 to 4 ½ years. Disease progression is most rapid in areas with high volumes of redbay,

and it is slower in the presence of smaller, more scattered host trees. In most areas, redbay sprouts and regeneration are abundant after the disease runs its course; however the redbay ambrosia beetle and *R. lauricola* remain active at low levels many years after the initial epidemic has passed.

Laurel wilt infects sassafras in a rather haphazard fashion, sometimes killing scattered individual trees; other times killing entire thickets, while other groups of sassafras trees in the area are left unaffected. The largest sassafras trees tend to be killed first and disease spread is sometimes rapid in dense thickets, apparently through interconnected lateral roots, yet some small trees usually remain alive. Ambrosia beetle attacks are most evident at the bases of sassafras trees killed by LWD. Redbay ambrosia beetles are capable of spreading laurel wilt disease in sassafras in the absence of redbay and substantial brood can be produced in larger sassafras trees.

A progress report detailing the GFC Laurel Wilt Evaluation Monitoring project was completed in 2011, entitled "Evaluation of Laurel Wilt Disease in Georgia: Progression in Redbay and Sassafras – 2008-2010." A poster presentation, "Progression of Laurel Wilt in Georgia, 2009-2011" was prepared for the 2012 Forest Health Monitoring Working Group Meeting and is posted on the National Forest Health Monitoring website. Also, a document summarizing this project with the same title as the poster is "in press" for publication in the 2012 Forest Health Monitoring National Technical Report. Final assessments of the permanent plots established for this project will be conducted in fall/winter 2012 and a final report will be prepared to further document the wealth of information generated by this project.

The Georgia Forestry Commission will continue working with the USDA Forest Service, the University of Georgia, and other partners to document the spread, study the biology, and support cost-effective methods for slowing the spread of this destructive nonnative invasive insect and disease. Long distance spread of LWD continues to occur, emphasizing a need for more effective education and other measures aimed at limiting the movement of host material harboring RAB.

More information on LWD can be found at: <http://www.gatrees.org/forest-management/forest-health/laurel-wilt-disease/>. This Georgia Forestry Commission web page provides a summary of this disease, as well as links to a distribution map, progress reports, a poster presentation, and the USDA Forest Service Laurel Wilt website <http://www.fs.fed.us/r8/foresthealth/laurelwilt/index.shtml>

Sudden Oak Death Syndrome

The sudden oak death early detection program continues with 10 watersheds chosen in north Georgia to monitor for the presence of the pathogen (*Phytophthora ramorum*) blamed for west coast

tree mortality. Stream baiting targeted watersheds including Georgia's past positive nursery sites and watersheds with abundant new residential development in the metro Atlanta area with the belief that many of these plants were sold and planted locally and could be causing further *P. ramorum* infections in the landscape undetected. One of these sites detected a new positive for *P. ramorum* in 2012.

In addition, stream-baiting continued around a nursery that had positive plants and soil in 2008. Multiple positive stream baits were found at this location. A cooperative effort has been formed between Georgia Forestry Commission, USDA Forest Service, Georgia Department of Agriculture, Animal and Plant Health Inspection Service, and Clemson University to conduct a vegetation survey along the streams in this area. Stream baiting will continue at this site.

In 2012 an additional positive watershed was detected by an early detection stream-bait. Additional stream baits are deployed to try and narrow the search for the source, and a vegetation survey was conducted along both positive watershed streams to attempt to locate any native vegetation that is infected with *P. ramorum*.

GFC has also been assisting the USDA Forest Service in gathering data comparing pouch stream-bait data with BOBs (bottle of baits) to determine the usefulness of the BOB method.

INVASIVE WEEDS

Cogongrass

Although many invasive plants cause problems within Georgia, most of our efforts have focused on Cogongrass and Chinese privet. Our "Cogongrass Task Force" continues its mission in Georgia to address the threat this plant has toward our environment. Training has been given to resource professionals throughout the state, and the educational campaign continues to help landowners identify the plant. Once landowners find suspect plants, they then notify the GFC to verify the identification, and if confirmed is treated by the GFC (at no charge to landowners). All known cogongrass infested sites are being treated by either the Georgia Forestry Commission, or in a few cases the landowners.

The GFC spearheaded an effort to bring all concerned groups and agencies under this umbrella to detect cogongrass. A total of 23 state, federal and private partners signed an agreement to establish the entire state of Georgia as a Cooperative Weed Management Area for cogongrass in May 2008. These partners were contacted last winter (February) to remind them of the flowering and seeding period that makes it recognizable. Literature was mass printed and given to all partners who expressed interest. The combined effort of this group should have far reaching impacts to help educate the public about cogongrass as well as help locate all infested sites. All information regarding

this non-native invasive weed has been assembled at this web site: <http://www.cogongrass.org/>

The education efforts of the Georgia Forestry Commission have paid dividends and initial cogongrass reports are being filed from private landowners, industry foresters, and some logging operations. Statewide, forest health training was provided to foresters, resource managers, loggers, public works departments (state and county), nurserymen, regulatory agencies, landowners and at field days on 82 occasions with 3,931 attendees being touched. These sessions involved forest health key topics and cogongrass was included as a fundamental part of these training seminars.

There have been 75 new cogongrass infestation sites reported and treated by the GFC during this fiscal year. This is the first year the number of new detections has decreased since the GFC began its leadership role in cogongrass detection and eradication. The GFC continues to treat all new sites with herbicide, normally Imazapyr and Glyphosate, at no cost to landowners. This assistance is only possible through an ongoing grant provided by the USDA Forest Service. This non-native invasive weed has now been found in 52 Georgia Counties, involving 676 sites. In Georgia, 185 acres of cogongrass have been treated with all known sites being sprayed at least once. Most of the infestations in Georgia are between 1/10 - 1/4 acre in size and are not visible from an aerial detection survey. Ground survey and field reconnaissance are the only reliable means of detection. During the post treatment inspection process, approximately 72% of all known sites are being shown as negative for cogongrass. Three consecutive years of negative evaluation is required for a cogongrass site to be deemed as eradicated. There are 131 sites in Georgia that have shown one year of negative post inspection, 137 sites that have shown two years of negative post inspection and 220 sites have been declared eradicated. Herbicide results have been positive with the majority of all sites now being controlled within two growing seasons based on the current herbicide mixture and rates. These mixes and rates are published in a paper produced by the forest health staff and The USDA Forest Service. These recommendations are posted on the Georgia Forestry Commission's public web site: **Cogongrass Eradication Strategies** <http://www.gatrees.org/forest-management/forest-health/cogongrass/GFCCogongrassEradicationStrategiesrevMarch2010.pdf>

In an effort to increase public awareness and education, Mark McClure, Forest Health Specialist, Southwest Georgia continues to write an information newsletter, semi-annually, on the GFC Homepage and is e-mailed to landowners and partners across the Southeast. This newsletter contains reminders for landowners to be vigilant for new infestations of cogongrass, gives pictures for identification purposes,

and provides an update on the current status of cogongrass infestations in Georgia. This newsletter is published on the GFC Homepage at: **Cogongrass in Georgia: Spring 2012 Update** <http://www.gatrees.org/forest-management/forest-health/cogongrass/CogongrassinGeorgia-Spring2012Update.pdf>

Mark also produced a county density map to better depict local infestations and more accurately shows the spread of cogongrass in Georgia. This map is published on the GFC Homepage and can be found at: **County Density Map** <http://www.gatrees.org/forest-management/forest-health/cogongrass/CogongrassCountyDensityMap-1004412.pdf>

An additional map was created in 2011 to show the percentage of inactive cogongrass sites in each Georgia County. <http://www.gatrees.org/forest-management/forest-health/cogongrass/CogongrassPercentInactiveMap-100412.pdf>

The cogongrass banner stands created by the Forest Health Staff has been utilized at numerous public events and workshops. In addition, a cogongrass poster created in 2011 was distributed and displayed in state and federal government offices along with local stores in the community.

Dirty Dozen List of Invasive Weeds

The use of the top twelve "Dirty Dozen List" has proven a valuable tool in the fight against invasive weeds in Georgia. This list uses Forest Inventory and Analysis (FIA) data providing a defensible ranking of invasive plants. During the spring of 2012, the FIA inventory was conducted giving the forest health staff an opportunity to contribute input on the nonnative invasive plants surveyed for in Georgia. This "Targeted Watch list" included species on the original "Dirty Dozen List" but it also was developed using the standard Invasive Plant Definition adopted in 2011.

"Any plant or animal that has normally been introduced and aggressively competes with, and displace, local native communities; normally having no natural enemies to limit reproduction and spread."

The final "Targeted Watch list" consists of twenty-five nonnative invasive plant species that are proven to meet the definition above; aggressively competing with and displacing native communities. This is not to say that the standard FIA nonnative invasive list was ignored, this input simply provided the FIA foresters a working knowledge of the needs of our Forest Health Program. From this 2012 FIA survey we are developing an updated "Dirty Dozen List" to be released in 2013.

Across Georgia our efforts have focused on Chinese privet, Japanese climbing fern, Chinese tallowtree, Non-native olive, and Nonnative rose. This list is subject to change as we encounter

new treats that are entering Georgia. The use of tools, such as FIA data, gives our Forest Health Team the ability to see trends in occurrence and growth, and the data helps us to predict our greatest enemies in the future. Cogongrass is considered to be our greatest threat as an invasive plant and we separate this Federal Noxious Weed out as our number one invasive weed challenge in Georgia.

In 2012, the GFC incorporated The Invasive Plant Control Cost Share Program assisting landowners in the control of targeted species listed as major competitors to our native forests. This Cost Share Program has provided assistance to landowners across Georgia and is being extended for a second year in 2012-13.

Invasive Plant Species Control Program

Addressing invasive species occurrence and control is a growing issue; The Forest Health staff is partnering with The USDA Forest Service, The University of Georgia, National Wild Turkey Federation, and other state, local, and federal agencies to educate the public of the harm nonnative invasive plants can cause in Georgia. Regional and local programs have been conducted during the past year and are being planned to bring relevant and current topics to the landowners of Georgia and our Federal and State partners.

In 2011, the GFC began the Invasive Species Control Cost Share Program assisting landowners in the control of nonnative species, and one hundred landowners were awarded contracts to begin control of Chinese Privet and Japanese Climbing Fern on over 2,100 acres of private lands across Georgia. This initial round of contracts should be completed in the spring of 2012. Approximately one half of the original contracts have been completed and GFC foresters are contacting individual landowners to insure the remained on the contracts are accomplished

In 2012, the GFC continues the Invasive Plant Control Cost Share Program assisting landowners with control of targeted invasive species*. This Cost Share Program is assisting landowners in increasing the amount of healthy, productive forests across Georgia by eliminating nonnative, invasive plants. Invasive plants aggressively battle for growing space, out competing native vegetation including herbaceous and woody plants. If left unchecked, lands occupied by these plants become unproductive and native flora (and fauna) can be completely displaced. This program targets certain invasive plant species listed as a top concern by foresters in Georgia. Many practices can be used to minimize or eliminate invasive plants including the use of herbicides or a combination of mechanical and herbicide treatments. For 2012 fifty-two landowners were awarded contracts to control Chinese Privet, Nonnative olive, Japanese Climbing Fern, and Multiflora rose on 2,250 acres of private lands across Georgia.

Technical assistance is provided to landowners by GFC foresters for evaluation of sites, and determining the steps landowner should take to expect successful results (brief management plan). The forester will inspect the area at the completion of the practice to determine if the management plan was successfully implemented, and authorize release of cost share funds at that time.

Chinese privet

This is the most widespread and harmful non-native invasive plant to Georgia's forests. The New Forest Inventory and Analysis surveys for 2012 indicates a significant increase in acreage infested with Chinese Privet; preliminary figures show over 500,000 acres infested.

In 2012 almost 95% of the requests for assistance under the Invasive Plant Cost Share Program were for privet control. This nonnative invasive plant continues to be a major competitor in wetlands and is still the number one invasive plant in Georgia in terms of acres affected.

The control of Chinese Privet has proven simple using a foliar application of Glyphosate (4-7%) applied between October and January has shown to be cost efficient and very effective. Applications made, in the winter months, we expect to produce close to a 100% kill by April of the following year. A second application may be required in the following year to eliminate the small amount of regeneration. Normally one application is sufficient to achieve control.

The Invasive Plant Cost Share Program provides assist to landowners in controlling this targeted species and results have been documented across all of Georgia.

Trifoliolate orange (*Poncirus trifoliata*)

On January 13, 2011 the Forest Health Staff began field trials to test application methods, and herbicide rates for control of Trifoliolate orange (*Poncirus trifoliata*) in central Georgia. The goal is to determine optimal application timing and rates for best control using proven application techniques and commercially available herbicides.

Multiple plots were established using cut stump, basal stem, thin line, and foliar applications at varying rates of Triclopyr, Glyphosate, and Imazapyr to determine the most economical and practical application methods for control of this thorn infested invasive.

The initial evaluation of our first field trials was made in June of 2011 and field observations indicated that the most promising techniques were made with low rates of Glyphosate in a foliar application applied during winter months. Surprisingly these rates and application times mimicked the timing and rates used for

Chinese Privet Control. The application of Glyphosate (5 -8%) with 1.5 ounces of Metsulfuron in one hundred gallons of mix, applied between October and February has proven to be extremely affective.

Additional field trials were conducted during the winter of 2012. Three plots were treated on February 2, 2012 using backpack mist blowers and this dispersal method appears to be useful. Herbicides are dispersed using high volumes of air pressure to atomize the herbicide producing fine droplets giving better coverage, higher efficiency, and greater dispersal in difficult areas. Three new evaluation plots were established:

Plot #1 - 10% Garlon 4, 25% Basal Bark Oil plus water.

Plot #2 - 5% Garlon 4, 1% Milestone, 25% Basal Bark Oil plus water.

Plot #3 - 5% Accord XRT, 1% Dyne-a-pak plus water.

The initial evaluation of the second plots was conducted on May, 1, 2012. Using field observations the most promising application, again, was made with low rates of Glyphosate in a foliar application. Within three months of the initial application browning was observed in the cambium layer and dieback on smaller limbs.

Japanese Climbing Fern

Japanese climbing fern is a perennial climbing fern that can reach lengths of 90 ft. (30 m). Vines are thin, wiry, green to orange to black and usually die back in the winter. The fronds (leaves of a fern) are opposite, compound, usually triangular in shape, 3-6 in. (8-15 cm) long, 2-3 in. (5-8 cm) wide and finely dissected. Fertile fronds bear sporangia that produce tiny, wind-dispersed spores. Plants are also spread by rhizomes. Japanese climbing fern often invades disturbed areas such as roadsides and ditches, but can also invade natural areas. It generally is scattered throughout the landscape, but can form dense mats that smother understory vegetation, shrubs and trees. Japanese climbing fern is native to eastern Asia and was first introduced into the United States during the 1930s for ornamental purposes.

Five years ago Japanese climbing fern was virtually unknown in Georgia. This plant is perceived as a potential threat to the health of Georgia's forests, and initial estimates show approximately 20,000 acres of Japanese Climbing Fern in Georgia. This doubles known infestations in Georgia from previous FIA surveys. Increased awareness of this plant has led to a dramatic increase in sightings and identification of this pest. To date Japanese climbing fern has been found as far north as Athens and Atlanta, Georgia.

Field trials show good results in the first year control using 5% Glyphosate and one and a half ounces (in one hundred gallons of solution) of Metsulfuron (Escort XP) sprayed in late summer to early fall. First year evaluations show approximately 95 % control and very little sprouting in the test area. Sites with dense, multiple layers of Japanese climbing fern often required

two treatments of glyphosate in the same growing season to eliminate all layers of fern.

Chinese Tallowtree

In 2012 Chinese tallowtree is native to China and Japan and was introduced to The United States in the late 1700's. This non-native invasive can establish in full shade on a wide range of soil types in the coastal region and South Georgia. Chinese tallowtree is becoming a serious forest health problem in bottomlands, old fields, coastal marshes, disturbed and undisturbed sites, and in urban settings.

Each tree has the potential to produce thousands of seeds annually and it is common to find trees in excess of twelve to fourteen inches in diameter in well-established areas. Seeds are dispersed primarily by birds; and flooding in riparian areas can disperse seeds for miles. These seeds mature in late summer to fall ready to germinate the following spring.

Historically, Chinese tallowtree has been controlled using labor intensive injection methods or basal stem application of herbicide. In the spring of 2010 a new chemical, "Clearcast" (Imazamox), was presented by BASF as an aerial or ground herbicide for application directly over hardwoods with the claim that tallowtree and only tallowtree would be killed. In an effort to increase our outreach and education efforts, a partnership was formed with BASF and SePRO to promote this new technology as an eradication option.

In October 2011, twenty one acres of slash pine were aerially treated using three rates of "Clearcast" to determine if the herbicide can be safely applied over slash pine. Our objective was to apply thirty-two, sixty-four, and seventy-two ounces of "Clearcast" per acre, applied aerially, to evaluate the percent kill on Chinese tallowtree and any collateral damage to the hardwood and pine.

Nine acres of sixteen year old slash pines were treated with 64 oz. /ac. of Clearcast while an additional nine acres of eighteen year old slash pines were treated with a rate of 72 oz. /ac. Three acres of eight year old slash were treated at a rate of 32oz/ac rate. This field trial was conducted west of Hahira, Georgia in Lowndes County. All sites were examined seven and twelve months after herbicide application. Clearcast results were very good with the 64-72oz. /ac rate while the 32oz. /ac rate had very good suppression but epicormic sprouting occurring on most stems twelve months after herbicide application. There was no collateral damage to water oak, red maple, blackgum, or wax myrtle species. There was slight damage to the terminals of sweetgum. Furthermore, there was no visible damage to the slash pine at any of the applied rates.

In addition to the aerial treatment with Clearcast, hack-n-squirt treatments with 50% Accord XRT II (glyphosate), and 5%

Arsenal AC (Imazapyr) were made. Furthermore, a 1% Clearcast treatment was made to a small area using a mist blower. Both hack-n-squirt treatments were effective. However, the 5% Arsenal AC treatment showed overall best results. The 1% Clearcast application with a mist blower showed suppression but not control. Further mist blower treatments with higher percentage rates of Clearcast need to be examined to determine an effective application rate.

In an effort to promote alternative methods for control of Chinese Tallowtree, a collaborative partnership was established with The Jekyll Island Authority to evaluate Tallowtree infestations and control techniques. Two evaluation sites were established near residential communities and written recommendations have been provided to the Jekyll Island Authority on various techniques using chemical control. The Hack and Squirt and cut stump methods are being demonstrated using Garlon, and landowners on the island are encouraged to visit the sites to see the results first hand.

The goal is to promote known, safe, control techniques and demonstrate herbicides as a viable alternative without collateral damage. Residence are discouraged from planting tallowtree in their yard and are informed of the invasive potential of this invasive species.

Early Detection Rapid Response

In 2012, The Georgia Forestry Commission hired one new temporary day labor employee to perform early detection insect trapping around facilities accepting international cargo with solid wood packing material (SWPM).

Thirty-six Early Detection Rapid Response (EDRR) and (36) Cooperative Agriculture Pest Survey program (CAPS) traps were deployed in the Athens and Savannah Ports area for the detection of non-native exotic bark and ambrosia beetles. The traps were inspected on a two week schedule for twelve weeks with trapping ending in July 2012. Specimens collected were cleaned, sorted, labeled and sent to Dr. Rick Hoebeke, Collection Manager, Museum of Natural History, University of Georgia, for screening and identification.

In 2010 a new United States record for *Xyleborinus artestriatus* occurred when the insect was found in a trap near a warehouse in Port Wentworth, Georgia. In 2011 trapping at this same warehouse resulted in the capture of forty-eight *Xyleborinus artestriatus*, but none were caught at traps set a few miles from the initial catch site. In 2012, The forest health staff continues to catch *X. artestriatus* at the original warehouse, but 4 additional warehouses located up to 2.5 miles from the initial catch area are now showing positive results for *X. artestriatus* which would suggest that this new exotic ambrosia beetle is established in

coastal Georgia and is producing breeding populations. To date no damage has been documented on native vegetation in the area, and the preferred native plants have not been determined. *X. artestriatus* have been caught this year in traps baited with ethanol, ethanol/alpha-pinene, and Ips lures. From CAPS data entries additional states have been successful in trapping *X. artestriatus*. Thirteen positive catches have been made for Texas and one in South Carolina.

In addition, 16 Sirex wood wasp traps, 20 emerald ash borer traps and 25 gypsy moth traps were placed in the, Elberton and Savannah areas. These traps have yielded no positive pests to date.

In 2012, Reggie Morgan was hired to conduct early detection insect trapping around facilities accepting international cargo. A contact in a warehouse in Elberton, Georgia collected insects from a container that was opened at the facility. A "Swarm" of live "Wasp" was present in the container, and many of these insects escaped to the adjacent wooded area. The insects that were captured alive were submitted to Dr. Rick Hoebeke, Collection Manager, Museum of Natural History, University of Georgia who initially identified them as a male and female Tremex woodwasp (*Tremex fuscicornis*). This initial identification was confirmed by the USDA-ARS Systematic Entomology Laboratory (SEL), a new introduction into the United States. The Tremex Woodwasp *Tremex fuscicornis* is an insect pest of broadleaf trees. This species occurs in Europe and Asia and prefers stressed trees that are dead or dying in its native range. In Chile, where it has been introduced, it has caused severe damage to healthy trees of importance in agriculture, arboriculture and forestry. Boring by larvae causes severe degradation of wood; in many cases attacks are so heavy to render the wood useless.

Recorded hosts are Beech, *Fagus* sp., *Fagus sylvatica*; Poplars, *Populus* sp., *Populus tremula*, *Populus nigra*, *Populus nigra Italica* (= *Populus pyramidalis* = *Populus italica*); elm, *Ulmus* sp., *Ulmus propinqua*, *Ulmus japonica*; alder, *Alnus* sp., *Alnus japonica*, *Alnus japonica* var. *arguta*; wingnut, *Pterocarya stenoptera*; Persian walnut, *Juglans regia*; birch, *Betula* sp.; maple, *Acer negundo*, *Acer platanoides*, black locust, *Robinia pseudoacacia*; willow, *Salix* sp.; oak, *Quercus* sp.; hackberry, *Celtis sinensis*; *Zelkova* sp., *Zelkova serrata*; *Prunus* sp., *Prunus yedoensis*; hornbeam, *Carpinus betulus* (Smith 1978).

Once a positive identification was made, six early detection baited funnel traps were located around the warehouse where the Tremex woodwasp was found, but to date no Tremex woodwasp have been captured. In 2013, a series of delimit traps will be established around, and inside, the warehouse site in Elberton, Elbert County, Georgia to attempt and detect any populations that may have established in the area.

ADDITIONAL SURVEYS SUPPORTED BY GEORGIA FORESTRY COMMISSION

Sirex Woodwasp

Huge losses of both loblolly and slash pine have occurred on other continents due to the Sirex Woodwasp *Sirex noctilio*, and it remains as a high concern pest that has yet to be detected in Georgia (or the southeastern U.S.). The Sirex woodwasp poses a threat to all of Georgia's southern yellow pines and warrants monitoring through our early detection rapid response protocols.

A series of Lindgren funnel insect traps (baited with alpha-pinene lures for Sirex woodwasp) were deployed at high risk warehouses receiving solid wood packing materials near Savannah and Elberton Georgia. Sixteen traps were located in pine stands near warehouses from June through October to detect any *Sirex noctilio* inadvertently moved into these locations in cargo. These traps are checked every two weeks and any suspect nonnative insects are initially screened for identification by the forest health staff. No *Sirex noctilio* have been caught in our traps to date.

Emerald Ash Borer (USDA-Aphis Funded)

The Emerald Ash Borer (EAB) has devastated ash trees in the northeast and mid-west and could have the same impact in Georgia. EAB was introduced in Detroit, Michigan in 2002 and has since spread as far south as Monroe County, Tennessee; placing Emerald Ash Borer within 35 miles of the Georgia border. Many infestations are started by human assisted spread through the movement of ash logs and firewood from infested areas. Early detection of this new invasive insect is critical to the protection of the forests of Georgia.

Annually, EAB traps are deployed across Georgia in an attempt to detect new introductions present in Georgia. Between April and September triangular, purple, sticky traps (baited with a manuka oil lure and a Hexenol lures) were deployed across Georgia and inspected monthly for suspect EAB. Under the leadership of the Georgia Forestry Commission (GFC), 158 total traps were deployed by GFC personnel, UGA Warnell School of Forestry and Natural Resources, Georgia Department of Agriculture, and Trees Atlanta. Additionally, Delta-21 Resources, Inc. contracted with APHIS and set approximately 600 traps. No Emerald Ash Borers were detected in Georgia in 2012.

With positive catches in Monroe County, Tennessee in 2012, it will be imperative to trap for Emerald Ash Borer in north Georgia in 2013.

Forest / Wood lot / Camp/Park	108 Traps
Urban /Commercial	20 Trap
Urban Residential	8 Trap
Rural Commercial	16 Traps
Other	6 Traps
Total	158 Traps – State Wide*

**This includes traps deployed by the Georgia Department of Agriculture, Trees Atlanta and the University of Georgia. Does not include the traps set by Delta-21 Resources, Inc.*

Gypsy Moth (USDA-Aphis Funded)

The Gypsy Moth is a serious forest pest capable of causing severe damage to hardwood trees, especially oaks. This damage is inflicted as the gypsy moth larvae defoliate entire stands of trees. In cooperation with the USDA- Animal Plant Health Inspection Service (APHIS), the Georgia Forestry Commission (GFC) deploys traps yearly to detect the presence of Gypsy Moth. There are no known infestations currently in Georgia, although the threat is always present.

Georgia has had outbreaks in the 1990's in White, Fannin and Rockdale Counties. These spots were eradicated by state and federal forestry officials. It is likely that they were started by individuals moving cargo with egg masses attached to it from infested areas.

The following accomplishments summarize the work done by the Georgia Forestry Commission under Cooperative Agreement 12-8213-0032-CA. A total of 2,944 traps were placed in 12+ counties. Traps were placed by trained GFC personnel and counties were selected based on a higher likelihood of introduction. No delimiting trapping was conducted in 2012.

Accomplishments:

- GFC personnel deployed traps across the state in 12+ counties in 2012.
- The following counties were trapped: Murray, Towns, Polk, Franklin, Coweta, Henry, Jasper, Greene, Terrell, Effingham, Chatham, and Glynn counties.
- A total of 2,806 traps were placed in these counties by GFC Rangers, Technicians and Foresters. The Forest Health Staff of the GFC placed an additional 138 traps around high risk areas in their work areas. Eight positive catches were made in Chatham and Glynn counties. One moth caught in Murray County is still pending identification.
- No Delimit trapping was conducted this year.
- A grand total of 2,944 traps were deployed in Georgia in 2012.

Exotic Wood Boring and Bark Beetle Survey (USDA-Aphis Funded)

In 2012 the Exotic Wood Boring and Bark Beetle Survey was conducted by The Georgia Forestry Commission and one new temporary day labor employee hired to visit and inspect companies accepting international cargo with solid wood packing material (SWPM). Reggie Morgan was hired in March of 2012 and his demeanor, personality, and experience have proven to be a true asset to these warehouse inspections. He approaches each warehouse with the attitude that we are there to educate their employees and to act as partners in preventing new nonnative invasive insects from entering the country.

The Facility Risk Assessment Scale System (FRASS) developed in 2010 to evaluate and rate facilities for potential risk for exotic pest introductions; has proven to be a great asset in warehouse surveys and is still being used in 2012. Each facility is given a rating based on the type packing material received, moisture content, and continent of origin of the SWPM it handled. Facilities scoring 0-5 points are rated as low risk or "cold" for pests; 6-9 points indicate a moderate or "warm" risk; and a score above 9 points indicates a high or "hot" risk for pests. A facility with a cold rating requires fewer site visits, as they are on the lower risk scale for new introductions, where a high risk site may receive multiple site visits during our survey rotation.

Fifty-two new facilities were found as potential risks in 2012 with over two-hundred total facilities identified as potential risks for exotic pest introductions statewide. Over 250 site visits were made to these facilities this year for warehouse inspection and trapping of nonnative bark and ambrosia beetles; thirty-six traps were established and monitored between March 16 and October 31, 2012. An additional twenty emerald ash borer (EAB), twenty-five gypsy moth (GM) and sixteen Sirex woodwasp traps were deployed at multiple locations in the Elberton and Savannah area. An estimate of the number of trees located at each facility was determined as well as their health. No declining or dying trees were noted during the 2012 survey. It was also noted how long each warehouse existed at a location. An older warehouse has more potential for a pest introduction than a facility that had operated for a short period of time.

Reggie Morgan was hired to conduct trapping and warehouse surveys in 2012, but he also began an education program with the warehouse contacts to explaining the Exotic Bark Beetle Program, provide educational brochures and literature to warehouse workers, and provide literature produced by Mark Raines, Forest Health Specialist, to show warehouse workers color photographs of nonnative insects that might be found in SWPM coming into their facilities. Each contact person was asked to protect and preserve any suspect insects found in their warehouses and to call The Georgia Forestry Commission Forest Health Staff when

suspect insects are found. This education program paid dividends when Reggie received a call from a warehouse in Elberton, Georgia telling him they had collected live insects from a container they opened. These insects were collected and submitted to Dr. Rick Hoebeke, Collection Manager, Museum of Natural History, University of Georgia, who initially identified them as a male and female Tremex woodwasp *Tremex fuscicornis* which was later confirmed by the USDA-ARS Systematic Entomology Laboratory (SEL), a new introduction into the United States. The Tremex Woodwasp *Tremex fuscicornis* is an insect pest of broadleaf trees. This species occurs in Europe and Asia and prefers stressed trees that are dead or dying in its native range. In Chile, where it has been introduced, it has caused severe damage to healthy trees of importance in agriculture, arboriculture and forestry. Boring by larvae causes severe degradation of wood; in many cases attacks are so heavy to render the wood useless.

Recorded hosts are Beech, *Fagus* sp., *Fagus sylvatica*; Poplars, *Populus* sp., *Populus tremula*, *Populus nigra*, *Populus nigra* Italica (= *Populus pyramidalis* = *Populus italica*); elm, *Ulmus* sp., *Ulmus propinqua*, *Ulmus japonica*; alder, *Alnus* sp., *Alnus japonica*, *Alnus japonica* var. *arguta*; wingnut, *Pterocarya stenoptera*; Persian walnut, *Juglans regia*; birch, *Betula* sp.; maple, *Acer negundo*, *Acer platanoides*, black locust, *Robinia pseudoacacia*; willow, *Salix* sp.; oak, *Quercus* sp.; hackberry, *Celtis sinensis*; *Zelkova* sp., *Zelkova serrata*; *Prunus* sp., *Prunus yedoensis*; hornbeam, *Carpinus betulus* (Smith 1978).

Once positive identification was made, six baited funnel traps were located around the warehouse where the *T. fuscicornis* was found, but to date no Tremex woodwasp have been captured. In 2013, a series of delimit traps will be established around, and inside, the warehouse site in Elberton, Elbert County, Georgia to attempt and detect any populations that may have established in the area.

In an effort to increase awareness of nonnative insects, a four page color brochure is being developed to provide a visual representation of the pests targeted in our annual surveys. This brochure will depict some common nonnative insects found in SWPM, and the more exotic insects that we expect to see in the near future. This material will be left with warehouse contacts to be posted in break rooms, work areas, lunch areas, and loading docks for the warehouse workers to see.

During the summer of 2012, the forest health staff conducted a warehouse inspection tour with Animal Plant Health Inspection Service (APHIS). Dr. Bill Kauffman, State Plant Health Director, Georgia was provided the opportunity to see firsthand the inspection process in coastal Georgia. We were able to demonstrate the usefulness of these surveys and to show how these inspections play a vital role in protection our natural resources in Georgia.



Forest Protection

WILDFIRE ACTIVITY

Georgia lost more than 27,162 acres to wildfire in FY12, bringing the 5-year average of acreage burned annually to 78,268. Fiscal Year 2012 was a relatively moderate year in both fires and acres. Our fire numbers for 2012 were approximately 20% lower than the five-year average and the acreage total was 65% less than the five-year average. Overall, debris burning was the number one cause of wildfires and accounted for 9,007 acres, with lightning fires following as the second leading cause with 5,548 acres. Ogeechee District in Southeast Georgia had the highest acreage burned with approximately 6,584 acres lost to 1,441 fires. Flint District ranked second highest with approximately 5,531 acres lost to 1,206 fires. Coosa District had the third highest acreage burned, with approximately 4,790 acres lost to 677 fires

COUNTY & DISTRICT OFFICE OPERATIONS

During 2012, Forest Rangers serviced 3,090 requests for firebreak harrowing for a total of 19,117 miles. There were 3,260 landowner requests for firebreak plowing for a total of 13,579 miles.

Online permits allow homeowners to receive permits via the internet for burning small piles of Hand Piled Natural Vegetation. The Georgia Forestry Commission highly promotes the use of the internet to obtain permits, however; those without internet access may receive a permit for hand piled vegetation by calling 1-877-652-2876. During FY12, 794,002 burn permits were issued in Georgia. Of that total, 148,596 permits were issued online and 551,425 permits were issued by the automated permit service.

WILDFIRE PREVENTION

With extreme drought across much of the state fire prevention principles were a top priority for the agency. Wildfire prevention is a key component of Georgia's Fire Program. The Wildfire Prevention effort in Georgia is coordinated through six District offices, 131 county offices, and Macon Headquarters. GFC's state budget is complimented significantly with monies available from the National Fire Plan Grant Program.

GFC's main prevention philosophy is to target specific high fire areas and fire causes, thus affording the highest results. One of the foundations of this approach has been the 50 County Grant Program, in which the counties with the highest fire numbers develop plans to address their fire problems. These counties have consistently shown that concentrated fire prevention aimed at particular problems can have profound results.

GFC also provides fire prevention efforts that are presented at large events across the state, including the Georgia Mountain Fair, Moultrie Sunbelt Expo, the Buck-a-Rama/Fish-a-Rama and Turkey-Rama, and the Georgia National Fair at Perry. Prevention messages are also developed for fire prevention signs, displays, brochures, and news advertisements. We present programs during the times of year during which we experience an increase in wildfires and also reach our target audiences.

One of our most visible programs has been using the UGA Bulldog Radio Network to broadcast fire prevention messages during the UGA football games. Response to the campaign has been positive the past four years.

The use of social media including: Facebook, Twitter, and Pinterest have been critical in getting information quickly out to the general public. Working directly with our Communications Department we have had great success in seeing our message reach new audience state and even throughout the region.

Two Interagency Fire Prevention Teams were organized and deployed within the State during the year. Due to high wildfire concerns in areas of NW Georgia impacted by the tornados and the increase available fuel loads created by the large amount of blown down vegetation and trees, one Team was worked in those areas to provide wildfire prevention and education to homeowners, landowners, and municipalities who were engaged in debris clean up and using prescribe fire as part of the cleanup efforts. In addition, Team members targeted damaged areas in an effort to reduce the threat of wildfires. A second Fire Prevention Team was deployed into the SE Coastal Regions of the State where progressive

drought and high fire danger was a major concern. The efforts of this Team were highly successful and the Team was awarded the Robert E. Browning, Jr. Fire Prevention Award which is recognition by the US Forest Service for outstanding fire prevention efforts.

COMMUNITY WILDFIRE PROTECTION PLANS (CWPP'S)

The Forest Protection Department received redirection grant money over a three year period beginning in 2009 from the USDA Forest Service to promote Community Wildfire Protection Plans (CWPP's). The Georgia Forestry Commission is in the third year of this grant program. We hired two additional specialists to assist with GIS and to help manage a program geared towards developing countywide CWPP's in communities with the highest risk for wildfire, as identified by the Southern Wildfire Risk Assessment. Each CWPP contains an action plan to help mitigate each of the communities' wildfire risks. Key stakeholders in the counties will work together on a collaborative effort to reach the goals specified in the plan. These plans will also fulfill the State Emergency Management Hazard Mitigation requirements for the state's Hazard Mitigation Plan required by FEMA. This three-year grant will be used to develop plans for 143 Georgia counties. We have initiated 139 county plans; over 100 have been completed.

FIREWISE AND FIREWISE COMMUNITIES/USA

The Firewise and Firewise Communities/USA Programs were active in Georgia during FY11. Last year, two Firewise Communities/USA were recognized and this year we have 19. These communities encompass more than 4,400 structures and 10,600 residents who are taking responsibility for their own fire prevention and protection from wildfire. Six other communities are preparing Plans of Action to submit for national recognition this year. And the momentum doesn't stop there! An additional 12 communities have been contacted and are making decisions about pursuing Firewise Communities/USA designation. With new leadership of our new program manager, hope for continued success in this important statewide program.

TYPE II INCIDENT MANAGEMENT TEAM

The GFC Type II Team, established in 2004, continues to be called upon to manage many incidents and has grown with each deployment. Fiscal Year 2012 started out where Fiscal Year 2011 left off as the GFC Type 2 team finished up an additional deployment to the Honey Prairie Fire in August. As the fall progressed, fire threats continued to lessen and the team did not have another assignment.

GFC team members and other qualified employees provided aid in Florida and in Virginia for suppressing wildfires during April of 2012. No other requests for our team was made in Fiscal Year 2012 however, a growing increase for resources in Colorado and Arizona was occurring towards the end of June 2012. The Western wildfire threat was on the increase.

Our team membership increased to 103 members after the activity in 2011. The team is growing; the team is still ambitious to include future plans of integrating other agencies into membership and building a Multi-Agency All-Hazards Team for Georgia. Each year the team builds on its experiences and is establishing an excellent reputation for the Georgia Forestry Commission and the state of Georgia.

LAW ENFORCEMENT

The Georgia Forestry Commission Law Enforcement Program continued to make progress in its ability to investigate arson fires and identify those responsible. Through training, experience, equipment acquisitions, and the hard work of our investigators, the program is moving toward becoming the best forestry investigation program in the country.

The Law Enforcement Program was awarded a USFS Redesign Grant to develop a Southern Area Arson Task Force. The project will begin in FY13 with training, with all the southern area forestry agencies participating. The main goal of the project is to organize the forestry investigators in the southern area so that resources can be shared between the states in times of high fire activity, major fire investigations, and serial arson investigations. An organizational plan will be presented to the SGSF at their next annual meeting.

From July 1, 2011 through June 30, 2012, GFC Investigators examined 152 fires, 98 of those were determined to have been arson. Those investigations resulted in 15 criminal charges being filed against suspects. Investigators were only able to investigate a small portion (less than 10%) of the 716 incendiary fires GFC reported during Fiscal Year 2012.

In conjunction with the Central Response Center, GCIC/NCIC access was obtained allowing GFC Investigators direct access to criminal history and wanted person/property databases. This was a major undertaking and provides much more effective investigations.

Additional grant applications have been completed to provide fire investigation training to GFC suppression personnel, purchase equipment, and fund media campaigns.

PRESCRIBED FIRE

Prescribed fire is defined as a safe way to apply a natural process, ensure ecosystem health and reduce wildfire risk.

This year, there were 916,000 acres treated with prescribed fire in Georgia. The Georgia Forestry Commission gave on-the-ground assistance with 120,062 of these acres, while also providing technical advice, weather forecasts, assistance in writing plans, and prescribed fire workshops for landowners across the state. The total acres were down this year due to unfavorable weather conditions and the extreme drought we are experiencing in Georgia. In some cases, the use of prescribed fire was discouraged as not to bring damage to the trees in the stands.

Often misunderstood by the general public, this age-old forest management practice requires support and promotion in Georgia's increasingly urbanized environment. One way Forest Protection supports this practice is through the Georgia Prescribed Fire Manager Certification Program. The program guarantees a basic level of knowledge and experience for those who practice prescribed burning. Last year, the class was extended from a one day course to a two day course, allowing more time for hands-on exercises in smoke management and writing the burn prescription, as well as a more in-depth look at the other aspects of prescribed fire. In FY12, there were four certification sessions conducted, with 124 Georgia land managers attending the course. Since inception of the certification program in 1993, 3,330 practitioners have been certified. Demand for the course continues to be high for landowners and land managers who use prescribed fire as a management tool.

In October 2012, Georgia Forestry Commission was involved in a Fire Summit at Tall Timbers Research Station to update our Prescribed Fire Strategic Plan. As with the first Summit in 2007, Georgia Forestry Commission and the Florida Forest Service had a joint meeting to update the Plans they had developed at the first Summit. More than 50 people, totaling over 750 years of total combined experience with fire, met to revisit and update each States Plan. Participants were made up of burn practitioners from state and federal government as well as consultant foresters, land conservancies, scientists, and private landowners, thus assuring that everyone using fire had a voice in this plan. The updated plan for Georgia should be completed and published by late spring of 2013. The new updated plan will map the way for better burning with consideration to air quality and smoke management, as well as, provide a better public understanding about the use of prescribed fire well into the future.

The number one obstacle recognized by both states from the Strategic Plan meeting remains to be the public's

misunderstanding of prescribed fire, and people's low tolerance of smoke resulting from prescribed fire, which also ties to air quality and the challenges we face in the future to balance the use of prescribed fire manage for good air quality.

In an effort to prevent smoke impact on highways, Georgia Forestry Commission conducted training with all Georgia State Patrol Troops across the state, meeting with their Officers and NCO's. Also attending this training were supervisors from Georgia Department of Transportation and other officers and NCO's from the Department of Public Safety. As a result, everyone has a better understanding of weather effects on smoke and managing smoke. A MOU has been produced between the three agencies on how to approach smoke impacts on highways and provide maximum safety for Georgia motorist.

THE GEORGIA PRESCRIBED FIRE COUNCIL

The Georgia Prescribed Fire Council, formed in 2001, has been very active in promoting prescribed fire, not only in Georgia, but across the nation and beyond. The Georgia Council led the way in forming a National Coalition of Prescribed Fire Councils. Currently 30 states and British Columbia have established councils. Four additional states are developing councils and the work is not over yet.

The Georgia Prescribed Fire Council has the full support of the Georgia Forestry Commission and for the seventh straight year, the two have succeeded in having the Governor sign a proclamation declaring the first full week in February as Prescribed Fire Awareness Week in Georgia.

The council holds its annual meeting each fall. This year, the meeting was held in Tifton, GA, with a record 150 people in attendance. This year's agenda included Managing Wildlife with Fire, Air Quality Updates, Media Relations, Long Range Weather Forecast, and an update on the Farm Bill.

The Georgia Prescribed Fire Council is critical to the safe use of fire in Georgia. It helps educate the public, promote the safe use of fire, share information on new and better technology used by burn practitioners, and actively works to implement the Strategic Plan for Prescribed Fire in Georgia.

FIRE WEATHER FORECASTING

Wildfire behavior is determined by forest fuels, surrounding topography, and weather conditions such as wind and relative humidity. Daily readiness for fire suppression is usually expressed in terms of fire weather and fire danger. Georgia uses a sophisticated National Fire Danger Rating System in

which weather data is measured and interpolated into levels of readiness understood by forest rangers and fire cooperators. The fire danger ratings with fire weather forecasting are produced daily by the Forest Protection Meteorologist and are posted on GaTrees.org.

Valuable tools and information for forest managers intending to conduct prescribed burning are available on the fire weather website. These tools include weather maps, rainfall maps, drought maps, lightning maps, point-forecast system, a prescribed fire climatology system, prescribed weather notification system, and Web-based V-smoke application.

The weather office continued to perform annual maintenance on our 19 weather stations to meet NFDRS standards. Washington weather station was relocated to the Washington Airport in anticipation of a new runway that would interfere with the original site.

Weather data collection procedure from our weather stations has been changed from relying on modem calls to satellite transmitted data. This will enhance the reliability of data collection as the modem collection method became unreliable due to technical difficulties.

The weather office began to partner with WALB, a TV station at Albany, GA, to broadcast KBDI, Fire danger and dispersion index in their weather segment.

GFC Fire Weather Website received over 50,000 visitors and 180,000 hits per month in FY2012.

RURAL FIRE DEFENSE (RFD) PROGRAM

The RFD is proud to offer continued assistance in this state-wide endeavor. More than 1,869 types of equipment are located in 130 Georgia counties, involving over 990 fire station locations. This GFC leased equipment responded to over 19,500 calls.

Volunteer Fire Assistance funds managed by RFD were dispersed as 50/50 Grants to 27 government entities to purchase wildland PPE, "Pump and Roll" engines, structural fire gear, hoses, nozzles, and other items needed to make fire trucks operational. VFA funds were supplied as grants to the Georgia Fire Academy to provide Basic Volunteer Firefighter, Structural Fire Control, Practical Fire-ground Hydraulics, and Basic Vehicle and Machinery Extrication training for 276 firefighters for a total of 17,480 contact hours. GFC Instructor Cadre conducted basic wildland fire training for 209 students, 26 different agencies for a total of 3,334 contact hours.

Four meetings were held with the Rural Fire Defense Advisory Council, a group comprised of Georgia fire officials, cooperators, and insurance representatives. GFC has provided facilitation and logistical support for the council's activities for 20 years.

The Rural Fire Defense Program also consists of two fabrication shops. The shops' goals are to ensure that the residents of Georgia are protected with the best equipment available for the suppression of wildfires, while maintaining cost effectiveness.

RURAL FIRE DEFENSE (RFD) SHOP

The Rural Fire Defense provided nine GFC builds, five RFD builds, and eleven additional quotes for RFD builds that had a combined total value of \$600,024.17.

RFD Shop built one Type 7, three Fire Knockers, and one Super Fire Knocker. In addition, the shop built nine Type 7 Chief Ranger Wildland Fire Engines with a total value of \$273,210.67 were produced for internal use by GFC county units. Another five work orders for repairs of pumping equipment for internal GFC customers were processed.

FABRICATION SHOP

During the 2012 Fiscal Year, the Georgia Forestry Commission Fabrication Shop supported the state by providing quality customized fire suppression equipment. Construction has begun on the addition to the existing Fabrication Shop.

Ninety projects were completed for new fire suppression equipment. One new road tractor was put into service with equipment installed. The Fabrication Shop built nine transport beds for new trucks and provided GFC's Rural Fire Defense Department with six large tanks for their RFD Program. The shop this year repaired 32 "V Blades", four new plows, and three new harrows. A total of 48 painting projects were completed, as were 117 other projects.



Communications

Communications staff for fiscal year 2012 consisted of a director, an administrative assistant, a conservation education coordinator and a contracted writer.

Internal communications within the agency continues to improve. GFC Headline News was modified slightly based on new survey findings. Employees requested that the newsletter be streamlined a bit more so that it would be easier to scan. They continue to share positive feelings about the newsletter. The Ask the Director intranet site continues to get regular questions, feedback and suggestions from employees.

During the year, 24 press releases were produced and hundreds of news articles appeared in print. In addition, various magazine articles appeared in publications as diverse as Georgia Forestry Today, Out of the Woods, and Georgia Trend, among others. Many radio and television appearances were made, with topics ranging from fire prevention and fire activity to Arbor Day.

With a sponsorship from the Georgia Forestry Association, GFC successfully implemented a statewide media and outreach event in March of 2012. A film adaptation of Dr. Seuss' book, *The Lorax*, was released with nationwide promotions. GFC staff fanned out across the state on the movie's opening day and gave away loblolly seedlings to moviegoers at 42 Georgia theatres. The event garnered positive media coverage in all major media markets.

GFC continued to strengthen its presence on Facebook and twitter in fiscal year 2012. All agency press releases were shared on the sites, as were photos of GFC events and professionals. GFC and the Georgia Department of Natural Resources State Parks and Historic Sites again partnered in the fall of 2012 to host a Fall Foliage Photography contest on the GFC Facebook page. The contest generated a tremendous extended reach and helped develop new partnerships.



Forest Products Utilization, Marketing & Development

The Forest Utilization Department provided technical and marketing assistance to the forest products community, provided leadership to expand the value of Georgia's forests by pursuing forestry and bioenergy economic development projects, and provided assistance to forest landowners through the carbon sequestration registry program. These services ensure that Georgia's forest industry remains a leading competitor in the global marketplace while contributing to the state's economic well being. Without healthy markets, owners of Georgia's 24 million acres of commercial forest have few economic incentives to manage their forests. Wise utilization of the state's forest resource base as an economic engine is a high priority. Rural economic development activities relate to quality of life issues as well as creating and sustaining jobs. Environmental concerns about climate change and carbon emissions are addressed through encouragement to participate in forest carbon sequestration projects. These combined efforts are vital to the state's overall effort to maintain a strong economy, healthy forests, and a sustainable environment.

TECHNICAL ASSISTANCE & FOREST PRODUCT MARKET DEVELOPMENT

The GFC Forest Utilization Department staff responded to 267 individual requests for technical and marketing assistance. Formal presentations were provided to 22 groups during meetings, workshops, or conferences with a total audience of 970 people. Presentation topics included: impacts of the forest industry, forest inventory and sustainability, forest biomass energy, potential financial returns from reforestation, and other general timber utilization topics. A total of 4,650 literature items were distributed.

The Utilization staff contacted representatives of 115 of Georgia's primary forest product manufacturing firms and collected timber drain data and information for an updated Forest Products Directory that will be available in early 2013.

The staff developed a variety of marketing tools for use within the forestry community. These tools included three booklets

to assist companies with strategies for long-term sourcing of forestry biomass. It also included three fact sheets covering estimated financial returns from reforestation investments, four fact sheets describing various wood-using industry attributes, and several others. The Department produced three electronic newsletters and distributed them to customers within the forestry community, and established and staffed exhibits at the Bioenergy Expo and the Southeast Bioenergy Conference. The staff also cooperated with the Hardwood States Export Group and the Georgia International Trade Division by ensuring that Georgia's wood products manufacturers were made aware of appropriate export opportunities.

ECONOMIC DEVELOPMENT OF FORESTRY RELATED PROJECTS

Forest Utilization staff foresters provided assistance to a total of 79 potential projects. Twelve projects involved companies that are considering expanding in Georgia with new traditional wood products facilities. Sixty-seven projects involved companies or non-profit groups assisting companies that desired to develop facilities to produce energy products from forest biomass.

Thirty-five resource reports regarding timber and biomass availability were provided to firms by the Forest Utilization staff as part of their feasibility analyses. In addition, 77 other packets of information on potential industrial development sites and other information were provided to firms involved with the projects listed above.

The RWE Innogy wood pellet mill in Waycross was of particular significance, as it began operation during the year. Telfair Forest Products (wood pellet manufacturing) also began operation in Lumber City. Other new wood markets developed following GFC staff support, including beginning construction of a Rayonier Chip Mill in Brooks County and beginning construction of the Piedmont Green Energy biopower facility in Barnesville. The additional wood demand from these listed mills will add nearly three million tons to the market for Georgia forest landowners.

NEW FOREST PRODUCTS AND VALUES

The GFC provided support regarding biomass energy for many activities with particular emphasis on the production of resource reports to industries, which provide information about the inventory of Georgia's forest biomass and its level of sustainability. The GFC partnered with several other organizations to support the Pine 2 Energy Coalition. The GFC staff assisted with developing bioenergy information tools that encourage the sustainable utilization of Georgia's forest resources for energy purposes and to increase the value of forest management for Georgia landowners. In addition, the marketing staff participated in the Georgia Energy Center of Innovation's One Stop Shops, which provide a first step for potential bioenergy projects beginning in Georgia. The Georgia Carbon Sequestration Registry program continued operation during the year by providing technical advice to landowners representing 4,500 acres of forest land.

The department continues to be active as a member of the Southeast Agriculture and Forestry Energy Resources Alliance (SAFER), a member of the Hardwood States Export Group, and actively coordinates with the U.S. Forest Service in interpreting forest inventory and analysis data for reports.



Reforestation

The 2012 fiscal year was not a good one for the Reforestation Department. A dragging economy, low stumpage prices, and dry weather patterns combined to reduce tree planting in Georgia to levels not seen for quite a few years. This downward pressure was felt at nurseries across the South, and hit Flint River Nursery as hard as anywhere. State nurseries in Georgia sold less than 11 million trees, fewer than any year since 1947. With seedling sales supplying the majority of the department's funding, budgets were exceedingly tight. Fortunately, the seed orchards were as productive as ever.

Seed harvests at Arrowhead and Flint River Seed Orchards were excellent. More than 1,500 bushels of slash and 2,000 bushels of loblolly pine cones were collected. To supplement seedling revenue, more than 1,650 pounds of pine seeds were sold to private nurseries, about a 30 percent increase in sales over the previous year. Receipts from seed sales accounted for about 10 percent of the department's operating costs.

Despite tight budgets and reduced personnel, the tree improvement program continues to make progress. In the spring of 2012 a total of 200 pollination bags were installed to accomplish the final stages of the third cycle of loblolly pine breeding. Each bag must be installed, monitored, and pollinated several times to successfully complete a single cross-pollination. This is a major undertaking for a program without a full-time technician, yet it was accomplished expertly.

The department continues to struggle with aging equipment and infrastructure, but the department's eight employees are dedicated to providing quality planting stock to Georgia's landowners.



Administration

INCOME AND EXPENDITURES			
	FY2010	FY2011	FY2012
FUNDING SOURCE			
FEDERAL FUNDS	6,429,811	9,590,138	6,499,288
FEDERAL STIMULUS	2,943,449	5,908,672	1,620,396
OTHER FUNDS	5,579,953	9,748,131	10,203,942
STATE GENERAL FUNDS	29,230,328	27,936,105	28,714,926
GOVERNOR'S Emergency Funds			1,084,862
FEMA-FIRE MANAGEMENT GRANT		1,925,027	1,096,805
PRIOR YEAR INVENTORY			
TOTAL FUNDS	44,183,542	55,108,073	49,220,219
EXPENDITURES BY OBJECT CLASS			
TOTAL PERSONAL SERVICES	30,629,941	30,401,100	33,146,970
TOTAL REGULAR OPERATING EXPENSES	6,747,389	7,289,954	7,878,928
TRAVEL	337,338	0	208,340
MOTOR VEHICLE EQUIPMENT PURCHASES	415,925	159,031	204,717
EQUIPMENT PURCHASES	204,538	225,662	394,824
COMPUTER CHARGES	908,517	1,460,461	1,328,358
REAL ESTATE RENTALS	28,525	22,944	20,563
TELECOMMUNICATIONS	699,199	740,539	579,265
CAPITAL OUTLAY	26,936	238	334,317
PER DIEM & FEES	258,269	0	0
CONTRACTS	3,859,281	14,747,397	5,045,829
WARE COUNTY TAX - RD. MAINT.	60,000	60,000	60,000
WARE COUNTY TAX - S. FOREST			
TOTAL EXPENDITURES	44,175,858	55,107,326	49,202,110
EXPENDITURES BY PROGRAM			
REFORESTATION	1,213,985	1,205,477	1,247,751
PROTECTION	30,190,948	37,477,484	35,991,992
MANAGEMENT	8,986,350	12,998,707	8,318,841
GENERAL ADMINISTRATION AND SUPPORT	3,784,575	3,425,658	3,644,526
BONDS			
EQUIPMENT BONDS	2,955,244	6,207,727	3,363,765
CAPITAL OUTLAY BONDS	653,644	1,176,526	1,758,061
NUMBER OF EMPLOYEES	672	648	676

GEORGIA FORESTRY
COMMISSION



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