



South Carolina
Forestry Commission

ANNUAL REPORT

FY2018-19

The South Carolina Forestry Commission prohibits discrimination in all programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status. The Forestry Commission is an equal opportunity provider and employer. To file a complaint of discrimination, contact the Human Resources Director, SC Forestry Commission, P.O. Box 21707, Columbia, SC 29221, or call (803) 896-8800.

Table of Contents

FOREST PROTECTION

- Fire Management 54
- Forest Health 12
- Equipment 16
- Law Enforcement 17

FOREST MANAGEMENT

- Forest Management Assistance 18
- Cost-Share Programs 20
- FRP Monitoring 21
- Seedling Survival 22
- Forest Stewardship 22
- Forestry Services 22
- Urban & Community Forestry 23
- State Forests /State Lands 26
 - Harbison State Forest 26
 - Manchester State Forest 27
 - Wee Tee State Forest 29
 - Sand Hills State Forest 29
 - Poe Creek State Forest 32
 - Niederhof Forestry Center 34
 - State Forest Revenue 35
 - State Lands Management Program 36

RESOURCE DEVELOPMENT

- Business Development 37
- Forest Inventory & Analysis 38
- Nursery and Tree Improvement 39
- Environmental Management 45

COMMUNICATIONS & PUBLIC INFORMATION

- Public Relations & Information 47
- Environmental Education 49

TECHNOLOGY

- Information Technology 53
- GIS 53
- Communications 54
- Dispatch Operations 55

ADMINISTRATION

- SCFC Financial Statement 56
- Organizational Chart 57

STATE COMMISSION OF FORESTRY

Members of the Commission

Dr. Walter McPhail, Maudlin, Chair
Sam R. Coker, Gilbert
Amy McFadden, Georgetown
H. Stro Morrison III, Estill
Jesse Neville, Walhalla
Mac Rhodes, Charleston
Josh Sandt, Pawley's Island
Eric A. Smith, Charleston
Dr. Keith Belli, representative for Dr. James P. Clements, Clemson University



Administration

Scott L. Phillips, State Forester
Tom Patton, Deputy State Forester

Mission

The mission of the Forestry Commission is to protect, promote, enhance and nurture the forest lands of South Carolina in a manner consistent with achieving the greatest good for its citizens.

Responsibilities extend to all forest lands, both rural and urban, and to all associated forest values and amenities including, but not limited to, timber, wildlife, water quality, air quality, soil protection, recreation, and aesthetics.

The Forestry Commission shall have general and specific responsibilities for the promulgation and enforcement of laws and regulations related to protection of the forest and its associated values.

The Commission shall be responsible for promoting and developing the appropriate technologies to accomplish its objectives, and for the development and promulgation of Best Management Practice Guidelines for South Carolina's forest land.

FOREST PROTECTION

This section encompasses the Fire Management, Law Enforcement, Forest Health and Equipment programs.

Fire Management

The South Carolina Forestry Commission (SCFC) is responsible for protecting 13,657,033 acres of forestland in South Carolina from wildfire. This total area protected is based on the 2001 Forest Inventory Analysis data with 10% added to cover adjacent non-forest land. This figure includes 101,320 acres of federal land protected under special contract, which includes such lands as the Carolina Sandhills National Wildlife Refuge and the Corps of Engineers land around such lakes as Lake Thurmond, Hartwell, and Russell. Also included is forestland protected by Mutual Aid, which is approximately 824,801 acres of additional federal land that includes lands such as the Francis Marion and Sumter National Forests, National Park lands, and lands owned by US Fish and Wildlife Service.

Wildfire Summary

Agency firefighters recorded 995 wildfires that burned 4,836.8 acres of forestland and grassland during the fiscal year. This fire spread rapidly, threatening more than 50 homes, and more than 106 personnel responded, including SCFC firefighters and firefighters from local fire departments. In FY2018-19 wildfires destroyed 12 homes and damaged 8 others. In addition, 39 other buildings were destroyed and 21 buildings were damaged. Agency firefighters saved 424 structures that were directly threatened by wildfires.

Fire Protection Cooperatives

The Forestry Commission has cooperative arrangements with 12 fire and emergency management entities. Activities for each cooperative agreement during FY2018-19 are as follows:

SOUTHEASTERN STATES FOREST FIRE COMPACT COMMISSION

Formed in 1954, the Compact allows member states to provide and receive mutual aid in fighting wildland fires. Member states of the Southeastern States Forest Fire Compact include: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia. During this fiscal year, SCFC resources were mobilized to assist Texas under the Compact. In August 2018, one SCFC firefighter responded to Texas as a Heavy Equipment Boss to assist with initial attack.

SC EMERGENCY MANAGEMENT DIVISION

SCFC personnel, including incident management teams, participated in several emergency response training sessions involving hurricanes, earthquakes, weapons of mass destruction, dam failures, and nuclear disasters. This year a wildfire response seminar was held with SCEMD, and agency response and contingency plans were evaluated and updated. In response to Hurricane Dorian in September 2018, the SCFC deployed 10 law enforcement officers and two aircraft to support a full coastal evacuation, 19 IMT members deployed to North Charleston to assist with evacuations for those without transportation, 4 IMT members were deployed to Horry County to assist with shelter operations, 2 IMT members mobilized to SCEMD to organize mosquito abatement, and personnel provided staffing at the State Emergency Operation Center.

SC ARMY NATIONAL GUARD

Under an agreement with the SC National Guard (SCNG), helicopter firefighting support is available when requested by SCFC. Requests from SCFC are channeled through EMD and the

Governor's Office to activate the Guard. The Guard's primary firefighting mission is providing helibucket service to SCFC Incident Commanders using SCFC's 780-gallon Bambi buckets. Guard helicopters are also available to transport firefighters into rough or inaccessible terrain. Joint training and coordination meetings between the SCNG and the SCFC are held annually to ensure mission readiness. During May 2019, a practical wildland firefighting exercise was conducted at Sand Hills State Forest with the SC National Guard to practice the utilization of aerial firefighting. 28 SCFC personnel and approximately 20 soldiers participated.

VOLUNTEER FIRE ASSISTANCE PROGRAM

Pass-through funds from the National Fire Plan, Volunteer Fire Assistance funds through the USDA Forest Service were distributed as follows:

National Fire Plan grant funds are for firefighting needs: 74 Fire Departments requested \$238,695 worth of firefighting equipment of which 72 fire departments were funded for \$208,080.

FEDERAL EXCESS PERSONAL PROPERTY PROGRAM (FEPP) AND THE FIREFIGHTERS PROGRAM (FFP)

The amount of equipment available for screening is limited but with the SCFC enrolled in both programs, we continue to screen items that fire departments and SCFC personnel have requested. The total value of inventoried federal excess property (including both FEPP and FFP) now stands at around \$19.5 million for 3,623 (FEPP 733, FFP 2,890) items, most of which are assigned to Volunteer Fire Departments. There were several large quantity items received that had low acquisition values for each item. During the fiscal year there were 4 FEPP Auctions/GSA Sales. A total of 78 items were sold for a purchased value of \$139,844. In an effort to improve the program and bring all departments into compliance, SCFC field personnel and the FEPP program manager encouraged fire departments to turn in any equipment that was not being properly maintained or actively in operation. The US Forest Service conducted an audit of our Federal Excess Property programs in July, 2019 and found no significant issues with program records or administration.

NATIONAL WEATHER SERVICE

NWS provides daily fire weather forecasts and atmospheric dispersion information. During the year, SCFC and NWS work to improve content of daily weather forecasts. The SCFC did not request any spot weather forecasts this fiscal year for wildfires, but did participate in coordination meetings with the NWS.

USDA FOREST SERVICE

A mutual aid agreement between the US Forest Service (USFS) and SCFC allows both parties to provide initial attack firefighting within one-quarter mile of National Forest boundaries. This 5 year agreement was renewed in November, 2018. SCFC provided initial attack on a number of fires on the Francis Marion and Sumter National Forests during the fire season, and SCFC investigators assisted with wildfire investigation.

DOD CORPS OF ENGINEERS

Beginning in 1997, SCFC has provided all fire suppression services on 55,320 acres of Corps of Engineers land. Under the terms of the agreement, actual fire suppression costs are reimbursed to the SCFC. This year the SCFC responded to no fires on lands owned by the Corps of Engineers.

USDI FISH AND WILDLIFE SERVICE

Under the terms of a 1992 land acquisition agreement, SCFC provides initial attack fire suppression on the 46,000 acre Carolina Sandhills National Wildlife Refuge. The agreement terminates in 2042. SCFC maintains mutual aid firefighting agreements with the following National Wildlife Refuges: Ace Basin, Cape Romain, Savannah, Pinckney Island, and Santee.

USDI NATIONAL PARK SERVICE

Agreements were maintained to provide initial attack wildfire suppression on National Park Service lands; no reportable activity occurred during this fiscal year.

WILDLAND FIRE PROTECTION PARTNERSHIP

Organized in 1991, the Partnership seeks solutions to wildfire management problems in the wildland-urban interface. Membership includes the SCFC, USFS, SC Firemen's Association, Department of Health and Environmental Control, SC Emergency Management Division (SCEMD), SC Fire Marshal, SC Fire Academy, and SC Forestry Association (ex officio).

PRESCRIBED FIRE COUNCIL

Organized in 2003, the goal of the Prescribed Fire Council is to increase the amount of prescribed burning in SC. The Council is working on increasing the capacity to get burning done in SC and in educating the public on the benefits of burning. The SCFC is a charter member and active participant in the council, and provided support for the Council, as well as presentations, for the annual meeting in Charleston in September, 2018.

HOMELAND SECURITY

Through a grant from the Department of Homeland Security (DHS) and the South Carolina Law Enforcement Division (SLED), the SCFC continued to train incident management teams (IMT) to improve the effectiveness of response to large incidents. Forestry Commission IMTs were staffed, training was conducted for individual team members and teams, and team members participated in training assignments to complete task books to validate their training. Grant funds continued to support an Incident Management Team (IMT) Coordinator position to facilitate the development of nationally-qualified IMTs from within the Forestry Commission and to ensure consistency among three multi-disciplinary (non-SCFC) Type 3 IMTs located in 3 SLED regions of the State. The IMT cooperated with the US Army for an exercise of the National Disaster Medical System and worked with the SC Firefighters Association to manage the Fire Rescue Conference in Columbia. The SCFC IMT deployed to N. Charleston in support of Hurricane Florence, and smaller components of the IMT deployed to Horry County and SC EMD in support of sheltering operations and mosquito abatement.

Fire Weather

WEATHER STATIONS

The SCFC, USFS, USDI National Park Service, Department of Defense (Ft. Jackson), and USDI Fish and Wildlife Service share a network of 19 Automated Weather Stations across the state. Data from these stations is used in daily calculations for the National Fire Danger Rating System. Weather readings from these stations are available 24 hours a day for wildfire and prescribed fire management purposes. During this fiscal year, the SCFC installed three additional RAWS stations, including one at Table Rock State Park, one in Laurens County, and one in Orangeburg County.

Inches of precipitation, FY2018-19 (GHCN-D 5km data)		
Month	Precipitation (inches)	Departure from normal
July	6.03	1.11
August	4.27	-0.97
September	6.13	1.67
October	4.61	0.82
November	5.72	2.74
December	7.98	4.39
January, 2018	3.60	-0.14
February	2.48	-0.94
March	2.53	-1.44
April	4.02	0.74
May	2.13	-1.36
June	5.63	0.88
Total	55.13	
<i>Source: National Climate Data Center</i>		

Inches of precipitation, last five years (GHCN-D 5km data)		
Fiscal year	Precipitation (inches)	Departure from normal**
2014-15	45.61	-1.06
2015-16	60.93	13.97
2016-17	48.65	1.09
2017-18	45.44	-1.98
2018-19	55.13	7.49
<i>Source: National Climate Data Center</i>		
<i>**Statewide normal, based on previous 30 years</i>		

READINESS PLAN

The daily readiness level of Forestry Commission firefighters is based on fire danger data, available number of firefighters, and status of firefighting equipment. Average readiness levels for each of the three regions for FY2018-2019 are as follows:

Readiness levels, by region			
Readiness level/Region	Coastal	Pee Dee	Piedmont
Readiness 1 (no wildfire danger)	0 days	5 days	0 days
Readiness 2 (no wildfire danger)	271 days	103 days	288 days
Readiness 3 (no wildfire danger)	86 days	250 days	71 days
Readiness 4 (no wildfire danger)	8 days	7 days	6 days
Readiness 5 (no wildfire danger)	0 days	0 days	0 days

BURNING BANS AND RED FLAG FIRE ALERTS

One State Forester’s Burning Ban and one Red Flag Fire Alert were issued during this fiscal year. A State Forester’s Burning Ban for the entire state was in place from September 12-17, 2018 as Hurricane Florence approached and passed through the state. The burning ban was issued due to

elevated fire danger and to reduce new wildfire ignitions for SCFC and other firefighters that were already committed to preparing for and responding to the hurricane. The ban was lifted on September 17, once the storm impacts were reduced. A Red Flag Fire Alert was in place for all counties from May 29- June 5, 2019, due to increased fire occurrence, elevated fire risk, and dry weather conditions. The Red Flag was lifted on June 5 when weather conditions moderated.

Dispatch and Air Operations

DISPATCH

Forestry Commission dispatch is by closest available resource, regardless of political or administrative boundaries. Dispatching was handled by regional dispatch centers located in Walterboro, Florence, and Newberry.

AVIATION

During the year, SCFC pilots flew 12 different Federal Excess Property aircraft for a total of 257 missions for 645 hours. Reduced aviation budgets have curtailed aerial detection flights and have limited flights to moderate to high fire danger days when aircraft are needed for wildfire suppression, evacuation, or other emergency response assistance. This year, SCFC pilots flew a total of 645 hours (Coastal- 104 hours, Pee Dee-230 hours, Piedmont- 311 hours).

Prescribed Fire

CERTIFIED PRESCRIBED FIRE MANAGER PROGRAM

Three Certified Prescribed Fire Manager Programs were conducted during the year with 109 participants. This course focuses on planning prescribed burns to comply with mandated air quality standards.

Prescribed burning for forestry, wildlife and agriculture, FY2018-19								
	Forest understory		Forestry site prep		Wildlife		Agriculture	
Region	Number	Acres	Number	Acres	Number	Acres	Number	Acres
Coastal	1,546	113,793	1,066	10,342	1,090	87,817	964	16,380
Pee Dee	751	41,912	753	3,993	688	38,077	849	11,537
Piedmont	685	67,743	1,201	3,713	142	6,203	397	3,766
State Total	2,982	223,448	3,020	17,978	2,003	132,096	2,210	31,683
Total forestry, wildlife & agriculture burns: 10,132 for 405,205 acres								

Fire Prevention Information

WILDLAND-URBAN INTERFACE (WUI)

Work continued on assessing wildland-urban interface communities' risks to wildfire throughout the state. Primary areas of concern involve communities in Horry, Georgetown and Charleston Counties with increased interest in Oconee, Spartanburg, York and Chester Counties. The communities within the Keowee Fire District of Oconee County continue to thrive with Keowee Key leading the way. The goal of the Firewise program is to increase the awareness of homeowners to their responsibility in helping to reduce the risk of their homes from burning in a wildland fire. This is accomplished by conducting Firewise workshops such as 'How to Have a Firewise Home.' This year, 17 Firewise presentations, community and homeowner workshops with 4,734 in attendance were made at various venues, including community events, fire department open houses,

safety expos and the SC Firefighters Association annual meeting. Presentations included information about Firewise and the Ready, Set, Go! Program. Efforts have primarily been concentrated in Oconee County, Charleston County and in Horry/Georgetown Counties where interest has been greatest. The Firewise mobile exhibit (and the Firewise Table Top exhibit) was used 3 times by SCFC, US Park Service and USFS personnel during the year to reach over 2,000 people at such places as fire department open houses, safety days, community festivals and events, and community chipping days demonstrating how homeowners can mitigate those risks to wildfire. Fuels mitigation plans, workdays and assessments were conducted throughout the state. The SCFC has conducted a total of 1,342 community assessments to date with 1,268 of those rating at moderate to extreme in regards to wildfire risk. 27 new assessments of communities were completed across the state. There continue to be discussions and progress in finalizing large scale Community Wildfire Protections Plans for Charleston and Berkeley counties. Oconee county and the city of Seneca are also showing interest in the CWPP as well. To date 219 Community Wildfire Protection Plans have been written in which 720 communities have benefitted.

Cooperative Firewise efforts are also occurring within communities around the Sumter and Francis Marion National Forests with Forest Service personnel. Work continued on Community Wildfire Protection Plans for communities around USFS land in Berkeley, Charleston, Jasper and Oconee Counties in cooperation with USFS and US Fish and Wildlife personnel. The Nature Conservancy has also participated in CWPP development.

National Fire Plan grant funds were awarded to 26 communities in the amount of \$196,020 for various projects including installation of a leaf disposal site, underbrushing of undeveloped lots and common areas such as entrance roads, and assistance with community chipping days to reduce the fuel buildups within their communities. Additional funds were used for fuels reduction and mitigation projects involving prescribed burning, underbrushing and fuelbreak installation on 29 tracts for \$83,475.80.

WILDFIRE PREVENTION

A statewide wildfire prevention awareness effort was made across the state prior to the spring 2019 wildfire season to promote safe debris burning; escaped debris burns are the number one cause of wildfires in the state. Field personnel visited counties known to have high numbers of escaped debris burns, the number one cause of wildfires in the state. Also, these types of wildfires are also commonly found near communities putting them at risk (i.e. wildland urban interface). In cooperation with local fire departments and some Clemson Extension Agents, SCFC field personnel throughout the state distributed "Think Before You Burn" (TBYB) promotional materials to businesses and public buildings. The distribution of materials included TBYB brochures, various other items, i.e. cups, koozies, slap bracelets, pencils and magnets with the county 1-800 burn numbers. Burning notification magnets were placed on the store counters for customers to pick up so they would have the appropriate county outdoor burning notification phone number handy. Interviews were conducted with local media to increase public awareness.

Fires by cause, FY2018-19				
			Average acres	Percent of total
Cause	Fires	Acres burned	per fire	Fires FY2017-18
Lightning	33	270.1	8.2	3.32%
Campfire	11	46.7	4.2	1.11%
Smoking	14	56.6	4.0	1.41%
Debris burning	543	2,436.4	4.5	54.57%
Incendiary	143	795.8	5.6	14.37%
Equipment use	79	701.0	8.9	7.94%
Railroad	12	171.1	14.3	1.21%
Children	30	66.2	2.2	3.02%
Miscellaneous	45	154.3	3.4	4.52%
Fireworks	10	14.3	1.4	1.10%
Power line	48	95.7	2.0	4.82%
Structure	27	28.6	1.1	2.71%
Totals	995	4,836.8	4.9	100.00%

Five-year summary: all fires, FY201-19 Total burning notifications by county, FY2018-19					
Fiscal year	Acres protected	# Fires	Acres burned	Avg. acres/fire	% Area burned
2013-14	13,657,033	1,427	6,637.3	4.7	0.05%
2014-15	13,657,033	989	5,445.7	5.5	0.04%
2015-16	13,657,033	2,062	25,709.5	12.5	0.19%
2016-17	13,657,033	1,616	10,363.3	6.4	0.08%
2017-18	13,657,033	995	4,836.8	4.9	0.04%
Five-year averages		1,418	10,598.5	6.8	0.08%

Total fires by cause, by county, FY2018-19

County	Lightning		Campfire		Smoking		Debris Burning		Incendary		Equipment		Railroad		Children		Misc.		Fireworks		Power Line		Structure		Total	
	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres
Abbeville			1	1.0			3	2.1									1	0.1			3	2.9	1	0.1	9	6.2
Aiken			1	1.0	1	1.0	45	191.8	12	32.5	11	401.8	2	7.1	2	1.5			3	7.5	3	5.0	4	4.1	84	653.3
Allendale	2	10.5					4	25.0	1	0.1					1	2.0									8	37.6
Anderson			1	0.1			5	4.0	2	9.5	1	1.0					1	0.3			1	0.2			11	15.1
Bamberg	2	67.3	1	1.0			3	42.0																	6	110.3
Barnwell							8	91.6			2	8.0			1	0.5									11	100.1
Beaufort	1	20.0					5	26.0	1	4.0	1	1.5							1	0.5					9	52.0
Berkeley	2	99.0			1	0.2	41	306.2	8	29.7	4	4.1			3	4.3			1	1.5	1	12.0	1	2.5	62	459.5
Calhoun	1	0.5			1	3.0	12	86.5	1	1.0	5	6.3													20	97.3
Charleston							4	5.1	1	1.4	1	60.0	1	98.0							2	5.5	1	1.0	10	171.0
Cherokee							2	10.4	1	0.2					1	0.2	1	0.8					2	0.8	7	12.4
Chester													3	3.5	1	2.0	1	1.0							5	6.5
Chesterfield	3	2.6			3	6.0	23	67.4	1	4.0	2	0.6					3	16.0	1	0.5					36	97.1
Clarendon	2	3.5					14	28.1	11	125.7	3	4.6					1	1.0			1	0.4	1	0.1	33	163.4
Colleton							34	227.5	16	92.2	2	5.0									3	3.0			55	327.7
Darlington	1	10.0			2	25.5	21	226.5	3	22.0	1	0.5	1	1.5	1	0.5	2	24.0			1	3.0	3	3.1	36	316.6
Dillon	1	3.5					11	36.1	8	25.3	4	27.7					3	7.8					1	3.0	28	103.4
Dorchester	2	0.2					14	26.6	7	23.2	2	15.3			2	15.0									27	80.3
Edgefield							4	10.0			1	6.0	1	5.0							2	2.0			8	23.0
Fairfield							5	15.5			1	34.0					2	25.5	1	1.5	1	2.0			10	78.5
Florence	2	0.4	1	0.1			26	72.2	4	16.7	4	3.6			3	11.5	5	10.6			3	0.9			48	116.0
Georgetown	3	1.8					22	93.7	6	41.0	2	1.2									4	5.5			37	143.2
Greenville	1	5.0					3	5.6	1	4.0															5	14.6
Greenwood							2	2.5	2	4.1					1	2.0									5	8.6
Hampton	1	1.0					9	135.5	7	40.6	2	1.6							1	0.5	1	0.1	1	0.5	22	179.8
Horry	1	2.1	2	3.5			15	39.7	6	39.0	6	10.5			2	3.2	1	1.5					1	0.3	34	99.8
Jasper					1	4.0	21	77.9	2	9.0	1	11.0			1	0.5	1	8.0			1	1.5			28	111.9
Kershaw	1	3.0					18	34.8							1	1.2	7	11.3			2	1.0	1	0.1	30	51.4
Lancaster							9	5.9			1	2.1	1	0.2					1	0.3			1	0.5	13	9.0
Laurens					1	0.1	2	5.0	1	1.5							1	2.5			1	0.3			6	9.4
Lee							15	19.8	1	1.0	1	15.0					1	0.3					2	3.3	20	39.4
Lexington	2	9.0	1	0.3			12	21.0	4	14.5	3	2.2			6	10.1	4	16.0			3	6.3			35	79.4
Marion	1	19.0					3	4.8	2	3.1	2	6.5					1	5.0							9	38.4
Marlboro	1	0.5					7	10.6	2	47.0	1	20.1					1	1.5							12	79.7
Mccormick							5	27.5																	5	27.5
Newberry							5	9.6			1	5.0	1	0.8							1	1.2	1	1.3	9	17.9
Oconee							4	2.5									1	3.0			3	3.3	3	4.1	11	12.9
Orangeburg					3	15.0	35	150.6	1	0.5	7	17.2			2	5.2					1	10.0	1	3.0	50	201.5
Pickens			2	39.2			5	3.2									1	10.0			1	1.0			9	53.4
Richland							1	0.1			1	15.0					2	3.1	1	2.0	1	4.0			6	24.2
Saluda							5	8.6			2	10.2													7	18.8
Spartanburg	1	0.2	1	0.5			3	9.0	2	2.5					1	1.5					1	3.0	1	0.5	10	17.2
Sumter	2	11.0					13	78.0	8	91.5	1	0.1					4	5.0			3	8.0			31	193.6
Union							3	1.8																	3	1.8
Williamsburg							40	183.6	21	109.0	3	3.3	1	50.0							4	13.6	1	0.3	70	359.8
York					1	1.8	2	4.5					1	5.0	1	5.0									5	16.3
State Total	33	270.1	11	46.7	14	56.6	543	2,436.4	143	795.8	79	701.0	12	171.1	30	66.2	45	154.3	10	14.3	48	95.7	27	28.6	995	4,836.8

Total burning notifications by county, FY2017-18							
County	Acres protected	Smoke mgmt. notif's	Other notif's	County	Acres protected	Smoke mgmt. notif's	Other notif's
Abbeville	248,551	138	2,709	Greenwood	205,593	62	3,486
Aiken	524,743	371	18,527	Hampton	303,663	533	2,206
Allendale	199,005	336	611	Horry	493,012	283	17,470
Anderson	216,023	171	14,478	Jasper	341,036	569	2,986
Bamberg	202,862	260	1,512	Kershaw	376,376	233	13,035
Barnwell	266,959	235	2,707	Lancaster	291,845	122	4,317
Beaufort	130,448	169	7,465	Laurens	337,499	126	4,576
Berkeley	595,291	460	14,277	Lee	121,735	153	1,381
Calhoun	151,294	201	3,189	Lexington	256,939	265	27,520
Charleston	318,526	218	5,773	Marion	226,896	87	5,148
Cherokee	168,077	58	3,614	Marlboro	226,676	84	3,174
Chester	315,565	118	2,677	McCormick	223,394	103	981
Chesterfield	416,239	272	5,410	Newberry	334,566	149	3,559
Clarendon	238,952	257	4,801	Oconee	292,590	71	11,832
Colleton	560,896	593	9,180	Orangeburg	446,887	560	11,735
Darlington	176,333	118	8,458	Pickens	236,029	82	12,030
Dillon	163,935	60	2,249	Richland	352,904	212	6,962
Dorchester	272,524	161	8,601	Saluda	196,376	138	1,707
Edgefield	279,433	202	2,365	Spartanburg	286,496	128	9,218
Fairfield	408,433	165	2,286	Sumter	268,338	170	10,460
Florence	308,707	225	9,468	Union	277,640	46	293
Georgetown	400,136	332	7,627	Williamsburg	407,761	645	6,274
Greenville	296,082	120	13,338	York	293,768	71	11,306
				Totals	13,657,033	10,132	322,978
				Total smoke mgt. and other notifications			333,110

Forest Health

The Forest Health Program, in cooperation with the state Department of Plant Industry, and the US Forest Service (USFS), maintains a program to detect, evaluate, and suppress forest pests. Through cooperative agreements, these agencies make their technical assistance and advice available to the SC Forestry Commission (SCFC).

The current forest pest detection and reporting system involves the reporting by field foresters of forest pests that are causing abnormal losses, that require control action, or which may present new problems. Aerial surveys are made periodically for specific pests to determine occurrence and the need for suppression action.

Major Insect Problems

SOUTHERN PINE BEETLE AND BARK BEETLES

In FY2018-2019, losses due to the Southern Pine Beetle (SPB) were minimal. On-the-ground and aerial surveys detected no signs of death attributable to SPB.

During the spring of 2019, pheromone traps were deployed in 32 counties to predict southern pine beetle population trends. No counties trapped enough beetles to predict a severe outbreak. Populations of SPB in 2019 continued to be low, except in McCormick and Edgefield Counties, where populations were high enough to be in a Static-Moderate Prediction Trend. Little beetle activity has been found statewide. Surveys will continue as needed.

The SCFC continued to participate in the SPB Prevention and Restoration Program funded by the USFS. This program's objective is to prevent or reduce the potential damage by SPB. SCFC personnel make forest management recommendations known to minimize future beetle damage. These include thinning, prescribed burning, planting at low density, matching planted species to site, and other mitigation measures. This program is managed by a coordinator whose salary is funded by the program. In 2018-2019, 1,584 acres of pine planting at a reduced tree density was completed and 180 acres were pre-commercially thinned.

EMERALD ASH BORER

As of July 2019 emerald ash borer was found in Oconee, Spartanburg, Pickens, Anderson, Cherokee, York and Greenville counties. Emerald ash borer is found in Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New York, North Carolina, Ohio, Ontario, Pennsylvania, Tennessee, Quebec, Virginia, West Virginia, Wisconsin and Georgia. We continue to monitor stressed, dying, or dead ash trees in South Carolina brought to our attention by the public.

WALNUT TWIG BORER/THOUSAND CANKER DISEASE

Currently this beetle and the fungus it vectors has not been detected in South Carolina. On the east coast, they have been found in Tennessee, North Carolina, Virginia, Ohio, and Pennsylvania, but it has been three years since a walnut tree in these states has tested positive for the fungus. Clemson's Cooperative Agricultural Pest Survey (CAPS) has placed early detection traps in 12 counties and have not detected the walnut twig beetle.

EUROPEAN (SIREX NOCTILIO) WOODWASP

This woodwasp is currently found in several counties in New York, Pennsylvania, Michigan, Connecticut, Ohio and Vermont. The spread of the European woodwasp has been slow in these regions, but movement of firewood and other solid wood could bring this insect to the southeast sooner than expected. This invasive species has not been found outside the above-mentioned states. Trapping has been discontinued but Southern State Forest agencies have developed recommendations in an action plan in the event it arrives in the southeast.

REDBAY AMBROSIA BEETLE/ LAUREL WILT DISEASE

In November 2004, an exotic ambrosia beetle, *Xyleborus glabratus* Eichhoff, was discovered in a dead redbay tree on Hilton Head Island. The beetle attacks redbay trees and introduces a fungus (*Raffaelea lauricola*) into the tree. Since the discovery of *X. glabratus* in 2004, the beetle and its associated fungus have been found in sixteen (16) South Carolina counties: Dillon, Lee, Jasper, Beaufort, Hampton, Colleton, Charleston, Bamberg, Barnwell, Allendale, Dorchester, Marion, Orangeburg, Horry, Georgetown, Berkeley, Lexington, Aiken and Sumter. The beetle and fungus have also been found in Georgia, Florida, Mississippi, and Alabama. Unfortunately, in the areas where the beetle has been found, there is a large loss of redbay (up to 90% in some locations).

There is a concern that once the fungus has become established, native ambrosia beetles in the genus *Xyleborus* may transmit it to other hosts, including sassafras

Major Disease Problems

OAK WILT

Oak wilt disease has been identified in Aiken, Barnwell, Chesterfield, Kershaw, Lancaster, Lee, Lexington, Richland, and Darlington counties. This disease appears to be static and causing losses only to low value oaks. Since there is potential for loss of valuable trees, including urban trees, surveys and on-call evaluations are made to evaluate the spread.

DUTCH ELM DISEASE

Dutch Elm disease has been confirmed in the past in Aiken, Anderson, Cherokee, Chester, Chesterfield, Edgefield, Fairfield, Greenville, Greenwood, Kershaw, Lancaster, Laurens, Lexington, Marlboro, Newberry, Oconee, Pickens, Richland, Saluda, Spartanburg, and York counties. It is expected to gradually spread through the state because the primary agent of spread is the smaller European elm bark beetle that occurs statewide. This disease has not been detected in South Carolina for many years and may be on the decline due to loss of susceptible cultivars and planting of resistant hosts.

DOGWOOD ANTHRACNOSE

In 1988 a new anthracnose disease of dogwood was noted for the first time in South Carolina. This disease is caused by the fungus, *Discula destructiva*. Symptoms include foliage blighting, canker formation, and progressive deterioration. The fungus usually kills infected trees in two to three years. At this time infected trees have been found in Anderson, Greenville, Laurens, Oconee, Pickens, and Spartanburg counties. Dogwoods in those counties are monitored periodically to determine the rate of spread of this potentially devastating disease.

SUDDEN OAK DEATH (CAUSED BY PHYTOPHTHORA RAMORUM)

Sudden oak death is a disease caused by an oomycete in the genus *Phytophthora*. It is presently known to occur only on the West Coast in the United States. This disease kills oaks and causes leaf spots on many other plant species. Testing of eastern species of oaks in California has shown that they could be susceptible to this disease if the disease were to occur in the eastern United States. Unfortunately, several nursery plants infected with *Phytophthora ramorum* were shipped to South Carolina in 2004 from the area of know infestation. No local spread of the disease was detected and the infected nursery stock was destroyed.

As part of a Southeastern project, we are cooperating with Clemson University in a stream baiting survey to determine if the disease occurs in South Carolina. Stream baiting survey to detect the fungus that causes SOD continued in the spring of 2017. The pathogen has not been detected in SC since 2004.

COGONGRASS

Cogongrass, a non-native federally regulated noxious weed, has been detected in 13 South Carolina counties: Anderson, Pickens, Greenville, York, Aiken, Allendale, Hampton, Beaufort, Colleton, Dorchester, Charleston, Williamsburg and Florence. Most infestations are small, comprising a total of less than 2 acres, and all acres have been treated by Clemson University Department of Plant Industry. Seven (7) counties (York, Charleston, Allendale, Hampton, Beaufort, Williamsburg, and Florence) have active cogongrass sites while the sites in the remaining six counties are considered inactive. All sites (both active and inactive) will continue to be monitored to detect re-sprouting in the future.

INSECT AND DISEASE LABORATORY

Commission foresters and Insect and Disease staff made approximately 80 field checks of insect and disease problems and made recommendations for prevention and control. Other inquiries were handled by telephone, mail, and personal contact.

FOREST HEALTH SURVEYS

The SCFC entered into agreement with the USFS to evaluate permanent Forest Health plots throughout South Carolina. This was done by the Resource Development Section and reported there. As another part of this program, the Forestry Commission also received additional funding for off-plot activity to survey for and report on other forest insects and diseases.

20% surveys for SPB were restricted to counties where trapping indicated SPB populations were relatively high; McCormick and Edgefield Counties.

Equipment

Auction budget							
Number	Item	Per Unit	Extended				
1	Freightliner 114SD Truck Tractor w/Wetline	\$109,520	\$109,520				
1	½ Ton Pickup, Piedmont Comm. Tech	\$28,095	\$28,095				
1	Drop Deck Lowboy, Central Repair Shop	\$64,931	\$64,931				
		TOTAL	\$202,546				
12	Lightbars	\$1,194	\$14,326				
13	Sirens	\$249	\$3,238		Sales Tax 8%		\$1,774
13	Siren Speaker	\$96.00	\$1,248			Total	\$376,207

BMP/FIA budget			
Number	Item	Per Unit	Extended
3	Dodge 1500 Pickups	\$29,977.00	\$83,931
		Total	\$83,931

Capital Reserve Fund & Act 273 funds			
Number	Item	Per Unit	Extended
7	Cat D4K2 Dozers w/ Winch	158,352.00	108,464.00
5	Cat D4K2 Dozer w/ Lift Plow and Blade Winch	172,718.00	863,590.00
6	Freightliner 114SD Transport Trucks	110,879.00	665,274.00
5	Freightliner 114SD Transport Trucks	112,476.00	562,380.00
1	Freightliner 114SD Truck Tractor	104,570.00	104,570.00
6	Truck Bodies	24,725.00	148,350.00
5	Truck Bodies	24,725.00	123,625.00
1	Dodge Grand Caravan for Donald Bryant	23,805.00	23,805.00
2	Ford F-450 4x4 Service Trucks	59,396.00	118,792.00
3	Welders for Service Trucks	8,391.00	25,173.00
4	Ford F-250 Supervisor/Forester Trucks (Pied.)	32,488.00	129,952.00
4	Ford F-250 Supervisor/Forester Trucks (PD)	32,488.00	129,952.00
3	Ford F-250 Supervisor/Forester Trucks (Coastal)	32,488.00	97,464.00
1	35-Ton Lowboy	30,174.00	30,174.00
3	ARF F-250s	33,311.00	99,933.00
	Emergency Lights		26,823.79
	Capital Reserve Fund		\$1,000,000.00
	Act 273 Funds		\$3,258,321.79
	Total		\$4,258,321.79

The Forestry Commission prepared and organized equipment for auction. The auction process now takes place exclusively online at www.govdeals.com. The sale of equipment netted the Forestry Commission approximately \$311,383.86.

Law enforcement

During FY 2019 the Forestry Commission had 38 sworn Law Enforcement Officers statewide. Three of these were investigators that focused primarily on complex timber theft, timber fraud and woods arson cases.

Officers prosecuted 43 fire cases, 12 violations of state forest regulations, 2 pine straw theft cases, 5 miscellaneous cases and 11 game and fish case. Total fines collected were \$7,234. Fines collected from these cases are retained in the county where the offense occurred.

Forestry Commission Law Enforcement Investigators investigated 112 timber theft/ fraud cases which represented a loss of \$349,116 to the victims. Investigators collected and returned 78 % or \$272,313 to the affected landowners. Forestry Commission officers arrested 3 individuals for woods arson who were responsible for 10 fires. During the year there were 223 fire investigations conducted with 105 of them escaped debris burns. There were 30 Burn Site Inspections and 59 Smoke Management Investigations.

FOREST MANAGEMENT

There are 12.9 million acres of commercial forestland in South Carolina. According to 2013 National Woodlands Owner data (<http://www.fia.fs.fed.us/nwos/>), 88% of South Carolina's forests are privately owned, 51% of private forests are family-owned, and 82% of these owners live on the land. Forest industry has sold much of its forestland during the last 10 years and now owns only 238,100 acres (1.8%), which while a 40% increase from last year is down 89% since 2000. Public agencies (municipal, county, and federal) control 12% of South Carolina's forests.

The Forest Management Section assists South Carolina citizens with management and development of the forest resources of the state. Programs include woodland management assistance, reforestation assistance, forestry services, forest products utilization and marketing assistance, resource conservation and development, and urban & community forestry. These programs assist owners in growing more timber, aid industries in more efficient utilization of the timber resource, and foster conservation and multiple use of the forest resource. The Urban & Community Forestry program strives to help local government, educational institutions and non-profit organizations develop and enhance the benefits provided by trees and greenspace where we live and work.

In addition to programs designed to assist private landowners and local communities, the Forest Management Section also coordinates development and management of over 90,000 acres of forestland included in the state forest system. These lands are owned by the Forestry Commission and provide forest based recreation opportunities and serve as examples of the benefits of active forest management. The State Lands Coordinator also assists other state agencies in the management of their forest resources.

Forest Management Assistance

Professional foresters from the Forestry Commission provide forest management advice and assistance to landowners. The land is examined and a written forest management plan is prepared.

Recommendations for management may include such silvicultural practices as forest protection, reforestation, harvesting, prescribed burning, wildlife habitat improvement, and recreation.

This year, 1,062 management plans were prepared for 67,940 acres. Beginning in July of 1999, customer satisfaction surveys were sent to every landowner that received a forest management plan. In FY19, 94.3% of the landowners that responded to the survey indicated that they were satisfied with the management plan they received. Of these landowners, 100% also indicated that they intended to complete most or all of the recommendations in their plan. Where practical, the landowner is referred to consulting or industrial foresters for assistance in carrying out management recommendations. This year 57 cases were referred to consulting foresters and 25 were referred to industrial foresters.

Forest management assistance, FY2018-19

County	Non Cost-Share		Cost-Share		Forest Stewardship	
	Exams	Acres	Exams	Acres	Plans	Acres
Abbeville	7	359	15	838	1	192
Aiken	9	322	20	1477	1	62
Allendale	1	35	14	656	0	0
Anderson	13	548	7	321	4	656
Bamberg	2	95	15	1033	1	159
Barnwell	1	25	12	833	1	392
Beaufort	4	511	1	198	1	104
Berkeley	3	70	4	189	2	678
Calhoun	0	0	2	143	0	0
Charleston	10	744	3	123	2	922
Cherokee	3	269	7	170	0	0
Chester	9	311	9	559	0	0
Chesterfield	3	100	113	5296	2	666
Clarendon	2	196	8	213	0	0
Colleton	18	852	8	393	5	413
Darlington	4	292	10	773	0	0
Dillon	23	1434	11	411	5	1305
Dorchester	3	230	5	209	0	0
Edgefield	7	221	7	491	2	332
Fairfield	5	532	17	875	1	13
Florence	16	1143	27	1577	2	120
Georgetown	15	1613	10	570	2	340
Greenville	9	390	2	42	0	0
Greenwood	10	327	20	973	1	338
Hampton	0	0	21	1370	1	318
Horry	20	925	5	139	1	50
Jasper	0	0	11	532	1	109
Kershaw	3	104	5	200	3	331
Lancaster	1	15	15	599	0	0
Laurens	8	528	29	1397	2	223
Lee	1	49	10	358	1	292
Lexington	10	541	13	524	0	0
Marion	13	3048	14	1815	0	0
Marlboro	0	0	19	1301	2	426
McCormick	1	44	16	1075	0	0
Newberry	8	443	41	1569	4	415
Oconee	15	625	5	164	1	110
Orangeburg	6	493	26	1387	0	0
Pickens	7	341	2	32	0	0
Richland	5	228	4	158	0	0
Saluda	4	263	21	910	0	0
Spartanburg	14	783	2	89	1	56
Sumter	4	203	18	595	0	0
Union	3	110	8	510	2	1475
Williamsburg	11	941	43	2139	4	899
York	9	425	10	370	1	222
State Totals:	320	20,728	685	35,595	57	11,618

Cost-Share Programs

Forest Renewal Program (FRP) - State

In 1982 the program was funded for the first time by a \$100,000 state appropriation. This permitted an assessment of \$400,000 from forest industry, and created a \$500,000 Forest Renewal Fund. The state funding was doubled effective July 1, 1996. This increase permitted an assessment of \$800,000 increasing the program to \$1,000,000. Beginning in 2001, the objectives of the Forest Renewal Program were expanded to include providing funds to help match federal grants that provide financial support for the Forest Inventory and Analysis (FIA) program.

Conservation Reserve Program (CRP) - Federal

The Conservation Reserve Program (CRP) began with crop year 1986 and was renewed with the passage of the 2014 Farm Bill. This program provides technical and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. CRP reduces soil erosion, protects the Nation's ability to produce food and fiber, reduces sedimentation in streams and lakes, improves water quality, establishes wildlife habitat, and enhances forest and wetland resources. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, trees, filter strips, or riparian buffers. CRP is administered by the USDA Farm Service Agency, with the SC Forestry Commission providing technical assistance for forestry practices.

Environmental Quality Incentives Program (EQIP) – Federal

The Environmental Quality Incentives Program (EQIP) was created by the 1996 Farm Bill. EQIP provides financial assistance to help plan and implement conservation practices that address natural resource concerns and help improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. An additional purpose of EQIP is to help landowners meet Federal, State, Tribal and local environmental regulations.

Southern Pine Beetle (SPB) – Federal

The SPB Prevention and Restoration Cost-Share Program (SPB Program) was created in 2006 for non-industrial private forest landowners. It seeks to mitigate future loss from SPB by managing pine density through prevention and restoration practices. These practices ensure that a pine stand will be of merchantable size before the stress of being overly dense develops. Receiving income and maintaining vigorous growth are usually enough incentives for landowners to thin merchantable sized pine stands and, in return, reduce the potential loss from SPB.

Statewide accomplishments for all cost-share programs, FY2018-19							
–Reforestation and timber stand improvement							
Program	Number of Landowners	Acres Planted	Prescribed Burning	TSI Acres	Commercial Thinning	Precommercial Thinning	Cost Share Payments
FRP	274	11,499	0	336	0	0	\$937,122
EQIP	0	0	0	0	0	0	\$
CRP	49	716	2,493	70	0	550	\$109,945
SPB	38	1,584	0	0	0	180	\$157,134
Totals	361	13,799	2,493	406	0	730	\$1,204,201
<i>*data not available</i>							

The SC Forestry Commission surveyed landowners who received cost-share assistance both at the beginning of the process and at the end. This survey indicated that 93.5% of customers were satisfied with the assistance they received initially and the follow-up survey indicated that 88.7% were satisfied with the assistance received at the end of the process.

FRP Monitoring

The purpose of monitoring FRP applications is to fulfill the agency's regulatory responsibility regarding maintenance of FRP practices. SC Code of Laws 48-28-80 requires that landowners who receive FRP cost share assistance maintain the land in a forested condition for 10 years or until a commercial harvest. SC Code of Laws 48-28-50 requires the SCFC to initiate recollection of FRP cost-share funds if a landowner does not meet the requirements of SC Code of Laws 48-28-80. SCFC Procedure 3214.17 was established to provide guidance regarding the monitoring of FRP practices. During FY18 the Forestry Commission completed monitoring of 279 sites for compliance with FRP maintenance requirements. Three sites, comprising 3 acres, were found to be out of compliance and recollection of the cost-share funds was initiated.

Seedling Survival

Survival checks were made on 10 percent of plantings using a row count or tenth acre plot method for determining survival. An average of all survival checks was used to determine the statewide survival of 80% for loblolly pine plantings. Survival rates for longleaf pine plantings were tabulated separately. Plantings with longleaf seedlings had a survival rate of 76% when containerized stock was used. Due to a decline in the use of bare root longleaf stock no bare root longleaf plantings were sampled during FY19.

Forest Stewardship

The Forest Stewardship Program is a cooperative effort among the USDA Forest Service, Forestry Commission, other natural resource agencies and organizations, forest industry, and private forest consultants in South Carolina to encourage the long-term stewardship of non-industrial private forest lands. Landowners are provided technical assistance through the development of a multiple resource management plan for their property addressing their management objectives.

During the past year, 57 Stewardship Plans were written in South Carolina on 11,618 acres. South Carolina Forestry Commission foresters authored all of these plans. Due to the SC Forest Stewardship Coordinating Committee meeting being canceled, no landowners were recognized as Forest Stewards during FY19.

Forest Stewardship staff also completed FSP Implementation Monitoring, conducting on the ground inspections on 24 Forest Stewardship Plans encompassing 5,218 acres. During FY19 it is estimated that 80% of all Forest Stewardship Plans are being implemented. In addition to adhering to the standard implementation monitoring protocol for FY19, the SCFC included additional evaluation of specific management outcomes that have resulted from the implementation of Forest Stewardship Plans. Results indicate that Forest Stewardship Plans are having a positive impact on specific management outcomes of interest in South Carolina (see table below). In FY19 we also evaluated whether the landowner being monitored was "highly engaged" at the time of monitoring. The Sustaining Family Forest Initiative (SFFI) classifies a landowner as "highly engaged" if they have reported doing several activities to protect and improve their woodlands. In SC the SFFI classifies that 8% of all family forest landowners owning 10+ acres are highly engaged. Results from Forest Stewardship Implementation Monitoring indicate that 68% of landowners with Forest Stewardship Plans are highly engaged. Thus, landowners with Forest Stewardship Plans are significantly more likely to be engaged in the active management of their woodlands than the average landowner.

Forest stewardship monitoring evaluation results, FY2018-19	
Management Outcome	Percent Implemented as Result of Plan
Timber Harvest	76
Tree Planting	40
Prescribed Burning	28
Wildfire Prevention Activity	64
Invasive Species Control	36
Wildlife Habitat Enhancement	68
Utilized Cost Share Assistance	28
Used Stewardship Plan to Qualify for Farm Bill Program	16
Used Forest Stewardship Plan to Qualify for Third Party Certification (Tree Farm, etc.)	24

Of the landowners who returned customer surveys during FY19, 94% of them indicated they were satisfied with the Forest Stewardship management plan they received, and 97% of them indicated that they intended to complete most or all of the recommendations in their plan.

Forestry Services

Through this program the SC Forestry Commission provides assistance to landowners and other state agency lands with afforestation, reforestation, and maximization of production from their woodlands. The landowner is charged the cost of all services performed.

These services were available to landowners during FY19:

Firebreak Plowing - performed by Forestry Commission employees using agency equipment for \$140 for the 1st hour and \$85 for each additional hour. In FY2006, separate rates were established for firebreaks constructed with a heavy tractor. For FY2016-2017, these rates were \$160 for the 1st hour and \$100 for each additional hour.

Prescribed Burning - performed by Forestry Commission employees using agency equipment for \$21 per acre for understory burns and \$30 per acre for site preparation burns and for understory burns in mountainous terrain. Firebreak plowing costs are not included. The minimum charge for this service was \$500 during FY2016-2017.

Prescribed Burning Standby - an agency tractor and employee on standby at burning site for \$80 for the 1st hour and \$30 for each additional hour while the landowner performs burning under an approved plan. The minimum charge for this service was \$110.

Equipment Rental Program – agency-owned tree planters and drum choppers made available to private landowners at rates of \$5 and \$20 per acre respectively. The minimum charges were \$25 and \$100.

Timber Marking - performed by Forestry Commission employees at the rate of \$10 per thousand board feet and \$5 per cord.

Forestry services			
Service	Number of Tracts	Units of Measure	Receipts FY2017
Firebreak Plowing	355	910 miles	\$138,328.00
Prescribed Burning	148	13,094 acres	\$288,280.50
Prescribed Burning Standby	23	3,389 acres	\$7,514.50
Equipment Rental	2	22 acres	\$110.00
Water Bar Construction	4	143 bars	\$8,225.00
Timber Marking	0	-	\$0.00
Totals	532	-	\$442,458.00

The SC Forestry Commission sends customer surveys to all landowners who receive forestry services. In FY19, 94% of our customers reported they were satisfied with our forestry services and 97% of those responding indicated they plan to use our services again.

Urban and Community Forestry

The Urban and Community Forestry program exists to provide technical, financial, and educational assistance to municipal and county governments and others for the purpose of creating, maintaining, and enhancing community forest conservation and management within their jurisdictions; to provide for, coordinate and/or conduct information, education and training regarding community forestry, wildland-urban interface issues, and arboricultural best management practices; and to provide grants to local governments, non-profit organizations, and educational institutions of higher learning to create, enhance and support long-term local and regional community forestry programs. This assistance is accomplished through a variety of ways: direct contact, diverse and cooperative partnerships, and the financial assistance grant program.

Expected results include, but are not limited to: improved air quality; energy conservation through reduced heat island effect in downtown areas; local government recognition and management of the community tree resource; sustained financial support on the local level for community tree management; more professional public tree managers to provide safe walkways, streets and parks; and more public trees planted and maintained to beautify, cool, and clean South Carolina communities. These results occur when a community or county government works toward accomplishing a natural resource inventory and management plan, employs professional urban forest staffing, adopts and implements natural resource policy, and works in partnership with local advocacy organizations.

Urban and Community Forestry Financial Assistance Program

The Community Forestry Financial Assistance and Partnership Program is a state program funded with federal-level monies appropriated each year by Congress. When available, these funds are funneled through the US Forest Service to the SC Forestry Commission to administer. South Carolina received \$125,000.00 in federal funding this year through the competitive grant process (Landscape Scale Restoration). The goal of the grant project is to create resilient coastal forests in Southeastern US. The project will use GIS to map extent and intactness of current forest cover for several coastal communities, develop risk assessments and future forest cover projections and develop a coastal forest resiliency plan for each pilot community. This project will aid communities in better planning to meet these challenges by assessing the current extent and health of coastal forests, associated benefits provided (environmental, social and economic), risk factor assessment (development, pests and storm surge) and developing plans for meeting these challenges. This is a regional effort with South Carolina as the lead state and Georgia and Virginia are partners.

The Urban and Community Forestry program also partnered with Trees SC (urban and community forestry council) to assist with urban forestry and arboricultural training and continuing education for public tree managers and other professionals. SCFC provided a speaker for the Trees SC annual conference and partnered with Trees SC to provide two SC Arborist Workshops in September and March.

The U&CF program has six grant agreements with communities: North Augusta, Camden, Greenville, Bennettsville, Florence, and Myrtle Beach. These communities applied for assistance with projects that help to maintain and care for their urban forests. Five grantees applied for assistance with accomplishing tree inventories; one grantee applied for assistance with attending a course to prepare two employees for taking the certified arborist exam.

The U&CF program is partnering with Green Infrastructure Center (GIC), a non-profit organization, on a Community Tree Planning and Planting Campaign. The project entails partnering with 2-3 communities by assisting communities with strategic tree planning and planting to demonstrate the use of data in planning where, when and how to plant trees, as well as, where to retain canopy and how to motivate planning across both public and private sectors. GIC will work with communities to make land cover map and planting strategy map. Then a strategic planting map will be developed in collaboration with municipality, local agencies, and non-profit groups.

U&CF program is also partnering with GIC to make a Planners Forest Toolkit to provide planners with a suite of policy tools and practices to expand and/or conserve forests. The Toolkit will include examples of successful forest conservation policies from across SC and best 'policy' practices.

Tree City/Tree Line USA/Tree Campus

Sponsored on the national level by the Arbor Day Foundation and others, the Tree City USA program is administered in South Carolina by the SC Forestry Commission. This program seeks to stimulate and promote the management of community trees by recognizing towns and cities which meet the following criteria: (1) establishment of a municipal tree care ordinance, (2) expenditure of at least two dollars per capita on their community forestry program, (3) establishment of a legally constituted tree board or permanent staff to address tree issues, and (4) observance of Arbor Day by a mayoral proclamation and official ceremony. The SC Forestry Commission recognized and awarded 39 municipalities under the Tree City USA program during FY19.

The Tree Line USA program, also sponsored by the National Arbor Day Foundation, seeks to stimulate and promote proper utility line clearing and safety techniques of private and public utility companies. In order to qualify as a Tree Line USA, a utility must meet three criteria: (1) perform quality tree care regarding pruning, trenching and tunneling methods; (2) provide opportunities for annual utility line worker training; and (3) sponsor an ongoing community tree planting program to include an Arbor Day celebration and at least one educational mailing to customers. The Forestry Commission and the Arbor Foundation recognized 1 municipally-owned utility as Tree Line USA certified in FY19.

The Tree Campus USA program, sponsored by the National Arbor Day Foundation, encourages institutions of higher learning to promote proper management of campus trees. SC maintained 6 Tree Campus USA institutions in FY19.

Technical Assistance and Educational Program

The state of South Carolina funded an Urban Coordinator position and three Regional Urban Forester positions in June which increases our program exposure and assistance to customers across the state of South Carolina. Through the direct technical assistance of the community forestry staff to municipalities, schools and partner organizations, the urban and community forestry program accomplished the following in FY19 (see next page):

Types of technical assistance	Program accomplishments	
Program Development/Expansion	# of Entities	# of Assists
Municipal Government	51	98
Non-profit/trade organizations	15	38
Educational Institutions	4	4
County Government	19	30
State Government	8	10
Others	15	19
TOTAL	112	199

Tree City USA	32
Tree Campus USA	6
Tree Line USA	1

Public Information/Education	Adults	Youth	Total
# Programs	17	1	18
# People	624	14	638
# Seat Hours	962	14	976

State Forest / State Lands

Harbison State Forest

Harbison State Forest (HSF), located approximately 9 miles from downtown Columbia, encompasses 2,176 acres. The Forest was purchased in 1951 and became the site of the agency headquarters in 1963. Following the adoption of a Master Plan in 1981, the Forest began to be developed as an Educational State Forest. Recreational use grew dramatically in the early 90's with Harbison soon gaining the reputation as a mountain biking mecca for the area. A yearlong vehicle survey was conducted during the 2016-17 FY. It conclude with an estimated 132,000 user visits during that time.

Receipts for operating budget, FY2018-19	
Activity	Receipts
Timber Sales	\$68,400.00
Conference Room Rentals	\$6,000.00
Trail Permits	\$58,914.07
Campsite Rentals	\$1,011.25
Trail Donations	\$315.23
Other	\$0.00
Total	\$134,640.55
<i>Note: 25% of all receipts are paid to the Richland County School System. This amounted to \$34,688 for the fiscal year (donations and rental income are not included when calculating the total to be dispersed to the school system).</i>	

SILVICULTURAL PRACTICES

One prescribed burn was conducted during FY19 totaling 24 acres. One timber sale took place totaling 44 acres.

FOREST PROTECTION

No wildfires occurred during this fiscal year. Trees that were considered hazardous to forest visitors and/or to buildings were felled.

RECREATION/EDUCATION

Several events were held on the trails at Harbison during the 2018-2019 fiscal year. The Friends of Harbison State Forest held their 13th annual "Take a Kid Mountain Biking" day. This event helped raise awareness of the sport to a younger generation and increased awareness of the state forest. HSF was also the site for seven races: one 5k, two 10k, one 50k, two half marathon foot races, and two mountain biking races. HSF was the host site of the Blues, Berry, and BBQ Festival for the third year in a row

In addition to these events, several trail work days were conducted during FY19. These events included improving the trails by pruning of overhanging branches and brush and the rehabilitation of wet areas and closed trails. Friends of Harbison State Forest (FoHSF) members have taken on more responsibility in the care of the trail system with reduced SCFC staffing. This group continues to meet on a monthly basis to plan events and promote the Forest. The mission of the Friends group is to "preserve and promote the recreational and educational aspects of this urban forest resource." Current membership of this group is estimated at 130 individuals.

Scouts and other organized groups continue to use the four primitive camping facilities at Harbison. Harbison’s camping facilities were used by 19 groups this fiscal year for a total of 325 users. The canoe landing at Harbison State Forest provides access to the Broad River. During the 2018-2019 fiscal year, 18 groups used this facility for a total of 47 paddlers.

WILDLIFE MANAGEMENT

Five wildlife viewing areas totaling 2 ½ acres are maintained each year.

RARE, THREATENED AND ENDANGERED SPECIES MANAGEMENT

No threatened or endangered species have currently been found on Harbison State Forest.

RESEARCH

DNR continued collecting samples for the North American Bat Monitoring Program.

Manchester State Forest

Manchester State Forest, located in Sumter County and Clarendon County, is currently comprised of approximately 28,764 acres. From 1939 to 1955, Manchester was leased by the State of South Carolina from the federal government and managed by the South Carolina Forestry Commission. The State received title to the property on June 28, 1955.

Receipts for operating budget, FY2018-19	
Activity	Receipts
Timber Sales	\$991,040.05
Pine Straw Sales	\$92,133.00
Land Lease Payments	\$29,750.47
Wildlife Management Area	\$93,922.56
Recreation and Special Use Permits	\$20,144.00
Year End Refund	\$1,677.47
Total	\$1,178,991.54
<i>Note: 25% of all forest receipts are paid to Sumter and Clarendon County School Systems for a total of \$248,478.88 (donations, prior year refunds, and rental income categories are not included when calculating the total to be dispersed to the school systems).</i>	

SILVICULTURAL PRACTICES

A total of 1,116 acres were prescribed burned for wildlife habitat enhancement, hazard reduction, hardwood control, aesthetic, and site preparation purposes. 350 acres were sold for final harvest cuts and 122 acres were sold for improvement cuts (thinning). 1,024 acres were sold for pine straw raking. Inventory data was collected on 68 plots which covered 250 acres on 8 different stands.

The following species and number of seedlings were planted:

Species	Acres	Seedlings
Containerized longleaf pine	181	112,582
Bareroot loblolly pine	563	306,272

FOREST PROTECTION

MSF had 7 wildfires that totaled 76.5 acres. Manchester personnel assisted regional personnel as well as the local fire departments with several fires which were adjacent to the State Forest as well as in and out of state assignments.

RECREATION

Recreational use continues to be heavy. Hunting, fishing, horseback riding, motorcycle/ATV riding, and use of the rifle/pistol range continue to be favorite activities. Mountain bike riding has all but ceased due to the increase of free mountain bike riding offered at Poinsett State Park which is managed by SCPRT.

Recreational permit sales consisted of 1,246 daily permits and 276 annual permits. This does not include hunting or fishing users.

Four special use permits were issued for organized events.

- Manchester Trail Riders Fall Ride on October 27, 2018; 145 riders
- SERMA AMA East Hare Scramble Championship on January 27, 2019; 238 riders
- SERMA 47th Annual Sumter National Enduro on February 3, 2019; 729 riders
- Manchester Trail Riders Spring Ride on March 16, 2019; 178 riders

EDUCATION

The Manchester State Forest director is a member of the Central Carolina Technical College's Natural Resource Management Committee. The committee makes curriculum suggestions and works with school administration to improve the NRM program. Manchester also host some of the classes for field training labs (timber cruising, seedling planting density and survival, ecology, etc.)

WILDLIFE MANAGEMENT

Approximately 28,000 acres of the forest are presently included in the Wildlife Management Area Program through a cooperative agreement between the SC Department of Natural Resources (SCDNR), and the South Carolina Forestry Commission.

MSF had 4 public dove fields consisting of 271 acres planted in sunflowers, corn, and wheat. 640 acres are maintained as wildlife openings. MSF also has a category II duck impoundment that consists of 297 acres.

Wildlife surveys are conducted in conjunction with SCDNR for fox squirrels, turkey, deer, quail, etc.

RARE, THREATENED, AND ENDANGERED SPECIES MANAGEMENT

Manchester currently maintains 5 clusters of red-cockaded woodpeckers. Colony sites continue to be monitored along with scouting for new cavity and start trees in cooperation with biologists from the neighboring Poinsett Weapons Range (US Air Force).

RESEARCH

Manchester continues to cooperate with the SCFC Nursery Section by providing sites for clone banks, seed orchards, and progeny tests.

During this past year Manchester issued 1 research special use permit having to do river and stream conditions.

Wee Tee State Forest

Wee Tee State Forest located on the Santee River in lower Williamsburg and Georgetown Counties was acquired by the South Carolina Forestry Commission in November of 2003 through the partnership of eight participants. These partners included the South Carolina Forestry Commission, South Carolina Department of Natural Resources, The Conservation Fund, U. S. Forest Service, Forest Legacy Program, U. S. Fish and Wildlife, North American Wetlands Conservation Act Grant, Ducks Unlimited, National Wild Turkey Federation, and Anheuser-Bush. Wee Tee contains 12,394 acres of which 770 acres is comprised of planted loblolly pine plantations and upland pine-hardwood types and the remaining 11,624 acres is comprised of bottomland hardwood types with the associated oxbow lakes and creeks. Being in the Santee River Focus Area of Ducks Unlimited’s Lowcountry Initiative, it is a very significant, unfragmented bottomland hardwood forest. Its significance lies in its watershed and water supply protection, habitat for wildlife and a number of threatened and endangered species and the opportunities it provides for recreation, forest practices and education.

Receipts for operating budget, FY2018-19	
Activity	Receipts
Timber Sales	\$225,689.04
Total	\$274,736.70
<i>Note: 25% of all forest receipts were paid to Williamsburg and Georgetown counties for a total of \$67,756.94 (donations, prior year refunds, and rental income categories are not included when calculating the total to be dispersed to the school systems).</i>	

SILVICULTURAL PRACTICES

105 acres were sold for final harvest. No prescribed burns were conducted this year.

FOREST PROTECTION

Gates have been constructed and placed on all known entrances into Wee Tee to control access for the protection of the property and infrastructure.

RECREATION

Hunting, fishing, canoeing, and kayaking continue to be the main recreational activities at Wee Tee.

WILDLIFE MANAGEMENT

All of Wee Tee State Forest is included in the Wildlife Management Area Program through a cooperative agreement between the SC Department of Natural Resources (SCDNR), and the South Carolina Forestry Commission.

RESEARCH

No research special use permits were issued.

Sand Hills State Forest

Sand Hills State Forest (SHSF) encompasses 46,838 acres, with 45,338 acres in Chesterfield County, 1,000 acres in Darlington County and 500 acres in Kershaw County. The forest was operated under a use agreement with the federal government from 1939 until 1991. In July of 1991, title to Sand Hills State Forest was transferred to the South Carolina Forestry Commission.

Receipts for operating budget, FY2018-19	
Activity	Receipts
Timber & Stump Sales	\$340,502.29
Pinestraw Sales	\$1,783,127.16
WMA Payment	\$36,874.55
Rent State Owned Property	\$4,005.00
Rent Farmland (CPR)	\$ -
Fees & Fines	\$ -
User Fees	\$3,691.00
Prior Year Refund	\$1,990.55
Insurance Claims	\$0
Donations	\$163.55
Total	\$2,170,354.10

Note: 25% of receipts were paid to Chesterfield, Darlington and Kershaw county school systems. Donations, prior year refunds, and rental income categories are not included when calculating the total to be dispersed to the school systems. Sand Hills has been totally self-sufficient since 1967.

County payments	
County	FY 19
Chesterfield	\$522,436.67
Darlington	\$13,255.69
Kershaw	\$5,356.39
Total	\$541,048.75

SILVICULTURAL PRACTICES

There were not any areas planted with longleaf pine seedlings in FY19. A total of 2,210 acres were prescribed burned for wildlife habitat enhancement, hardwood control, and fuel reduction.

FOREST PROTECTION

Sand Hills State Forest did not have any wildfires in FY19.

PINESTRAW AND TIMBER

In 1999 Sand Hills started a pinestraw enhancement program. Under this program, an individual from the public can enter into a multi-year contract with the Forestry Commission to rid longleaf pine stands of scrub oaks for pinestraw production. The individual agrees to eradicate 90% of all hardwoods on a tract of land using herbicides. In exchange, they may harvest all the pinestraw that falls during the contract period. When the contract expires, the acreage becomes part of SHSF's quality straw production program. The straw from these areas is typically offered for sale on a lump sum, sealed bid basis.

In FY19 Sand Hills had a total of 6 timber sales. These sales consisted of approximately 1,195 acres for the amount of \$271,748.00.

During FY19 Sand Hills issued 4 enhancement contracts which consisted of 8 pine stands for a total of 911 acres totaling \$68,325.00. At the end of FY19 there were a total of 14 active enhancement contracts which consisted of 88 pine stands that totaled 4,059.5 acres.

Sand Hills State Forest sells pinestraw through bid sales and negotiated sales. In FY19 there were 3,968.7 acres sold on bid sales for \$774,977.46 and 7,111.1 acres sold on negotiated sales for \$1,003,599.80.

As a result of increased pine straw activity on Sand Hills State Forest, a vehicle registration system was implemented to ensure that licensed, insured vehicles were operating on the Forest. The registration stickers provide a visible means to those patrolling the Forest that the participant has complied with the program. The registration stickers are used for pinestraw sales and for state forest users that want to access the “authorized vehicles only” truck trails. In FY19 Sand Hills State Forest issued 310 stickers.

RECREATION

Recreational use of the Forest continues to be fairly heavy. Hunting, fishing, hiking, bird watching, and camping continue to be favorite activities. Equestrian use on SHSF remains low due to the free riding that is offered at H. Cooper Black Recreational Area under the management of SCPRT.

Sugarloaf Mountain provides seven primitive camping sites for family camping and eight primitive equestrian campsites. Sand Hills personnel booked 139 reservations for these sites this year. An estimated 2,572 visitors* used the campsites and trails. The number of visitors does not include day users nor does it include any visitors from any other user group (i.e. hunters, fishermen, birdwatchers, pinestraw workers, etc.). Campsites rental rates are \$15 per site for sites with shelters and \$10 per site for those without shelters. Sand Hills received \$3,960.00 in revenue from camping in FY19.

One hundred six trail use permits were issued for horseback riding in FY19. Revenue from trail use permits totaled \$3,526.00.

**Number of visitors does not include day users nor does it include any visitors from any other user group (i.e. hunters, fishermen, birdwatchers, pinestraw workers, etc.).*

Free-use permits are issued for any activity at Sand Hills State Forest that does not have a fee. SHSF personnel issued 11 free-use permits this year. One (1) of the permits was for raking pinestraw for personal use and ten (10) were for gathering firewood.

Three special-use permits were issued for organized events.

- Sand Hills Stampede Endurance Ride on October 13, 2018 -- 60 riders, volunteers and received \$350.00 in fees.
- Rally Racing Clinic on February 28, 2019 -- 27 participants and received \$135.00 in fees.
- Sand Blast Rally on March 2 2019 -- 111 competitors' entries with 35 cars, 41 motorcycles and received \$1,880.00 in fees.

These events bring many visitors to Sand Hills State Forest and surrounding areas and have a positive economic impact on the area. The local involvement and sponsorship have increased each year that these events are held.

EDUCATION

SHSF personnel visited and presented programs to the Darlington County Institute for Technology (9th-12th Grade), Long Middle School, McBee High School and the Palmetto Learning Center. In

addition to visiting classrooms, SHSF personnel also spoke to several civic clubs and participated in the Wood Magic Forest Fair.

WILDLIFE MANAGEMENT

Approximately 47,174 acres of the Forest is included in the Wildlife Management Area Program. This is a cooperative agreement between the SC Department of Natural Resources (DNR) and the SC Forestry Commission. SHSF has two public dove fields. The Wilkes Chapel field is 57 acres and planted in corn, sunflowers, and bicolor. The Davis Field is 40 acres and is planted in corn, sunflowers, and bicolor.

Sixty acres (30 plots) were planted as wildlife food plots. These plots were planted in winter peas and oats. No bicolor patches were bush hogged.

SHSF continues to conduct surveys for DNR. Ducks, turkey and quail were surveyed to track population trends.

RARE, THREATENED AND ENDANGERED SPECIES MANAGEMENT

Population Trends: There are currently 95 managed Red-cockaded Woodpecker clusters on SHSF. During FY19, 88 clusters were active and 7 clusters were inactive. FY19 saw an increase in activity with 6 inactive clusters turning active and 1 relic cluster turning active from 2018.

LAW ENFORCEMENT

Officers issued 1 citation in FY19.

RESEARCH

A longleaf pine natural regeneration research project in conjunction with the US Forest Service is still ongoing and has been in effect since 1978.

Poe Creek State Forest

Poe Creek State Forest (PCSF) is composed of two tracts of land totaling 2,511 acres. The Poe Creek tract is located in Pickens County adjacent to SC Highway 11 and contains 1,806 acres. This property was purchased from Crescent Resources, Inc. on April 6, 1999. Approximately 800 acres is under forest management with 610 acres of planted pine and 190 acres have been clearcut and allowed to regenerate naturally to native hardwood species. The remaining 1,006 acres are in natural upland hardwood type and a mixture of white pine and hardwoods. The steep terrain in this area limits the forest management activities that can be implemented. The Piedmont Forestry Center (PFC) tract, located 5 miles north of Salem in Oconee County, encompasses 705 acres. It includes a conference center, picnic shelter, and two houses that are available for rental groups. The timber on this property is managed along with that on PCSF.

Receipts for operating budget, FY2018-19	
Activity	Receipts
Timber Sales	\$0
WMA Payment	\$16,162.71
Rentals	\$6,380
Total	\$22,542.71
<i>Note: 25% of all forest receipts were paid to Pickens and Oconee county schools for a total of \$3,982.99 (donations, prior year refunds, and rental income categories are not included when calculating the total to be dispersed to the school systems).</i>	

SILVICULTURAL PRACTICES

No timber sales occurred on PCSF Forest during FY19. A 35 acre prescribed burn was conducted in a Loblolly pine stand. White pine and Virginia pine cones were collected from the orchards for SC Forestry Commission and NC Forest Service nurseries.

RECREATIONAL/EDUCATION

Use of the PCSF during FY19 was heavy, with numerous individuals and groups taking advantage of this beautiful facility.

Poe Creek State Forest use, FY2018-19		
Use	Days	# of People
Gatehouse Rental	8	8
Cabin Rental	76	89
Conference Room	2	45
Scouts	2	52
Wood Magic Forest Fair	4	661
Dove Shoots	6	110
Other & Fishing Rodeo	3	~600
Totals	101	1565

FOREST PROTECTION

No wildfires occurred on PCSF this fiscal year.

WILDLIFE MANAGEMENT

The SC Forestry Commission and the Department of Natural Resources cooperate on the planting and management of a 12-acre dove field at the Piedmont Forestry Center. The PFC and PCSF are both in DNR's Wildlife Management Area program and are open to public hunting. DNR fisheries also stocks one mile of Cheohee Valley Creek that runs through the Piedmont Forestry Center property.

RARE, THREATENED, AND ENDANGERED SPECIES MANAGEMENT

Poe Creek State Forest continues to provide habitat for several populations of federally endangered plants.

INFRASTRUCTURE

Road access at both the Piedmont Forestry Center and the Poe Creek tract was maintained through mowing of road shoulders and grading where needed.

RESEARCH

Dr. Patrick McMillan, professor at Clemson University, continues to conduct research on Poe Creek.

SCHART used the conference center for rescue and fire suppression training utilizing Blackhawk & Lakota helicopters. Subsequently landing zones were established on PCSF. SC Army National Guard based out of Donaldson Center also uses the landing zones at Piedmont Forestry Center for military training. They operate a company of each of Lakota, Blackhawk, and Chinook helicopters.

Niederhof Forestry Center

Niederhof Forestry Center (NFC) is located just north of the town of Tillman and approximately 9 miles northwest of Ridgeland in Jasper County and encompasses 1,594 acres. The SCFC Nurseries Section manages some of the property for tree improvement and as a production seed orchard. The remaining acreage is managed as multiple use demonstration forest and for outreach activities that include specialized hunts.

RECEIPTS

No revenue was generated this year.

SILVICULTURAL PRACTICES

Twenty-five acres were controlled burned during FY17.

FOREST PROTECTION

Controlled burning has improved the health of the young longleaf pine, stimulating height growth and reducing the incidence of brown spot needle disease. No wildfires occurred on NFC this fiscal year.

WILDLIFE MANAGEMENT

Approximately 18 acres of wildlife food plots were maintained with funding provided by Quality Deer Management Association (QDMA), National Wild Turkey Federation (NWTf), and Lowcountry RC&D.

RARE, THREATENED, AND ENDANGERED SPECIES MANAGEMENT

No rare, threatened, or endangered species are known to occur on Niederhof Forestry Center.

INFRASTRUCTURE

Road access was maintained at the Niederhof Forestry Center through mowing.

Outreach

Niederhof hunts				
	Number of Hunt Participants	Others Attending	SCFC	Total
Deer Hunts (2 hunts)				
December Rack Pack	8	21	8	37
November QDMA Military	10	12	10	32
Total	18	33	18	69
Turkey Hunts (3 hunts)				
WITO April	5	8	9	22
March Military NWTf	7	6	7	20
March Youth	3	3	4	10
Total	15	17	20	52
Total: 5 Hunts	121 people			

State forest revenue						
	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13
Gross Revenue	\$2,700,045	\$3,542,463	\$4,077,269	\$3,126,490	\$3,072,999	\$2,846,075
Operating Expenses	(\$2,017,499)	(\$1,984,055)	(\$2,053,605)	(\$1,905,164)	(\$1,813,109)	(\$1,996,717)
Payment to County Schools	(\$668,182)	(\$877,430)	(\$980,462)	(\$750,485)	(\$747,630)	(\$699,817)
Back to SCFC		(\$409,493)		(\$837,065)		
Annual Carry Over	\$14,365	\$271,485	\$1,043,203	(\$366,224)	\$512,260	\$149,540
	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Revenue	\$2,363,876	\$1,979,540	\$2,972,549	\$2,956,143	\$3,016,529	\$3,799,215
Operating Expenses	(\$2,084,033)	(\$1,848,539)	(\$1,921,155)	(\$1,879,296)	(\$1,953,005)	(\$1,954,788)
Payment to County Schools	(\$581,427)	(\$477,609)	(\$734,796)	(\$731,757)	(\$743,762)	(\$939,931)
Back to SCFC	(\$53,385)					
Annual Carry Over	(\$354,970)	(\$346,608)	\$316,599	\$345,090	\$319,762	\$904,496
Total Current Carry Over: \$2,942,890						

State Lands Management Program

The State Lands Forest Management Program was created to provide professional forest management assistance to South Carolina state agencies that own timberlands. This assistance consisted of cruising, marking, management assistance, and administering timber sales. The agencies and facilities assisted were as follows:

State lands forest management assistance		
Agency	Acres	Tons
DNR		
Jocassee	350	
PRT		
Cheraw	286	10,995
Givhans Ferry	868	30,263
Other		
John De La Howe	~300	
Totals	1,804	41,258

Other Activities

In addition, the five state forests (Manchester, Sand Hills, Wee Tee, Harbison, and Poe Creek) maintained dual certification under the Sustainable Forestry Initiative (SFI) and the American Forest Foundation (AFF) standards of sustainability.

The State Lands Coordinator:

- Serves as primary contact and coordinator for all state forest certification activities
- Adheres to applicable reporting and data management requirements
- Serves as the primary contact and coordinator for State Forest harvest scheduling, modeling, mapping, and inventory collection
- Serves as lead instructor for Teachers Tour maintaining adjunct professor status with SACS accredited college
- Serves on the State Trails Committee
- Serves on the SFI State Implementation Committee (S.I.C.)
- Facilitates timber marking with regions where possible
- Serves as a forest management / timber sale resource for all other agencies as well as counties and municipalities as requested

RESOURCE DEVELOPMENT DIVISION

Business Development

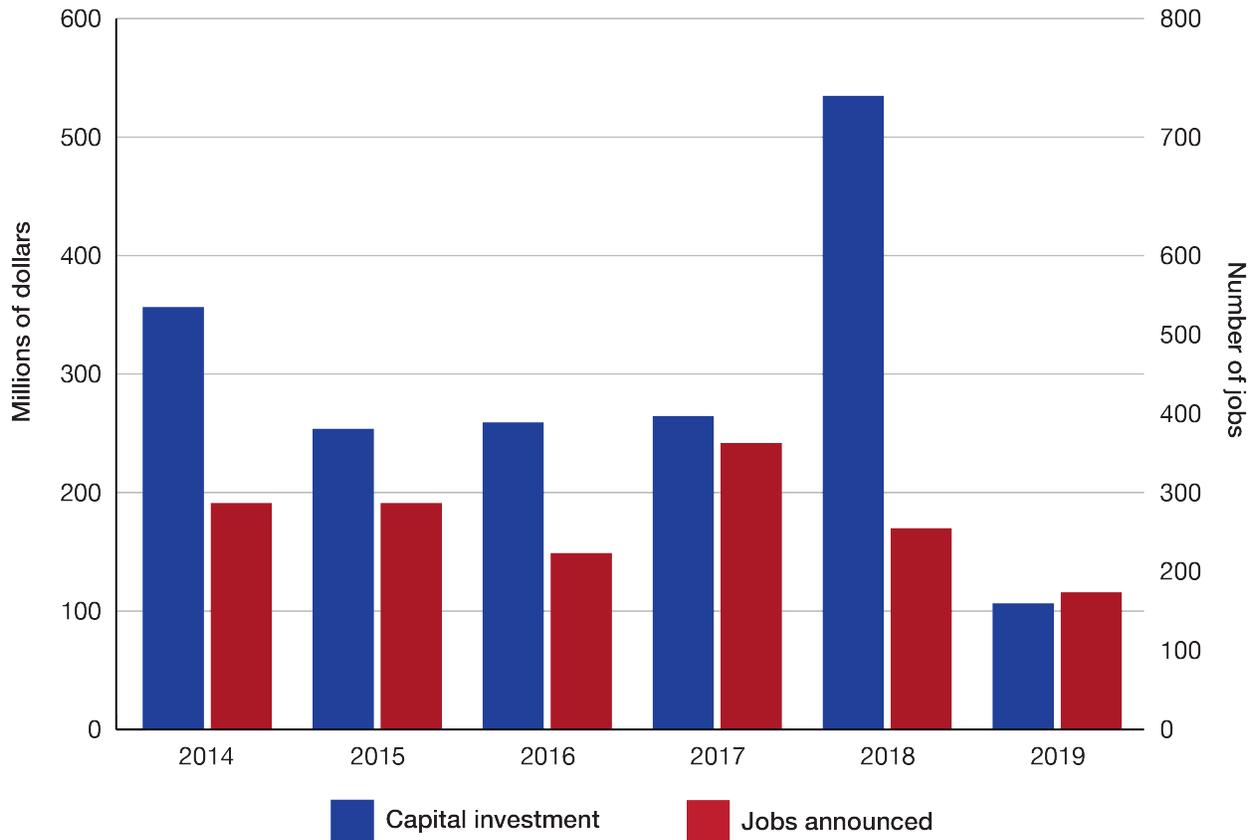
The goal of the Forestry Commission's Business Development Program is to enhance the contribution of South Carolina's forest resources and forest product-related businesses to the state's economy. We accomplish this goal by: 1) producing current forest resource information, 2) describing the health of the existing forest industry, 3) promoting South Carolina forest products to global markets, and 4) assisting as needed in the expansion of forest product manufacturing. The Business Development Group has three positions that work as a team, including a forest resource analyst, forest products marketing specialist, and industry recruitment lead.

The agency maintains directories of all primary and secondary forest product mills in South Carolina. Primary mills, such as sawmills, plywood plants or paper mills convert logs into commodity forest products such as lumber, panels and paper. Secondary plants produce value-added forest products like furniture, trusses and prefabricated structures. By the end of June 2019, there were 96 primary and 784 secondary forest product mills in South Carolina. Division personnel met with a sample of 44 primary mills as a part of the national Timber Products Output Program to estimate production levels in 2018. Early estimates indicate a 5% increase in production for solid wood products mills from 2017 to 2018.

Forest products marketing was a major emphasis in FY'19 with active participation in domestic and international trade programs. In August, the agency took the lead in exhibiting for the Southern Group of State Foresters at the International Woodworking Fair in Atlanta, Georgia. In October, the Forestry Commission used a federal grant to exhibit and sponsor South Carolina companies to attend the Southern Forest Products Export Conference in Memphis. Finally, the agency conducted a trade mission to Costa Rica Feb. 11-15 to develop new markets for wood products from the state. Two South Carolina business participated: Cameron Lumber and Green Link Industries. They met with a group of seven buyers and returned to SC with a series of trade leads for new business opportunities.

Finally, the agency cooperates with the SC Department of Commerce as well as regional and local economic developers to help grow the economic contribution of forestry to South Carolina's economy. During FY '19, there were nine announcements totaling \$103.9 million in capital investments that resulted in 185 new jobs created by the forest products industry in South Carolina. The nine announcements included three primary forest product companies that manufacture lumber, plywood and oriented-strand board and six secondary forest product companies that manufacture a wide range of value-added products. Eight of the nine announcements involved the expansion of existing manufacturing plants to eliminate bottlenecks and allow for expansion. Ridgeland Pellet Company in Jasper County was the sole manufacturing startup in FY'19. Ingevity established a new global headquarters for the company in North Charleston.

Forest-based economic development impact



Forest Inventory & Analysis

The Forest Inventory and Analysis (FIA) program is a cooperative program with the US Forest Service – Southern Research Station (SRS) to collect forest inventory and forest health monitoring data from a network of permanent sample plots. Funding for the program is provided through a 75% federal grant and a 25% state match of the federal grant funds. There are 3,452 total forest inventory plots located in South Carolina. In addition, there are 224 intensification plots that are located on the Sumter and Francis Marion National Forests. Plots are sampled in 20% increments of the total, referred to as panels. Plots are measured for growth projections, mortality and harvest assessments, and land-use classification. In addition, FIA provides information about South Carolina’s forest resources including forest acreage, timber quality, timber volume, timber growth, forage, water, and recreation. This network of plot data collection is referred to as the Phase 2 portion of FIA field data collection. The information provided by FIA Phase 2 allows the evaluation of both quantity and quality of these important resources. The U.S. Forest Service furnishes data analysis and reporting for this program.

Each year, during the summer growing season, a subset of the standard FIA plot grid is selected to collect forest health attributes. This part of the program is referred to as Phase 2+. Phase 2+ plots were set at one-sixteenth intensity of the standard FIA plot grid for the summer of 2018 and 2019. Phase 2+ plots include additional measurements that are collected to provide data on forest vegetative structure, down woody material, and tree crowns.

Currently, three full-time inventory crews, consisting of two employees each, are stationed throughout the state with field offices in Newberry, Florence, and Walterboro. The program coordinator is stationed in Columbia. All crewmembers are required to exceed a minimal accuracy average of 87% for all inventory plots. U.S. Forest Service personnel conduct quality assurance and quality control checks, on a sample of plots, to insure the accuracy of the data collected by Forestry Commission field crews. During FY 2018-19, the average accuracy for all crewmembers was 96.23% with each crewmember exceeding the 87% yearly average required by SRS.

During FY 2018-2019, field crews completed one panel of plots that began in FY 2017-2018 and began the next subsequent panel. For the fiscal year, a total of 576 Phase 2 sample plots were completed by Forestry Commission crews with 59 Phase 2+ plots being a subset of these plots. SRS completed 110 plots, consisting of 1 forest plot, 75 nonforest plots, and 34 plots classified as census water. Nonforest and census water plots were identified in the SRS office and not sent to the Forestry Commission field crews. The FIA program completed data collection on the second panel of the Cycle 12 inventory and began the third panel of data collection. The FIA program has completed 33% of the third panel of the Cycle 12 inventory of data collection. The FIA program completed 30 product utilization studies on active logging operations across the state to develop factors for logging residues, logging damage, and utilization of the unmerchantable portion of harvested trees. In addition to the standard FIA plot grid, 30 FIA plots were collected on the Sumter and Francis Marion National Forests as intensification plots.

Of the 13 southern states, South Carolina was the first state to complete the 8th inventory (2001), the 9th inventory (2006), the 10th inventory (2011), and the 11th inventory (2017). Subsequently, South Carolina is the first state in the nation to initiate the 12th inventory. The SCFC FIA program is slightly behind schedule to complete the 12th inventory measurements in five years, with December 2022 as a target date for completion.

Nursery and Tree Improvement

The South Carolina Forestry Commission owns two Nursery and Tree Improvement (N&TI) facilities: Taylor Nursery in Edgefield County and Niederhof Forestry Center in Jasper County. The goal of the N&TI Program is to provide landowners with the highest-quality seed and seedlings available for timber production, wildlife habitat improvement, Christmas tree production, and restoration of valuable forested ecosystems. The agency actively operates Niederhof Forestry Center, but on April 2, 2018, ArborGen took over the management and operation of Taylor Nursery under a 10-year contract with the South Carolina Forestry Commission.

Taylor Nursery

Taylor Nursery, located one mile east of Trenton, SC in Edgefield County, produces bare-root and containerized seedlings for South Carolina landowners. Originally named Ridge Nursery when built in 1958, the facility was renamed Taylor Nursery in 1981 when the main office complex was rebuilt following a fire. The new name was in honor of A. Brandon Taylor Jr., an Upstate industrial leader in wood treatment, who served as a Commissioner from 1961-1982 and Commission Chairman from 1975-1981. The nursery property, including office complex, roads, & irrigation pond, consists of 345 acres. 106 acres are under irrigation and used for seedling production.

During FY2017-18, the agency put out a Request for Proposals (RFP) for the management and operation of Taylor Nursery. As a result of this RFP, on April 2, 2018, ArborGen was awarded a 10-year contract for oversight of Taylor Nursery. The South Carolina Forestry Commission has retained the right to have up to five million seedlings grown annually by ArborGen for South Carolina

landowners at agency-approved pricing. For the 2018-2019 planting season, ArborGen produced and marketed 2,914,425 seedlings under the terms of the contract.

The SCFC conducts a nursery survey annually to determine the number of seedlings planted in South Carolina. During FY2018-19, 88,987,136 pines and 780,040 hardwood and other seedlings were planted in South Carolina for a total of 89,767,176 seedlings from all nursery sources. This number is 14.4% higher than the number of seedlings planted the previous year. More seedlings were planted in South Carolina in FY2018-19 than have been planted since FY2000-2001.

ArborGen distributed 2,222,793 pines and 62,124 hardwood and other seedlings to Forestry Commission customers from Taylor Nursery in FY2018-19 for a total of 2,284,917 seedlings. The total amount distributed represents 78% of the total number of bareroot and containerized seedlings grown at Taylor Nursery. The seedlings sold under the ArborGen contract amount to 2.5% of the seedlings distributed in South Carolina this year from all public and private sources.

In past years, the SCFC has surveyed at least a 10% sample of seedling customers to determine general satisfaction with our seedlings and to target areas for improvement. This year the survey was e-mailed to all customers who supplied ArborGen with an e-mail address. Of the 237 surveys e-mailed out, 102 (43%) customers responded. The 2019 survey indicated that 94.1% of our customers were satisfied with Taylor Nursery's seedling quality and service. Of the 24 customers who had a problem with their seedling order, 67% of the customers were satisfied with Taylor Nursery's response. The quality of the seedlings earned the highest rating of this survey (97.3% satisfied). Of the 46 customer comments on returned survey forms, 74% of the comments were very complimentary of the nursery program. The main concern expressed involved communication problems related to the ordering process.

Niederhof Forestry Center

Niederhof Forestry Center (NFC) is located on a 1,593-acre tract of land that the SCFC purchased on December 1, 1983. Originally part of the Hoover Plantation, a 3,950-acre plantation north of Tillman, SC, Niederhof was acquired to establish second-generation seed orchards and to provide areas for future advanced-generation orchards. NFC was located in an area of the state that is well known for good seed production and minimal frost and ice damage. The facility was named for Cam Niederhof, a Westvaco executive, who served as a SCFC Commissioner for 24 years.

NFC is staffed by a full-time Seed Orchard Manager with assistance as needed by Coastal Region staff. A Forestry Technician I is assigned to NFC as part of his work duties when scheduled on-call on normal workdays. Additional personnel from the Edisto Unit assist as needed with seed orchard establishment and management. NFC attempts to operate solely based upon revenues generated through cone/seed sales and funding from research agreements.

Second-generation loblolly pine orchards were established from 1985-1989, totaling 322 acres; 30 acres of 1.5-generation longleaf pine were established from 1988-1992. NFC's loblolly orchards came into production in 1993 with some 4,542 bushels collected from both Coastal and Piedmont province orchards and the longleaf orchard has been in production since 2008. To date, some 77,079.5+ bushels have been collected. In 2004, as a result of budget cuts, a strategic change in goals for NFC resulted in the reduction of 2nd-generation orchards to 131.4 acres. It is worthy to note that during the years 1993-2005, NFC orchards consistently produced 25% of all second generation seed within the cooperative. In 2016, a 15 acre block of 2nd Generation Coastal loblolly pine orchard was harvested to provide some buffer area and expansion for 3rd Cycle Coastal loblolly pine seed orchard elite selections. Current 2nd Generation loblolly pine seed orchard acreage stands at 116.4 acres,

which permits continuing interest in premier selections to be harvested for internal use and seed/cone sale revenue.

Third-cycle orchard establishment occurred between 2005-2011. These new orchards represent the culmination of over 40 years' breeding and testing work by our agency as part of the NCSU Cooperative Tree Improvement Program (NCSUCTIP) and will provide landowners in South Carolina with very high-quality genetically-improved seedlings that are specifically adapted to our state. There are 17.6 acres of coastal 3rd cycle loblolly pine orchard and 12.4 acres of piedmont 3rd cycle loblolly pine orchard.

Cone collection for 2018 yielded 79 bushels 2nd-Generation Piedmont loblolly pine, 5 bushels 2nd-Generation Coastal loblolly pine, 177 bushels 3rd-Cycle Coastal loblolly pine, 168.5 bushels 3rd-Cycle Piedmont loblolly pine and 1,885 bushels 1.5 generation longleaf pine. Of the 1,072.5 bushels of cones retained by the Forestry Commission for seed processing, seed yields were as follows: 800 bushels 1.5 Generation Longleaf pine cones yielded 648.65 pounds seed, 79 bushels of our top 2nd-Generation Piedmont loblolly pine selection yielded 75 pounds seed, 25 bushels of our top 3rd-Cycle Coastal loblolly selections yielded 8.3 pounds seed, and 168.5 bushels of our top 3rd-Cycle Piedmont loblolly selections yielded 179.10 pounds seed. 18 bushels of Virginia pine selections at Piedmont Forestry Center were collected, yielding 6.10 pounds of seed.

NFC's annual sale of seed and pine cones generated \$174,280.02 in revenue: since 1993, Niederhof Forestry Center's advanced generation seed orchards have created additional revenue in the amount of \$2,493,588.07 from green and dry cone sales, seed sales, and sale of pine pollen. The value of this revenue does not account for the value of pine seed delivered to Taylor Nursery for internal seedling production.

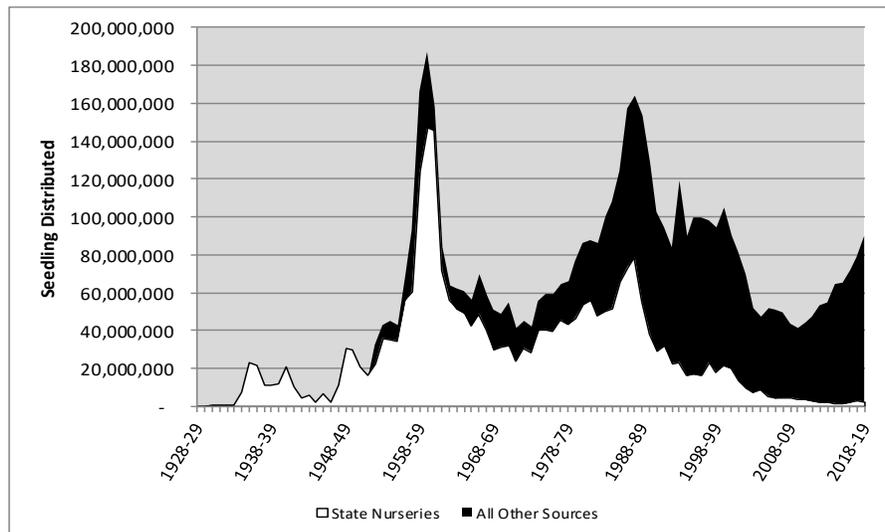
Source of seedlings distributed in South Carolina, FY2018-19				
Seedling Provider	Pines Distributed	Hardwoods & Others Distributed	Total Number of Trees Distributed	Percent of Grand Total
ArborGen (Blenheim & Taylor Nurseries in SC + others)	53,489,154	773,356	54,262,510	60.4%
Weyerhaeuser (Quail Ridge)	23,700,000	0	23,700,000	26.4%
International Forest Company (2 GA & 1 NC nursery)	8,042,814	0	8,042,814	9.0%
Meeks Farm & Nursery	1,540,000	0	1,540,000	1.7%
Bodenhamer Farms & Nursery	1,510,000	0	1,510,000	1.7%
Georgia Forestry Commission	692,000	3,150	695,150	0.8%
North Carolina Forest Service (Claridge Nursery)	13,168	3,534	16,702	<0.1%
Total	88,987,136	780,040	89,767,176	100%

Tree seedlings planted by landowner classification, FY2018-19				
Land Ownership	Pines Planted	Hardwoods & Others Planted	Total Number of Trees Planted	Percent of Total
Private Forestlands	87,744,701	711,352	88,456,053	98.5%
Public Forestlands	1,242,435	68,688	1,311,123	1.5%
Total	88,987,136	780,040	89,767,176	100%

State nursery seedling production & sales, FY2018-19			
Species	Seedlings Produced	Seedlings Sold	% Sold
Baldcypress	9,000	6,050	67%
Carolina Sapphire CTR	1,280	1,280	100%
Cedar, Eastern Red	11,960	11,960	100%
Clemson Greenspire CTR	1,200	800	67%
Crabapple, Southern	3,000	1,380	46%
Dogwood	4,000	900	22%
Leyland Cypress CTR	6,000	2,048	34%
Loblolly Pine, Coastal OP Elite	650,535	650,535	100%
Loblolly Pine, Coastal OP Select	250,000	116,290	47%
Loblolly Pine, Coastal OP Advanced	150,000	105,975	71%
Loblolly Pine, Piedmont OP Elite	600,000	593,543	99%
Longleaf Pine Improved CTR	1,140,000	735,250	64%
Murray Cypress CTR	6,000	3,456	58%
Oak, Cherrybark	5,000	2,780	56%
Oak, Live	3,000	2,850	95%
Oak, Pin	2,000	1,490	74%
Oak, Sawtooth	6,000	5,740	96%
Oak, Shumard	3,320	3,320	100%
Oak, Swamp Chestnut	4,000	3,890	97%
Oak, White	4,130	4,130	100%
Oak, Willow	5,000	3,240	65%
Persimmon	4,000	3,050	76%
Redbud, Eastern	2,000	690	34%
Shortleaf Pine	10,000	1,500	15%
Virginia Pine Christmas Tree Stock	20,000	11,700	58%
Walnut, Black	1,000	1,000	100%
White Pine	8,000	8,000	100%
Yellow Poplar	4,000	2,070	52%
Totals	2,914,425	2,284,917	78%

Seedling Distribution 1928-2019

Year	Total State		Year	Total State	
	Nurseries	Total All Sources		Nurseries	Total All Sources
1928-29	142,000	142,000	1974-75	40,082,000	55,997,000
1929-30	148,000	148,000	1975-76	40,664,000	59,063,000
1930-31	986,000	986,000	1976-77	39,795,000	59,238,000
1931-32	976,000	976,000	1977-78	45,735,000	64,380,000
1932-33	996,000	996,000	1978-79	43,010,000	65,937,000
1933-34	1,031,000	1,031,000	1979-80	46,375,000	76,207,000
1934-35	7,529,000	7,529,000	1980-81	53,513,000	86,420,000
1935-36	23,000,000	23,000,000	1981-82	55,728,000	87,793,000
1936-37	22,000,000	22,000,000	1982-83	47,799,000	86,265,000
1937-38	11,192,000	11,192,000	1983-84	50,170,000	100,394,000
1938-39	10,854,000	10,854,000	1984-85	51,636,000	107,718,000
1939-40	12,244,000	12,244,000	1985-86	65,465,000	124,381,000
1940-41	21,165,000	21,165,000	1986-87	73,555,000	157,523,000
1941-42	10,275,000	10,275,000	1987-88	78,788,000	164,095,000
1942-43	4,742,000	4,742,000	1988-89	55,052,000	153,450,000
1943-44	5,663,000	5,663,000	1989-90	38,356,000	128,475,000
1944-45	1,963,000	1,963,000	1990-91	29,297,000	102,384,000
1945-46	6,402,000	6,402,000	1991-92	31,984,000	94,710,000
1946-47	1,963,000	1,963,000	1992-93	22,665,000	84,287,000
1947-48	11,357,000	11,357,000	1993-94	23,286,000	119,311,000
1948-49	30,389,000	30,339,000	1994-95	16,154,000	90,336,000
1949-50	29,502,000	29,502,000	1995-96	16,841,000	99,549,000
1950-51	20,615,000	20,615,000	1996-97	16,058,000	99,439,000
1951-52	16,619,000	16,619,000	1997-98	23,278,000	97,963,000
1952-53	22,036,000	32,246,000	1998-99	17,955,000	94,539,000
1953-54	36,210,000	42,852,000	1999-00	21,524,000	104,594,000
1954-55	35,373,000	45,182,000	2000-01	20,095,000	90,346,000
1955-56	34,414,000	42,932,000	2001-02	13,500,000	81,431,000
1956-57	55,754,000	69,659,000	2002-03	9,376,000	69,989,000
1957-58	60,846,000	93,369,000	2003-04	7,202,000	51,823,000
1958-59	123,985,000	166,351,000	2004-05	8,563,000	47,243,000
1959-60	147,146,000	187,516,000	2005-06	5,437,000	52,165,000
1960-61	145,609,000	158,331,000	2006-07	4,206,000	50,900,000
1961-62	71,892,000	83,844,000	2007-08	4,539,842	49,320,517
1962-63	56,191,000	64,202,000	2008-09	4,739,783	43,692,314
1963-64	51,446,000	62,424,000	2009-10	3,762,989	41,549,345
1964-65	49,010,000	60,683,000	2010-11	3,629,610	44,374,915
1965-66	42,311,000	56,529,000	2011-12	2,922,880	47,468,239
1966-67	48,575,000	69,598,000	2012-13	2,091,256	53,342,588
1967-68	39,970,000	58,812,000	2013-14	2,125,576	54,971,881
1968-69	29,529,000	51,453,000	2014-15	1,473,558	64,582,487
1969-70	31,415,000	49,203,000	2015-16	1,146,389	64,998,195
1970-71	31,940,000	54,541,000	2016-17	1,902,620	71,971,811
1971-72	23,678,000	41,357,000	2017-18	3,265,745	78,495,405
1972-73	30,978,000	45,239,000	2018-19	2,284,917	89,767,176
1973-74	28,443,000	42,306,000			
Total State Nurseries		2,595,483,165	Total State Nurseries		
Total All Sources		5,543,211,873	Total All Sources		



SCFC active seed orchards		
Orchard Type	Years Established	Acres
Creech Seed Orchard/Manchester State Forest		
Genetic Diversity Archives (Clone Banks)	1977-1983	25
Coastal Loblolly Pine 1.0 Rust Resistant	1971	5
Longleaf Pine 1.0	1971	12
Virginia Pine 1.0 (Creech)	1980	1
Virginia Pine 1.0 (Manchester)	1986	2
Sawtooth Oak 1.0 Seedling	1990	2
Total		47
Niederhof Seed Orchard		
Genetic Archives, 3rd Cycle	2008-2009	4.2
Coastal Loblolly Pine 2.0	1985-1988	53.3
Piedmont Loblolly Pine 2.0	1985-1988	63.1
Longleaf Pine 1.5	1988-1990	30
Longleaf Pine 1.5 Expansion	2010-2011	1.6
Loblolly Pine Breeding Orchard 3.0	1997-2003	7.2
Longleaf Pine Seedling Seed Orchard	1998	8
Coastal Loblolly Pine 3.0	2005-2011	17.6
Piedmont Loblolly Pine 3.0	2005-2011	12.4
Total		197.4
Coastal Seed Orchard		
Sycamore 2.0	1992-1995	4
Sweetgum 2.0	1992-1995	6
Willow Oak Seedling Seed Orchard	1992-1995	1
Swamp Chestnut Oak Seedling Seed Orchard	1992-1995	1
Green Ash Seedling Seed Orchard	1992-1995	3
Red Maple Seedling Seed Orchard	1992-1995	1
Southern Red Oak Seedling Seed Orchard	1992-1995	2
White Oak Seedling Seed Orchard	1992-1995	2
Total		20
Piedmont Seed Orchard		
White Pine 1.5	1991-1993	4
Virginia Pine 1.0	1993	3
Northern Red Oak Seedling Seed Orchard	1993-1995	2
Total		9
Grand Total		273.4

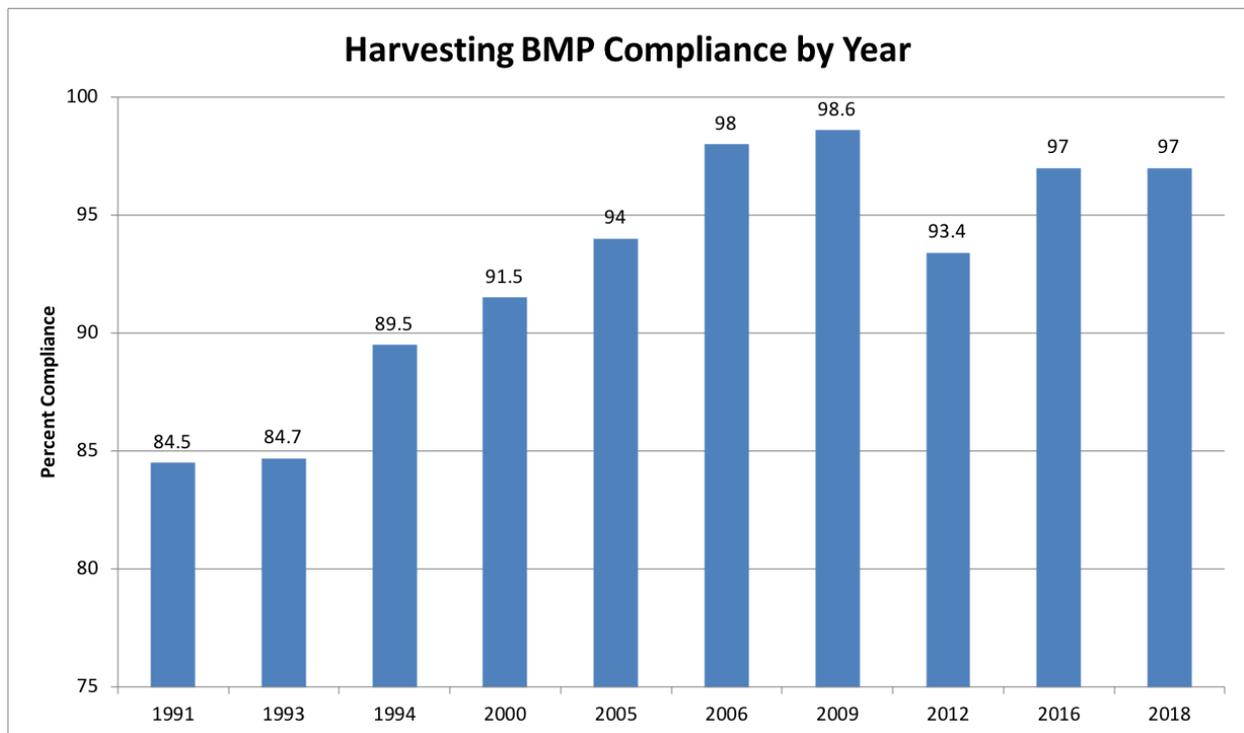
Environmental Management

The Environmental Management Section is responsible for the development and implementation of South Carolina Forestry Commission programs that are related to the environmental protection of forest and associated natural resources. Issues that are addressed include the protection of water quality, site productivity, endangered species, and unique ecosystems.

BMP Compliance and Implementation Monitoring

BMP monitoring in South Carolina is conducted in accordance with the Southern Group of State Foresters Water Resource Committee's *Silviculture Best Management Practices Implementation Monitoring – A Framework for State Forestry Agencies* published in 1997 and revised in 2002. This ensures consistency among the thirteen states in the southeastern United States.

Sites for the 2019/2020 monitoring study will be located using SouthFACT, a forest cover change detection tool developed by the North Carolina Forest Service. Site will be located in the fall of 2019 and evaluations and data collection will be completed by early spring 2020.



BMP Education/Training Program

BMP training and education are essential to the success of the Forestry Commission's non-regulatory BMP program. During this fiscal year, 22 training programs were held across the state reaching 786 loggers, landowners, contractors, forest resource professionals, and the general public. Included in this total were 14 workshops for the Timber Operations Professional (TOP) logger training and education program.

Courtesy Exam Program

The S.C. Forestry Commission's BMP Foresters, located in each of the three operating regions of South Carolina, offer courtesy BMP exams to landowners, foresters, and timber buyers. The BMP Forester makes site-specific BMP recommendations to follow while conducting forestry activities.

During this fiscal year, the BMP Foresters provided assistance during 698 visits to 370 sites and completed 245 courtesy exams. BMP Foresters also conducted 23.8 hours of aerial observation for active forestry operations and responded to 21 complaints

Environmental Issues and Ecosystem Services

The Environmental Management Section monitored issues related to endangered species, wetlands, ecosystem services, EPA's proposed waters of the U.S. (WOTUS) rule and biomass harvesting. The Forestry Commission, through an MOA with the SC Rural Water Association and the Long Leaf Alliance, worked to promote source water protection in priority watersheds throughout South Carolina with a focus on the Lake Wateree and Savannah River watersheds. Work was focused on building a case and demonstrating that forestland is beneficial for water quality and may reduce water treatment costs. Emphasis was also placed on encouraging collaboration with forest landowners, residents, drinking water utilities and the industries that use these watersheds as a drinking water source.

BMP Foresters are available to provide information and assistance to SCFC personnel, forestry professionals, and landowners. This assistance may include site visits, cooperation with other agencies, and assistance on state lands. BMP Foresters also provide forestry expertise to organizations and agencies addressing policy and regulation related to these issues.

Cooperation with Other Agencies

Programs related to environmental protection of forest resources require close cooperation with other agencies. The S.C. Forestry Commission has a Memorandum of Understanding with S.C. Department of Health and Environmental Control (DHEC) addressing cooperation on water quality issues. The Environmental Management Section serves as technical authority on silvicultural activities, and cooperates with DHEC on evaluation and remediation of possible impacts. In March 2010 SCFC entered a Memorandum of Understanding with the US Army Corps of Engineers to better serve forest landowners and jointly address silvicultural issues in jurisdictional wetlands. BMP Foresters often work with DHEC and the U.S. Army Corps of Engineers when those agencies have regulatory authority over issues which may affect forestry operations, such as wetlands and navigable waterways. BMP Foresters also provide assistance with planning and implementation of Best Management Practices on public lands managed by other agencies

COMMUNICATIONS & PUBLIC INFORMATION

The Communication & Public Information (CPI) Division plans and implements communication strategies and long-range public information, marketing, and educational programs for the South Carolina Forestry Commission. These activities are designed to enhance the agency's and forestry's image while promoting the agency's mission and goals. Playing the lead role in communication and public information for the agency, CPI staff coordinate media interest in and public relations for the agency; prepare appropriate responses to media requests; coordinate FOIA requests/responses; prepare news releases, articles, scripts, speeches, letters and reports; support agency departments, programs and personnel with forestry-related promotional items and information; and design original publications, fact sheets and other collateral material for agency personnel, programs and departments.

Public Relations & Information

Information services

MEDIA RELEASES

The Communications & Public Information Division wrote and distributed 24 press releases and/or media advisories on a wide range of topics, including fire danger announcements, browning pine needles, debris burning notification reminders, law enforcement arrests, Prescribed Fire Awareness Month, Volunteer Fire Assistance (VFA) grants, Incident Management Team (IMT) deployments and exercises, State Forests Checkoff Fund, BMP compliance, Good Neighbor Authority agreements with the US Forest Service, 10th anniversary of the Highway 31 Fire, payments to county school districts, SC/National Forest Products Week, Wood Magic dates and media/VIP days, seedling sales and availability, an Urban & Community Forestry-led tree-planting event in Marion as part of the agency's involvement with the SC Floodwater Commission, and the agency's fourth consecutive notable document award (for its perfect-bound edition of the "Forest Trees of South Carolina" tree identification manual).

PRESCRIBED FIRE AWARENESS MONTH

March was Prescribed Fire Awareness Month, and Forestry Commission employees answered the call to help raise awareness of the practice by inviting media to their burns. From the mountains to the coast, ample coverage of prescribed burns could be found in newspapers and on radio and television, thanks in large part to ambitious foresters, fire management officers and other agency personnel who took the time and went to great effort to coordinate their schedules with reporters. No fewer than a dozen newspaper articles highlighted various prescribed burns around the state, and at least a dozen TV news stories resulted from the agency's campaign to promote prescribed burning.

SOCIAL MEDIA

The Forestry Commission's Facebook page has 16,303 followers, and the agency's Twitter account has 1,833 followers. CPI staff exceeded the target of one daily social media message/post on Facebook and Twitter promoting the agency, forestry and industry news, events and people.

FREEDOM OF INFORMATION ACT REQUESTS

The Director of Communications & Public Information responded to, gathered agency information and data related to (with the assistance of various division directors and program managers) and resolved six FOIA requests.

VOLUNTEER FIRE ASSISTANCE (VFA) GRANT CHECK PRESENTATIONS

The Communications & Public Information Division assisted with check presentations to rural/volunteer fire departments as part of the Volunteer Fire Assistance (VFA) grant program administered by the agency. Check presentations were made to the Friendship Volunteer Fire Department in Seneca and the Walhalla Fire Department in Walhalla. The check presentations are held as community events to which legislators, residents and firefighters are invited to learn about not just about the VFA program, but about the agency's mission and current budget requests.

Creative services

CPI staff worked with procurement and grounds personnel to design and install four new monument signs, one each for the Columbia headquarters location and the three regional offices in Florence, Newberry and Walterboro. The signs at the three regional offices are replicas of the headquarters sign.

The Forestry Commission won –for the fourth year in a row – one of the South Carolina State Library's 12 Notable State Document Awards for 2018. The award-winning publication, *Forest Trees of South Carolina*, was produced by a team of agency personnel from several different departments, including Public Information, Forest Inventory & Analysis, Rural Programs, Forest Health and Resource Development. SCFC representatives from each of these departments attended the State Library's official ceremony March 20 to accept the award on the agency's behalf. Only 1 percent of all South Carolina state agency publications are recognized as notable documents each year.

CPI and Education staffs designed, procured and installed a new set of 12 interpretive trailside signs on the Discovery Pine and Eagle Trails on Harbison State Forest.

As part of a Southern Group of State Foresters (SGSF) initiative to promote the national celebration of Smokey Bear's 75th birthday this year, the Texas A&M Forest Service initiated what it called the "Smokey Birthday Challenge," a hashtag-based video challenge to its 12 partner states in the southern region. Texas' original video featured firefighters and other personnel wishing Smokey happy birthday and challenging their colleagues at the Georgia Forestry Commission, which made its own video challenging Florida to do the same. From there, the challenge was thrown to South Carolina, then to North Carolina, Virginia, and then to Arkansas. South Carolina's Smokey Challenge (to North Carolina) can be viewed on the agency's YouTube channel at the following link:
<https://www.youtube.com/watch?v=M3X7vRhfafQ>

Publications

The Communications & Public Information Division produced a variety of publications for nearly every department and purpose this fiscal year. In addition to the ad hoc and periodic publications the division produces, which include monthly installments of the *Tree Country* employee newsletter, quarterly installments of the *Best Of Tree Country* external newsletter, and annual updates of the agency's Seedling Price Guide, Project Learning Tree annual report and Wood Magic Forest Fair annual report, CPI staff completed the following:

- Manchester State Forest brochure
- Fire Suppression fact sheet
- Careers brochure
- Drought Stress In Trees brochure
- Invasive Species brochure

Other highlights

- Upgraded select Wood Magic collateral materials, including signage for several of the learning stations.
- Sent promotional media kits (containing forest products and their derivatives) to print and broadcast media to entice them to cover the Wood Magic Forest Fair at all three locations.
- Developed a full-page ad about Taylor Nursery for publication in SCFA’s bi-monthly journal.
- Exhibited at Forestry Association of South Carolina (FASC) annual meeting.
- Secured a proclamation from the governor designating the third week in October SC Forest Products Week, a campaign that was supported with promotion to statewide media.
- Updated list of local/rural/volunteer fire departments for the Red Flag Fire Alert system.
- Worked with SCFC Protection Chief and SC Prescribed Fire Council to promote March as Prescribed Fire Awareness Month by distributing a press release to media and coordinating media visits to prescribed fire sites in their areas. An official proclamation designating the month-long occasion was obtained from the governor’s office as well.

Environmental Education

Environmental Education Coordinator & Assistant Coordinator Highlights

- Facilitated 18 Project Learning Tree workshops or presentations/exhibits.
- Coordinated 3 Wood Magic Forest Fair events, reaching 1,969 participants.
- Conducted 39 education programs, reaching 3,872 people (not including the Wood Magic Forest Fair event, Project Learning Tree participants, or Teachers Tour participants).
- Co-ordinated and taught South Carolina Sustainable Forestry Teachers Tour .
- Held a forestry skills competition for the SC FFA program at Harbison State Forest and planned and led the first SC FFA Forestry Camp at the Cherry Grove FFA Center.

Project Learning Tree

In FY2018-19, 33 workshops (two workshops were combinations) reached 446 educators. A total of 476 copies of the PLT modules were distributed at these workshops.

Project Learning Tree workshops				
Workshop Type	# Of Workshops	% Of Workshops	# Of Participants	% Of Total Participants
Early Childhood	3	9%	35	7%
Pre-service Early Childhood	3	9%	56	12%
PreK-8	9	26%	136	29%
Pre-service PreK-8	11	31%	160	34%
Online PreK-8	1	3%	1	<1%
E-Unit Carbon & Climate Grades 6-8	1	3%	5	1%
Secondary Focus on Forests	2	6%	15	3%
Pre-service Secondary Focus on Forests	2	6%	18	4%
Secondary Forests of the World	2	6%	33	7%
Facilitator Training	1	3%	17	4%
TOTALS	35	N/A	476	N/A

In order to show how many of each PLT module was distributed and how many workshops were conducted for each module, workshops that covered more than one module are shown as separate workshops for each module, making the total number of workshops 35.

Teachers' Tour

The 2019 South Carolina Teacher's Tour was held for 5 days in June, based out of Hartsville, with 28 applications received, of which 25 were accepted, and 18 completed the tour. Selection for participation was focused on the target audience of full-time certified K-12 teachers with an interest in environmental studies, life sciences, biology, tech-prep, and/or natural resource education. The Tour was 5-days with registration solely for 3 hours of graduate credit. Participants had to complete online pre-Tour coursework about forestry and Project Learning Tree. SCFC employees and forestry partners made the tour possible by being speakers, handling logistics, and conducting demonstrations.

Wood Magic Forest Fair

The 2018 Wood Magic Forest Fair events were held at three locations. The first event was held for 4 days at the beginning of October at the Piedmont Forestry Center. The second event was held at the end of October for 5 days at Harbison State Forest. The third event was held for 4 days in November at Lynches River County Park. Almost 2000 students, teachers, and chaperones attended the events. Seventy-nine SCFC employees and 147 volunteers worked at the three events.

Wood Magic Participation						
Location	Applications Received	Classes Applied	Classes Attending	Children Attending	Teachers & Other Adults	Total Participants
Piedmont	14	47	21	506	95	601
Harbison	36	135	41	653	107	760
Lynches River	14	53	20	512	96	608
Totals	64	235	82	1,671	298	1,969

Students participating in SCFC educational activities at Harbison State Forest

	School/Organization	Grade Level/Age	# of Children	# of Adults
1	Midlands Tech - Forest Ecology Hike	College		12
2	BSA - Forestry Merit Badge	Middle/High	15	5
3	School Program - Montessori Early Learning Center	Preschool	12	2
4	School Program - Rosewood Elementary	Elementary	49	15
5	REACH - Compost Workshop	Elementary	10	6
6	SCWF & Heyward Tech - Arbor Day	High	13	6
7	Midlands Tech - Forest Ecology Hike	College		22
8	REACH - Pollinator Program	Elementary	7	4
9	Batesburg-Leesville High - Tree Measurements	High	8	1
10	DFES - Forest Ecosystems	Elementary	36	6
1	Homeschool Hangouts - Elementary	Elementary	36	18
12	St. David Church - Forest Ecology Hike	Middle/High	9	1
13	Homeschool Hangouts - Middle & High	Middle/High	4	3
14	Midlands Tech - Forest Ecology Hike	College		10
15	Chapin High - Tree Measurements	High	5	1
16	Pelion High - Forest Ecology Hike	High	9	3
17	Chapin High - Tree ID	High	5	1
18	Midlands Tech - Forest Ecology Hike	College		11
19	Lewis Greenview Elementary - Earth's Nat. Resources	Elementary	50	7
20	DFES - Forest Ecosystems	Elementary	42	6
21	Girl Scouts Tree Badge Workshop	Middle	18	6
	SUBTOTALS		328	146
	Totals		474	

Students participating in SCFC educational activities outside of Harbison State Forest

	School/Organization	Grade Level/Age	# of Children	# of Adults
1	Heathwood Hall - Service Learning Fair	High	250	
2	SCSM Homeschool Thursday - Nature of Fire	Elementary/Middle	9	5
3	Grace Academy Child Development Center - Tree Program	Preschool	43	5
4	Joseph Keels Elem. - Arbor Day tree planting/ceremony	Elementary	520	30
5	DFES - Magnet Fair	Elementary	8	7
6	Spring Hill High School - Career Fair	High	600	
7	DFES - Science Fair	Elementary	90	
8	Cub Scout Troop 331 - Gifts of the Forest Presentation	Elementary	35	40
9	SCSELA - Presentation and tabled	All ages		60
10	EL Wright Middle School - Career Fair	Middle	1,120	
11	Wonderful Beginnings - 4K Tree Program	Preschool	8	1
12	YMCA Jeep Youth - Plants & Environments	Elementary	50	2
13	Longleaf Middle - Career Fair (Sam St. Louis)	Middle	860	
14	White Knoll Middle - Career Fair	Middle	300	10
15	Killian Elementary - Plants & Envts	Elementary	80	5
16	Gilbert Primary - Farm Day (Henry Hutto)	Elementary	825	
17	FFA Forestry Camp	High	30	7
18	Calhoun Academy - Tree Farmer	Elementary	15	1
19	FFA Forestry Competition	High	52	15
	SUBTOTALS		4,895	188
	Totals		5,083	

TECHNOLOGY DIVISION

This Division comprises the Information Technology Section, Geographic Information Systems (GIS) Section, Communications Section and Dispatch Operations Section.

Information Technology

The Information Technology Section is responsible directly and indirectly for the maintenance, support, and security of the agency's local and wide area networks; eighteen (18) Windows servers; network storage devices; 333 computers and laptops in use by over 190 employees; software applications; and implementation of various initiatives to support agency operations and programs.

Major accomplishments this fiscal year were continued rollout of Microsoft new operating system Windows 10; network upgrades; implementation of mobile device management solution on agency smartphones; support to the agency's Incident Management Team; and work associated with the state mandates for implementation of policies, procedures, roles and responsibilities associated with information security and data privacy.

The agency purchased 65 desktop, 26 laptop, 1 tablet, and 12 servers in FY 2019 to support newly filled positions, replace Windows 7 computers, replace Windows 2008 R2 servers, refresh older equipment, support field personnel activities, and fleet management operations. Funding was also devoted to replacing 7 year old layer 3 network switches at Columbia Headquarters and 2 regional dispatch centers and routers to support backup wireless network connections through FirstNet between the dispatch centers and Columbia Headquarters; and replacing DSL Internet links from remote repeater sites in the Piedmont Region.

In response to the hacking of the Department of Revenue computer system, thirteen (13) information security policies have been implemented by the agency as required by a Budget Proviso. This Budget Proviso also required the agency to complete an information and security technology survey to the State Division Technology Operations and Information Security by October 1, 2017. Each employee was tasked to complete an online cybersecurity awareness training course in FY 2018. To maintain employees' awareness of cybersecurity, the Technology Division sent periodic reminder emails and warnings of current cybersecurity threats especially telephone and text message scams and ransomware imbedded in emails and websites.

GIS

In April, the agency hired a new GIS Manager after the position had been vacant for over a year. Will be looking at opportunities to upgrade and grow the agency's GIS system and development and use of ArcGIS Online applications.

With assistant from the GIS Coordinating Council, the agency is receiving updated parcel, ownership and 911 address and road data from all of the counties in the state. The GIS Section merged individual county data into Unit administrative area layers in the agency's GIS Server and in formats to be utilized in other GIS applications. This information saves the agency time and money by allowing personnel to identify property ownership and boundary lines without having to visit individual county tax offices.

The agency also obtained a new, routable road layer from the Department of Homeland Security to be utilized in the agency's computer aided dispatch system for determining closest available resources to wildfires and other incidents. This system is currently using an 8-year-old road layer.

Communications

The agency maintains approximately 555 mobile radios, 7 base stations, 29 repeaters, and 300 portable radios. The Communications Section also supports the 19 communications consoles and related systems in the 3 regional dispatch centers and at Columbia Headquarters.

South Carolina “opt-in” to the FirstNet public safety broadband network that was awarded to AT&T. This is the public safety broadband network recommended after the 9/11/2001 terrorist attacks to improve interoperability between first responders. AT&T is to build a nationwide 4G LTE network to provide public safety agencies and organizations with priority and pre-emption access to wireless broadband data, text, and voice network. The agency continued meeting with AT&T/FirstNet to evaluate wireless services to phase in over the next few years to improve the resiliency and redundancy of the agency’s wide area network connections and communications. One area of particular interest is Mission Critical Push-to-Talk (MCPTT) to interface with the agency’s existing VHF land mobile radio and dispatch centers communications console systems.

Dispatch Operations

The Forestry Commission operates three (3) dispatch centers that handle over 25,000 phone calls annually for burn notifications and reporting of wildfires. The agency’s dispatch operations utilize commercial, “off-the-shelf” dispatching software from Logistic Systems, Inc. This system incorporates many of the features and functionality of 9-1-1 dispatch systems. This system determines the closest available resource based on road mileage and travel speeds; automates the notification of personnel of wildfires; alerts dispatchers when certain dispatching timeframes are exceeded; and automates the compliance issues with smoke management regulations on forestry, wildlife and agricultural burn notifications. All other burn notifications are handled by an automated system that takes an additional 350,000 to 450,000 notifications each year.

The automated fire page (i.e. text message) that the computer-aided dispatch system sends was enhanced in FY 2018 to include a hyperlink of the incident location. Employees with smartphones can click on this hyperlink that will open Google maps through their Internet browser with a marker at the incident location. The individual than can turn on aerial imagery, get directions or use other features of this website. Documents sent out by dispatch were also migrated to the Adobe .pdf format for easier use with smartphones.

New backup generators and transfer switches were installed at all the dispatch centers and Columbia Headquarters to replace 22-year-old equipment. All uninterruptable power supplies (battery backup systems) had their batteries replaced per manufacturer’s recommended 3-year replacement cycle. New communications recording systems were installed to replace equipment that was 7-years-old and near end-of-life by its manufacturer. Critical, core network switches were upgraded at dispatch centers in Walterboro and Florence; and at the Columbia Headquarters. Cellular, broadband routers were also purchased to establish backup network connection using FirstNet between dispatch centers, Columbia Headquarters and critical radio links in the Piedmont Region. Those links will be completed in FY 2020.

As a performance measure in the Forestry Commission’s Accountability Report, the average time from receiving the wildfire call and assigning a firefighter (i.e. Dispatching) has been cut in half compared to the old software average -- prior to FY 2006 (see table below). The processing of smoke management notifications has also decreased by 40% compared to the FY 2005 average. These time savings can be attributed to the new dispatch software’s automation of dispatching and compliance with smoke management guidelines.

Summary and comparison of dispatch and smoke management notification processing times, FY2004-19			
Fiscal Year	Call Volume	Average Dispatching Times (Minutes)	Average Notification Processing Times (Minutes)
2004	81,835	5.10	4.16
2005	66,576	6.33	4.61
2006*	65,502	4.18	3.49
2007	63,633	3.56	2.81
2008	60,077	3.53	3.00
2009	50,689	3.22	3.13
2010	43,344	3.13	3.21
2011	49,859	3.39	2.97
2012	44,564	3.28	2.94
2013	36,091	3.57	2.99
2014	33,562	3.38	2.70
2015	30,103	3.23	2.98
2016	25,638	2.37	3.06
2017	32,148	2.10	2.96
2018	26,618	1.96	3.10
2019	22,767	2.43	3.11
<i>*New software implemented in FY 2006</i>			

The computer-aided dispatch system (CADS) also allows for real-time access to wildfire, prescribed fires, and resource activity by Fire Managers and Fire Information Officers for command and control functions and media requests. Current smoke management burn notifications and wildfires are available to the public on the agency's website in a web mapping application. This information is updated every 10 minutes.

ADMINISTRATION DIVISION

Financial statement			
Carry Forward - July 1, 2018			\$10,127,759
Revenues			
State Appropriations	\$18,758,176	Purchasing Card Rebate Program	--
Federal Grants	\$3,059,447	Rent - Residence	\$18,725
Earmarked Funds	--	Rent - Farm Land	\$46,906
Hunting & Fishing License	\$196,007	Rent - State Owned Property	\$113,044
Refund of Prior Year Expenditure	\$50,818	Rent - Equipment	\$3,002
Burning Assistance Fee	\$268,569	Contribution & Donations	\$39,934
Fire Lane Fee	\$136,583	Insurance Claims	\$1,757
Timber Marking Fee	--	Sale of Services	\$51,343
Training Conference - Registration Fee	\$3,750	Sale of Nursery and Farm Products	\$2,845
User Fee - Sate Park & Forest	\$82,749	Sale of Recycling Material	--
Forest Product Assessment	\$898,604	Sale of Vehicles (Capitalized)	\$17,778
Construction of Water Bar	\$6,105	Sale of Machinery and Equipment (Capitalized)	\$275,103
Stand By for Prescribed Burning	\$7,185	Sale of Buildings (Non-Capitalized)	\$32,671
Sale of Seedlings	\$183,250	Sale of Land (Capitalized)	\$2,970
Sale of Timber	\$3,451,216	Sale of Other Assets	\$98,559
Conviction Surcharge	\$14,257	State Operating Grants - Restricted	--
Other Penalties, Cost & Settlements	\$749	Insurance Premium Taxes - Firefighting Equipment	\$4,754
Miscellaneous Revenue	\$6,030	Capital Reserve Funds - Firefighting Equipment	\$1,819,462
Total Earmarked			\$7,843,725
Total Revenue			\$29,652,348
Expenditures			
State	\$19,260,047		
Federal	\$3,069,533		
Other	\$5,839,670		
Total Expenditures			\$28,169,250
Balance as of June 30, 2018			\$11,610,857



South Carolina Forestry Commission

Organizational Chart

