Fiscal Year 2013-2016

Monitoring and Evaluation Annual Report for the *Revised Land and Resource Management Plan*

Chattahoochee-Oconee National Forests

U.S. Department of Agriculture
Forest Service
Southern Region

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U.S. Department of Agriculture
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Southern Region

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Acronyms

ASQ	Allowable Sale Quantity
AT	Appalachian Trail
ATV	All-Terrain Vehicle
BRRD	Blue Ridge Ranger District
BMP	Best Management Practices
CRD	Conasauga Ranger District
CFI	Conservation Fisheries, Inc.
CFR	Code of Federal Regulations
CISC	Continuous Inventory of Stand Conditions
CNF	Chattahoochee National Forest
CONF	Chattahoochee-Oconee National Forests
CRRD	Chattooga River Ranger District
DBH	Diameter Breast Height
DFC	Desired Future Condition
EPA	Environmental Protection Agency
FACTS	Forest Activity Tracking System
FEIS	Final Environmental Impact Statement
FIA	Forest Inventory and Analysis
FSVEG	Forest Service Vegetation
FW	Forest Wide
FY	Fiscal Year
GA DNR	Georgia Department of Natural Resources
GFA	General Forest Areas
GIS	Geographical Information System
HMA	Habitat Management Area
LAC	Limits to Acceptable Change
M&E	Monitoring and Evaluation
MA	Management Area
MCF	Thousand Cubic Feet
MIS	Management Indicator Species
MQ	Monitoring Question
NAAQS	National Ambient Air Quality Standard
NFMA	National Forest Management Act
NFPA	National Fire Protection Association
NEPA	National Environmental Policy Act
NFS	National Forest System
NRM	Natural Resource Manager
NVUM	National Visitor Use Monitoring
ONF	Oconee National Forest
ORD	Oconee Ranger District
OHV	Off Highway Vehicle
PETS	Proposed, Endangered, Threatened and Sensitive species
RARE II	Roadless Area Review and Evaluation (1979)
RD	Ranger District
RLRMP	Revised Land and Resource Management Plan
RX	Prescription
T&E	Threatened and Endangered
TES	Threatened, Endangered and Sensitive
TMDL	Total Maximum Daily Load

TNC	The Nature Conservancy
TVA	Tennessee Valley Authority
TWRA	Tennessee Wildlife Resources Agency
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Chapter 1

Forest Supervisor's Certification

I have evaluated the monitoring results and recommendations in this report. I have directed that the Action Plan developed to respond to these recommendations be implemented according to the time frames indicated, unless new information or changed resource conditions warrant otherwise. I have considered funding requirements in the budget necessary to implement these actions.

With these completed changes, the *Revised Land and Resource Management Plan, Chattahoochee-Oconee National Forests* (Forest Plan) is sufficient to guide management activities unless ongoing monitoring and evaluation identify further need for change.

Betty M. Jewett
Forest Supervisor

7/11/18
Date

Figure 1: Location of the Chattahoochee-Oconee National Forests

Executive Summary

This section includes a brief summary of the process used to develop this report and the important findings and results for this period.

The *Revised Land and Resource Management Plan* (Forest Plan) provides guidance on how the Chattahoochee-Oconee National Forests (CONF) will be managed. Monitoring is used to assess how well goals and objectives are being met, if standards are being properly implemented, and whether environmental effects are occurring as predicted.

The CONF monitors and evaluates programs and projects to determine whether these activities are meeting the management direction shown in the Revised Land and Resource Management Plan (Forest Plan). Monitoring and evaluation are specifically designed to insure:

1) Forest Plan goals and objectives are being achieved,
2) Standards are being properly implemented,
3) Environmental effects are occurring as predicted,
4) Our actions are having the expected results,
5) New issues are being identified and addressed.

Evaluation of the monitoring results is reported by resource activity area and responds to monitoring questions (MQ) established in the Revised Forest Plan. This report also provides a tool to improve internal communications and feedback, and provides for accountability to the public.

Introduction

The Chattahoochee-Oconee National Forests (CONF) manages approximately 867,000 acres across 26 counties in the state of Georgia, thousands of miles of clear-running streams and rivers, approximately 850 miles of recreation trails, and dozens of campgrounds, picnic areas, and other recreation activity opportunities. These lands are rich in natural scenery, history and culture. The Chattahoochee NF is located across the northern portion of the state of Georgia with lands in 18 counties. The Oconee NF is located in the Central/Piedmont portion with lands in 8 counties.

The two National Forests in Georgia are administered by one Forest Supervisor, headquartered in Gainesville, Georgia. The Oconee NF is managed as one ranger district, the Oconee Ranger District near Eatonton, Georgia, and the Chattahoochee NF is divided into three ranger districts: Conasauga Ranger District near Chatsworth, Georgia; Blue Ridge Ranger District near Blairsville, Georgia; and Chattooga River Ranger District near Clayton, Georgia. There are three other areas held by the USDA Forest Service in the State of Georgia. The Hitchiti Experimental Forest and Scull Shoals Experimental Forest both lie within the Oconee NF and are administered as part of that Forest. The Forest Service also administers a two-acre Experiment Station office site in Athens. All of these areas are managed under the direction of the Research Branch of the Forest Service.

The *Revised Land and Resource Management Plan* (Forest Plan), approved January 15, 2004, guides management activities in the Forest. These lands are managed to provide goods and service for timber, outdoor recreation, water, wildlife, fish and wilderness following multiple-use goals and objectives.

The CONF annually monitors and evaluates the programs and projects to determine whether these activities are meeting the management direction in the Forest Plan. The purpose of this report is to document the results of the Forest Plan monitoring and evaluation program for fiscal year 2013 through fiscal year 2016.

Monitoring and evaluation of resources and activities is an integral part of the Forest Plan and is designed to ensure the goals and objectives are being achieved, standards are being followed, and environmental effects are occurring as predicted. Monitoring and evaluation determines if the Forest is moving toward or achieving the desired conditions for resources.

Monitoring and evaluation is an ongoing process that is documented through reviews made by the individual resource specialists, Forest Leadership Team and District Rangers. The information from these reviews, individual inventory reports, reports and information from cooperators and research are compiled into one comprehensive report after the Fiscal Year (FY) is completed.

The monitoring and evaluation report that follows is organized into five parts:

- **Chapter 1:** This section includes an introduction, Forest Supervisor's Certification of the report findings and an executive summary.
- **Chapter 2:** ***Monitoring Results and Findings:*** This section provides information about monitoring processes, actions, and findings of the monitoring completed.
- **Chapter 3:** This section highlights some of the outcomes of actual projects implementing the Forest Plan that led to the findings and recommendations in Chapter 2. It also contains the Action Plan.
- **References cited:** This section lists all of the references consulted in the writing of this report.
- **Appendices**: These appendices provide information about a list of preparers and agencies consulted during the development of this monitoring report and a response form.

Chapter 2: Monitoring Results and Findings

Monitoring and evaluation provide information to determine whether programs and projects are meeting Forest Plan direction, and whether the cost anticipated to implement the Forest Plan coincides with actual costs. Monitoring and evaluation is required by NFMA implementing regulations *(36 CFR 219.12(k))* to determine whether requirements of the regulations and Forest Plan are being met.

Chapter 5 of the Forest Plan establishes Monitoring Questions that are to be addressed over the course of Forest Plan implementation. Monitoring questions address whether the desired conditions, goals and objectives of the Forest Plan are being met and whether Forest Plan standards are effective, and are discussed in this chapter.

MQ 1. Are rare communities being protected, maintained, and restored?

Information

This monitoring question is responsive to goals numbers 1, 2, 3, 4, 5, 8, 12, 14, 15, 19, 21, 26, 31, 33, 44, 61 and 75.

Element

1.1: Trends in the conditions of each known rare community type.

1.2: Acres and/or number of occurrences of rare communities treated to maintain or restore desired conditions.

Results/Findings

In the CONF restoration of rare communities focused on mountain bogs and pine-oak woodlands.

Wetland Communities:

Southern Appalachian mountain bogs have improved over time. In 2013, restoration activities were occurring in nine mountain bogs through invasive species treatment, vegetation management and prescribed fire. This restoration work is a high priority for the partnership with Georgia Plant Conservation Alliance. Hand clearing continues to occur annually to reduce woody competition

Glades, Barrens, and Associated Woodlands:

The pine-oak woodland habitat, containing the federally listed smooth purple coneflower and other rare plants such as Georgia aster, is managed to improve the understory diversity on the Chattahoochee National Forest.

Habitat management mainly included growing prescribed burning of 88 acres in June 2014; 338 acres in May 2015 and 1,769 acres in June 2016. Dormant season burns occurred on 2,989 acres in March 2013; 1,414 acres in January 2014 and 1,096 acres in March 2016. Since FY 2012, Georgia Department of Natural Resources established plots to monitor the effects of management on the habitat and vegetation. As a result of the cooperative management of these sites, it is expected that these communities will increase over the 10-year planning period.

Mountain table mountain pine forest and woodlands are being restored on the Blue Ridge and Chattooga River Ranger Districts. Since 2012, prescribed fire has been used to restore the community structure to table mountain pine woodlands. The Upper Warwoman Landscape Management Project EA signed in October 31, 2015 on the Chattooga River Ranger District is planning for 1,115 acres of restoration treatment (509 acres of woodland treatments; 509 acres of oak-pine regeneration and 97 acres of thinning).

Current forest-wide and community-specific standard in the Forest Plan provide direction for protection and management of these communities.

MQ 2: Are landscape-level and stand-level composition and structure of major forest communities within desirable ranges of variability?

Element:

2.1: Status and trend in forest coverage acreage by major forest and woodland community type and successional stage.

Information: This element of MQ 2 is responsive to Goal 3, Objectives 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8; Goal 4, Objective 4.1; Goal 7, Objective 7.1, 7.2; Goal 8, Objectives 8.1, 8.2, 8.3, 8.4; and Objectives 9.F-03,04.

Results by Forest Plan Objective:

Objective 3.1: Within first 10 years of Plan implementation restore 1,100 acres of shortleaf pine forests on the Chattahoochee on sites where they once likely occurred.

Table 2.1: Total acres restore of shortleaf pine forest restore on the Chattahoochee National Forest by Fiscal Year

Fiscal Year													
2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total	RLRMP 10 Yr. Obj.
Acres Accomplished													Acres
235	30	222	0	0	0	10	0	26	0	113	0	**636**	**1,100**

Since the Forest Plan was signed in 2004 the Chattahoochee National Forest has accomplished 58% of the Forest Plan objective for restoring shortleaf pine.

Objective 3.2: Within the first 10 years of Plan implementation restore 1,000 acres of pitch pine forests on the Chattahoochee on sites where it once likely occurred.

The Chattooga River RD planted 15 acres of pitch pine in the Stonewall Knob area in 2011 this is slightly more than 1% of the Forest Plan objective. The Upper Warwoman Landscape Management Project EA signed in October 31, 2015 on the Chattooga River Ranger District is planning to restore fire-dependent oak/yellow pine on 228 acres, including pitch pine. When this project is implemented the Chattahoochee will accomplish 24% of this Forest Plan Objective.

Objective 3.3: Within the first 10 years of Plan implementation restore 1,100 acres of shortleaf pine forests on the Oconee on sites where it once likely occurred.

The Oconee Forest Health and Wildlife Improvement project EA (OFHWHIP) signed on June 24, 2011 approved to restore shortleaf pine forest on approximately 412 acres. Since the Forest Plan was signed in 2004 the Oconee National Forest (Oconee) has accomplished 37% of the Forest Plan objective for restoring shortleaf pine.

Objective 3.4: Within the first 10 years of Plan implementation restore 10,000 acres of open woodlands, savannas, and grasslands on the Chattahoochee and 1,000 acres on the Oconee. Once created, maintain woodlands, savannas, and grasslands on a five-year burning cycle or less.

Table 2.2: Total acres restore of open woodlands, savannas, and grasslands by National Forest and by Fiscal Year

National Forest	Fiscal Year												Total	FLRMP 10 Yr. Obj.
	05	06	07	08	09	10	11	12	13	14	15	16		
	Acres Accomplished / *Approved NEPA													acres
Chattahoochee	0	0	395	442	0	393	0	0	0	0	509*	0	**1,814**	**10,000**
Oconee	0	0	0	0	0	0	1,008*	0	0	0	0	0	**1,008***	**1,000**

Remark: *1,008 acres approved NEPA (OFHWHIP), *509 acres approved NEPA (Upper Warwoman Landscape Management Project EA).

Since the Forest Plan was signed in 2004 the Chattahoochee has accomplished 18% of the Forest Plan objective for restoring open woodlands, savannas and grasslands and the Oconee will accomplished slightly over 100% of this objective after the NEPA is implemented.

Objective 3.5: Within the first 10 years of Plan implementation restore 1,100 acres of mountain longleaf pine and longleaf pine-oak forests within the Southern Ridge and Valley ecological section on sites where they once likely occurred. This objective is exclusive to the Armuchee unit of the Conasauga RD.

Table 2.3: Total acres restore of mountain longleaf pine and longleaf pine-oak in the Armuchee unit of the Conasauga RD.

District	Fiscal Year												Total	FLRMP 10 Yr. Obj.
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
	----Acres Accomplished----													acres
Conasauga	0	0	0	0	0	0	151	0	236	0	0	155	**542**	**1,100**

Since the Forest Plan was signed in 2004 the Conasauga RD in the Chattahoochee has accomplished 49% (542 acres) of the Forest Plan objective for restoring mountain longleaf pine and longleaf pine-oak forest.

Objective 3.6: Within the first 10 years of Plan implementation restore oak or oak-pine forests on 1,250 acres on the Chattahoochee and 550 acres on the Oconee on appropriate sites currently occupied by pine plantations or other hardwood species such as gum and maple.

Table 2.4: Total acres restore of oak or oak-pine forest by National Forest and by Fiscal Year

National Forest	Fiscal Year												Total	FLRMP 10 Yr. Obj.
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
	Acres Accomplished / *Approved NEPA													acres
Chattahoochee	0	0	181	0	0	11	0	140	0	0	106*	0	**471**	**1,250**
Oconee	0	0	0	0	0	0	6,666*	0	0	0	0	0	**6,666***	**550**

Remark: *6,666 acres approved NEPA (OFHWHIP), *106 acres approved NEPA (Upper Warwoman Landscape Management Project EA).

Since the Forest Plan was signed in 2004 the Chattahoochee has accomplished 38% (476 acres) of Forest Plan objective for restoring oak or oak-pine forests. The Oconee has over 6,600 acres of potential oak restoration sites identified under the OFHWHIP (approved NEPA).

Objective 3.7: To maintain existing oak and oak-pine forests, reduce stem density on 5,500 acres on the Chattahoochee and 5,200 acres on the Oconee of these forest types within the first 10 years of Plan Implementation.

Table 2.5: Total acres of oak and oak-pine forest maintained by National Forest and by Fiscal Year

National Forest	Fiscal Year												Total	FLRMP 10 Yr. Obj.
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
	Acres Accomplished													acres
Chattahoochee	0	0	0	0	0	0	790	192	87	134	403*	0	**1,617**	**5,500**
Oconee	0	0	0	0	0	0	5,156*	0	0	0	0	0	**5,156***	**5,200**
Rx Burning – Chattahoochee (oak)														
Total acres 2009-2012									**2013**	**2014**	**2015**	**2016**	**-**	**Total 2009 to 2016**
11,881									**3,929**	**5,619**	**4,685**	**4,575**	**-**	**30,689**
Rx Burning – Oconee (oak)														
Total acres 2009-2012									**2013**	**2014**	**2015**	**2016**	**-**	**Total 2009 to 2016**
7,617									**1,324**	**1,227**	**2,196**	**2,714**	**-**	**15,078**

Remark: *5,156 acres approved NEPA (OFHWHIP), *403 acres approved NEPA (Upper Warwoman Landscape Management Project EA).

Since the Forest Plan was signed in 2004 the Chattahoochee has accomplished 30% of the Forest Plan objective for maintaining oak or oak-pine forests. The Oconee has over 5,156 acres of potential to maintain existing oak and oak-pine forests sites identified under the OFHWHIP (approved NEPA). In addition to these acres, both the Chattahoochee and Oconee have completed prescribed burns to maintain oak and oak-pine forests.

Objective 3.8: Create and maintain an annual average of 300 acres above 3,000 feet elevation in early-successional habitats, achieving 3,000 acres within the first 10 years of Plan implementation. This acreage may be comprised of regenerating forests (0-10 years), utility rights-of-way, and open woodlands. This objective is exclusive to the Chattahoochee National Forest.

Table 2.6: Total acres above 3,000 feet elevation in early-successional habitats on the Chattahoochee National Forest by Fiscal Year													
Fiscal Year												Total	FLRMP 10 Yr. Obj.
2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
Acres Accomplished													acres
25	120	109	0	0	5	0	64	0	0	64	0	**387**	**3,000**

Since the Forest Plan was signed in 2004 the Chattahoochee has created 387 acres (13% of Forest Plan Objective) of high elevation early successional habitat.

Objective 4.1: Maintain 1 to 2 percent per decade of the riparian corridor within each 6th level hydrologic unit in early-successional forest conditions. Included would be only those prescriptions hosting riparian associated species as identified in the current viability assessment for the Chattahoochee-Oconee NF and prescriptions with early-successional forest habitat objectives.

An estimated 23 acres of ESH in riparian corridors can be reported across the Forest. This includes activities associated with the Etowah North and Boggs Creek Salvage timber sales located on the Blue Ridge RD. The Armuchee Ridges project on the Conasauga RD includes objectives to remove off-site planted yellow pine from areas within the riparian corridor in stands being thinned to maintain forest health. An estimated 57 acres have been treated to meet this objective, although this is not be definition creating ESH.

Objective 7.1: Within 10 years of Plan implementation, increase structural diversity by creating canopy gaps within closed-canopied mid-and late-successional mesic deciduous forest, including old growth restoration areas.

- 10,800 acres on the Chattahoochee
- 1,400 acres on the Oconee

Table 2.7: Total acres treated by of objective 7.1 by National Forest and by Fiscal Year														
National Forest	**Fiscal Year**												Total	FLRMP 10 Yr. Obj.
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
	Acres Accomplished / *Approved NEPA													acres
Chattahoochee	0	200	0	0	0	0	0	0	*20	0	0	0	**220**	**10,800**
Oconee	0	0	0	0	0	0	*2,488	0	0	0	0	0	***2,488**	**1,400**
Remark: *2,488 acres approved NEPA (OFHWHIP), *20 acres approved NEPA (Sumac Creek project).														

Since the Forest Plan was signed in 2004 the Chattahoochee has created 220 acres (2% of Forest Plan Objective) of canopy gaps. The Oconee has approximately 2,488 acres of potential to increase structural diversity by creating canopy gaps within closed-canopied mid-and late-successional mesic deciduous forest identified under the OFHWHIP (approved NEPA). The Oconee will accomplish over 170% of this objective after implementing the proposed project.

Objective 7.2: Within 10 years of Plan implementation, restore 1,100 acres of open pine-oak or oak-pine forest on the Oconee outside the Red cockaded Woodpecker (RCW) Habitat Management Area (HMA). This in addition to the quantity to be restored under the habitat goal above.

Table 2.8: Total acres of open pine-oak or oak-pine forest restore on the Oconee National Forest by Fiscal Year														
National Forest	**Year**												Total	FLRMP 10 Yr. Obj.
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
	Acres Accomplished / *Approved NEPA													acres
Oconee	0	0	0	0	0	0	*7,180	0	0	0	0	0	***1,100**	**1,100**
Remark: *7,180 acres approved NEPA (OFHWHIP)														

The Oconee has identified under the OFHWHIP (approved NEPA) approximately 7,180 acres of potential to restore open pine-oak or oak-pine forest outside the RCW HMA. The Oconee will accomplish over 100% of this objective after implementing the proposed project.

Objective 8.1: To maintain shortleaf pine forests on the Chattahoochee in desired conditions:
- Thin overstory trees on an average of 400 acres per year of this forest type
- Reduce hardwood mid-story on an average of 6,000 acres per year of this forest type.

Objective 8.3: To maintain shortleaf pine forests on the Oconee in desired conditions:
- Thin overstory trees on an average of 230 acres per year of this forest type
- Reduce hardwood mid-story on an average of 500 acres per year of this forest type.

Table 2.9: Total acres of shortleaf pine thin by National Forest and by Fiscal Year

National Forest	Year												Total	FLRMP 10 Yr. Obj.
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
	Acres Accomplished / *Approved NEPA													acres
	Thin													
Chattahoochee	0	0	137	160	333	323	16	2	0	65	128	0	**1,164**	**4,000**
	Reduce Mid-Story (burn)													
Chattahoochee	-	-	-	-	1,519	2,292	953	1,120	1,173	997	720	1,480	10,254	60,000
	Thin													
Oconee	0	0	0	0	0	0	*491	0	0	0	28	0	**28**	**2,300**
	Reduce Mid-Story (burn)													
Oconee	-	-	-	-	250	87	830	300	369	34	648	82	2,600	5,000

Remark: *491 acres approved NEPA (OFHWHIP)

Since the Forest Plan was signed in 2004 the Chattahoochee has maintained 1,164 acres (29% of Forest Plan objective) through thinning and mid-story control. Another 10,254 acres of shortleaf pine have been maintained through prescribed burning from fiscal year 2004 to fiscal year 2016.

The Oconee has approximately 491 acres of potential to maintain shortleaf pine forests under the OFHWHIP (approved NEPA). The Oconee will accomplish 21% of this objective after implementing the proposed project. The Oconee implemented 28 acres of the 491 during fiscal year 2015. Another 2,600 acres of shortleaf pine have been maintained through prescribed burning from fiscal year 2004 to fiscal year 2016.

Objective 8.2: To maintain pitch pine forests on the Chattahoochee in desired conditions:
- Thin overstory trees on an average of 100 acres per year of this forest type.
- Reduce hardwood mid-story on an average of 1,400 acres per year of this forest type.

Thin: There is no progress to report for this Plan objective.

Reduce Mid-story: since the Forest Plan was signed in 2004 the Forest has estimated 501 acres of prescribed fire has been applied in pitch pine forest types on the Chattahoochee. This represents less than four percent of the 10 year goal for this objective (5,000 acres).

Objective 8.4: To maintain loblolly pine forests on the Oconee outside the RCW HMA in desired conditions:
- Thin overstory trees on an average of 1,100 acres per year of this forest type.
- Reduce hardwood mid-story on an average of 1,100 acres per year of this forest type.

Table 2.10: Total acres of loblolly pine thin on the Oconee National Forest by Fiscal Year

District	Year												Total	FLRMP 10 Yr. Obj.
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
	Acres Accomplished / *Approved NEPA													acres
	Thin													
Oconee	0	0	0	0	15	1,919	1,731	561	0	1,089	0	0	**5,315**	**11,000**
	Reduce Mid-Story (burn)													
Oconee	-	-	-	-	3,758	2,724	10,291	5,310	9,283	3,558	11,472	11,492	57,888	11,000

Remark: *9,266 acres approved NEPA (OFHWHIP)

The Oconee has thinned 5,315 acres (48% of Forest Plan objective) of loblolly pine outside RCW HMAs. The Oconee has approximately 9,266 acres of potential to thin loblolly pine under the OFHWHIP (approved NEPA), of this amount the ONF had implemented 1,650 acres since the decision was signed.

Another 57,888 acres (200% of Forest Plan objective) has been treated with prescribed fire from fiscal year 2009 to fiscal year 2016.

Objective 9.F-03: To restore table mountain pine forests on the Chattahoochee, reestablish these forest types on sites where they once likely occurred on 2,100 acres within the first 10 years of implementation. This objective is exclusive to the Blue Ridge and Chattooga River RDs on the Chattahoochee NFs.

Table 2.11: Total acres of table mountain pine restore on the Blue Ridge and Chattooga River RD of the Chattahoochee National Forest by Fiscal Year

	Year													
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total	FLRMP 10 Yr. Obj.
District	Acres Accomplished / *Approved NEPA													acres
Blue Ridge	0	0	0	0	108	0	0	0	0	0	0	0	**108**	**320**
Chattooga River	0	0	0	50	0	0	0	0	0	0	*65	0	**115**	**1,780**
Total	0	0	0	50	108	0	0	0	0	0	0	0	**223**	**2,100**

Remark: *65 acres approved NEPA (Upper Warwoman Landscape Management Project EA).

The Forest has made limited progress towards this objective. Since the Forest Plan was signed in 2004 the Forest has accomplished 11% of this objective.

Objective 9.F-04: To maintain Table Mountain pine forests on the Chattahoochee in desired conditions:

- Thin overstory trees on an average of 100 acres per year of these forest types.
- Reduce hardwood mid-story on an average of 100 acres per year of these forest types.
- Prescribed burn an average of 200 acres of this type each year over the first 10 years of plan implementation.

This objective is exclusive to the Chattooga River RD on the Chattahoochee, and contains two maintenance components: (1) acres thinned and (2) acres prescribed burned to control mid-story vegetation.

Table 2.12: Total acres of table mountain pine restore on the Chattooga River RD of the Chattahoochee National Forest by Fiscal Year

	Year													
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total	FLRMP 10 Yr. Obj.
District	----Acres Accomplished----													acres
Chattooga River	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000 (thin)
	0	100	0	100	0	0	0	0	0	0	43	0	243	2,000 (burn)
Total	0	100	0	100	0	0	0	0	0	0	43	0	243	3,000

The Forest has achieved approximately 8% of the objective for maintenance of table mountain pine until FY 2016. During the time of Plan revision, this community type was estimated to be present on less than 300 acres. Because of table mountain pine's limited distribution on the Forest, it is doubtful that maintenance objectives for this rare community will be achieved until more acres supporting this community have been restored.

Findings:

- The Forest has made only limited to moderate progress towards the habitat, restoration, and maintenance objectives included under this element of MQ2. In most cases, past accomplishments combined with unimplemented/future proposals are far below specified acres for Plan objectives on the Chattahoochee.
- Projected acres of treatment included in the Oconee Forest Health and Wildlife Habitat Improvement project (OFHWHIP) are within range of most Plan objectives specified for the Oconee.
- Prescribed fire is being used to achieve maintenance objectives in oak and yellow pine communities across all successional stages, but acres treated are still below Forest Plan objectives for maintaining shortleaf, pitch, and table mountain pine on the Chattahoochee and for maintaining shortleaf pine on the Oconee.

Element:
2.2: Acres burned[1] (Wildland and prescribed fire) by forest type, stand condition and season of burn compared to desired fire regimes

All burns were conducted in the dormant season during FY 2013 to FY 2016. The forest is made up of Fire Regime and Condition Class (FRCC) 1, 2 and 3 with the heaviest loading is in 2 and 3. Desired condition would be a FRCC 1 for the forest and we are moving toward that with every burn.

One-hundred ninety two wildfires were reported on the CONF during FY 2013-2016, for 29,512 acres (Table 2.2). The CONF is working aggressively with the Georgia Forestry Commission with the Firewise program. This program encourages local solutions for safety by involving homeowners in taking individual responsibility for preparing their homes from the risk of wildfire. Firewise is a key component of Fire Adapted Communities – a collaborative approach that connects all those who play a role in wildfire education, planning and action with comprehensive resources to help reduce risk.

In FY 2012 there were approximately twenty-five nationally designated Firewise Communities that were listed for the state by the National Fire Protection Association (NFPA). Ten of these communities were adjacent to or border national forest. Currently (FY 2017) there are approximately ninety-one nationally designated Firewise Communities being listed for the state by the National Fire Protection Association (NFPA). Twenty- three of these communities are adjacent to or border national forest.

Table 2.2: Number of fires and acres by Fiscal Year in the Chattahoochee-Oconee NFs

	FY13	FY14	FY15	FY16	**Total**
Number of Fire	35	55	21	81	192
Acres	141	1,186	315	27,870	29,512

Element:
2.3: Trends in hooded warbler occurrence in relationship to mature mesic deciduous forests

Hooded warblers are found in mature, mixed hardwood forests that are structurally diverse. Nesting locations are restricted to large forest patches. It typically inhabits mature forests where large trees fall to create canopy gaps. Management may entail creating canopy gaps and maintaining a shrub layer. This species is of interest as it is sensitive to forest fragmentation, but also requires well developed understories and mid-stories (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a significant increasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data (Figure 2) from the CONF suggests that the hooded warbler population has remained stable or increased on the Forests. The overall amount of preferred habitat of older hardwood stands has increased over the past decade, making more suitable habitat available for the hooded warbler. The forest plan provides for maintaining an abundance of mature hardwood sights preferred by this species and other late successional preferring fauna.

[1] All document data for fuel conditions are in the Forest Activity Tracking Systems (FACTS). Forest Fire Planner oversee the FACTS database to ensure correct data in entered.

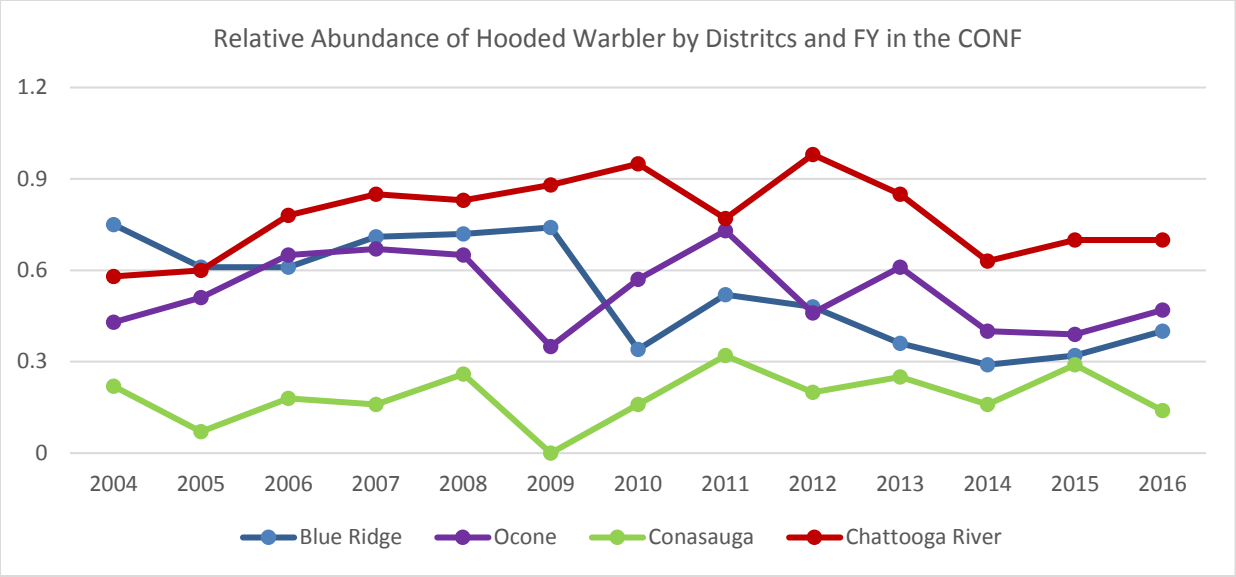


Figure 2: Relative abundance[2] of hooded warbler occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
2.4: Trends in red-cockaded woodpecker populations in relationship to mature pine forests.

Red-cockaded woodpeckers (RCW) were listed as federally endangered in 1970. They need large expanses of mature, open pine forests, particularly longleaf slash or loblolly pine. Currently, they are not known to occur on the Chattahoochee National Forests, but they do occur and are managed for on the Oconee National Forest. The Breeding Bird Survey indicates this species has a significant decreasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests shows that RCWs were not observed on the Oconee from the early 1990's until the early 2000's (USDA-Forest Service. 2012), but since 2005 they do show up in small numbers in surveys (Figure 3). The Oconee has worked to increase habitat on the Forest for this species and there has been an increase in RCW clusters on the Forest (read Monitoring Question 7, element 1).

[2] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

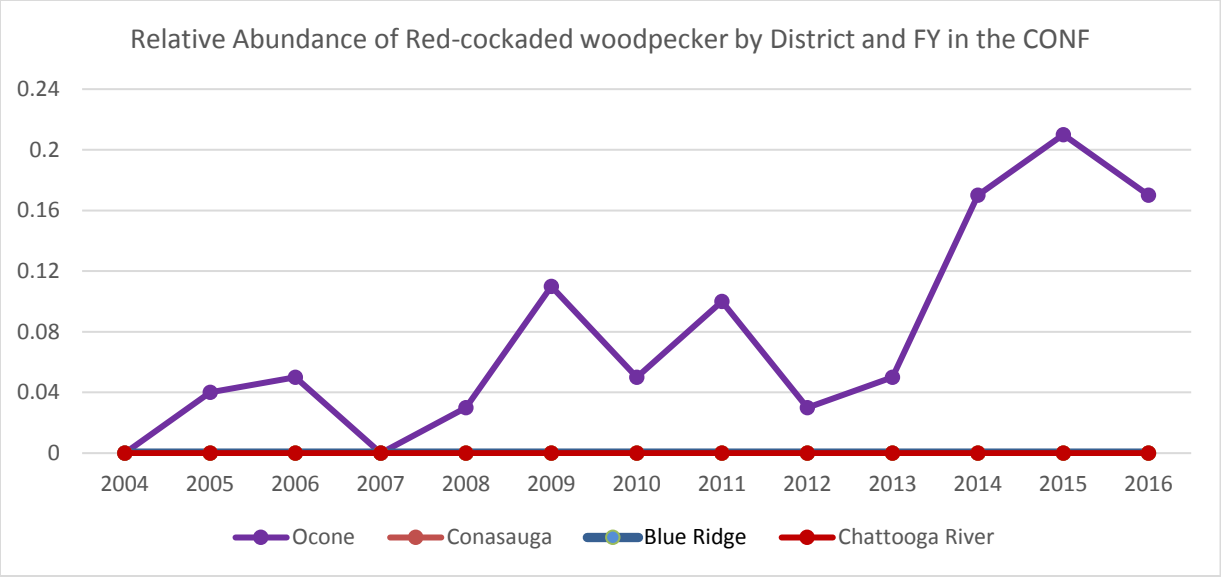


Figure 3: Relative abundance[3] of red-cockaded woodpecker occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
2.5: Trends in field sparrow occurrence in relationship to woodlands, savannas, and grasslands

Field sparrows breed in open grassy areas within forested communities. The nests are composed almost entirely of grasses and are located near the ground in early spring (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a significant decreasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (*Figure 4*) suggests that the field sparrow population on the Forests is low with some increase in observances on the CRRD in recent years. The overall amount of preferred habitat for field sparrow has declined on the Forests and woodland and savanna creation has not occurred at the level described in the Forest Plan.

[3] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

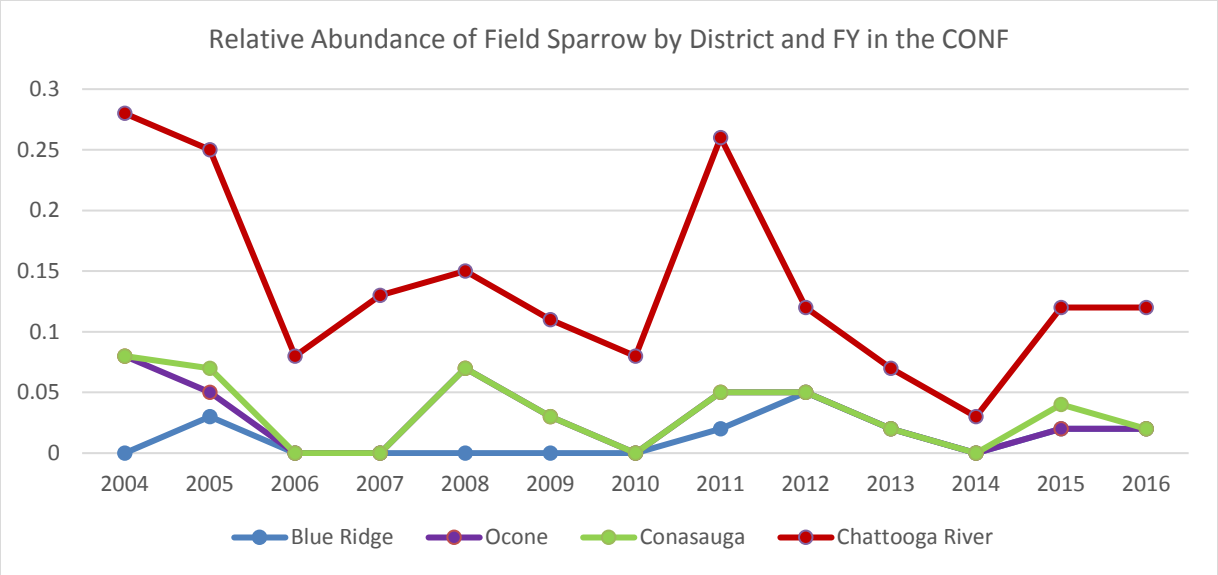


Figure 4: Relative abundance[4] of Field Sparrow occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

MQ 3: Are key successional stage habitats being provided?

Element:
3.1: Trends in the abundance and condition of high-elevation early-successional habitats.

This element of MQ 3 is responsive to Goal 3, Objective 3.8. Create and maintain an annual average of 300 acres above 3000 feet elevation in early successional habitats.

Vegetation management, using various treatments, contributes to providing and maintaining habitats. Timber harvest, thinning and regeneration provide and maintain these key successional stages. Since the Forest Plan was signed in 2004 the CONF has created 463 acres (15% of Forest Plan Objective) of high elevation early successional habitat until FY 2016. The Forest is not currently meeting this annual quantitative objective for creating 300 acres per year in high elevation early successional habitats or early successional habitat.

The previous ten years (2006-2016) of combined efforts the CONF had created approximately 500 acres of early successional habitats. Currently, the CONF is working on a large, landscape-scale restoration project (Foothills) that will be implemented starting in 2020. Implementation of this ten year project will include a wide range of restoration activities, including the creation of early successional habitat.

Element:
3.2: Trends in prairie warbler occurrence in relationship to the early successional habitat.

Prairie warblers breed in fire–maintained woodlands and other early successional habitats (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a significant decreasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (Figure 5) suggests that the prairie warbler population is low on the Forests with a decline on the CRD in recent years. The overall

[4] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

amount of preferred habitat for prairie warbler has declined on the Forests and woodland and savanna creation has not occurred at the level described in the Forest Plan.

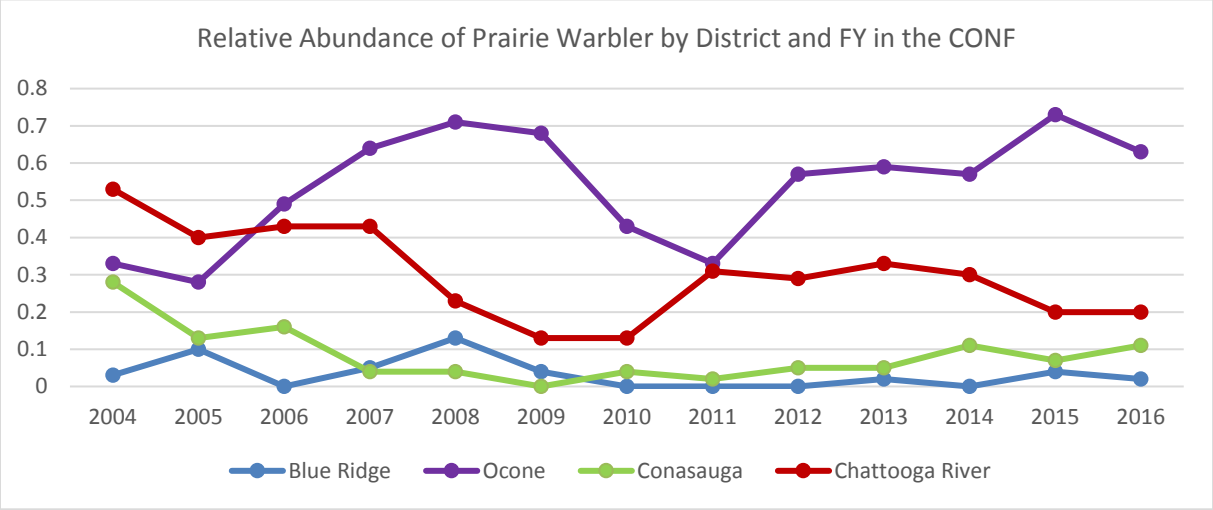


Figure 5: Relative abundance[5] of Prairie Warbler occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
3.3: Trends in chestnut-sided warbler occurrence in relationship to high elevation early-successional habitat.

Chestnut-sided warblers breed in higher elevations in the south and are associated with early successional habitats (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a significant decreasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (*Figure 6*) suggests that the chestnut-sided warbler's population occurs in low numbers on the BRRD and CRRD with very few observances on the CRD since monitoring started. The ORD is outside the known range of this species. The Forests are well below the level of high elevation early successional habitat objectives as described in the Forest Plan.

[5] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

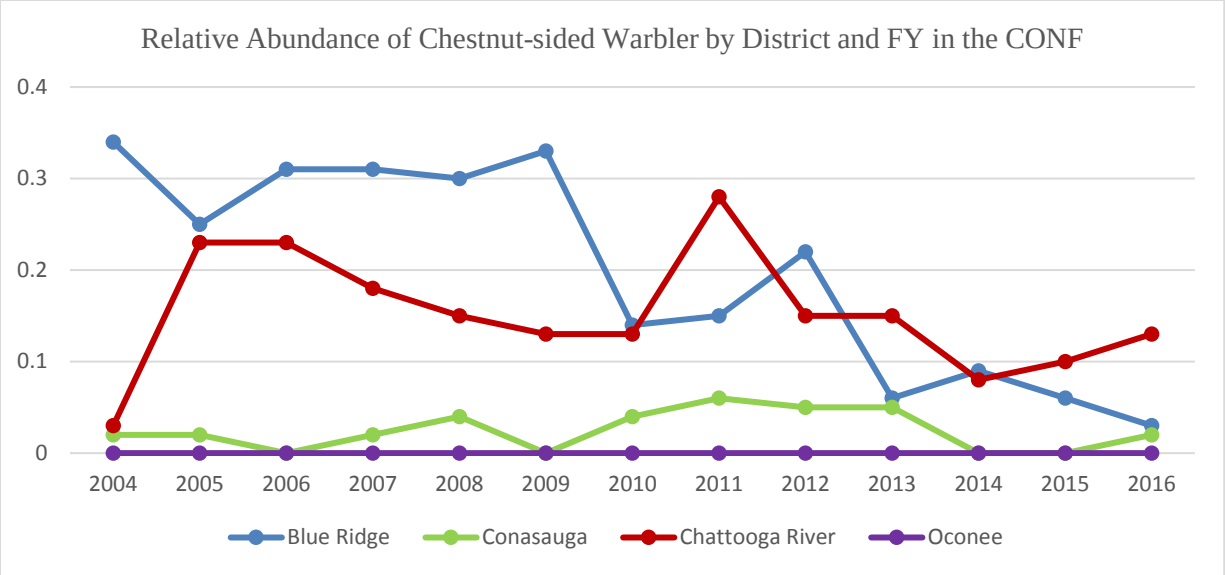
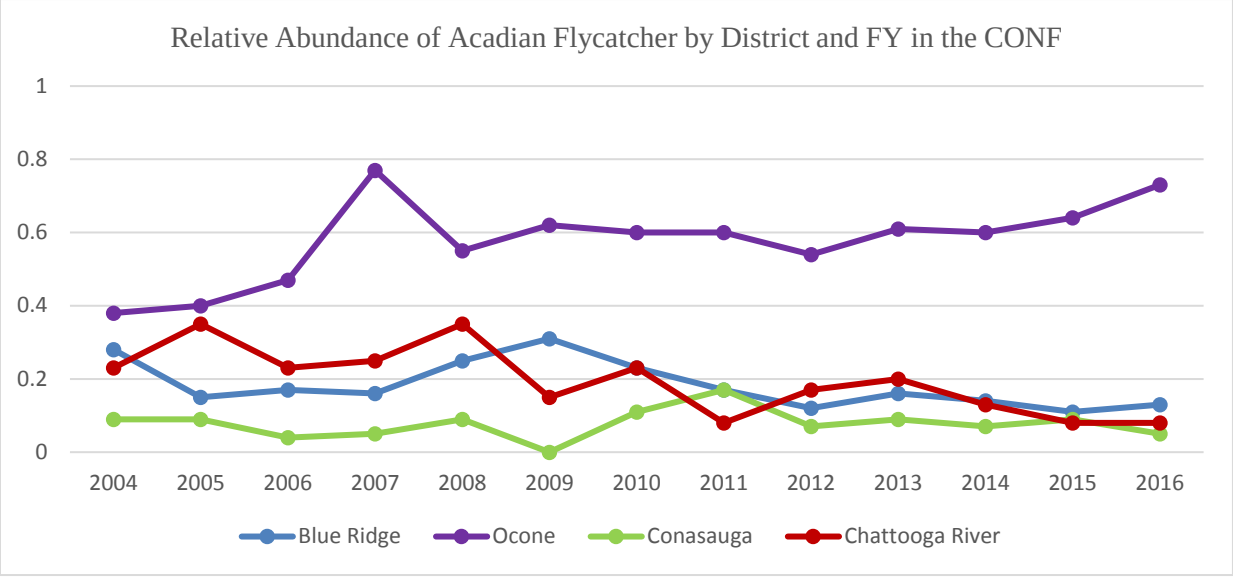


Figure 6: Relative abundance[6] of Chestnut-sided Warbler occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
3.4: Trends in Acadian flycatcher occurrence in relationship to mature riparian forests.

Acadian flycatchers breed in mature mesic deciduous forests, often near streams (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a significant decreasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (Figure 7) suggests that the Acadian Flycatcher population is stable on the Forests. The amount of mature riparian forest habitat on the Forests has remained stable as very little management has occurred in riparian areas in recent years.



[6] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

Figure 7: Relative abundance[7] of Acadyan Flycatcher occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
3.5: Trends in ovenbird occurrence in relationship to mountain forest interior communities.

Ovenbirds require large contiguous mature forests for breeding habitats. It is usually found in mature mesic deciduous forests (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a nonsignificant increasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (Figure 8) suggests that the ovenbird population appears stable on the Forests although there are fluctuations in relative abundance on the Chattooga River and Blue Ridge Ranger Districts. The amount of large blocks of contiguous forest habitat on the Forests has remained stable in recent years.

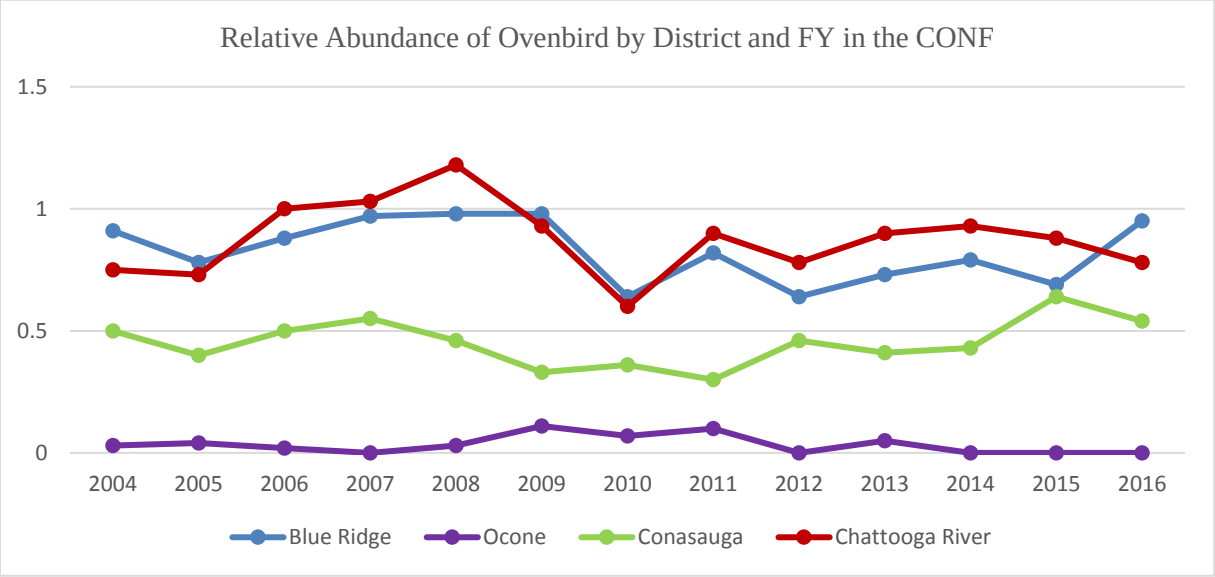


Figure 8: Relative abundance[8] of Ovenbird occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
3.6 Trends in wood thrush occurrence in relationship to Piedmont forest interior communities.

Wood thrush breeds in variety of wooded habitats and preferred sites include deciduous tree species, moderate sub canopy and shrub density, shade and a fairly open, moist forest floor (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a significant decreasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (Figure 9) suggests that the wood thrush population appears stable on the Forests with more occurrences on the Oconee National Forest. The Forests have not achieved Forest Plan targets for woodland habitat that this species prefers.

[7] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.
[8] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

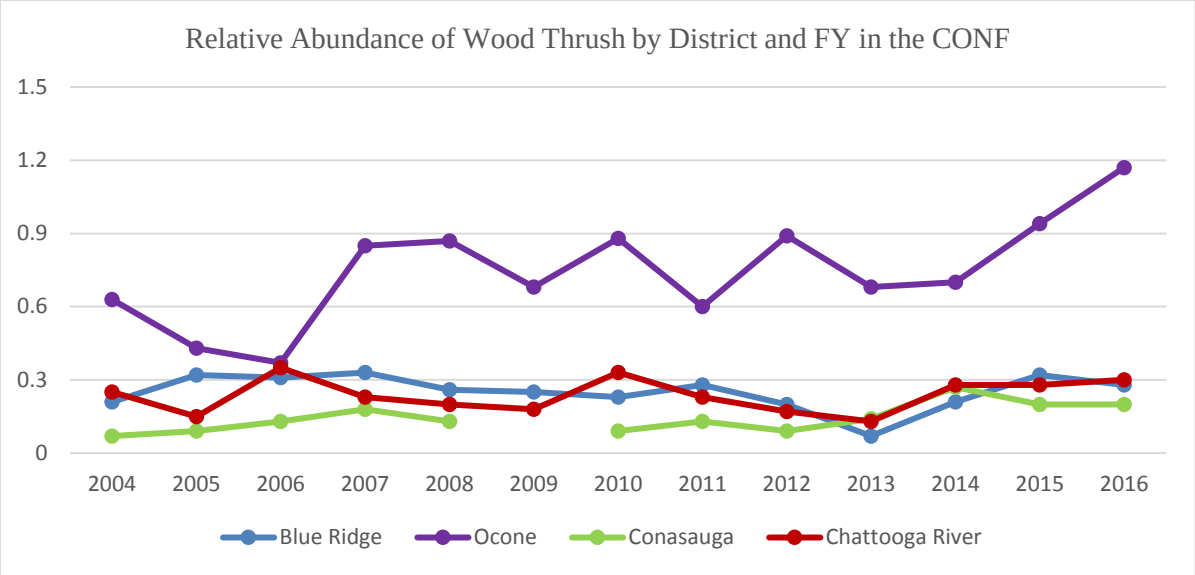


Figure 9: Relative abundance[9] of Wood Thrush occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
3.7: Trends in scarlet tanager occurrence in relationship to upland oak communities.

Scarlet tanagers breed in variety of deciduous-coniferous forest habitats from mixed mesophytic to xeric pine-oak woodlands. It prefers large blocks of mature forest, especially where oaks are common (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a nonsignificant increasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (Figure 10) suggests that the scarlet tanager population appears stable on the Chattahoochee National Forest. There was no occurrence on the Oconee National Forest.

[9] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

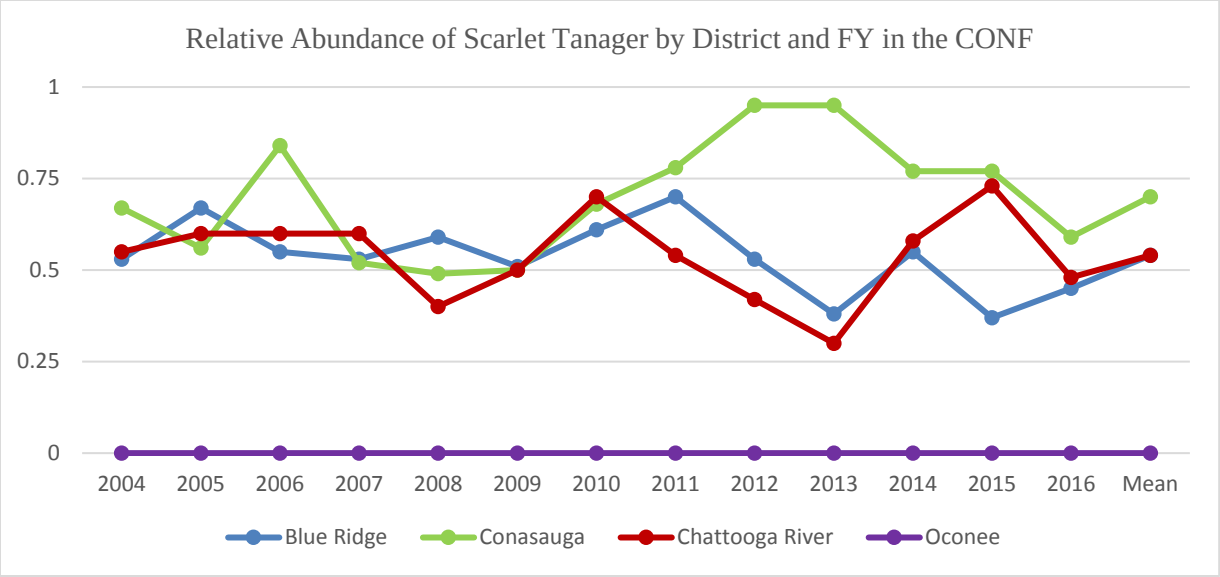


Figure 10: Relative abundance[10] of Scarlet Tanager occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
3.8: Trends in Swainson's warbler occurrence in relationship to Piedmont riparian habitat, canebrakes and thickets.

Swainson's warblers breed in understory thickets and canebrakes of the swamps and bottomlands in the Gulf Coastal Plains and in dense shrub layers of mixed mesophytic forests of the southern Appalachian Mountains (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has nonsignificant increasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (Figure 11) suggests that Swainson's warbler population on the Forests is small with only a few occurrences on the Oconee and Chattooga River District. This is not surprising as most Swainson's warbler occurrences in Georgia are in the floodplains of large rivers (Schneider et al. 2010). The Forests have not implemented canebrake restoration projects that would benefit this species.

[10] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

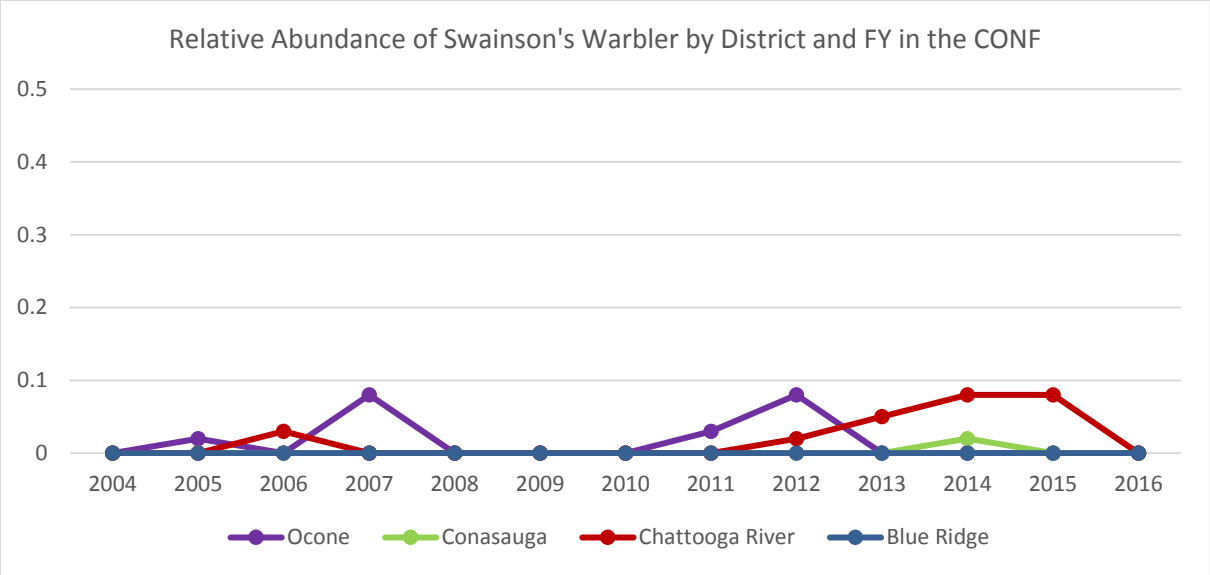


Figure 11: Relative abundance[11] of Swainson's Warbler occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
3.9: Trends in pine warbler occurrence in relationship to pine and pine-oak forests.

Pine warblers breed use a variety of upland pine and pine-hardwood forest types. This species is most abundant where the understory is sparse. Forest management centers on retaining mature pine trees with sparse understory maintained by prescribed burning (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a significant increasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (Figure 12) suggests that the pine warbler population appears stable on the Forests although this species is rarely observed on the Blue Ridge Ranger District. The Forests has in recent years thinned pine stands and followed up with prescribed burns that will benefit this species.

[11] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

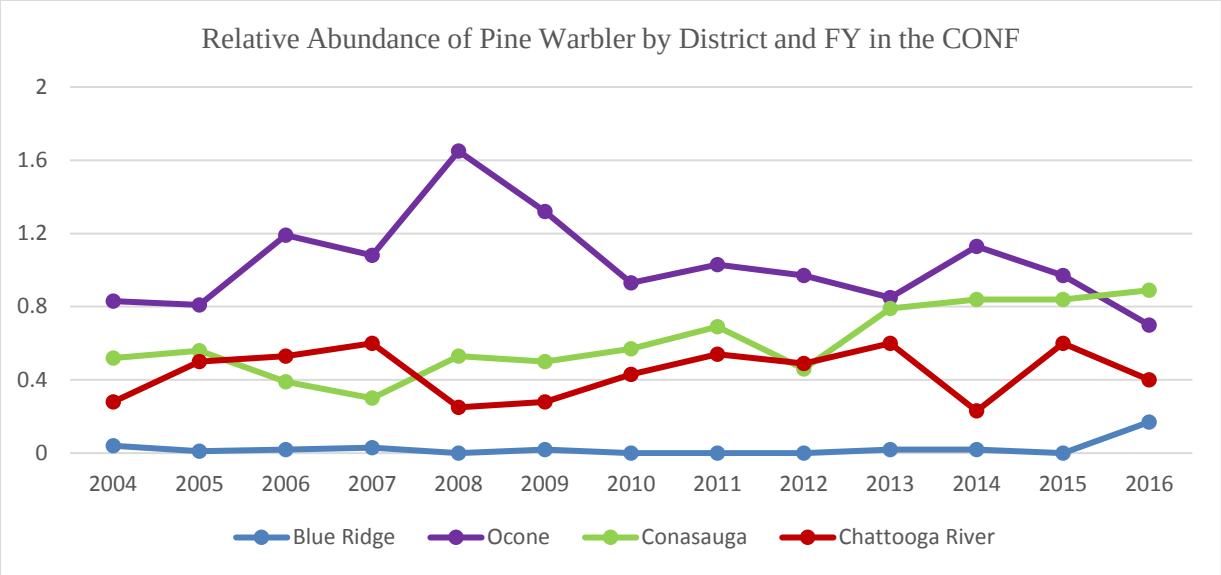


Figure 12: Relative abundance[12] of Pine Warbler occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:
3.10: Trends in acres of wildlife openings.

Over the past twelve years there has been a decrease in the amount wildlife openings maintained on the Forests. The maintenance for many of the openings has also become less intensive with less fertilizing and planting and more maintenance by mowing or burning only.

On the Blue Ridge Ranger District there is approximately 520 acres of openings. The district maintains 220 acres and the GA DNR maintains 300 acres on WMA's. The district maintains about 150 acres annually and the GA DNR maintains about 250 acres for a total of 400 acres annually. There were approximately 575 acres +/- 10 years ago. The decrease is primarily due to the elimination of lower Blue Ridge WMA. The district continues to maintain some of the larger openings, but there are a number of small ones that are not being maintained. The district has also abandoned some smaller openings and linear openings that have become too shady.

In the Conasauga Ranger District there are 244 wildlife openings. These 244 openings total 400 acres. The GA DNR maintains 177 acres and the Conasauga Ranger District maintains 223 acres. This includes linear openings (roads sown to grasses).

In the Oconee Ranger District they have seen a decrease in wildlife openings from 625 acres maintained in 2001 to only 338 acres maintained in 2012. During FY 2012 the district maintained 193 acres and the GA DNR maintains 145 acres on the WMAs. Most of this decrease has occurred because of lack of funding and personnel. Starting FY 2013 the District has been maintaining 50 acres per year, in FY 2014 75 acres, in FY 2015 25 acres and FY 2016 50 acres. The GA DNR had been steady maintaining 172 acres since FY 2013 until FY 2016.

On the Chattooga River Ranger District there are approximately 375 acres of wildlife openings, this is a decrease of approximately 40 acres in the last ten years. Of the 375 acres approximately 200 acres are maintained by the GA DNR (Warwoman, Chattahoochee and Lake Russell WMAs), and 170 acres are maintained by the district. On an annual basis the district maintains approximately 100 acres of openings

[12] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

and the GA DNR maintains approximately 200 acres per year. Maintenance is done by a combination of mowing, disking, planting, burning and herbicide application. Over the last five years, the district has stopped managing some smaller openings, and has started focusing on the larger ones. Local volunteers have been critical in assisting the district in managing openings. The district has also recently been converting some existing maintenance level one roads to linear wildlife openings.

Element:
3.11: Trends in acres of other permanent openings (pasture, ROW, etc.) and acres of maintenance activity implemented.

The Oconee National Forest manages 646 acres in range allotments of which 448 acres are maintained as permanent openings. The remaining acres are wooded. Since the Plan was signed in 2004, 184 acres of closed allotments were converted to wildlife openings, 20 acres were restored with native grasses and 97 acres were left to return to wooded vegetation. There are not any range allotments on the Chattahoochee National Forest. Since the Forest Plan was signed in 2004 we closes 454 acres in range allotment.

The Forest also has approximately 273 miles of permitted right of ways (ROW) for a total of 724 acres, but there is not good information on the level of maintenance of these ROW.

Element:

3.12: Trend in the abundance and distribution of landscapes important for forest interior birds

As discussed under Monitoring Question 2 the Forest has made only limited to moderate progress towards the habitat, restoration, and maintenance objectives that are important to forest interior birds. In many cases, past accomplishments combined with unimplemented/future proposals are far below specified acres for Plan objectives on the Chattahoochee.

Element:
3.13: Trends in acreage of existing and potential old growth by forest community class.

This Element of MQ 3 is responsive to Goal 9 and Goal 20, Objective 20.1.

Objective 20.1: Reserve 5 percent of each 6th level HUC that has at least 1,000 acres of National Forest in management that will conserve existing, or provide for the development of future old growth.

Information:

Current allocation and management of old growth communities under the revised Land and Resource Management Plan for the Chattahoochee-Oconee National Forests is guided by the 1997 report produced by the Forest Service, Southern Region entitled "Guidance for Conserving and Restoring Old-Growth Communities on National Forest in the Southern Region" (USDA Forest Service, 1997). At the Ecological Section scale, this guidance generally directed each Forest to provide:

(1) A distribution of old growth blocks in a network;
(2) A mixture of size classes of old growth patches or blocks
    a. Large (> 2,500 acres);
    b. Medium (100 – 2,500 acres);
    c. Small (10 – 99 acres); and
(3) A representation of old growth across regionally defined forest community types (i.e. Old Growth Types), where ecologically appropriate.

The revised (2004) Forest Plan allocated approximately 177,000 acres of large and medium blocks to old growth conservation through old growth emphasized or old growth compatible Management Prescriptions (MRx). These included the following:

Management Prescription (MRx)	Acres
0 – Custodial Management-Small, Isolated Land Areas	2,071
1.A – Designated Wilderness Areas	117,430
1.B – Recommended Wilderness Study Areas	8,094
2.A.1 – Designated Wild River Segments	5,998
2.A.2 – Designated Scenic River Segments	468
2.B.1 – Recommended Wild River Segments	2,120
2.B.2 – Recommended Scenic River Segments	4,105
4.B.1 – Murder Creek Research Natural Area	1,005
4.D – Botanical-Zoological Areas	4,578
4.E.1 – Cultural/Heritage Areas	302
6.B – Areas Managed to Restore or Maintain Old-Growth Characteristics	29,676
6.D – Core Areas of Old-Growth Surrounded by Areas with Extended Forest Rotations	598
9.F – Rare Communities	1,098

Data taken from Table 3-85 and 3-86 of the FEIS for the Land and Resource Management Plan, Chattahoochee-Oconee NFs (2004).

Objective 20.1 and associated Forest-wide standards for old growth include directions for allocating small blocks (< 100 acres) of old growth within individual sixth-level HUCs (sub-watersheds) with 1,000 acres or more of National Forest and that currently have less than five percent allocated to old growth conservation by old growth or old growth-compatible Management Prescriptions. This process is intended to be accomplished systematically at the project level. Priority for identifying small blocks of old growth during project design is described in the Forest Plan and supporting EIS and Appendices.

Results/Findings

To date, project-level analyses have identified and/or allocated approximately 4,457 acres of small blocks to old growth conservation in conformance with Objective 20.1 (see table below). Queries of the Forest's spatial stand layer however indicated that only 333 acres (10 percent) of this amount have been updated to reflect the old growth designation. Individuals responsible for the management of stand layers and stand attributes will need to update the Forest stand layer to reflect the designation of individual stands as old growth by changing the current land classification coding.

Project	District	Small Blocks Allocated/Identified for Old Growth Conservation (Acres)
Oconee Forest Health and Wildlife Habitat Improvement	Oconee	2,696
Armuchee Ridges Thinning and Restoration	Conasauga	88
Sumac Creek	Conasauga	333
Davenport Mountain	Blue Ridge	140
Brawley Mountain	Blue Ridge	35
Upperwarwoman	Chattooga River	824
East Nottley	Blue Ridge	341
	Total	**4,457**

There are a total of 177 sixth-level HUCs located across the Chattahoochee-Oconee National Forests. Of these, 128 HUCs contain at least 1,000 acres of National Forest, and therefore would be subject to the requirements under Forest Plan Objective 20.1. These 128 sixth-level HUCs range in size from slightly more than 1,000 to over 23,000 acres, potentially requiring from 50 to over 1,100 acres of old growth allocation per sixth-level HUC.

Of the 128 sixth-level HUCs with at least 1,000 acres of National Forest, 32 do not contain any Forest Plan old growth allocations via old growth or old growth-compatible Prescriptions. Of the 96 sixth-level HUCs that contain old growth or old growth-compatible Management Prescriptions, only 66 of these meet or exceed the minimum requirements under Objective 20.1 for old growth conservation. Collectively, 62 sixth-level HUCs (> 1,000 acres) do not meet the minimum five percent old growth allocation specified under Forest Plan Objective 20.1. A cumulative total of 15,191 acres of small block old growth allocation would be required within these 62 sixth-level HUCs to meet Objective 20.1. Small blocks for old growth conservation identified and/or allocated during project level analyses (described

above) account for approximately 23 percent of this needed acreage. Future projects will need to continue to identify small block old growth conservation areas to meet this objective.

The Forest Plan gives priority for allocation of small blocks of existing old growth to those old growth community types (OGTY) that generally have less than 20 percent of their total old growth community acreage, regardless of age, allocated to an old growth or old growth-compatible prescription within ecological sections. Allocation to small block old growth conservation among OGTYs and Ecological Sections is given in the table below:

	Ecological Section															
	Blue Ridge Mountains				So. Ridge & Valley				So. Appalachian Piedmont				Piedmont on CRRD			
OGTY	Acres OG MRx	% OG MRx	Acres Small Blocks Allocated	Adj. % OG	Acres OG MRx	% OG MRx	Acres Small Blocks	Adj. % OG	Acres OG MRx	% OG MRx	Acres Small Blocks	Adj. % OG	Acres OG MRx	% OG MRx	Acres Small Blocks	Adj. % OG
2	**9715**	**14**	**0**	**14**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	**18**	**17**	**0**	**17**
5	35257	27	+46	27	281	20	0	20	**188**	**6**	**0**	**6**	**64**	**3**	**0**	**3**
13	**74**	**8**	**0**	**8**	55	20	0	20	**1603**	**16**	**0**	**16**	100	25	0	25
21	66773	29	+912	30	2471	23	0	23	**1908**	**13**	**0**	**13**	**2005**	**17**	**0**	**17**
22	9703	27	+250	27	2410	33	+88	34	n/a	n/a	n/a	n/a	**0**	**0**	**0**	**0**
24	**6407**	**18**	**+370**	**19**	1063	26	0	26	n/a	n/a	n/a	n/a	**520**	**14**	**0**	**14**
25	**23473**	**16**	**+60**	**16**	9298	22	0	22	**2075**	**3**	**0**	**3**	**817**	**3**	**0**	**3**
27	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	751	23	0	0	n/a	n/a	n/a	n/a
28	60	54	0	54	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8	100	0	100

Data taken from Appendix D, Table D-8, of the Land and Resource Management Plan, Chattahoochee-Oconee NFs. Bold font indicates OGTYs with less than 20 percent representation by ecological section.

Allocation of small blocks of old growth increase OGTY 5 by 46 acres, OGTY 21 by 912 acres, OGTY 22 by 250 acres, OGTY 24 by 370 acres and OGTY 25 by 60 acres in the Blue Ridge Ecological Section. Only OGTY 24 and 25 contained less than the desired 20 percent representation at the time of Forest Plan revision. The 60 acres added in OGTY25 only slightly moved (< 1 percent) this OGTY towards the desired range. Allocation of small blocks of old growth increase OGTY 22 by 88 acres in the Southern Ridge and Valley Ecological Section.

MQ 4: How well are key terrestrial habitat attributes being provided?

Element:

4.1: Trends in hard mast production capability.

This element of MQ 4 is responsive to Goal 10: "Manage for a diversity of oak species to minimize yearly fluctuations in acorn supplies".

Results/Findings:

The Georgia Department of Natural Resources (GA DNR) – Wildlife Division conducts annual acorn mast surveys in Wildlife Management Areas in the Appalachian Region of north Georgia, including the Blue Ridge, Ridge and Valley, and upper Piedmont. Surveys are conducted along 24 routes, with each route consisting of 6-18 stops at approximately 1-mile intervals.

Hard mast survey results collected by GA DNR are summarized in the table below:

Oak Acorn Production Ratings of North Georgia Mountains (Survey Results – Crop Quality)												
2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Good	Fair	Good	Fair	Good	Fair	Good	Fair	Good	Poor	Good	Poor	Good

Source: GA DNR, 2017.

Oak forests are an important source of hard mast (acorns), which are critical winter food for numerous wildlife species. The abundance of oak forest in the future will be primarily dependent on (1) the

management of existing oak stands to maintain oak dominance and (2) the ability to increase their abundance through restoration. The Forest Plan uses four key variables to assess the management of oak forests: (1) acres of oak forest burned for maintenance; (2) acres of oak forest thinned for maintenance; (3) acres of oak forests restored; and (4) acres of mid-to-late successional oak forests (an important source of hard mast).

At the time of Plan revision (2004), oak forest accounted for 46 percent of the forest acres on the Chattahoochee and 14 percent of the acres on the Oconee. On both Forests, over 90 percent of oak forests were in mid-late successional stages. Similar conditions within the oak community are still present on the Chattahoochee and Oconee in 2016.

To date, vegetation management activities to maintain or restore oak forests have been accomplished on 1,439 acres on the Chattahoochee. Oak maintenance and restoration vegetation management projects have not been implemented on the Oconee; however, the Oconee Forest Health and Wildlife Habitat Improvement project (OFHWHIP) includes plans for 5,156 acres of oak maintenance and 6,666 acres of oak restoration treatments.

The Forest has conducted an estimated 11,881 acres of prescribed burning in oak stands on the Chattahoochee and an estimated 7,517 acres on the Oconee during the last four years (2009 thru 2012).

Element:
4.2: Trends in pileated woodpecker occurrence as an indicator of snag abundance.

Habitat for this species consists of late successional forests or young forests that retain scattered large dead trees (snags). Forest management activities for this species would include maintaining older forests and retaining dead hollow trees and older live trees to replace snags as over time (La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a significant increasing trend in the survey area from 1966 to 2015 (Sauer et al., 2017).

Bird monitoring survey data from the Chattahoochee-Oconee National Forests (Figure 13) suggests that the pileated woodpecker population appears stable on the Forests. Hemlock die off as a result of Hemlock Wooly Adelgid and natural disturbances have created potential habitat for this species.

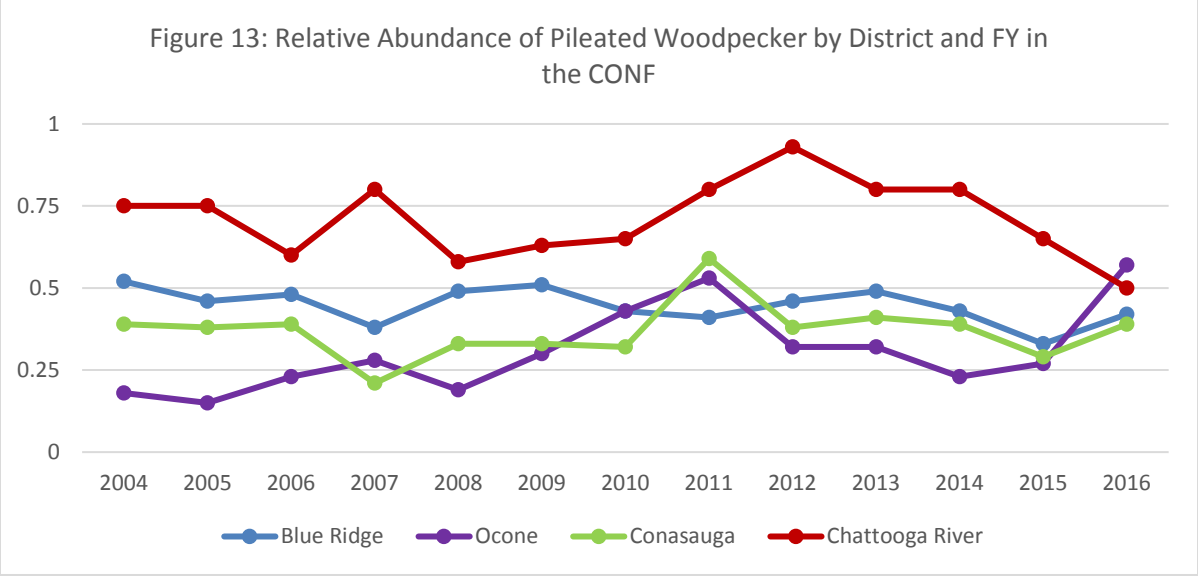


Figure 13: Relative abundance[13] of Pileated Woodpecker occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element:

4.3: Acres of vegetation management implemented in riparian areas by activity type.

Acres of vegetation management activities within riparian areas implemented from FY 2013 to FY 2016 are shown in Table 4.3.1. They are always done according to the guidelines established in the Forest Plan. Also, each project has mitigation measures established in order to maintain or restore the inherent capabilities of the riparian corridor.

Table 4.3.1: Acres of Vegetation Management implemented in riparian areas by activity in the Chattahoochee-Oconee National Forest during FY 2013 to FY 2016

Activity within 100 Feet of a riparian areas in acres (Acres)	Fiscal Year			
	2013	2014	2015	2016
Broadcast Burning	0	0	0	89
Certification of Natural Regeneration without Site Prep	0	3	0	0
Certification - Planted	13	0	0	1
Chipping of Fuels	0	5	0	0
Commercial Thin	44	32	23	0.1
Control of Understory Vegetation	0	0	5	0
Control of Understory Vegetation- Burning	0	0	0	4
Fill-in or Replant Trees	7	2	0	0
Inland Fish habitat fertilization - Area	0	2	0	0
Invasive - Mechanical /Physical	47	171	119	0
Invasive - Pesticide Application	35	96	24	47
Natural regeneration - prescribed fire	4	0	0	0
Plant Trees	1	8	0.4	0
Plantation Survival Survey	0	1	7	1
Pollinator habitat improved, restored or maintained	0	0	0	218
Pre-commercial Thin	0	0	12	13
Pre-commercial thinning for visual	0	7	0	0
Range Control Vegetation	2	18	19	15
Range Fertilization	0	16	31	15
Range Forage Improvement	0	0	2	0
Range Seeding and Planting	0	0	0	15
Seeding grasses, forbs and/or shrubs	0	0	2	0
Shelterwood Preparatory Cut (EA/NRH/NFH)	0	0	5	0
Site Preparation for Planting - Burning	1	0.01	0	0
Site Preparation for Planting - Chemical	0	0	0.4	0
Site Preparation for Planting - Manual	0.01	0	0	0.03
Stocking Survey	27	10	4	8

[13] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

Table 4.3.1: Acres of Vegetation Management implemented in riparian areas by activity in the Chattahoochee-Oconee National Forest during FY 2013 to FY 2016				
Activity within 100 Feet of a riparian areas in acres (Acres)	**Fiscal Year**			
	2013	**2014**	**2015**	**2016**
T&ES non-structural improvement	0	0	0	7
Thinning for Hazardous Fuels Reduction	0	0.2	0	0
Tree Release and Weed	6	19	15	299
TSI Certification - Thinning	3	0	0	0
Two-aged Stand Clearcut (w/res) (2A/RH/FH)	0	0	0	0
Under-burn - Low Intensity	3,519	3,513	3,636	2,887
Visual Rehabilitation	0	0.4	0	0
Watershed Resource Road Closure - Area	0	0	4	0
Wildlife Habitat Activities	15	0	0	0
Wildlife Habitat Chemical treatment	0	0	19	19
Wildlife Habitat Improvement	0	0	0.1	0
Wildlife Habitat Mechanical treatment	0	0	10	4
Wildlife Habitat Pre-commercial thinning	0	4	0	0
Wildlife Habitat Prescribed fire	73	155	3	100
Wildlife Habitat Rehabilitate openings	0	0	2	0
Wildlife Habitat Slash treatment	0	1	0	0
Total	**3,795**	**4,063**	**3,943**	**3,742**

MQ 5: What is the status and trend in aquatic habitat conditions in relationship to aquatic communities?

Elements

5.1: Conditions and trends in the overall health of streams.

5.2: Trends in water quality parameters and physical habitat conditions in relationship to aquatic communities.

The Forest completed in 2014 Acid Neutralizing Capacity (ANC) and other water quality parameters in 10 streams in every sixth level HUC where National Forest ownership is greater than 25% on the Chattahoochee National Forests. Results indicated that there was not a problem with stream losing neutralizing capability and becoming acidic as has happened in some Great Smoky Mountain National Park streams.

In recent years the Forest along with its' partners have focused on improving brook trout habitat on the Forest. A summary of this work can be found under Monitoring Question 7. In addition to this work the Forest has had success in replacing road stream crossing to improve Aquatic Organism Passage (AOP). Further information on watershed conditions can be found under Monitoring Questions 15 and 16.

MQ 6: What are status and Trends of Forest Health Threats on the Chattahoochee/Oconee National Forest?

Information

These monitoring questions (MQ 6.1 and MQ 6.2) are responsive to goal numbers 41.

Element

6.1: Conditions and trends of forest fuels.

6.2: Hazardous fuels treated through Wildland fire use, prescribed fire, and mechanical treatment.

Preparedness and hazardous fuels personnel achieved 37,376 acres of hazardous fuels reduction during the 2013 fiscal year; 33,353 acres during FY 2014; 33,398 acres during FY 2015 and 33,032 acres during FY 2016. An additional 11,914 acres during FY 2013; 20,568 acres during FY 2014; 15,076 during FY 2015 and 11,561 acres during FY 2016 were treated on adjacent lands under Community Protection Grant funding. The total acreage for prescribed fire was 50,532 for FY 2013; 55,379 for FY 2014; 48,874 for FY 2015 and 48,799 for FY 2016 (Table 6.1). The majority of these treatments occurred from late January to early April. The Southern Region has allowed forests to set self-imposed targets. Through this means a forest can treat additional acres until the Region reaches its overall target acres for the fiscal year. From FY 2013 to FY 2016 the Chattahoochee-Oconee NFs had a goal of reaching 30,000 acres in prescribed fire treatments.

Table 6.1: Different treatment by Fiscal Year (2013 to 2016) by acres in the Chattahoochee-Oconee National Forests

Treatments	FY13	FY14	FY15	FY16	Total
	Acres				
1. Prescribed Fire-Hazardous Fuels	37,376	33,353	33,398	33,032	137,159
2. Prescribed Fire-Wildlife	1,242	1,138	169	1,424	3,973
3. Prescribed Fire-KV	0	320	231	2,782	3,333
4. Community Protection Grants	11,914	20,568	15,076	11,561	59,119
5. Mechanical Treatment	0	3.9	286	149	439
Total Prescribed Acres	**50,532**	**55,379**	**48,874**	**48,799**	**203,584**

Table 6.2: Different treatment by Fiscal Year (2013 to 2016) and by acres in the Conasauga and Blue Ridge Ranger District

Treatment	**Conasauga Ranger District**				**Blue Ridge Ranger District**			
	FY13	**FY14**	**FY15**	**FY16**	**FY13**	**FY14**	**FY15**	**FY16**
	Acres				**Acres**			
1. Prescribed Fire-Hazardous Fuels	4,370	4,817	6,804	6,582	4,928	7,155	2,757	4,522
2. Prescribed Fire-Wildlife	482	1,138	169	0	0	0	0	0
3. Prescribed Fire-KV	0	98	169	482	0	0	0	95
4. Community Protection Grants	2,880	2,452	1,786	1,441	886	1,089	2,164	1,349
5. Mechanical Treatment	0	3.9	6.4	0	0	0	0	0
Total Prescribed Acres	7,732	8,505	8,928	8,505	5,814	8,244	4,921	5,966

Table 6.2: Different treatment by Fiscal Year (2013 to 2016) and by acres in the Chattooga River and Oconee Ranger District								
Treatment	**Chattooga River Ranger District**				**Oconee Ranger District**			
	FY13	FY14	FY15	FY16	FY13	FY14	FY15	FY16
	Acres				Acres			
1. Prescribed Fire-Hazardous Fuels	6,627	9,367	4,180	5,515	21,451	12,014	19,657	16,413
2. Prescribed Fire-Wildlife	0	0	0	0	760	0	0	1,424
3. Prescribed Fire-KV	0	0	0	0	0	222	62	2,205
4. Community Protection Grants	450	2,428	559	383	7,698	14,599	10,567	8,388
5. Mechanical Treatment	0	0	0	0	0	0	280	149
Total Prescribed Acres	7,077	11,795	4,739	5,898	29,909	26,835	30,286	28,430

Element
6.3: Trends in the amount of air pollutants and their effects on forest vegetation, particularly ozone susceptible species.
6.4: Compliance with NAAQS air particulate emissions from NF lands

Results: Air quality information has been updated for all monitoring sites near the Chattahoochee-Oconee National Forests. Ozone and fine particulate ($PM_{2.5}$) levels continue to remain below the National Ambient Air Quality Standards (NAAQS).

Ambient Air monitoring Information: The two criteria pollutants of most interest to Forest managers are ozone and fine particulate matter. The Georgia Environmental Protection Division (GEPD) operates a network of air quality monitors statewide (http://www.gaepd.org), both for fine particulate matter ($PM_{2.5}$) and ozone. Air quality monitoring for particulate matter includes both fine and coarse particulates. Although from a human health standpoint, fine particulates are of the most concern. The statewide monitoring network is not distributed uniformly across the state and most monitors are concentrated near urban areas. Countywide summarized ozone and particulate matter data can be found at https://www.epa.gov/outdoor-air-quality-data.

National Ambient Air Quality Standards (NAAQS): There are NAAQS for six air pollutants; but in the eastern US, ozone and fine particulates cause the most concern. Each state maintains a monitoring network designed to track attainment of the ozone and fine particulate standards. It is important to note that the NAAQS for 8-hour average ozone level was decreased from 0.075parts per million (ppm) to 0.070 ppm in 2015.

The EPA is required to re-assess the standards every five years based on most recent scientific research, and as a result, more stringent standards may be proposed in the future. In December 2012, the EPA revised the fine particulate ($PM_{2.5}$) NAAQS and decreased the annual standard from 15 ug/m^3 to 12 ug/m^3.

Ozone: The following graphs show the ozone concentrations at monitoring sites closest to the Chattahoochee-Oconee National Forests (https://webcam.srs.fs.fed.us/maps/). The measured concentrations for the years 2012-2016 at sites near the Chattahoochee and Oconee National Forests are compared to the ozone NAAQS (Figure 14 and Figure 15).

Note: For the last several cycles of three year-averages, all eight ozone monitors closest to the Chattahoochee-Oconee National Forests show 3-year averages below the NAAQS.

State Ozone Monitoring Locations Near Oconee National Forest: There is one ozone monitoring site in Macon, GA, which is in Bibb County. This is approximately 99.4 miles south of the Oconee Ranger District Office, located in Gainesville, Georgia. Another state monitor is located in Athens, which is

located in Clarke County, Georgia. This is approximately 34.7 miles southeast of Gainesville. A third monitor is stationed in Sandy Springs, which is in Fulton County near Atlanta. This monitor is approximately 39.2 miles southwest of the Supervisor's office in Gainesville. The fourth monitoring location is in August, Georgia, which is in Richmond County. This monitor is approximately 118 miles east-southeast of Gainesville.

State Ozone Monitoring Locations Near Chattahoochee National Forest: One ozone monitor is located near the Cohutta Wilderness Area; which is in Murray County, Georgia. This monitoring location is approximately10.9 miles northeast of the Conasauga Ranger District Office, located in Chattsworth, Georgia and approximately 37.6 miles west of the Blue Ridge Ranger District, which is in Blairsville, Georgia. Another state monitoring location is in Dawsonville, Georgia which is in Dawson County. This monitor is approximately 32.1 miles south-southwest of Blairsville and also approx. 43.8 miles southeast of Chattsworth. The third monitoring location is at the Coweeta Hydrologic Lab in Otto, NC in Macon County. This monitor is approximately 31.7 miles east-northeast of Blairsville and approximately 23 miles north of the Chattooga Ranger District Office in Lakemont, Georgia. The Seneca monitor, which is located in Oconee County, South Carolina is approx. 25.2 miles east of Lakemont, GA.

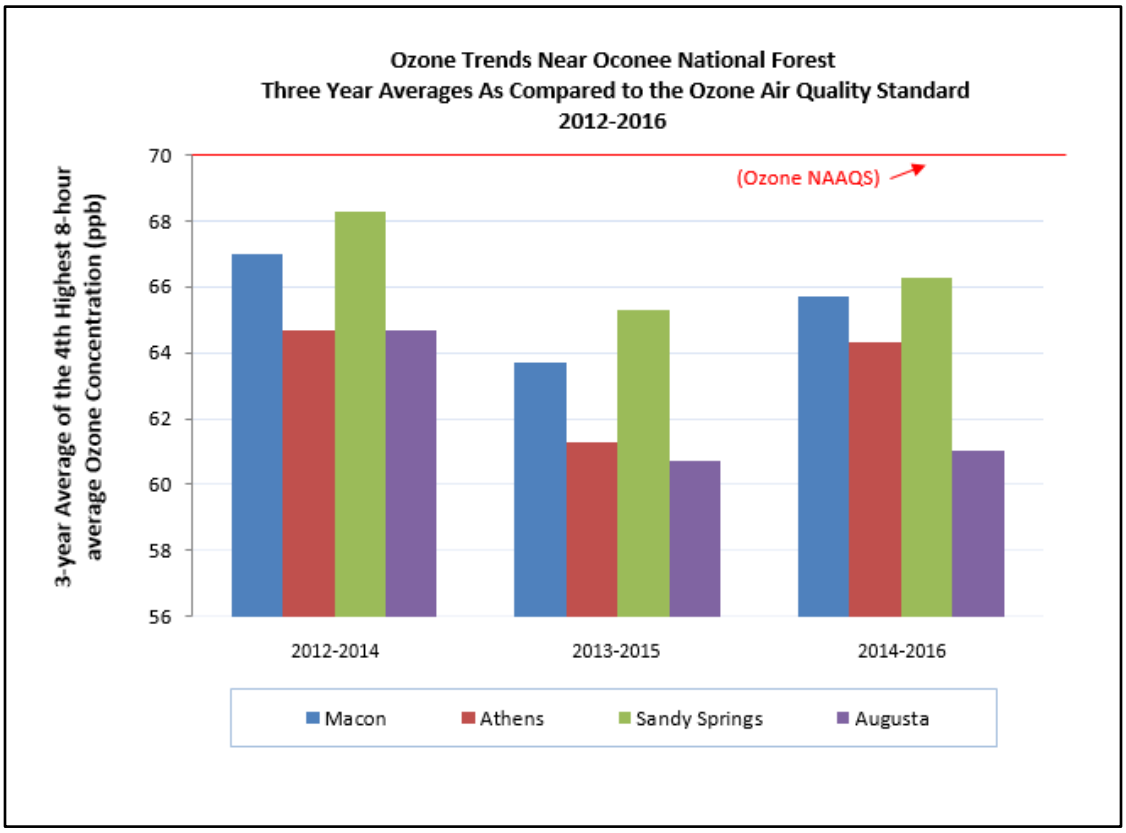


Figure 14: Ozone trends near the Oconee National Forest (2012-2016)

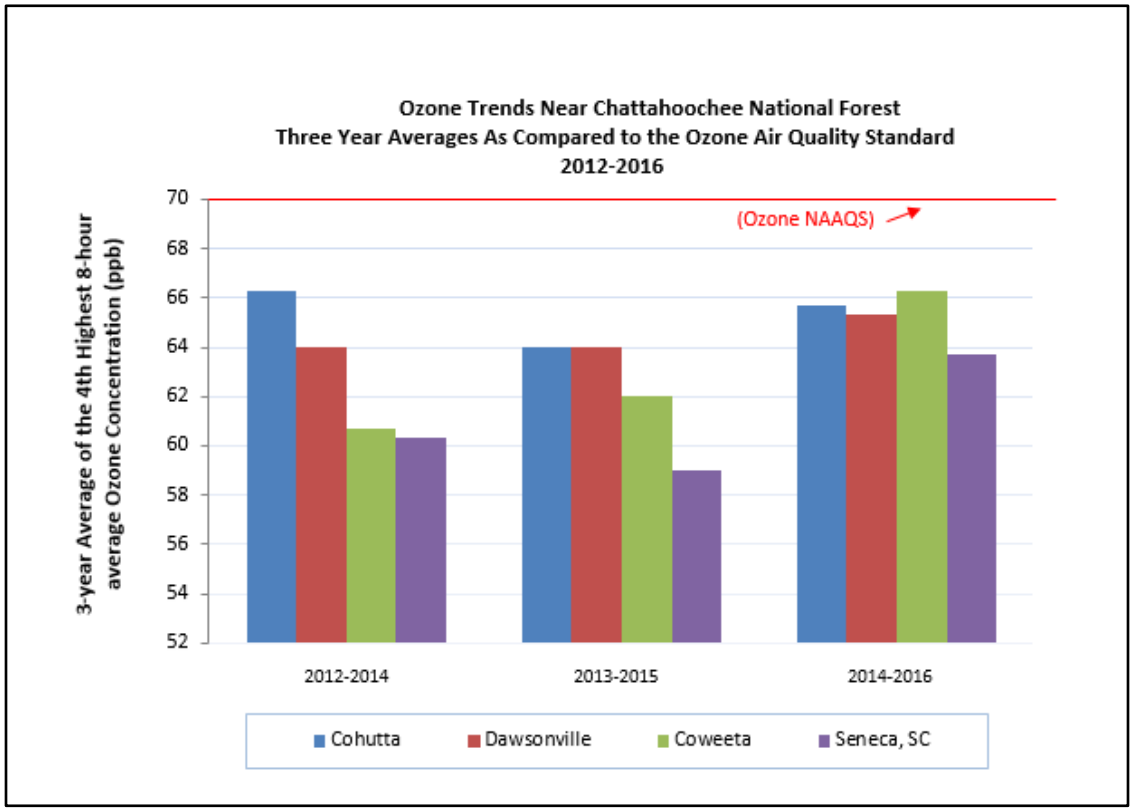


Figure 15: Ozone trends near the Chattahoochee National Forests (2012-2016)

Effects on Vegetation: Air quality impacts to sensitive flora can be caused by both acute and chronic exposures to elevated concentrations of ground-level ozone. If annual ozone exposures remain high, then the long-term effects may lead to a reduction in photosynthesis and ecological impacts.

The graphs below provide a historical summary of the two ozone exposure indices (N100 and W126) over the past 15 years for the Cohutta Wilderness Area (Figure 16). The N100 is the number of hours greater than or equal to 0.100 parts per million. The W126 is a weighted function, where the results place a greater emphasis on peak concentrations and the values decrease to zero below 0.020 ppm.

The annual W126 results in the first graph below show three summaries (bars) of the data and these include: 1) the three consecutive months with the greatest W126 using 24 hours of available data, 2) the three consecutive months with the greatest W126 using 12 hours of available data between 0800 - 1600, and 3) a rolling three year average of the 12-hour W126 results. The red line in the W126 and N100 graph is the 24-hour concern threshold that (when both are exceeded for a specific year) experimental trials have predicted a 10 percent or greater loss in biomass.

Yellow poplar is found near this monitoring location and controlled experiments have shown this ozone sensitive species is predicted to have 10 percent biomass reduction if both the W126 and N100 thresholds are exceeded (Lefohn, 1998). The 24-hour W126 threshold is 14.5 ppm-hours and the N100 threshold is 4 hours. The combined 24-hour W126 and N100 for each year between 2010 and 2014 the threshold was not exceeded. Therefore, no biomass reductions are predicted for yellow poplar due to ground level ozone in the Cohutta Wilderness.

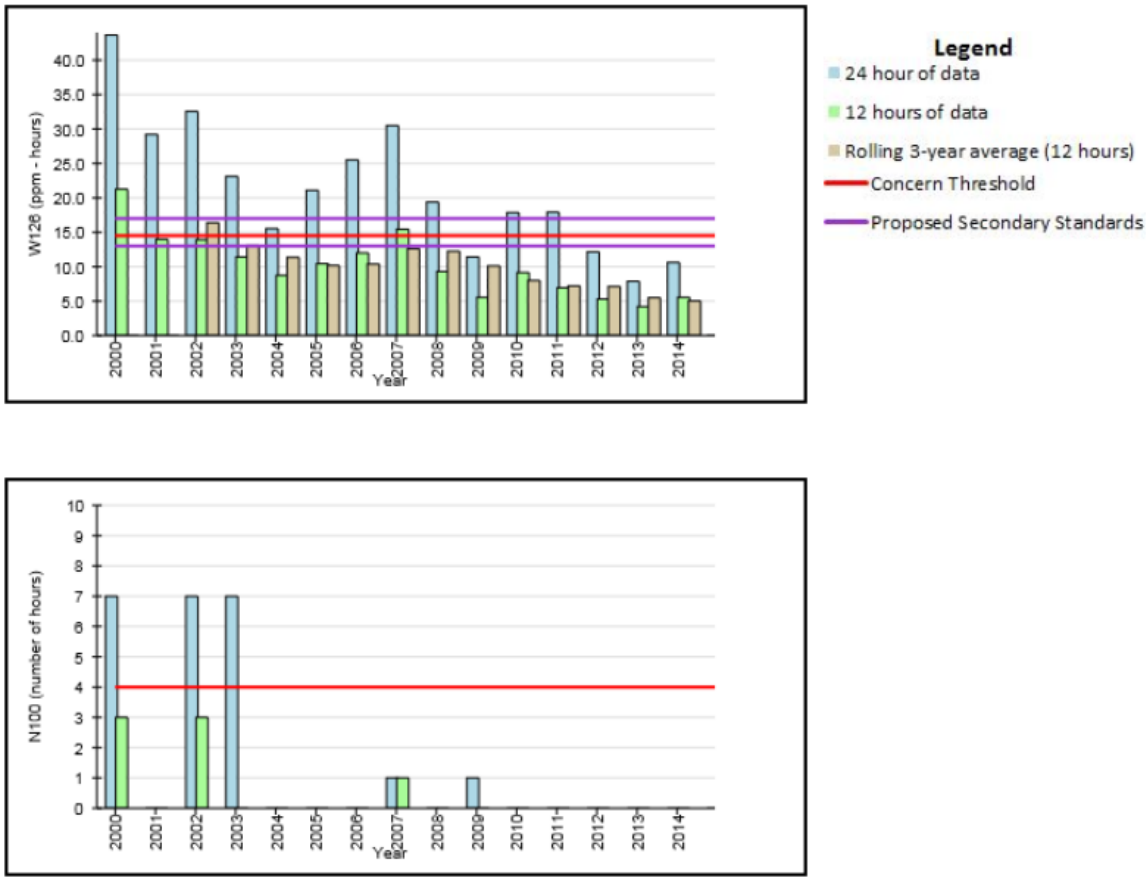


Figure 16: Ozone exposure indices; W126 (top) and N100 (bottom) (2000-2014)

Fine Particulate Matter: Fine particulate matter is defined as airborne particles with diameters less than or equal to 2.5 microns, or $PM_{2.5}$. These very small particles remain suspended in the air much longer (on average) than the larger (PM_{10}) particles and behave more like a regional air pollutant.

The $PM_{2.5}$ particulate standard has two parts; the 24-hour or daily standard and the annual standard. The 24-hour standard is 35 ug/m^3 and the annual standard is 12 ug/m^3. In order to attain these standards monitoring data must show that:

1) the 98th percentile of the distribution of the 24-hour concentrations for a period of 1 year, averaged over 3 years, does not exceed 35 ug/m^3 and
2) the three-year running average of the annual arithmetic mean of the 24-hour concentrations does not exceed 12 ug/m^3.

Note: both the Annual and 24-HR 3yr averages are below the NAAQS for the Oconee/Chattahoochee National Forests (Figure 17).

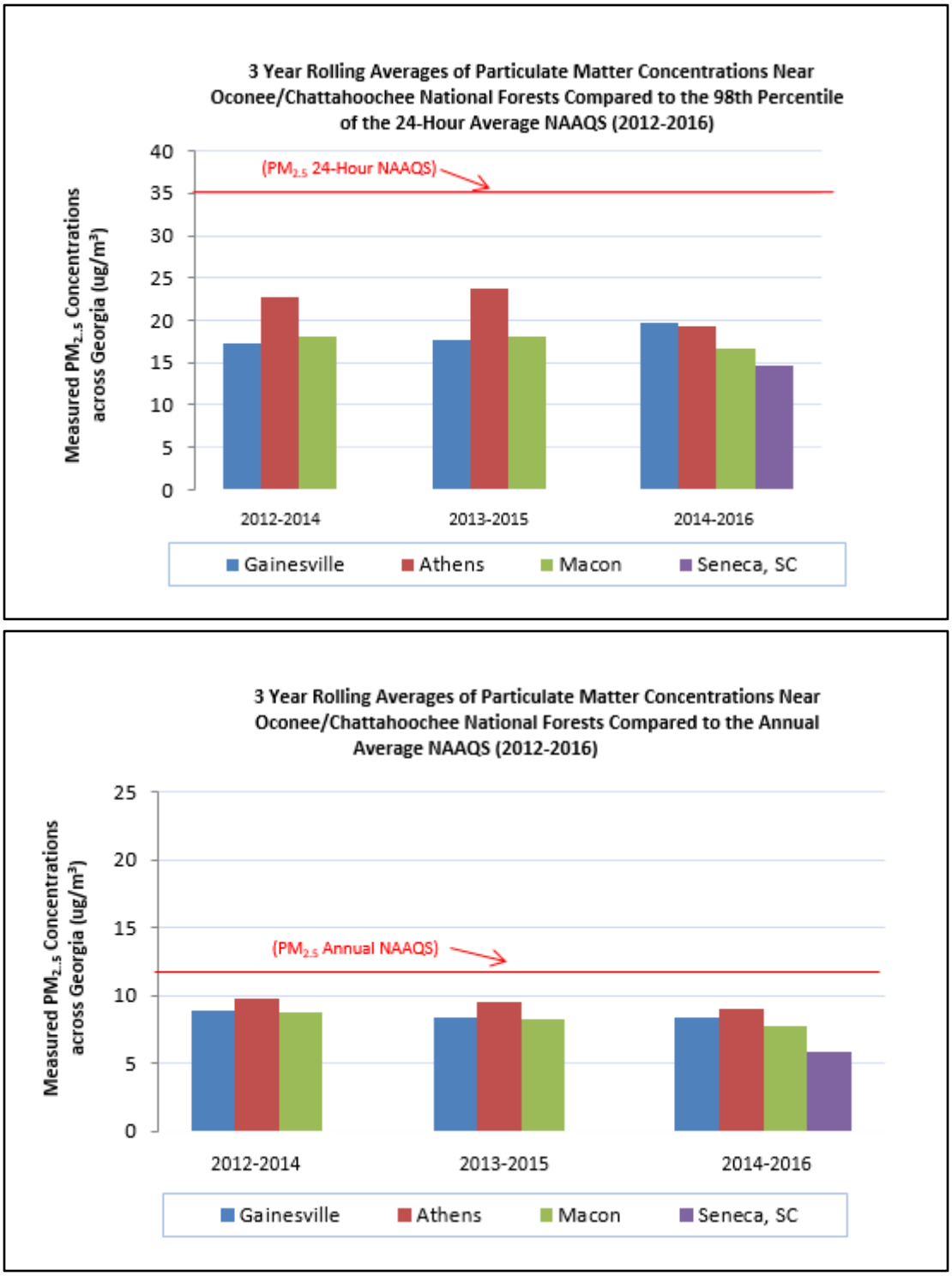


Figure 17: 24-Hr (top) and Annual (bottom) average PM2.5 concentrations compared to the NAAQS (2012-2016)

Prescribed Fire and Particulate Matter: Prescribed fires release large quantities of both fine and course particulate matter, for a short duration, into the atmosphere. During the calendar year of 2016, the Chattahoochee-Oconee National Forests burned roughly 33,000 acres in accordance to their prescribed burning program. The following graph shows the measured fine particle matter concentrations near the Chattahoochee-Oconee National Forests in comparison to both the annual and 24-hour average NAAQS (Figure 18). None of the four fine particulate matter monitors near the Chattahoochee or the Oconee

National Forest have exceeded the fine particulate NAAQS from 2013-2016. The Environmental Protection Agency (EPA) is required to re-assess the standards every five years, and as a result more stringent standards may once again be proposed sometime in the future.

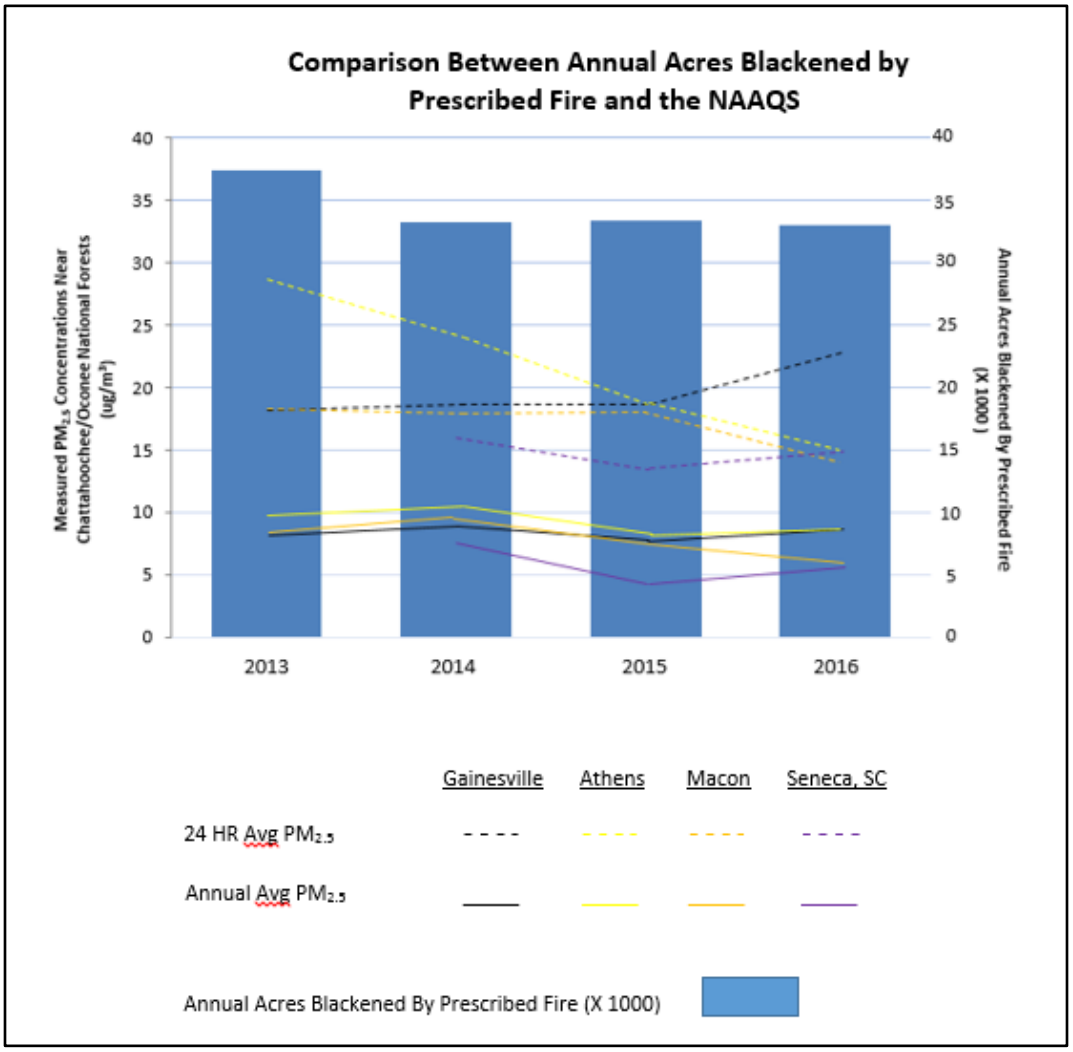


Figure 18: PM2.5 concentrations from prescribed fire compared to NAAQS (2013-2016)

Acid Deposition: Acidic deposition of sulfates and nitrogen compounds from anthropogenic sources can negatively impact sensitive ecosystems. These compounds can acidify soil and surface waters, affect nutrient cycling and impact the ecosystem services provided by forests. Sulfates and nitrogen compounds are deposited in precipitation (known as wet deposition), as well as particulates and aerosols (known as dry deposition), or directly from clouds/fog vapor.

In the United States, there are many locations where measurements are taken of wet deposition, as opposed to dry or cloud deposition. However, not all National Forests or wildernesses are monitored directly. For this reason, statistical models, using monitored wet acidic deposition, precipitation amounts, and topographic data are being used to provide a spatial estimate of wet acidic deposition for the eastern United States (Grimm and Lynch, 2004).

Since 1983, the following has occurred near the Chattahoochee National Forest:

Wet Sulfate: Deposition has decreased on average about 0.5654 kilograms per hectare (kg/ha) each year. (Figure 19). The graphic for wet sulfate deposition is:

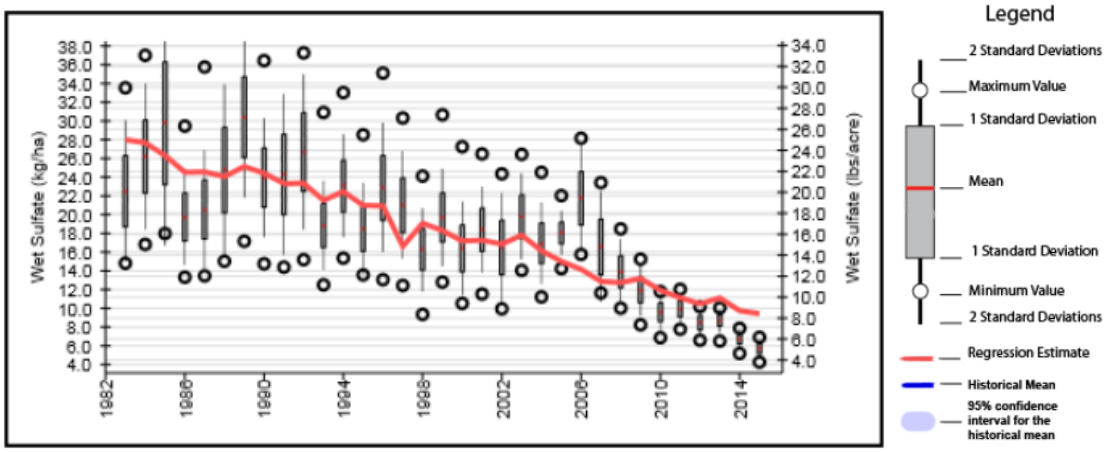


Figure 19: Wet sulfate deposition trends (1983-2015)

Wet Total Nitrogen: Deposition has decreased on average about 0.0325 kg/ha each year (Figure 20). The graphic for wet sulfate deposition is:

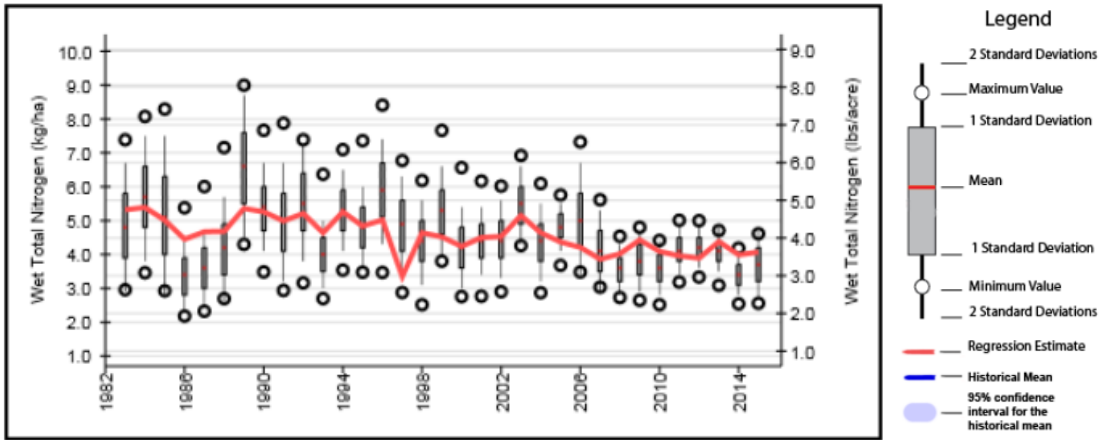


Figure 20: Wet total nitrogen deposition trends (1983-2015)

Since 1985, the following has occurred near the Oconee National Forest:

Wet Sulfate: Deposition has decreased on average about 0.3587 kilograms per hectare (kg/ha) each year (*Figure 21*). The graphic for wet sulfate deposition is:

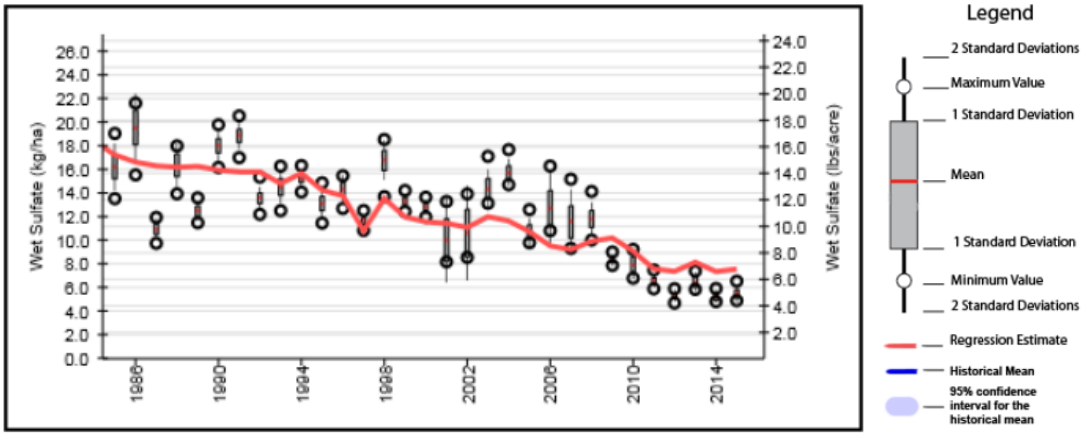


Figure 21: Wet sulfate deposition trends (1985-2015)

Wet Total Nitrogen: The wet total nitrogen trend could not be determined because one or more multiple regression assumptions were not met, or the coefficient for the year and/or precipitation predictor was not significant. Therefore, the graphic below shows the historical mean of the annual wet total nitrogen deposition of 3.3 kg/ha with the true mean between 3.12 and 3.58 kg/ha for 95% the time (Figure 22).

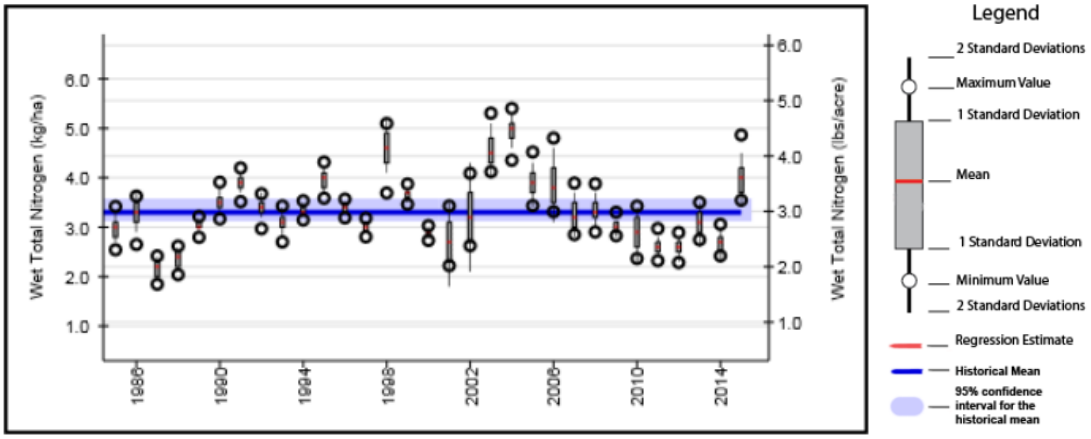


Figure 22: Wet total nitrogen deposition trends (1985-2015)

Element
6.5: Trends in native insect and disease effects.

Information

This element of MQ6 is responsive to Goal 40, Objective 40.2.

Objective 40.2: Annually monitor populations and trends of southern pine beetle.

Results

Southern pine beetle (SPB) activity is annually surveyed by state agencies and the U.S. Forest Service across the Southern Region using ground and aerial surveys. Additionally, prediction trapping surveys are conducted at selected sites across the Region each year, including sites located on the Chattahoochee-Oconee National Forests

Two counties had southern pine beetle outbreaks in Georgia. McIntosh County reported the first outbreak in March 2016, which is very early for southern pine beetle in Georgia. The initial spot was 75 acres and was a spot that started the previous winter. This area experienced a very mild winter, which enabled the southern pine beetle to overwinter due to the mild conditions; this allowed for an early start for this

infestation in 2016 and a very rapid spread. In late May two spots were reported in Charlton County, a 53 acre and a 25 acre infestation, that resulted in a 227 acre harvest to control the southern pine beetle infestation before it could spread across the tract. Several additional spots were reported in the same area, however, the first report was for the largest spot in Charlton County.

Local Georgia Forestry Commission foresters worked closely with landowners to help find loggers to assist in mitigating the damage due to southern pine beetle. Two landowner information meetings were held to educate the public about the pest. A total of 110 landowners attended the meetings, and timber buyers and consultants were present to help assist landowners with their questions and concerns.

Multiple spots were found to be inaccessible on Georgia's islands which made it difficult to conduct salvage efforts following the outbreak. Where feasible, the timber was salvaged, but in most cases the method used to help control the outbreak was "cut and leave." In some cases the area was in wilderness and nothing at all was done.

On November 8, 2016 Paul Merten, USDA Forest Service reported 139 Southern Pine Beetle infestations in Jasper, Putnam, and Jones Counties on the Chattahoochee - Oconee National Forests and surrounding private landowners. The Forest Health staff in north and central Georgia was notified of this possible outbreak. Ground and aerial surveys began on November 9, 2016 with the Georgia Forestry Commission Air Operations section working in cooperation with the Forest Health staff. Both USDA Forester Service and Georgia Forestry Commission personnel surveyed the areas to determine the extent of damage and cause of the outbreak.

Findings

The Forest needs to continue its cooperation with prediction trap surveys assembled by state agencies and the U.S. Forest Service, Forest Health Protection unit.

The Forest needs to implement **Objective 40.4**, which includes rating all National Forest stands for existing and future hazard levels related to southern pine beetle (and other forest pests). A formal field in the Forest corporate stand layer database (FSVeg Spatial) will need to be created and maintained to store the hazard rating information for each stand.

Element

6.6: Trends in the number of occurrences and/or acreage of selected non-native species?

Information:

This element of MQ6 is responsive to Goal (39, 40, and 43).

Objective 39.1: Develop species-to-site relationships for nonnative invasive species to predict their probably locations within five years of Plan implementation.

Results

Inventories of non-native invasive species have been part of botanical surveys for the past years. Also, additional survey efforts for NNIS have focused on roads and wilderness area. For the inventories and treatments in the TESP/IS database through FY2012, 25% of the area surveyed was infested with at least one priority species. In FY2011 and FY2012, 310 acres have been treated at least once. Multiple treatments are often required to control a site.

In general, NNIS plants are found on roads and trails. Other species occur in areas where they were likely planted along roadside, wildlife openings, and temporary roads. Nepal grass and privet appear to be increasing along riparian areas as well once introduced. Naturalized species such as Japanese honeysuckle have naturalized at low densities across the landscape. Other species were planted along most roads and wildlife openings such as sericea lespedeza and tall fescue.

New invasive species were found and treated. For example, fig buttercup (*Ranunculus ficaria*) was found in Sosebee Cove and treated. Japanese climbing fern (*Lygopodium japonicum*) was also located on the Forest in small patches and treatment continues.

Findings

The Forest needs to continue updating the TESP/IS database with legacy data to better understand the distribution of species across the Forest.

Element

6.7: Trends in forest composition and condition that have been associated with epidemic insects and diseases.

Information
This element of MQ6 is responsive to Goal 40, Objective 40.1

Objective 40.1: Maintain forest-stocking levels at no more than 'fully stocked' for the species, age, and site quality with priority for treatment given to those vegetation communities at highest risk of insect and disease attack.

- Reduce stem density on an annual average of 3,500 acres of overstocked loblolly pine stands less than 30 years old on the Oconee during the first 10 years of Plan implementation.
- Reduce stem density on an annual average of 1,500 acres of overstocked loblolly pine stands less than 30 years old on the Chattahoochee during the first 10 years of Plan implementation.
- Reduce stem density on an annual average of 1,500 acres of overstocked shortleaf pine stands less than 30 years old on the Chattahoochee during the first 10 years of Plan implementation.

Results

Table 6.7.1: Total acres loblolly pine and shortleaf pine thin by National Forest and by Fiscal Year

	Year									
	2005	2006	2007	2008	2009	2010	2011	2012	Total	FLRMP 10 yr. Obj.
	----Acres Accomplished----									
Chattahoochee: Thin Loblolly Pine	162	135	194	549	337	978	559	1,230	4,144	15,000
Chattahoochee: Thin Shortleaf Pine	0	0	137	160	333	323	16	2	971	15,000
							Total		**5,115**	**30,000**
Oconee: Thin Loblolly Pine	92	1,431	2,472	1,764	1,222	785	1,896	1,792	**11,454**	**35,000**

Table 6.7.2: Total acres loblolly pine and shortleaf pine thin by National Forest and by Fiscal Year

	Year					
	FY 2005 to FY 2012	2013	2014	2015	2016	Total	FLRMP 10 yr. Obj.
	----Acres Accomplished----					
Chattahoochee: Thin Loblolly Pine	4,144	842	1,012	580	393	6,971	15,000
Chattahoochee: Thin Shortleaf Pine	971	0	0	0	86	1,057	15,000
Total	**5,115**					**8,028**	**30,000**
Oconee: Thin Loblolly Pine	**11,454**	1,125	1,089	437	197	**14,302**	**35,000**

Findings

While the Forest has treated a significant amount of acreage in support of forest health Objective 40.1, acres accomplished and future planned treatments are still well below the 10 year goal for this objective on the Chattahoochee (46 percent).

Likewise, treatments to maintain forest health on the Oconee have been significant during the last twelve years, but current accomplishments (41 percent) are still below the 35,000 acre goal for Objective 40.1. The Oconee Forest Health and Wildlife Habitat Improvement Project (OFHWHIP) includes plans to treat an additional 39,000 acres for forest health objectives.

MQ 7: What are the status and trends of federally-listed species and species with viability concerns on the forest?

Information

This monitoring question is responsive to goals numbers 1, 2, 3, 4, 5, 7, 8, 12, 13, 15, 16, 17, 18, 19, 22, 23, 26, 44, 45, 51 and 72.

Element

7.1: Population trends in Red Cockaded Woodpecker as an indicator of effectiveness of management on recovery of the species

Approximately 52,000 acres of the Oconee National Forest (Oconee) in Jasper and Jones Counties is part of the Sub- HMA being managed under the guidelines of the Red-cockaded Woodpecker Recovery Plan (USFWS, 2003). In 1985, the Oconee had 25 cluster sites (11 active, 15 inactive) with all but one of the active cluster sites on the Hitchiti Experimental Forest. From 1985 until 1996 the thinning of pine stands continued although not all units were within the Sub-HMA. Due to appeals from Sierra Club and Georgia Forest Watch further thinning of pines and related silvicultural treatments within these mature pine stands did not get approved for management until 2004. The table of harvested acres 2004-2016 on the Oconee reflects that thinning of mature pine stands has made a difference in RCW management. This has allowed the improvement of foraging and nesting habitat. The Oconee thinned mature pines along the corridor near the Piedmont National Wildlife Refuge and this resulted in an increase in the number of active clusters. Thinning of mature stands along with improving the foraging and nesting habitat has maintained and increased the number of active clusters to show that the population is stable and slightly increasing on the Forest.

Current population information during FY 2016 reflects that 29 clusters are now active with an additional 3 inactive recruitment stands. Of the 29 active clusters 23 supported a potential breeding group; we have one single bird and the other groups nested producing 20 fledglings. Work on approximately 6,774 acres within the Sub- HMA has been accomplished since 2004. Thinning of these acres both within the mature sites as well as adjoining pre-commercial thinning has contributed to a stable population and growth.

Table 7.1.1: Number of red-cockaded woodpecker clusters and acres of prescribed burning on the Oconee National Forest from 1985-2016.

Year	Active Clusters	Inactive Clusters	Acres Burned
1985	11	15	500
1986	10	16	750
1987	11	15	1000
1988	11	15	1000
1989	12	14	1000
1990	12	14	3629
1991	12	14	3484
1992	13	13	2891
1993	16	10	2800

Table 7.1.1: Number of red-cockaded woodpecker clusters and acres of prescribed burning on the Oconee National Forest from 1985-2016.

Year	Active Clusters	Inactive Clusters	Acres Burned
1994	16	10	1988
1995	16	10	1517
1996	13	13	5021
1997	16	10	14,480
1998	18	8	19,828
1999	16	10	24,532
2000	19	7	28,704
2001	17	9	15,183
2002	16	10	13,161
2003	15	10	15,157
2004	14	11	18,135
2005	16	9	13,244
2006	14	25	16,442
2007	18	34	16,962
2008	18	34	9100
2009	19	33	16,796
2010	19	33	18,764
2011	22	30	20,684
2012	24	28	22,000
2013	24	28	11,500
2014	26	8	22,000*
2015	29	6	20,000
2016	29	3	19,000

Remarks: *Many of the inactive sites that we had prior to 2014 have been deleted due to no activity in 7 or more years. Since 2004 we have been placing inserts and recruitment areas with Stewardship projects. We did have at one time 52 sites. These are located within the Sub- HMA and funded by Stewardship Project dollars after the SPB infestation. Some of the areas have not yet been thinned optimal habitat was completed to attract the RCW. We have revisited all 52 sites and evaluated them down to having a total of 32 cluster sites with 29 of them active at this as of this year.

Element
7.2: Population trends in smooth coneflower as an indicator of effectiveness of management on recovery of the species.
Information

This monitoring question is responsive to Goals 15 and 18.

Objective 15.1: states that smooth coneflower populations will be maintained through protection and maintenance of existing sites, and will be expanded by improving and/or increasing available habitat with the assistance of reintroduction efforts.

Objective 18.1: Cooperate with the USFWS, Georgia Department of Natural Resources, academia and the Georgia Plant Conservation Alliance (GPCA) to develop a management plan for the smooth coneflower over the next 3 years.

Results

The number of smooth purple coneflower (*Echinacea laevigata*) known occurrences has declined since 2004. Trend in abundance cannot be determined since sampling has differed by timing, methods, and level of effort. Census data from the 2017 Report was compared to data from 2000/2001 or early data. Population changes were assessed as follows:

- Maintaining (plant were present) – 12 sites
- Decrease (no plants observed) – 5 sites
- Extirpated (based on USFWS 5-Year Review from 2010) – 3 sites
- Unknown (sites not visited) – 6 sites

Most sites are small with only a few individuals with only 4 occurrences have more than 50 rosettes in 2012/2013. From 2000 to 2010, Georgia Plant Conservation Alliance out planted to 5 sites and helps to maintain the safeguarding sites. Survival data was analyzed in FY2014 as part of the GPCA safeguarding database development.

In 2007, a habitat management plan was developed with USFWS. The plan identifies a potential coneflower management area over approximately 25,270 acres. Habitat management continues to occur. All but 2 sites are in prescribed burn units. Both growing (2 sites) and dormant (5 sites) season prescribed burns occurred in the habitat in 2012. Initial response was an increase in the number of basal rosettes and flowers counted in 2013. Other management actions include hand thinning and removal of woody sprouts.

Findings

A standard protocol for inventory and monitoring smooth purple coneflower should be developed and implemented. Habitat management will continue and focus on reduction of overstory canopy cover in surrounding habitat and removal of re-sprouting hardwoods in 2014. GPCA will continue to maintain the safeguarding sites.

Element

7.3: Status and trends in selected birds and their associated habitats.

The status and trends of selected bird indicator species are discussed under Monitoring Questions 2 (Element 2.2 to 2.5) MQ #3 (Element 3.2 to 3.9 and 3.12), MQ #7 (Element 7.1, 7.4 to 7.10). As discussed in those Monitoring Question cited above the CONF has made only limited to moderate progress towards the habitat, restoration, and maintenance objectives that are important to birds. In many cases, past accomplishments combined with unimplemented/future proposals are far below specified acres for Plan objectives on the CONF.

Element

7.4: Status and trends of cerulean warbler.

Cerulean warblers breed in mature and older deciduous forests with broken canopies (Hamel, 2000 and La Sorte et al., 2007). The Breeding Bird Survey indicates this species has a significant decreasing trend in the survey area from 1966 to 2011 (Sauer et al., 2017).

In 1995, strong winds generated by Hurricane Opal damaged the forest canopy along Ivylog and Gumlog ridges in Union County. The disturbance created desirable habitat for cerulean warblers and their numbers increased dramatically afterwards. There were believed to be up to 30 breeding territories along the two ridges after the disturbance (Schneider et al. 2010). Over time the canopy gaps created by Opal have closed in and there are considerably less than 30 pairs now (Wentworth: personal communication, 2012). The Forest also did a small scale (<100 acres) canopy gap treatment in the mid 1990's and cerulean warblers were documented using 7 of 10 stands in the first 4-5 years after treatment. Many of those

canopy gaps have since begun to close in and just a few birds have been observed in the area the last few years.

Bird monitoring survey data from the Chattahoochee-Oconee National Forests shows that since the mid 1990's only one cerulean warbler has been counted during bird point surveys since the Forest Plan was signed (Figure 23). The Forests have not achieved Forest Plan targets for canopy gap creation which would benefit this species.

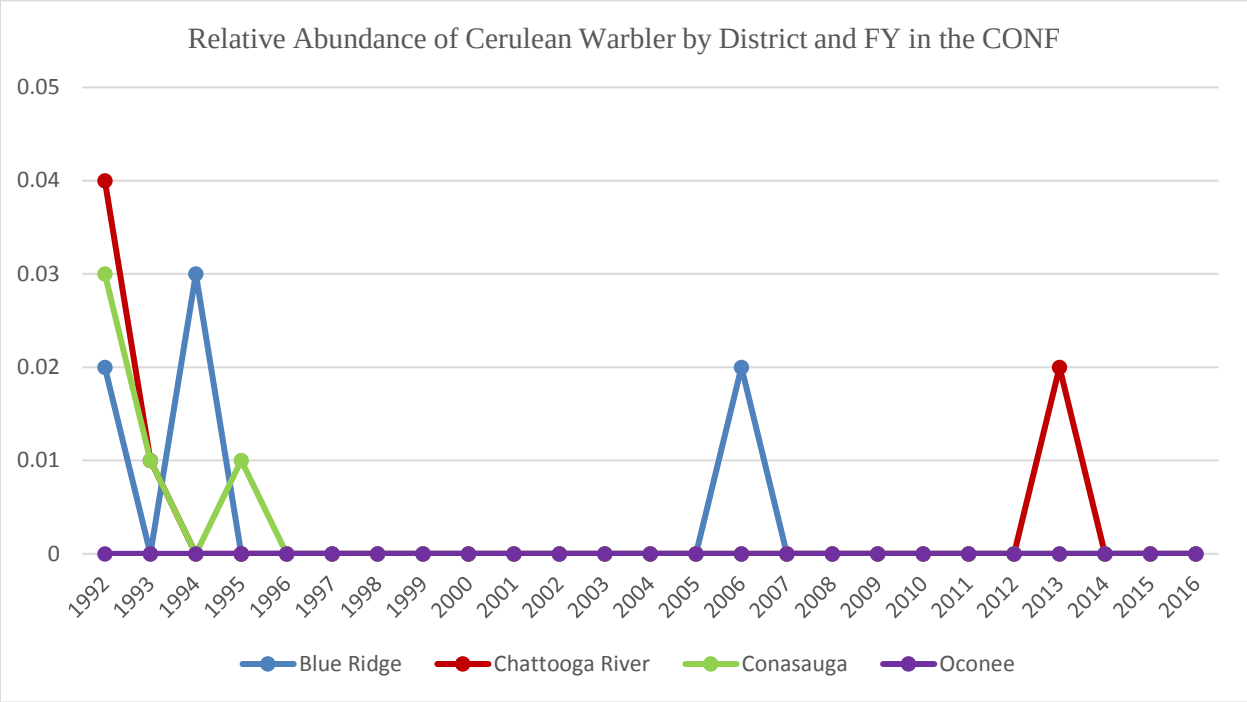


Figure 23: Relative abundance[14] of Cerulean Warbler occurrences by Fiscal Year in the BRRD (Blue Ridge Ranger District), CRRD (Chattooga River Ranger District), CRD (Conasauga Ranger District) and ORD (Oconee Ranger District).

Element
7.5: Status and trends of golden winged warbler.

The golden-winged warbler is a migratory songbird whose populations have severely declined over much of its range in recent decades. It breeds in southern Canada, the Northeast and North Central United States, and the Appalachian Mountains south to northern Georgia. The only remaining breeding population of the golden-winged warbler in Georgia is on the Brawley Mountain area in Fannin County.

The Blue Ridge Ranger District, in cooperation with Georgia DNR and National Aududon's Georgia Important Bird Areas Program initiated project to enhance habitat for golden-winged warblers at Brawley Mountain. As a result, a Forest Stewardship project was awarded to the National Wild Turkey Federation in 2010. The Brawley Mountain project involves the use timber harvest, prescribed burning, selective herbicide application, cultural treatments, and native grass plantings to create approximately 400 acres of open oak woodland conditions favored by this species. To create open canopy conditions, the overstory was reduced to approximately 20 BA on the ridges and 30-60 BA on the side slopes. The project was completed under a Stewardship Agreement with the National Wild Turkey Federation. Timber harvest on the site began in the fall of 2011 and was completed in the spring of 2014. The area has been divided into 3 burn blocks and prescribed burning rotation was begun in 2014. Prescribed burning will continue on a

[14] Relative abundance is calculated by dividing the number of occurrences by the total number of survey points.

3-5 year rotation to reduce woody sprouts, to promote the establishment of native grasses and other herbaceous species and further develop the desired habitat conditions.

Annual bird population monitoring is conducted to evaluate the effectiveness of the on golden-winged warblers and another associated bird species. To date, golden-winged warbler populations remain extremely low (1-2 breeding pairs) but with continued management on the site, a more positive response is anticipated.

Element
7.6: Status and trends of selected aquatic biota.

Since 2007, the Forest has worked with the GA DNR and the Georgia Council of Trout Unlimited to restore native brook trout on the Chattahoochee National Forest. The partnership is called the Georgia Back-the-Brookie Partnership and the partnership has used the Georgia Brook Trout Conservation Strategies outlined in the Conserving the Eastern Brook Trout: Action Strategies (Eastern Brook Trout Joint Venture) as a guide for the restoration work.

During FY 2017, the Forest continued it long-standing partnership with the Georgia DNR and the Georgia Council of Trout Unlimited to enhance aquatic habitat conditions on the Forest, with an emphasis on native Brook Trout habitat. A summary of the aquatic work activities done over the last 4 years (2014-2017) on the Blue Ridge and Chattooga River Ranger Districts included:

- Improved trout habitat on approximately 22 miles in 11 streams. The majority of the streams were brook trout streams but some also contained rainbow and brown trout. This included approximately 4 miles of "chop and drop" treatment in Tuckaluge Creek to increase the quantity of large wood debris (LWD) in the stream.
- On Frick Creek and Pretty Branch, perched culverts that were barriers to aquatic passage were replaced with bottomless arch structures to allow movement by native brook trout.
- Native brook trout were restored in reaches of 4 streams by the removal of non-native trout.
- Georgia DNR continue the annual population and water temperature monitoring on selected trout streams on the Forest.
- Georgia Council of Trout Unlimited continued to host the annual weeklong Trout Camp for 24 children aged 12 to 15. Campers spend one day of camp helping install habitat improvement structures.
- Recycled plastic pallets were placed in Lake Nottley, Lake Chatuge, and Lake Russell to enhance fish cover and angler success.
- Stream habitat surveys were completed for 37 streams and road crossing surveys to assess aquatic passage issues were completed in 4 watershed by personnel from the Center for Technology Transfer.

A summary of the aquatic habitat improvement work on the Conasauga RD from 2014-2017 is described below:

- The Forest Service has continued to enhance spawning habitat for the federally-listed blue shiner (Cyprinella caerulea), by installing 4-6 artificial spawning structures each year in the Conasauga River. A variety of partners (the Nature Conservancy, US Fish and Wildlife Service) have assisted with this work.
- Lake and pond habitat has been improved annually by fertilization and periodically by the addition of lime. The dams on Murray's Lake and Tails Creek Pond have been repaired. Spawning and cover structures have been added to Lake Conasauga.
- Trout habitat has been improved by the addition of instream structures and large woody debris on Rock Creek (Murray County) and Johns Creek (Floyd County). Stocking tubes to facilitate trout stocking have been constructed on Johns Creek. This work has been accomplished with the assistance of Trout Unlimited.

- On two tributaries of Tumbling Creek (Walnut Creek and an unnamed tributary), culverts that were barriers to aquatic passage were replaced with bottomless culverts.
- Illegal off-road vehicle access to streams and sources of sedimentation were eliminated in several areas by the addition of fencing, boulders, or berms (West Armuchee Creek, Mooneyham Branch, Johns Creek, and several others).

Element
7.7: Status and trends of selected bat communities.

In 2010, the Forests partnered with the Southeastern Bat Diversity Network and the GA DNR to help host a Bat Blitz on and around the Conasauga Ranger District. Sites on state and federal land in the area were surveyed and that data is available although no trends can be detected from this information as it was an intensive one-time sampling effort.

In 2010, the Forest also began running acoustic survey routes annually to detect trends in bat communities, but at this time the software to analyze the data is still being revised so there is some uncertainty in the results. However, the Forest is archiving this data and when the software updates are complete we will be able to analyze the information more thoroughly.

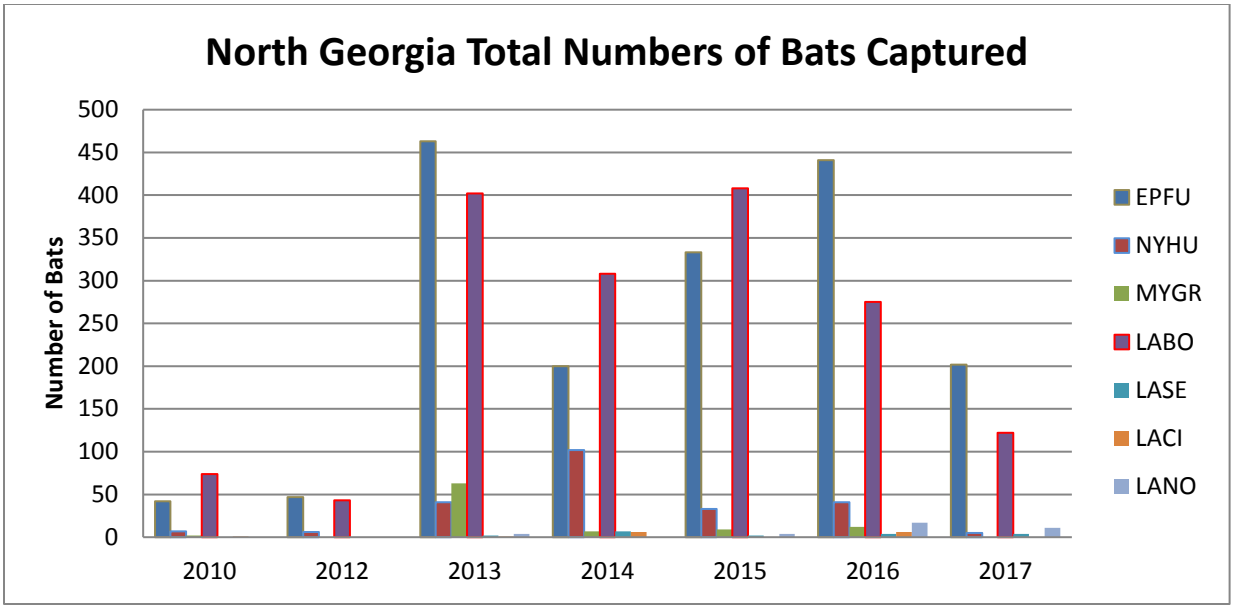
In 2012, a federally endangered Indiana bat was radio tracked from a cave in Tennessee to state land near Elijay, GA. Since then the Forest has been working with GA DNR and USFWS to complete mist nesting along with acoustic surveys, but not enough information has been obtained to monitor trends on the Forest. However, with the spread of White Nose Syndrome (WNS) many species of bats are suffering range wide declines. WNS was discovered in Georgia in 2013.

The Forest signed on May 9, 2017 a DN/FONSI updating standards for federally listed bat species. This decision added 7 new standards and modify 2 standards to Chapter 2 of the Forest Plan.

In the table and figure below you will find information about the total bats captured in North Georgia

Table 7.7.1: Total Bats Captured in North Georgia from 2010 to 2017

Common Name	Code	2010	2012	2013	2014	2015	2016	2017
Big Brown Bat	EPFU	42	47	463	200	333	441	202
Evening Bat	NYHU	7	6	41	102	33	41	5
Gray Myotis	MYGR	2	0	63	7	9	12	0
Eastern Red Bat	LABO	74	43	402	308	408	275	122
	LASE	0	0	2	7	2	4	4
Hoary Bat	LACI	1	0	1	6	0	6	0
Silver-haired Bat	LANO	0	0	4	0	4	17	11



Element
7.8: Status and trends of selected plant communities

Information

This monitoring question is responsive to goals numbers 1, 2, 3, 4, 5, 7, 8, 12, 13, 15, 16, 17, 18, 19, 22, 23, 26, 44, 45, 51 and 72.

Results/Findings

Sphagnum bog communities containing the rare purple pitcher plan and sheep laurel are increasing in size and habitat quality due to management discussed in Monitoring Question #1.

Eleven (11) species are the focus of mountain bog restoration and safeguarding of which 5 have increased in the number of mountain bog sites. Mountain bog restoration and safeguarding of rare plants is a high priority of the Georgia Plant Conservation Alliance using volunteers and other partnerships. Atlanta Botanical Garden and State Botanical Garden of Georgia provide plant material, technical expertise and monitoring for these rare plants.

Species	Status	2004	2012	2016
Swamp pink (*Helonias bullata*)	Federally listed – threatened	Safeguarded – 1 bog	Safeguarded – 3 bogs	Safeguarded – 3 bogs
Cuthbert's turtlehead (*Chelone cuthbertii*)	R8 Sensitive	Naturally occurring – 1 bog	Naturally occurring – 1 bog Safeguarded – 2 bogs	Naturally occurring – 1 bog Safeguarded – 2 bogs
Small spreading pogonia (*Cliestesiopsis bifaria*)	R8 Sensitive	Naturally occurring – 1 bog	Naturally occurring – 1 bog	Naturally occurring – 1 bog
Fraser's loosestrife (*Lysimachia fraseri*)	R8 Sensitive	Naturally occurring – 1 bog	Naturally occurring – 1 bog	Naturally occurring – 1 bog
White fringeless orchid (*Platanthera integrilabia*)	R8 Sensitive Candidate	Naturally occurring – 1 bog	Naturally occurring – 1 bog	Naturally occurring – 1 bog
Fraser sedge (*Cymophyllus fraserianus*)	Locally rare	Augmented natural occurrence – 1 bog	Augmented natural occurrence – 1 bog	Augmented natural occurrence – 1 bog

Sheep laurel (*Kalmia 53anadens*)	Locally rare	Augmented natural occurrence – 1 bog Safeguarded – 1 bogs	Augmented natural occurrence – 1 bog Safeguarded – 2 bogs	Augmented natural occurrence – 1 bog Safeguarded – 3 bogs
Fringeless purple orchid (*Platanthera peramoena*)	Locally rare	Naturally occurring – 1 bog	Naturally occurring – 1 bog	Naturally occurring – 1 bog
Canada burnet (*Sanguisorba 53anadensis*)	Locally rare		Safeguarded – 1 bog	Safeguarded – 1 bog
Purple pitcher plant (*Sarracenia purpurea* var. *montana*)	Locally rare	Augmented natural occurrence – 1 bog Safeguarded – 2 bogs	Augmented natural occurrence – 1 bog Safeguarded – 4 bogs	Augmented natural occurrence – 1 bog Safeguarded – 5 bogs
Bog turtle (*Clemmys muhlenbergii*)	Threatened by similar appearance	Naturally occurring – 1 bog	Naturally occurring – 2 bogs Safeguarded – 1 bog	Naturally occurring – 2 bogs Safeguarded – 1 bog

Outplanting has been successful in establishing rare plant populations in the mountain bogs. In 2010, GPCA volunteers found natural recruitment of swamp pink and purple pitcher plant. Survivorship and seedling recruitment have continued to be documented as management efforts have continued and increased (Radcliffe, 2016).

- In 2012, survival rare for outplanted material of purple pitcher plant was 76%. 43 purple pitcher seedlings recruited in 2012 (Cruse-Sanders 2012).
- In 2012, survival rare for outplanted material of swamp pink was 88%. 33 seedlings recruited in 2011/2012 (Cruse-Sanders 2012).
- In 2016, documented survival rates for purple pitcher plant ranged from 60 – 100% in established sites (Radcliffe, 2016). Plants did not survive in one new site, but outplanting will retried there in 2018. Seedling recruitment has increased well beyond quantification. Plants will be added to another site in 2018.
- In 2016, documented survival rates for swamp pink ranged from 90 – 100% in established sites (Radcliffe, 2016). Seedling recruitment has increased beyond quantification. Plants will be added to another site in 2018.

The open woodland habitat containing the federally listed smooth purple coneflower and other rare plants such as Georgia aster, Fraser loosestrife and curly heads is being managed to expand the community. Prescribed burning and removal of encroaching vegetation by hand tools is being conducted to maintain and expand sites currently containing these species as discussed in MQ#1. As part of partnerships, the State Botanical Garden of Georgia (SBG) and Atlanta Botanical Gardens collected and grew species found in these and other rare communities. Local ecotypes for more common species such as native warm season grasses and pollinator-loving wildflowers are being developed in partnership with SBG. Some of the resulting plants have been planted back into appropriate sites, and these activities will continue. As a result of the cooperative management of these sites, it is expected that these communities will increase over the 10-year planning period.

Element
7.9: Status and trends of other federally listed and viability concern species.

Information

This monitoring question is responsive to goals numbers 1, 2, 3, 4, 5, 7, 8, 12, 13, 15, 16, 17, 18, 19, 22, 23, 26, 44, 45, 51 and 72.

Objective 15.1: list objectives for threatened, endangered, and candidate plantain to contribute to the recovery of threatened, endangered, and candidate plants.

Results

To review the status and trend of federally listed and viability concern species, the number of populations or occurrence found in 2012 and 2016 were compared to the known populations/occurrence in 2004. This comparison was done for threatened, endangered, and candidate plant species as listed in the table.

Table: Number of populations/occurrences of threatened, endangered, and candidate plant species from 2004, 2012 and 2016.

	Management Objectives	**Known Populations or Occurrences in 2004**	**Known Populations or Occurrences in 2012**	**Known Populations or Occurrences in 2016**
Smooth purple coneflower (*Echinacea laevigata*)	Increase/improve known sites and new introductions	25	22 & 5 safeguarding sites	22 & 5 safeguarding sites
Georgia aster (*Symphyotrichum georgianum*)	Increase by habitat improvement	4	9	9
Small-whorled pogonia (*Isotria medeolides*)	Maintain	32	33	33
Rock gnome lichen (*Gymnoderma lineare*)	Maintain	1	1	1
Persistent trillium (*Trillium persistens*)	Maintain	1	1	1
Relict trillium (*Trillium reliquum*)	Survey	0	1	1
Green pitcher plant (*Sarracenia oreophila*)	Increase by habitat improvement and introduction	1	Unknown	0
Swamp pink (*Helonias bullata*)	Increase by new introduction	1	3	3
Large flowered skullcap (*Scutellaria montana*)	Increase by new introduction	4	3	3
White fringeless orchid (*Platanthera integrilabia*)	Maintain	1	1	1

Small-whorled pogonia:

Small-whorled pogonia was selected for focused inventory and monitoring. The plant appears to be to be a mid-successional species, and research is still being conducted to determine if there are management regimes that would benefit this orchid. Plant numbers appear to decrease as the midstory matures, but conversely, increasing light to the area has been observed to increase competing vegetation such as poison ivy.

The number of sites has decreased from 32 sites in 2004 to 29 sites in 2012. Two of the largest sites, Bailey Creek and Blackwell Creek, continue to decline. In 7 sites, no plants have been observed in the last 5 years. The new four (4) sites that have been located since 2004 are all small with less than 10 individuals. Survey efforts in potential habitat have declined over the last decade.

In the known sites, monitoring results show a fluctuation in numbers of above ground shoots and fruiting year to year for the past 10 years, but there appears to be a downward trend in population sizes (Schmidt and Cruse-Sanders, 2013, draft report). Of the 10 sites identified for long-term monitoring, Keener Creek has not been visited since 2002. The remaining sites continue to decline in number of above ground shoots. Only 30% of the observed plants were reproductive. Causes of the declines may be due to a combination of factors such as a several-year drought and succession of the surrounding Forest. These populations are dynamic with plants being dormant for more than one year.

	Bailey Creek	Blackwell Creek	Bushyhead Gap	Cashes Valley	Cooper Creek	Flat Creek	Long Creek	Peter Knob	Woody Branch	Mulky Gap	Wildhog Creek
2003	48	39	1	45	4	10	5	21	6	-	-
2005	52	34	0	33	8	4	11	40	6	-	-
2010	21	8*	0	13	2*	1	-	27	2	-	-
2011	34	26	0	0*	4	1	12	13	6	-	-
2012	19*	14*	0	4	0	0		4	1	-	6
2013	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-
2016	30	5	0	3	0	0			1	0	2

*potentially incomplete count

In 2012, 63% of the tracked reproductive plants produced viable seed capsules (Richards and Sanders 2012). Although germination trails were not successful, viable embroyos were found in seed collected from the field. Seed was successfully stored to start development of an *ex situ* seed bank.

Findings

- Progress is being made toward Objective 15.1 for threatened, endangered, and candidate plants.
- Increases in the number of populations of Georgia aster are due to recent surveys identifying new populations on the Conasauga Ranger District and on the Chattooga River Ranger Districts in the Lake Russell Wildlife Management Area. Most sites are still restricted to roadsides or utility right-of-ways. In 2011, a cooperative project among National Forests (AL, GA, NC, and SC), USFWS, Atlanta Botanical Garden, NC Botanical Garden, and The Citadel investigated the genetics and long term seed viability.
- For small-whorled pogonia, the number of sites and number of plants at each site has decreased. A cooperative project with Atlanta Botanical Garden and University of Georgia is assessing monitoring data, seed vitality, propagation techniques, and model potential habitat and will be completed in 2014. In 2014, monitoring for prescribed fire effects at one site occurred. Future projects have been identified to improve small-whorled pogonia habitat in Bailey Creek.
- A standard protocol for inventory and monitoring smooth purple coneflower should be developed and implemented. Initial monitoring indicates a positive response from smooth purple coneflower by increased number of rosettes and flowers. Habitat management should continue and focus on reduction of overstory canopy cover in surrounding habitat and removal of resprouting hardwoods in 2014. The Habersham County population (Lon Lyons Rd. Site) needs to be actively managed and augmented if fruit set can be stimulated.

MQ 8: What are the trends for demand species and their use?

Information

This monitoring question is responsive to goals numbers 1, 2, 3, 4, 6, 7, 16, 26, and 72.

Element

8.1: Trends in harvest data for white-tailed deer and black bear in relationship to habitat improvement activities for those animals.

The black bear (*Ursus americanus*) symbolizes the wild qualities of Georgia. Prior to the eighteenth century bears were common in Georgia. However, habitat loss, unrestricted hunting and overall degradation of habitat because of human development contributed to a serious population decline. Wildlife management practices, improvements in law enforcement, and social changes all have contributed to the recovery of bear populations. In Georgia, we have 3 more/less distinct bear populations: 1) north Georgia associated with the Southern Appalachians 2) central Georgia along the Ocmulgee River drainage 3) southeast Georgia in/around the Okefenokee Swamp (*U. a. floridanus*) All three populations are believed to be either stable or slightly increasing (Figure 24) (Bond, 2009).

The bear population in north Georgia has been steadily increasing for at least 25 years. While the bear population has expanded to occupy most of what traditionally was deemed to be "suitable habitat," the human population and development have accelerated.

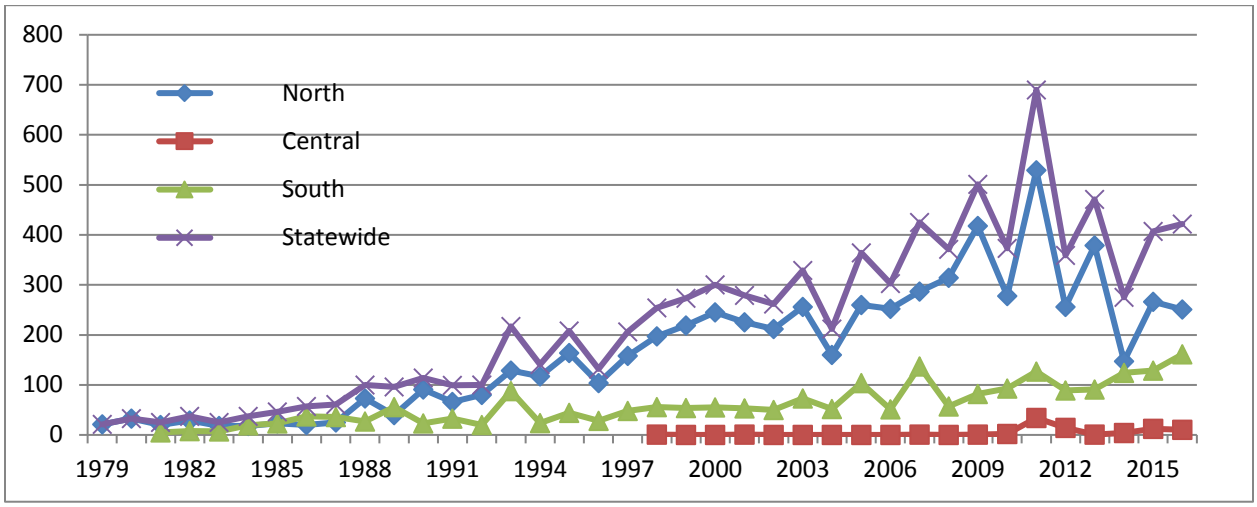


Figure 24: Bear Harvest in Georgia from 1979 – 2016

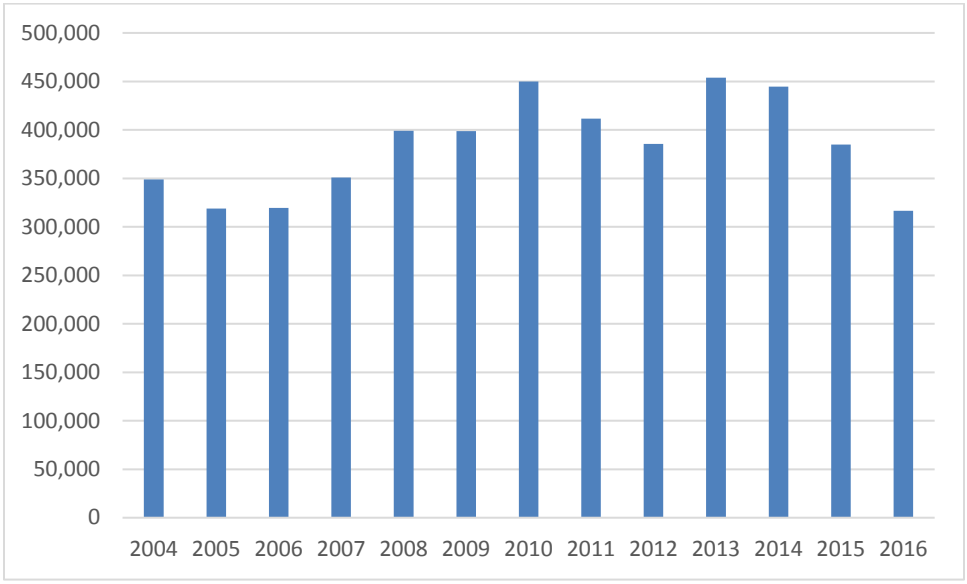


Figure 25: Total Deer Harvest in the State of Georgia by Fiscal Year.

The deer population is stable in south Georgia and has increased slightly in the northern portion due to lower buck and doe harvest last year. The piedmont region of Georgia holds the largest deer population in the state.

Element

8.2: Trends in the number of permits issued and harvest levels for selected special forest products.

The number of permit and harvest levels were compiled from the TIM database for all species forest products including fuelwood. Permits for pulpwood and sawtimber were included in the total number of permits.

Results

The total number permits issued has remain steady over the past four fiscal years (Table 8.2.1). The majority of the special forest product permits are issued for fuelwood (Figure 26). Botanical products included are ginseng, ramps, hay, sticks from trees and shrubs, locust posts, and miscellaneous dug plants and rootstocks.

Table 8.2.1: Total number of permit issued by the Chattahoochee-Oconee National Forest by Districts and by Fiscal Year from 2013 to 2016

District	FY13	FY14	FY15	FY16
Blue Ridge	215	157	191	157
Chattooga River	167	213	206	185
Conasauga	34	21	27	30
Oconee	21	25	28	16
Total	**437**	**416**	**452**	**388**

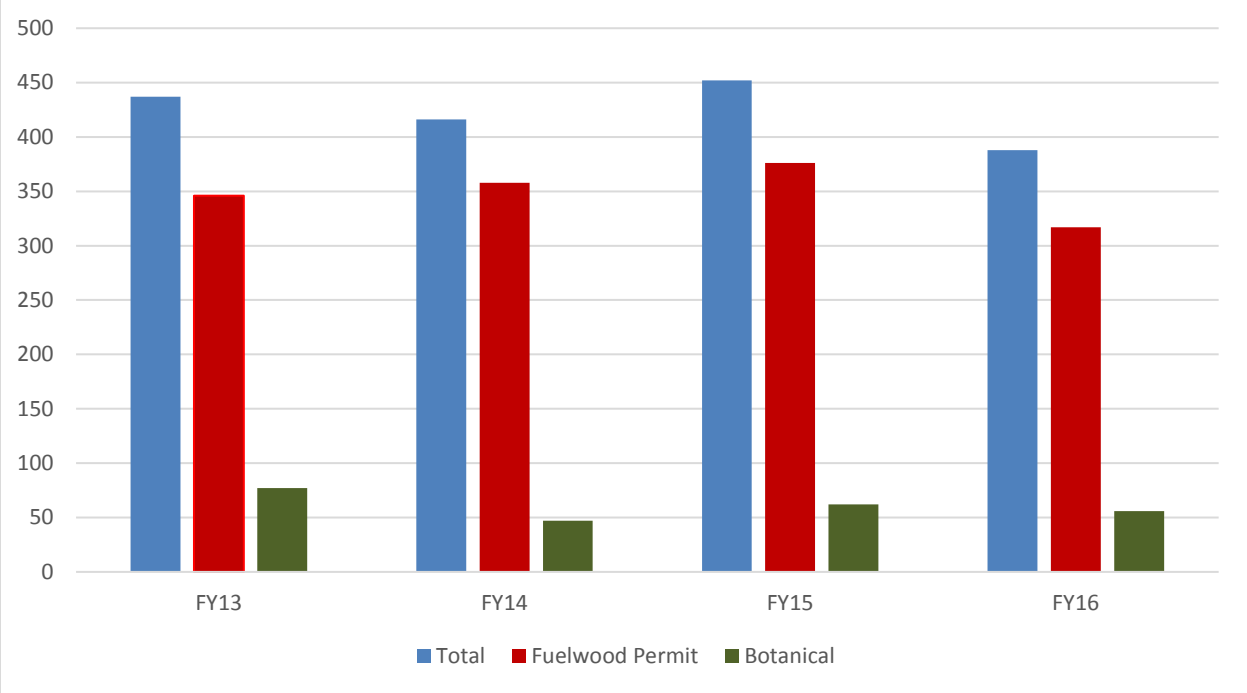


Figure 26: Total number of permit issued, Fuelwood permit and botanical permit by the CONF

Element

8.3: Fish stocking levels by type and location.

The Georgia Department of Natural Resources coordinates trout stocking in North Georgia. Fish for these efforts are raised at state hatcheries at Lake Burton, the Buford Hatchery below Lake Lanier and the USFWS Hatchery near Suches, Georgia. Table 8.3.1 show the total number of trout stocked on the Chattahoochee-Oconee NFs land. More information on the trout stocking program can be found at: http://www.georgiawildlife.com/Trout. This includes information on which streams are stocked and the frequency of stocking efforts.

The Forest also continues to work with the Georgia Department of Natural Resources and the Rabun Chapter of Trout Unlimited to implement trout stocking with a helicopter in reaches of the Chattooga River that are inaccessible by vehicle.

Table 8.3.1: Total number of trout stocked on the Chattahoochee-Oconee National Forests by FY (FY 2013 to FY 2016)	
Fiscal Year	**Total Number of Trout Stocked on CONF[15]**
FY 2013	525,122
FY 2014	545,888
FY 2015	516,701
FY 2016	512152

MQ 9: Are high quality, nature-based recreation experiences being provided and what are the trends?

Information

This monitoring question is responsive to goals numbers 14, 22, 23, 29, 30, 31, 35, 38, 46, 47, 65, 66, 77 and 80.

Element
9.1: Results and trends in user satisfaction ratings

The CONF conducted the National Visitor Use Monitoring (NVUM) survey in FY 2009 and FY 2014. These surveys evaluated user satisfaction in the areas of developed facilities, access, services and feeling of safety. Satisfied survey respondents range from 65.5% – 94.8% and 61.0% - 99.7% in the varying categories in FY 2009 and FY 2014, respectively (Table 9.1.1).

Table 9.1.1: Percent Satisfied Index[16] Scores for Aggregate Categories during FY 2009 and FY 2014

	FY 2009			FY 2014		
	Satisfied Survey Respondents (%)			Satisfied Survey Respondents (%)		
Satisfaction Element	**Developed Sites[17]**	**Undeveloped Areas (GFAs)**	**Designated Wilderness**	**Developed Sites**	**Undeveloped Areas (GFAs)**	**Designated Wilderness**
Developed Facilities	71.2	70.9	93.5	81.4	87.9	71.1
Access	92.5	88.1	90.8	87.9	81.9	82.3
Services	76.2	65.5	66.8	73.5	61.0	71.3
Feeling of Safety	94.8	93.2	92.9	96.1	98.9	99.7

In FY 2009 the total estimated site visits to the CONF was 2,094,000 and in FY 2014 was 2,921,000, this was an increase of approximately 827,000 in a five years period. A Site Visit is the entry of one person onto a National Forest site or area to participate in recreation activities for an unspecified period of time.

Element
9.2 Backlog of facility and trail maintenance needs and trends

The Natural Resource Manager (NRM) application documents all trail maintenance work and is updated annually. The collaborative initiative CoTrails has worked to assess and evaluate nearly all of the CONF trail system to document the current state of the trail system and its maintenance needs. The trails deferred maintenance needs on the CONF are well-documented.

Accomplishing deferred maintenance projects remains a challenge in the Trails Program due limited funding. However, due to programs like Recreation Trail Program (RTP) grants, ARRA, Legacy funds

[15] Source: Georgia Department of Natural Resources Catchable Trout Stocked on the Chattahoochee-Oconee NFs land from FY 2013 to FY 2016

[16] This is a composite rating. It is the proportion of satisfaction ratings scored by visitors as good (4) or very good (5). Computed as the percentage of all ratings for the elements within the sub grouping that are at or above the target level, and indicates the percent of all visitors that are reasonably well satisfied with agency performance.

[17] This category includes both Day Use and Overnight Use Developed Sites.

and a very dedicated trail volunteer workforce deferred maintenance projects are being accomplished albeit on a relatively small scale.

Based on the Deferred Maintenance Buildings Trend Analysis Report from our data warehouse (CDW) for the CONF it shows that in FY 13 there was $1,603,486 in Deferred Maintenance, and $1,327,611 for FY16, which is a difference of $275,875 in deferred maintenance. Table 9.2.1 and Figure 27 shows total budget for deferred maintenance for buildings from FY 2004 to FY 2016.

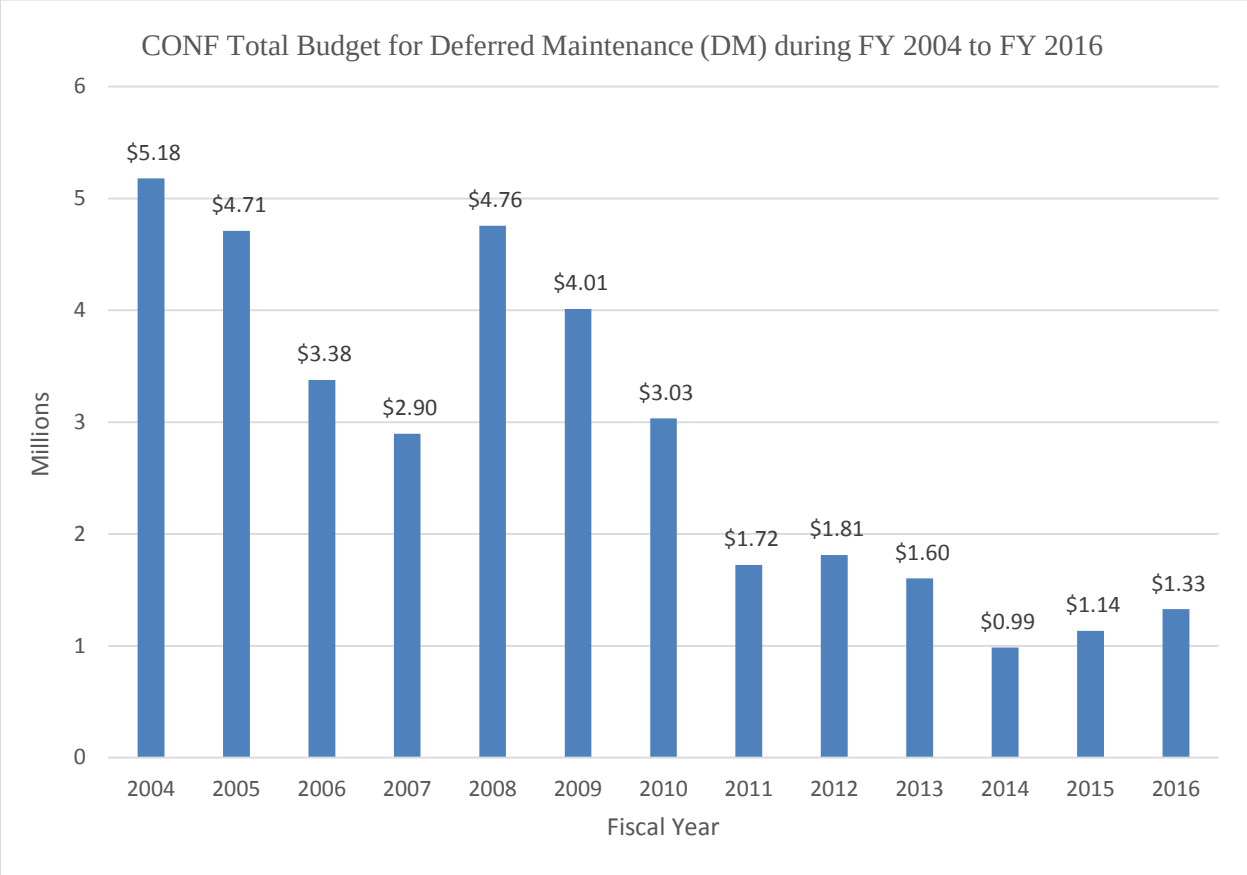


Figure 27: CONF Total Budget for Deferred Maintenance (DM) during FY 2004 to FY 2016

Table 9.2.1: Chattahoochee-Oconee NFs Total Budget for Deferred Maintenance (DM) during FY 2004 to FY 2016	
Fiscal Year (FY)	Total Budget for Deferred Maintenance
2004	**$5,178,940.77**
2005	**$4,711,490.77**
2006	**$3,377,550.00**
2007	**$2,897,175.00**
2008	**$4,756,251.93**
2009	**$4,012,723.21**
2010	**$3,032,536.71**
2011	**$1,723,848.39**
2012	**$1,811,765.99**
2013	**$1,603,486.70**

Table 9.2.1: Chattahoochee-Oconee NFs Total Budget for Deferred Maintenance (DM) during FY 2004 to FY 2016	
2014	**$ 985,313.29**
2015	**$1,135,146.74**
2016	**$1,327,611.48**

Element

9.3 Trends in health and safety associated with recreation programs

The Chattahoochee-Oconee National Forests continues to make improvements and necessary repairs of infrastructure in our developed facilities and trails programs to provide high-quality recreation opportunities. We underwent an extensive review of all the developed recreation sites during financial planning for sustainable recreation and identified a plan of action on how we will manage these sites in the future. One of our health and safety priorities across the forest is to continue to remove and replace aging chemical toilets that are difficult to maintain and repair. We have replaced many toilets with vault toilets that are built to have a 20 year life span, that are accessible and easy to maintain.

In addition, the Forest has implemented many of the recommendations from the professional trail assessments on over 500 miles of hiking, biking and equestrian trails. These assessments completed in 2011-2013 have become a valuable tool for prioritizing trail decommissioning projects, identifying sustainable trail reroutes and maintenance needs. From 2010 – 2015 funding within our trail program has reduced 5%. With help from volunteers and partners, and state RTP Grants we have accomplished the majority of recommendations and are working towards maintaining and designing sustainable trails in to the future.

Element

9.4 Changes in the amount and kinds of opportunities provided

The process continued in FY 16 to determine a priority investment list for developed recreation sites in the Chattahoochee-Oconee and Region 8. The development of this list will help the forest to determine priorities for addressing deferred maintenance and potentially decommissioning or reducing facilities that cannot sustained. These actions would be aligned with Goal 31 of the Revised Land and Resource Management Plan: "Provide a spectrum of high quality, nature-based recreation settings and opportunities that reflect the unique or exceptional resources of the Forest and the interests of the recreating public on an environmentally sustainable, financially sound, and operationally effective basis. Adapt management of recreation facilities and opportunities as needed to shift limited resources to those opportunities." (USDA-Forest Service. 2004c, page 2-31).

Element

9.5 Changes in accessibility of developed sites and facilities

Since 2009 CONF has constructed many facilities which meet accessibility guidelines. Below is a summary of these facilities.

Table 9.5.1: Type of facilities constructed that meet accessibility guidelines by recreation area and FY

FY	Recreation Area	Type of Facilities	Accessibility element
2010	The Pocket	CXT (Pre-cast Vault toilet)	Accessible parking space adjacent to building
2010	Frank Gross	CXT (Pre-cast Vault toilet)	Accessible parking space adjacent to building
2010	Lake Winfield Scott	CXT (Pre-cast Vault toilet)	Accessible parking space adjacent to building
2010	Mulkey	CXT (Pre-cast Vault toilet)	Accessible parking space adjacent to building
2010	Sarah's Creek (2x)	CXT (Pre-cast Vault toilet)	Accessible parking space adjacent to building
2010	Whissenhunt	CXT (Pre-cast Vault toilet)	Accessible parking space adjacent to building
2010	Brasstown Bald Parking Restroom	Restroom	Restroom, sidewalks, water fountain
2011	Lake Conasauga Campground	Restroom renovation (Upper Toilet)	Restroom

Table 9.5.1: Type of facilities constructed that meet accessibility guidelines by recreation area and FY			
FY	**Recreation Area**	**Type of Facilities**	**Accessibility element**
2011	Lake Conasauga Campground	Restroom renovation (Lower Toilet)	Restroom
2011	Lake Conasauga Day Use Area	Restroom renovation (Picnic Toilet)	Restroom
2012	Desoto Falls	CXT (Pre-cast Vault toilet) 2 campsites	Accessible parking space adjacent to building Fire rings, lantern posts, tables and pad
2013	Lake Sinclair	Restroom	Accessible parking space adjacent to building and building itself
2015	Cottonwood Patch Area	CXT (Pre-cast Vault toilet)	Accessible parking space adjacent to building
2016	Morganton Point	New bathhouse. Renovated 30 campsites to accommodate larger motor homes and added water and electricity.	Accessible parking space adjacent to building. Building is also accessible.
2016	Raven Cliffs	Boom (Pre-cast Vault toilet)	Accessible parking space adjacent to building

Element

9.6: User impacts, conflicts and effects within the A.T. Corridor

The AT corridor continues to be a popular hiking destination for day use, backpacking and thru-hiking opportunities. NVUM data shows hiking, backpacking and other activities common to the AT corridor have some of the highest participation rates across the Forest. AT shelter sites can be areas of user congestion and that concentrated use has impact on natural resources. In preparation for release of *A Walk in the Woods*, a film based on Bill Bryson's popular book about hiking the trail, the Southern Reginal Office of the Appalachian Trail Conservancy (ATC), Georgia Appalachian Trail Club (GATC) and the Forest Service (FS) drafted a visitor use monitoring plan that incorporated existing and future visitor impacts on the AT. This visitor management plan has been the foundation and guiding document for quarterly protecting the Appalachian Trail Experience (PATHE) meetings. Approximately 15 individuals consisting of ATC, GATC and FS meet to find solutions to develop strategies and tactics to achieve desired conditions of preserving the AT Visitors Experience. The group defines the Visitors Experience as: "Visitors to the AT in GA should expect a simple footpath, through diverse topography exposing the hiker to a variety of flora, fauna, and other natural resources". The environment challenges visitors to be responsible for their own safety and to prepare themselves physically and mentally for self-reliant backcountry recreation, including long distance hiking. The AT experience offers opportunities for solitude and camaraderie in addition to adventure, discovery, and connection with nature as a means of slowing down in a fast paced society." Further management direction for providing visitor experiences include:

"The PATHE Committee manages the trail as a simple footpath that lies lightly on the land, in accordance with the Appalachian National Scenic Trail Corridor (prescription area), as described in the Chattahoochee-Oconee National Forests Land and Resource Management Plan. Wilderness areas shall be managed to the standards detailed in the Wilderness Act and National Forest Land and Resource Management Plan. Management recommendations should be developed only to the extent necessary to protect the physical trail, its environment and the visitor's experience. Trail management actions should control incompatible activities through education and if necessary enforcement of laws and regulations" (June, 2017 PATHE Meeting).

MQ 10: What are the status and trends of recreation use impacts on the environment?

Element

10.1: Trends in illegal or unauthorized recreational uses observed and the effects of these uses.

Trends in the illegal use or unauthorized uses have gradually increased over the last few years. The Forest requires all ATV and OHV (unlicensed 4-wheeled drive vehicle) use occur on Forest designated ATV/OHV trails. However, sporadic illegal use has occurred in remote areas and close proximity of designated trails systems. Law Enforcement personnel and Forest Protection Officers have worked to curtail this activity. However, the activity is ongoing, but recognized as an issue to be dealt with.

In addition, some commercial use of trail systems, especially the Appalachian Trail, has been noted. The Forest is working to formalize guidelines for any commercial use related to a recreation event. Table 10.1 show the combined offenses by category on the CONF from FY 2013 to FY 2016. Table 10.2 show the top ten offenses in the CONF from 2013 to 2016.

Table 10.1: FY 2013 – 2016 Offense Stats – Combined Offenses By Category

	2013	2014	2015	2016
All Motor Vehicle Violations	786	866	751	519
All Alcohol & Drugs Offenses	278	357	248	184
All Occupancy & Use Offenses	497	807	846	661
All Sanitation Offenses	469	237	247	215
All Hunting Offenses	179	171	111	107

Table 10.2: TOP TEN Chattahoochee-Oconee NFs Offenses from 2013 to 2016

OFFENSE	2013	2014	2015	2016
Failure To Pay Any Recreation Fee Is Prohibited	133	99	49	57
Motor Vehicle Violations	411	365	258	245
Possessing Of An Alcoholic Beverage	209	251	178	119
Drug Possession/Production	20	13	18	54
Failing To Dispose Of All Garbage Into Receptacles	36	29	22	30
Hunting/ Trapping/ Fishing Violations	165	166	110	105
Parking Or Leaving A Vehicle In Violation Of Posted Instructions	293	390	535	376
Possess Or Use A Vehicle Off Nfs Roads	17	8	1	1
Damaging Any Natural Feature Or Other Property Of The United States	68	41	54	40
Sanitation (Littering)	324	125	170	127

Element

10.2: Recreation activities contribution to the degradation of terrestrial, aquatic, rare or riparian areas or adversely affecting water quality

The primary impact contributing to the degradation of unique habitats, riparian areas, and water quality are coming from user created trails associated with fishing access and developed trail systems that have not been maintained to standard. The forest has implemented a program where more than 500 miles of trails have received a trail assessment. These assessments have identified issues associated with the trails, including trail management in riparian areas, soil erosion concerns, and other problems related to lack of trail maintenance.

Many of the issues identified in the assessments have been accomplished and the forest will continue to resolve problems associated with water quality degradation, riparian zone protection and other issues.

The forest is utilizing a host of techniques to resolve these issues including decommissioning of dispersed campsites and trails, rerouting of trails identified in problem areas, increased maintenance of designated trails, and closing of undesignated trail systems. These projects are being assess on a site by site basis considering the following criteria: proximity to the water-source; grade of terrain; existing resource damage from camping and vehicles; safe parking location and access; sensitive, threatened or endangered plant/animal communities; and historic significance.

Element

10.3 Continued validity of Plan decisions regarding OHV use designations and determining whether an area is open or closed to OHV use.

The Locust Stake OHV area has been closed since 2012. An assessment was complete and we are awaiting the results. The sustainability of this trail system and impacts to soil and water quality is currently being evaluated.

The majority of the recommendations from the 2013 Beasley Knob OHV Environmental Assessment and Decision Notice (signed on February 28, 2013) have been implemented along this 10.6 mile trail system that include trail closures, heavy trail maintenance and trail expansions. Trail closures have been established to protect water quality and to close access to private property or FS gates where access is not desired. The trail is closed during and after inclement weather when resource degradation concerns are highest. The Beasley Knob DN was signed February 28, 2013; this decision also involved in amending a standard in the Forest Plan to allow moving forward with this project.

The CONF and some partners monitor historic road and OHV trail closures. Closures that have been breached are closed again.

MQ 11: What is the status and trend of wilderness character?

Information
These monitoring questions are responsive to goal numbers 31, 34, 35, 36, 37 and 38.

Elements:
11.1: Trends in Air Quality Related Values (AQRV) in Class I Wilderness areas (Water, Visibility)
11.2: Status and Trends of Visibility in Class I areas

Cohutta Wilderness Area:

Water: A wilderness air quality value (WAQV) is a "scenic, cultural, physical, biological, ecological or recreational resource, which may be affected by a change in air pollution …" (USDA Forest Service 2015).

The Cohutta Wildernesses lists both water and visibility as a WAQV. Too much acid deposition over time changes the water quality through acidification. To measure this change in the water quality we use a sensitive receptor indicator, which in this case is the stream acid neutralizing capacity (ANC).

Stream water chemistry is the by-product of dynamic nutrient pathways and chemical processes occurring within the contributing watershed environment. The atmosphere, soils, hydrology and biological interactions all contribute to stream chemistry.

Surface water acidification is measured as a reduction in ANC, which occurs when the concentration of strong-acid anions are greater relative to the concentration of base cations. If surface water ANC is sufficiently low, acidity may increase (as indicated by a decrease in pH) to a level associated with adverse effects on aquatic life (US EPA 2008) (Table 11.2.1).

The ANC characterizes the level of acidification and potential biological effects. The effects range from no impacts to complete loss of acid sensitive populations. The classification in Table 11.2.1 describes the expected biological response for a range of ANC categories (Bulger et al. 1998, Stoddard et al. 2003).

Hindcasting to 1860 (using a biogeochemistry model) predicted none of the five modeled streams in the Cohutta Wilderness had an ANC below 65 microequivalents per liter (µeq/L). In addition, one high elevation stream (low stream order) had an ANC above 100 µeq/L (Sullivan et al. 2017).

Table 11.2.1: Stream acidification classification and associated biological response

Classification	ANC (micro-equivalents per liter)	Biological Response
Chronically Acidic	< 0	Expect a complete loss of fish populations, including brook trout.
Episodically Acidic	0-20	During episodes of acidification, sensitive species such as brook trout may experience lethal effects.
Sensitive to Acidification	20-50	Fish species richness greatly reduced. Sub-lethal effects to brook trout. Acid sensitive species or life stages subject to episodic mortality.
Minimally affected by Acidification	50-100	Fish species richness may begin to decline. Brook trout response variable, sub lethal effects possible.
Not Affected by Acidification	>100	Fish species richness unaffected. Reproducing brook trout expected where habitat is suitable.

Between 2010 and 2014, 31 water samples were collected for analytical chemistry analysis from 10 locations inside the Cohutta Wilderness Area (Figure 28). The ANC values ranged from a low of 19.1 µeq/L and a high of 67.2 µeq/L. The median ANC value for all sites was 46.4 µeq/L. When comparing these values to the stream acidification classification and associated biological response chart above (Table 11.2.1); we conclude some streams are sensitive to acidification and fish species richness has been reduced. In addition, acid sensitive species or life stages in some reaches are subject to episodic mortality.

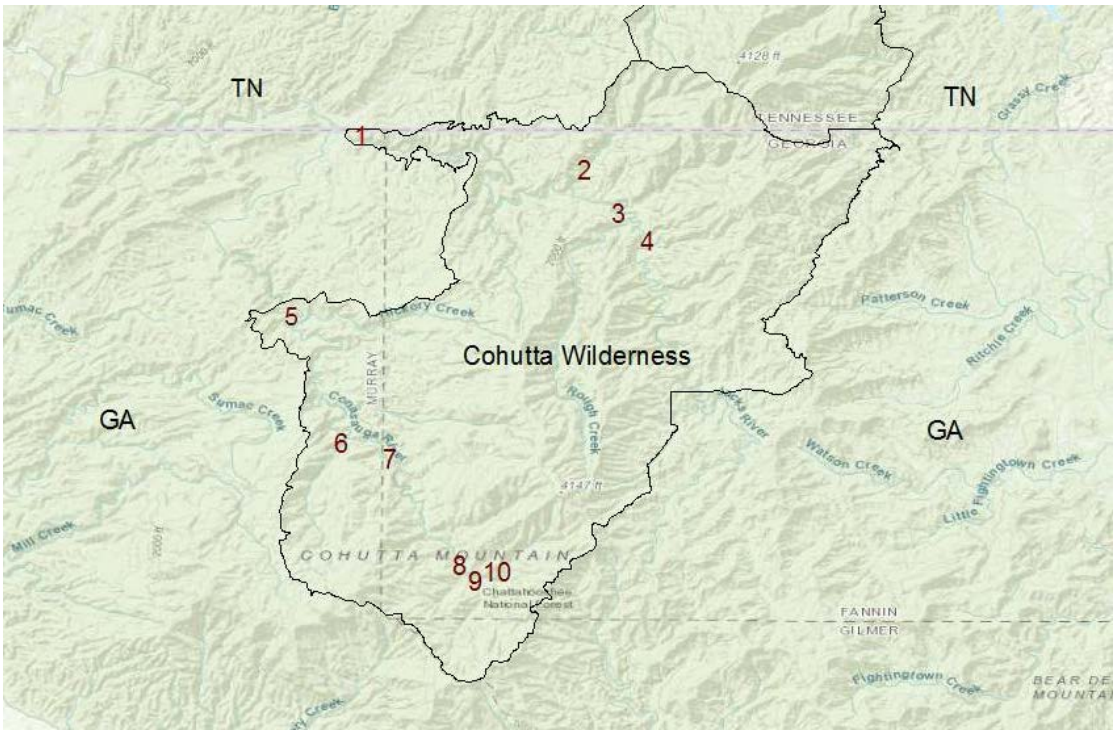


Figure 28: Location of water samples taken from Cohutta Wilderness 2010-2014

Visibility: One of the most noticeable forms of air pollution is haze, a veil of smog that blurs the view of many urban and rural areas. As part of the Clean Air Act, Congress has established a goal to prevent future and remedy existing visibility impairment in 156 protected national parks, national wildlife refuges, and wildernesses, which are designated as Class I Areas. Federal rules require state and federal agencies to work together to improve visibility in these areas so that natural background conditions are achieved by the year 2064. Within a Class 1 area, such as Cohutta Wilderness, visitors will find the views obscured by manmade air pollution.

The EPA implemented the Regional Haze Rule in 1999 to achieve the national goal of no man-made impairment to visibility at the federally mandated Class I areas. The Regional Haze Rule established a uniform rate of progress, also called a glide slope, for each Class I area to measure if enough progress is being made to meet natural background conditions.

Visibility has been monitored at this federally mandated Class I area since 2002 following the Interagency Monitoring of Protected Visual Environments (IMPROVE) protocols. The figure below is based upon the analysis of particulate matter data that include estimates of visibility conditions and the amount of light extinction attributed to different types of particulate matter measured at this IMPROVE monitoring site (*Figure 29*).

The Regional Haze Program relies upon the haze index to track two different trends: visibility on the haziest days annually and on the clearest days annually. Both trends are measured beginning with the 2000-2004 "baseline" period. The haziest days are also compared to the goal of no manmade impairment in 2064. The haze index has a unit of measure called deciview and a one unit change in deciview may be noticeable under certain conditions. Higher deciview values correspond to hazier scenes.

The figure below shows the haziest and clearest annual deciview values for the entire data record for this monitoring site (Figure 29). The red line represents the haziest day "glide path" connecting the baseline conditions to the 2064 goal, and is intended to be a guide in gauging progress at this Class I area. The 2011 through 2015 5-year average (of available data) indicates the haze index is below the glide path, with the past 5 years below the red line in the graph below. Also on the clearest days, the 5-year average on the clearest day is below the baseline with the past 5 years below the 13.62 deciview baseline (green line below).

Between 2011 and 2015, ammonium sulfates was the primary particle in the atmosphere contributing to the light extinction observed on the days classified with the haziest conditions. On the clearest days, ammonium sulfates are also the primary particle contributing to light extinction.

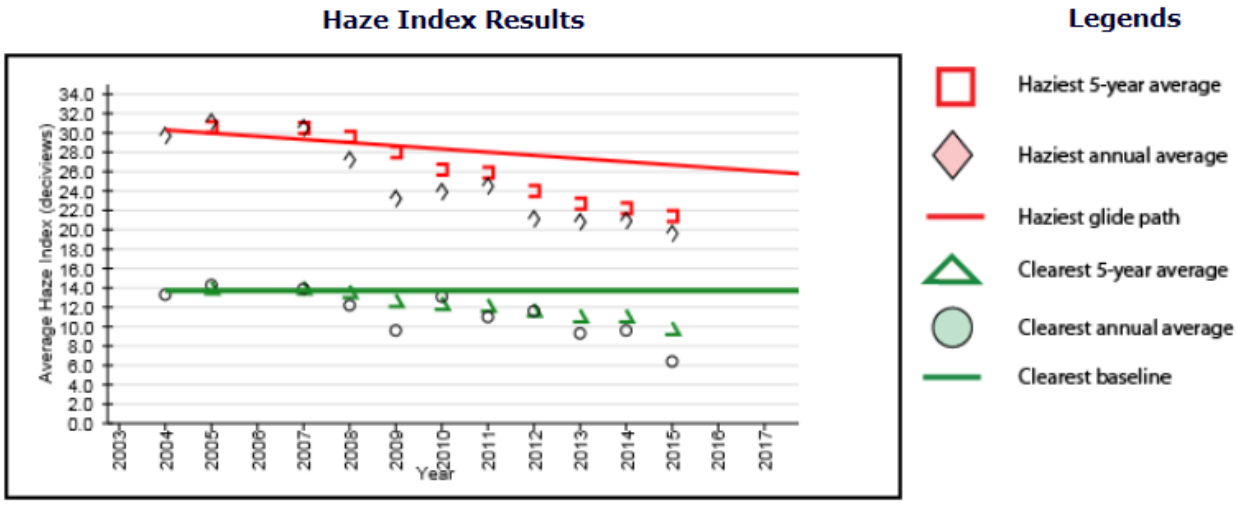


Figure 29: Haze index results from 2004-2015

Element

11.3: Is wilderness visitor use within limits that do not impair the values for which the wilderness was established?

NVUM wilderness respondents generally have above average satisfaction levels with slight dissatisfaction in the signage and recreation information availability areas. Due to the CONF's proximity of a large urban population, traditional wilderness experiences may be difficult to find. Specific overlooks, waterfalls, popular trails and easy access points within multiple wilderness areas do not provide a traditional wilderness experiences, particularly on busy weekends.

In 2016, the Forest partnered with Southern Appalachian Wilderness Stewards (SAWS) to conduct solitude monitoring surveys in 10 of our wilderness areas to assess whether visitor use was within limits that did not impair wilderness character. They conducted the survey along designated trails within wilderness areas and recorded the amount of visitor encounters on both weekends and weekdays. The results identified three locations that impair wilderness values on weekends. These sites are in Blood Mountain Wilderness from Byron Herbert Reece Trailhead, Cohutta Wilderness near Beech Bottoms and Raven Cliff Wilderness along Raven Cliff Falls trail.

For visitors wanting a traditional wilderness experience where there are ample opportunities to seek solitude, results of the survey recommend weekday use in areas that require longer access times.

Element

11.4: Trends in fire regimes and effects on fire- dependent communities in Wilderness.

From FY 2013 to FY 2016 no wildfires were reported in any of the Chattahoochee-Oconee NF wildernesses. In FY 2017 there was one wildfire were reported in the Chattahoochee NF wildernesses. One lightning caused wildfire in October 2017 on the Conasauga Ranger District and burned 27,870 in the Cohutta Wilderness. Fire personnel conducted operations using the districts wilderness fire operations plan in order to conduct the least amount of disturbance; also used a resource adviser on the incident and Type 2 Incident Management Teams were also utilized to help support supersession efforts during the fall 2016 fire season.

MQ 12: What are the status and trend of Wild and Scenic River conditions?

Element

12.1: Are the Outstandingly Remarkable Values being protected?

Information

This monitoring question is responsive to goals numbers 22, 23, 25, 26 and 46.

Results/Findings

A renewed emphasis on Chattooga River corridor management and monitoring started in 2012. Extensive recreation use is occurring throughout the corridor, including non-motorized boating, fishing, hiking, dispersed camping, scenic viewing and other day-use activities. There is minimal recreation development in the corridor that primarily consists of access points and trails.

The decision ***Managing Recreation Uses in the Upper Segment of the Chattooga Wild and Scenic River Corridor*** was signed in 2012 that allowed boating on the Upper Chattooga River under certain conditions (Amendment #1 of the Forest Plan).

The Chattooga River has certain indicators that help define limits of self-guided paddling use on Sections III and IV (lower segment). These indicators are numbers of people on certain sections of the river at certain times. On Section III of the Chattooga, the indicator for self-guided use is 175 persons on weekends and holidays, and 125 persons on weekdays. Private boating use has been monitored on the

Upper Segment of the Chattooga River since boating started in December 2012 (Sumter Monitoring Report FY 2015).

The 2012 EA concluded that all of the Chattooga's outstandingly remarkable values (ORVs) are being protected or enhanced. No specific analysis was conducted on the ORVs for the lower 60 segment of the Chattooga, although the cumulative effects analysis found that ORVs for the entire river are being protected or enhanced. Free-flowing conditions are preserved, water quality is protected and outstanding remarkable values are protected on eligible rivers on the Sumter National Forest.

MQ 13: Are the scenery and recreation settings changing and why?

Element

13.1: Amount of National Forest land that meet or exceed established scenic quality objectives and changes over time

The scenic inventory is maintained and refined on a project specific basis.

The amount of timber harvested and acres impacted by HWA and other natural disturbance factors may affect scenery and recreation settings for a relatively short length of time, however other than these two factors, no major changes in settings over the length of the plan.

Presently, Hemlock Woolly Adelgid continues to be the primary cause of changes to scenery and recreation settings in Chattahoochee National Forest. Because hemlock is a component of many desirable water-based and backcountry recreation settings, the increasing number dead and dying hemlocks due to the invasive, non-native adelgid is creating more noticeable impacts.

Informal field monitoring shows that hemlocks are fading from the landscape. The removal of infested trees for safety reasons often leaves voids in affected landscapes and developed recreation sites. Slash and debris created during the removal process is noticeable and minimized where feasible.

Non-native, invasive plant species such as kudzu are also changing the natural character of the landscape. Aggressive treatments have short-term negative visual impacts, but they are necessary to achieve the desired landscape character, which does not include invasive plant species.

Implementation of planned vegetation management projects continued in the last four years (FY 2013 to FY 2016). Changes in scenery were most noticeable in areas where temporary and permanent road improvements and log landings were made in plain view. Changes in vegetation would most likely go unnoticed to the casual forest visitor except for the soil disturbances that attract attention. Re-vegetation within the affected skid roads areas remains to be a slow process, but visual impacts are fading with each passing year.

MQ 14: Are heritage sites being protected?

Element

14.1: Heritage sites are identified for protection?

14.2: Effectiveness of heritage protection measures

In Fiscal Year 2012 (FY12) the Forest completed a new Programmatic Agreement regarding the process for compliance with Section 106 of the National Historic Preservation Act that will be in effect for 10 years. Under the terms of this PA there are some types of undertakings for which we are required to consult and others that do not require consultation. The Forest consults with the Georgia State Historic Preservation Officer (SHPO) and nine American Indian tribes (Alabama-Coushatta Tribe of Texas, Alabama-Quassarte Tribal Town, Cherokee Nation, Eastern Band of Cherokee Indians, Kialegee Tribal Town of the Creek Nation of Oklahoma, Muscogee (Creek) Nation, Poarch Band of Creek Indians, Thlopthlocco Tribal Town, and United Keetoowah Band of Cherokee Indians).

There are two categories of sites that are monitored on the Forest. These are Priority Heritage Assets and sites revisited as part of project implementation. Priority Heritage Assets are cultural resource sites of distinct public value that should be actively maintained and is monitoring of these sites is required at least once every five years. The other type of monitoring involves sites revisited as part of project implementation.

Significant cultural resources of the Forest are protected pursuant to and in compliance with 36 CFR 800 as stipulated in a Programmatic Agreement. The Forest Service is in full compliance with all regulations, laws, and agreements for the identification, monitoring, protection and enhancement of cultural resources located on the Chattahoochee-Oconee National Forests.

MQ 15: Are watersheds maintained (and where necessary restored) to provide resilient and stable conditions to support the quality and quantity of water necessary to protect ecological functions and support intended beneficial uses?

Element
15.1: Status and trends of impaired streams
15.2: Application of Forest standards to protect and maintain soil and water resources
15.3: Effectiveness of Forest Standards in minimizing non-point source pollution

This Forest Plan provides for management of watersheds to provide resilient and stable conditions to support the quality and quantity of water necessary to protect ecological functions and support intended beneficial water uses. Numerous best management practices are established as standards for practices to be carrying out during implementation of the Forest Plan. Watershed condition, improvement needs, water quality, and implementation of best management practices will be monitored.

Identifying and classifying the water quality of streams in Georgia is the responsibility of the Environmental Protection Division (EPD), the state's environmental regulatory agency. The GA EPD maintains a List of Waters in the State, known as the 305(b)/303(d) list; the connection to the Federal Clean Water Act regulations. The listing is updated every two years and reported to the US EPA, and posted on the GA EPD website. Waters are assessed as 1) supporting their designated use; 2) not supporting their designated use; or 3) assessment pending. Sixteen streams with segments on National Forest lands were listed as impaired in 2002 and reported in the 2004 Forest Plan and Environmental Impact Statement (USDA-Forest Service, 2004b). The most recent 305(b)/303(d) listings by GA EPD were reported in 2016. Thirty streams with segments on National Forest Service lands remained or were placed on the 305(b) list and forty-one streams with segments on National Forest lands remained or were placed on the (303(d)) list. These stream segments, on National Forest lands, total 178 miles in length. Total Maximum Daily Load (TMDL) reports have been prepared, by EPA or EPD in the past nineteen

years, for the impaired streams by river basin and watershed. Most of the classified streams on the Forest carry the designated use of fishing.

Sediment is the primary pollutant identified for these streams, listed as "not supporting designated use" or impaired, with segments on National Forest System lands. This determination was made from stream surveys conducted by the GA EPD, GA DNR Wildlife Resources Division, or the Forest Service. The TMDL reports identify categories of land use in the watershed, the average percent sediment load, and the average sediment load production (tons/acre/year). TMDLs make the determination of sediment loads that can enter impaired streams without causing additional sediment impairment to the streams. For example, forest land in the Ocmulgee River basin occupies 55.3% of the classified land use. This category contributes 3.2% of the average percent sediment load, or 0.03 tons/acre/year. Roads, in comparison, contribute 29.9% of the sediment load, and row crops 20.0%, both categories having on-going, annual soil disturbance. TMDL reports recommend management practices that can be used to help maintain the sediment loads at current or lower levels, to avoid impairment of streams. Implementation of Georgia's Best Management Practices for Forestry (BMPs) is the recommended approach to address sediment from forest land operations.

Stream mileages on the Forest include 2,763 miles of cold water perennial streams on the Chattahoochee, 393 miles of warm water perennials on the Oconee, and a Forest-wide total of 10,800 miles of non-perennial streams.

An interdisciplinary team completed Step One of a Forest Service national six-step watershed condition framework process in March 2011 to determine watershed condition classes that can be applied consistently across all national forests. The process, "Watershed Condition Classification" (WCC), evaluated all sixth level HUCs that include at least 25 percent or more National Forest land ownership. The technical guide for this classification describes three classes of watershed condition, directly related to the degree or level of watershed functionality or integrity:

- Class 1 – Functioning Properly
- Class 2 – Functioning at Risk
- Class 3 – Impaired Function

The classification process uses 12 indicators composed of attributes related to watershed processes including; water quality, water quantity, aquatic habitat, aquatic biota, riparian/wetland vegetation, roads and trails, soils, fire regime, forest cover, rangeland vegetation, terrestrial invasive species and forest health. These indicators are grouped into four process categories; aquatic physical, aquatic biological, terrestrial physical, and terrestrial biological. An explanation of these categories and the entire classification process can be reviewed on the Internet at: http://wwwtest.fs.fed.us/publications/watershed. Classification maps showing the Chattahoochee-Oconee National Forest HUCs can also be viewed at this website.

The initial classification of HUCs was completed in March 2011 with the number of HUCs by Category on the Forest as follows: Class 1 – 54, Class 2 – 83, Class 3 – 1.

Eight watersheds were classified across boundaries shared with adjoining National Forests. Step Two of the process is prioritizing watersheds for restoration, targeted for improvement through a 5 year program of work. The next step is to complete a Watershed Restoration Action Plan (WRAP) that identifies comprehensive project-level improvement activities.

The Forest selected one HUC on the Forest as a Priority Watershed in 2011, Cooper Creek, located on the Blue Ridge Ranger District (HUC # 060200030102). The Watershed Restoration Action Plan can be viewed at the website noted above by "zooming" in to the Cooper Creek Watershed and further selecting the tab for the watershed action plan. The Plan identifies a 5 year program of work with essential projects, potential partners and estimated costs. First year projects will begin after the completion of Cooper Creek NEPA decision by the end of FY 2018.

Protection and/or improvement of soil and water resources on the National Forests are a requirement to comply with Federal and state water quality regulations, including the Federal Clean Water Act and the Georgia Water Quality Control Act regulations. It is also a primary agency mission of the Forest Service, to provide high-quality water in sufficient quantities to meet the needs of natural resources and human requirements.

Active participation in the planning, design, implementation and completion of projects on National Forest lands is a key element of this approach, to insure appropriate management practices are included in project plans.

One Forest Plan objective related to this element is Objective 25.2, completing watershed assessments at the sixth level hydrologic unit (HUC). These evaluations are used to analyze the condition of resources, the impacts to their normal function, and to identify opportunities to make improvements or enhancements.

The primary method to insure application of Forest Plan standards for soil and water protection is at the planning and design phase of projects. Projects are initially evaluated to identify the locations of streams, floodplains, wetlands, bogs, riparian areas and other landscape areas that need protection during operations and use. Forest personnel evaluate proposed treatments in the planning phase to identify needed protections and design the appropriate practices to be included during projects.

As an example, timber harvest projects use "*Georgia's Best Management Practices for Forestry (2009)*" as a key guidance document to identify protection measures to be used. These practices, BMPs, are implemented through timber sale contract provisions. Timber sale administrators and inspectors monitor operations on a regular basis to ensure erosion control measures are installed and maintained. The Georgia Forestry Commission staffs a program throughout the state to assess water quality related to forestry activities, and report findings to the Georgia Environmental Protection Division. The Forest Service and the Commission have an agreement to conduct BMP evaluations on National Forest lands as part of the overall monitoring program.

Forest Service activities on the Forest requiring ground, or soil, disturbance occurred in several resource management programs during 2013 to 2016. Monitoring the effectiveness of practices to minimize non-point source pollution (erosion and sedimentation) occurred on a cross-section of projects throughout the time period.

MQ 16: What are the conditions and trends of riparian area, wetlands and floodplains functions and values?

Riparian ecosystems restoration and management is important to maintain aquatic resources and values. Desired conditions, including the composition and structure of vegetation, equipment limitations, maintaining ground cover and stable streambanks are established in the Forest Plan. Floodplains and wetlands are to be protected. Riparian management practices and standards, ground cover, stream-bank stability, wetland and floodplain status will be monitored.

Riparian areas have been defined as follows: "*three-dimensional ecotones of interaction that include terrestrial and aquatic ecosystems extending down into the groundwater, above the canopy, outward across the floodplain, up the near slopes that drain to the water, laterally into the terrestrial ecosystem, and along the water course at a variable width.*" (Ilhardt et al, 2000). For the Forest Plan, a GIS analysis was completed to model an approximate acreage on the Forest meeting the definition of riparian areas (FEIS, page 3-74). This analysis identified an estimated 8 to 9 percent of the total land area on the Forest, or approximately 66,234 acres in riparian areas. These acres are based on a 100 foot horizontal width on either side of perennial streams, from the channel bank upslope. Forest Plan Management Prescription 11, Riparian Corridors, is allocated to all perennial and intermittent streams on the Forest as the direction to be followed in these areas. The emphasis of this Prescription is to manage to retain, restore and/or

enhance the inherent ecological processes and functions of the associated aquatic, riparian, and upland components within the corridor (Forest Plan, page 3-172).

Impacts to riparian corridors or areas can be both short- and/or long-term, and can be caused by natural disturbances (e.g. floods) or human activities. Human activities can include permanent roads, recreation trails, timber harvesting, prescribed burning, camping, wildlife openings, range allotments and others. The objective of management treatments is to minimize the duration and extent of impacts, and to mitigate the effects that disturb normal functions and processes, particularly soil, water and ground cover.

The primary means of assessing riparian condition is during project planning and design, e.g. review of areas before a project is implemented. Surveys are made of existing conditions to identify needed actions. Concerns could include a lack of woody debris, active erosion, unmanaged recreation uses, or unstable stream banks or channels. Locations are also sought to improve riparian conditions or functions, e.g. restoring canebrake vegetation along streams.

Timber sale operations in 2013-2016 occurred on all four Districts. Riparian corridors occur in each of these timber sale. Efforts were made to insure that streams and associated riparian areas were appropriately protected during project layout and operations. Forest Service timber sale administrators monitor sale operations on a continuous basis, with periodic reviews by Supervisors Office personnel to insure compliance with standards and Best Management Practices (BMPs). Projects reviewed demonstrated compliance, including temporary crossings of streams through riparian areas.

Prescribed burning was conducted on the Forest in the period of 2013-2016. A majority of these areas contain riparian areas along perennial streams, with streams commonly used as natural firebreaks where possible. Streams are used, along with existing roads, to minimize the amount of bladed fire line construction, requiring soil disturbance. Firing techniques are also used that minimize fire intensity in riparian areas. Prescribed burns are typically "fired" or ignited outside of riparian areas where the objective for the burns is to reduce fuel loadings or vegetation competition. Fire is allowed to burn into riparian areas where it typically burns out, or extinguishes due to higher moisture and/or shade conditions exist, not favorable for burning.

Element
16.1: Condition of soil and ground cover in riparian areas

Forest Plan emphasis for riparian corridors/areas is to manage to retain, restore and/or enhance the inherent ecological processes and functions of the associated aquatic, riparian and upland components. This emphasis seeks to maintain soil productivity, natural vegetation communities, and water quality to reflect the environmental and ecological components and processes. Riparian corridors occur along all defined perennial and intermittent streams on the Forest that show signs of scour, and around natural ponds, lakeshores, wetlands, springs and seeps (Forest Plan, page 3-172).

The condition of riparian corridors is typically assessed during project planning, design and the on-going implementation of projects. Surveys are conducted in project areas to determine the riparian health and function. These surveys identify natural or human-caused impacts that affect riparian conditions, such as active erosion, soil compaction, lack of woody debris in streams, excessive sediment, fecal coliform, damage from recreation uses, or invasive exotic plant species.

Recreation uses on the Forest are often associated with riparian areas and streams, either crossing these areas, or located within them. Dispersed recreation sites are typically along streams managed for trout fisheries, creating a desirable use location but often resulting in sites where continued overuse can impact riparian conditions.

Element

16.2: Forest Plan standards are being applied in riparian area

When riparian areas are involved, projects are designed to minimize impacts by use of appropriate use of mitigation measures such as Best Management Practices, particularly to avoid disturbance of stream banks and entry of erosion into streams. Several timber harvest projects have been completed on the Forest to restore native vegetation communities in riparian areas, generally favoring hardwood species over pine species.

Element

16.3: Effects on riparian values, soil and water quality, and streambank stability

Since 2004 an on-going emphasis on the Forest has been to address the effects of both authorized and unauthorized uses on the Forest that cause impacts to soil and water related resources. Projects have been planned and implemented to reduce the on-going impacts to soil and water quality such as poorly maintained roads, eroding recreation trails, over-used dispersed recreation sites, and other actions that cause detrimental impacts.

Acres of vegetation management activities within riparian areas implemented from FY 2013 to FY 2016 are shown in Table 4.3.1. They are always done according to the guidelines established in the Forest Plan. Also, each project has mitigation measures established in order to maintain or restore the inherent capabilities of the riparian corridor.

Several assessment or monitoring methods have been developed by agency and interagency efforts to address impacts to riparian values, soil and water quality and streambank stability or aquatic habitats. These include the Watershed Condition Framework, Soil Disturbance and Monitoring protocols, Aquatic Organism Passage, and surveys for non-native invasive species. These protocols are not yet fully implemented, but indicate an emphasis in direction to identify impacts and develop treatments to address them.

Assessment and survey of the condition of riparian areas, streambank stability, stream crossings, and soil productivity and water quality in general continue to be needed. Most of this effort occurs during the planning, design and layout of projects; however there are areas outside the boundaries of projects that also need survey to maintain knowledge of the condition of these elements.

Element

16.4: Project in 100-year floodplains comply with Executive Order 11988

Executive Order (E.O.) 11988, signed in 1977, is Federal direction related to the management of floodplains. On National Forest system lands this E.O. requires analysis of projects with the potential to be locate facilities or other features in 100-year floodplains, to minimize or mitigate adverse effects.

On the Chattahoochee-Oconee National Forests, permanent recreation areas with facilities and permanent roads with crossings of streams are the primary features that can impact 100-year floodplains. During the period from 2013 to 2016 several projects were planned in these areas requiring evaluation and design. Projects completed in this category included replacement of restroom buildings, campsites and the addition of accessible parking spaces. Projects were completed both by contractors and Forest Service agency personnel. These sites were reviewed by the Forest Soil Scientist and the Forest Recreation Program Manager during the design phase to identify the projected 100 year floodplain zone and locate structures in suitable locations. Evaluations of the projects both during, and post construction did not identify any non-compliance situations.

Element

16.5: Wetland maintenance or mitigation during project planning and implementation comply with Executive Order 11990

Executive Order 11990, signed in 1977, is Federal direction to minimize the destruction, loss or degradation of wetlands, and to preserve or enhance the natural and beneficial values. Wetlands have been delineated and inventoried nationally as part of the National Wetland Inventory (USFWS) to provide information on the distribution and type of wetlands. Wetland boundaries and classification are further confirmed and identified at the project level.

Wetlands make up a small percentage of the total land area of the Forest (0.5%) and the larger contiguous areas occur on the Oconee Ranger District, primarily on the Oconee and Ocmulgee Rivers and their larger tributaries. Mountain wetlands are typically small in size, often described as "mountain bogs" which are currently undergoing restoration to restore natural vegetation communities and wetland function. Most of this restoration involves mechanical control of undesirable vegetation to allow natural species to expand or be maintained.

The primary method to maintain or mitigate impacts to wetlands is pre-project inventory and mapping, followed by design of treatments to minimize entry or disturbance into wetlands. Based on field surveys of projects implemented from 2013 to 2016 there were not impacts identified to wetlands during projects. Stream crossings replaced on the Forest were also surveyed prior to treatment to determine presence of any wetland communities and need for mitigation.

MQ 17: How do actual outputs and services compare with projected?

Information
This monitoring question is responsive to goals numbers 4, 27, 47, 54, 55, 56, 65, 70 and 73.

Element

17.1: Trends in Forest products production.

Forest management activities are employed to attain desired future conditions, wildlife habitat improvement, and recreation settings, etc., and also result in outputs such as timber volume. The Forest plan and FEIS projected possible activities and outputs that may occur over the life of the plan. These projected possible outputs and activities result from activities such as timber harvesting. Timber Outputs are described in the forest plan in terms of Allowable Sale Quantity (ASQ), which is the average annual volume per decade and the maximum quantity of timber that may be sold from the land suitable for timber production for a specified time period (10 years). The average annual ASQ for the CONF is 109,000 ccf for the first period, 2005-2016.

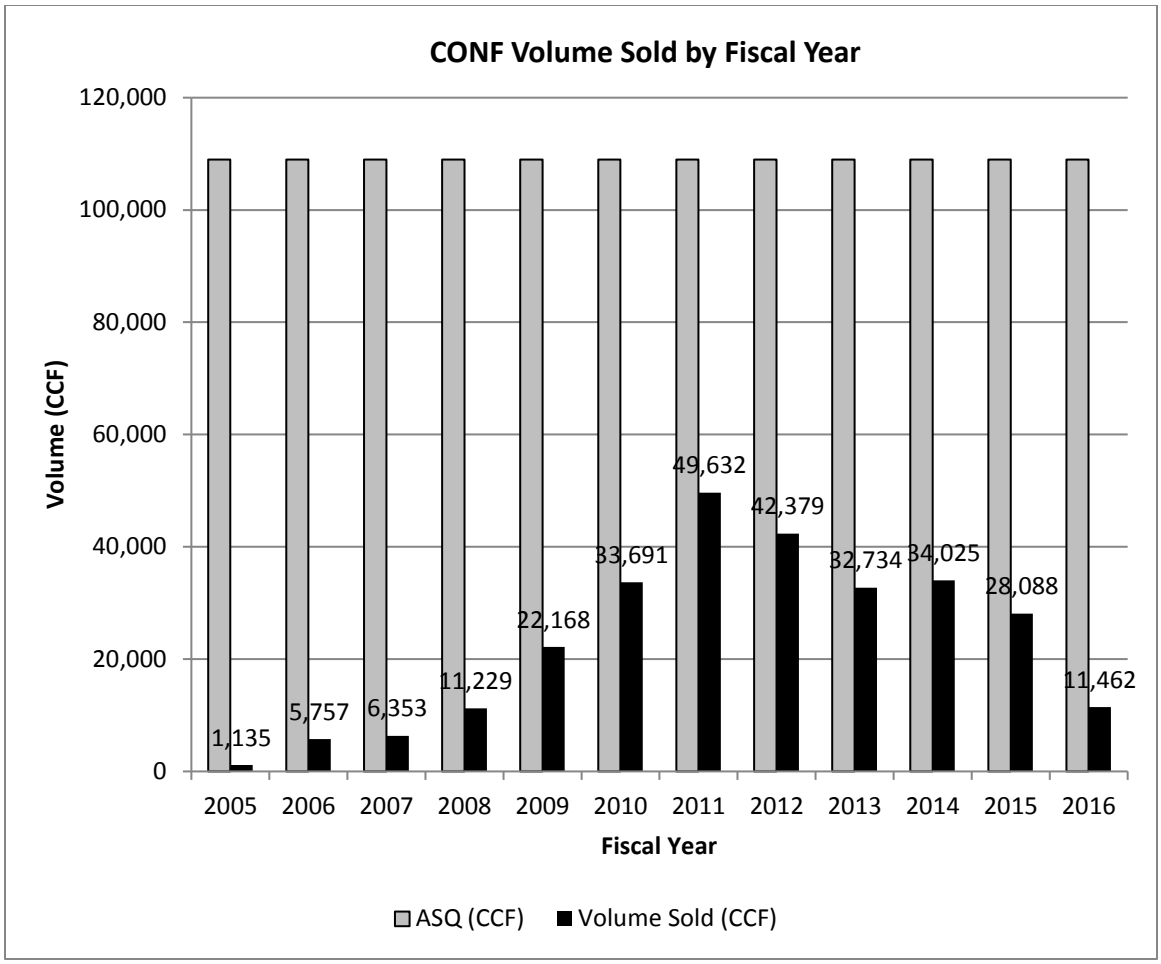


Figure 30: CONF Volume Sold by Fiscal Year

Timber volume sold has steadily increased during the eight year period since Plan revision in support of the forest health, restoration, maintenance, and wildlife habitat objectives being implemented across the Forest. Peak volume sold in the CONF was in 2011and 2012 with 49,632 CCF and 42,379 CCF, respectively. These volume are still far below the annual Allowable Sale Quantity (ASQ) of 109,000 CCF. Starting FY 2013 until FY 2015 the CONF volume sold was steady (32,734 CCF; 34,025 CCF and 28,088 CCF, respectively) but still far below the annual Allowable Sale Quantity.

Element

17.2: Adequacy of constructed roads for the planned uses and revegetation following completion of use.

The minimum road system is being determined by the Transportation Analysis Process that was completed during FY 2017. The primary need for new roads is for vegetation management. New seldom roads are seldom needed, so access is usually accomplished by the construction of temporary roads as part of a timber sale or stewardship contract. As a result of the Eastside Forest Health Improvement analysis it was determined that most of the roads on the Chattahoochee National Forest would need to have some portion of their road template reconstructed in order to accommodate current logging vehicles.

Element

17.3: Adequacy of designated transportation and utility corridors.

The forest has completed a Transportation Analysis Process to determine the most sustainable road system based upon the mix of maintenance levels and projected future budgetary levels. That report completed in FY 2017. It recommend a road system that will have fewer roads open to the public, and encourage decommissioning of roads that are environmentally sustainable.

Below is a table showing the number of miles of roads improved, maintained and decommissioned by fund code over the last 10 years. The fund codes are divided into appropriated dollars which also includes funds and or materials or labor contributed by our outfitters and guide, Georgia DNR and miles from the Schedule A agreements with our partners such as Camp Merrill and the local Georgia County Governments.

Funding for road maintenance has fluctuated over the years, but the road maintenance costs have increased. Road reconstruction and deferred maintenance is accomplished by the following: Legacy Road and Trail Program, Timber sale contracts, Good Neighbor Authority and Stewardship contracts.

Table 17.3.1: Number of miles of improved, maintained and decommissioned roads by fund code and by Fiscal Year from FY 2007 to FY 2016.

Fund Code	Activity	Unit of Measure	Fiscal Year									
			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Appropriated	Improved Rds.	Miles	23.6	24.1	7.1	15.8	-	12.7	3	-	1.28	1.5
Timber	Improved Rds.	Miles	-	-	-	7.9	6.5	1.0	1.8	-	-	22
Appropriated	Maintained Rds.	Miles	524.3	586.4	612.7	688.7	229	396.1	447.1	410.3	357.1	395.3
Timber	Maintained Rds.	Miles	9	2.4	2	-	12	61.8	30.1	26.58	46.5	14.5
Appropriated	Decommissioned system Rds.	Miles	0.5	1.0	4.9	-	-	-	2.9	-	2.9	-
Appropriated	Decommissioned non-system Rds.	Miles	1.0	-	2.4	-	5.8	1.8	0.5	-	0.5	-

17.4: Estimated versus actual costs of plan implementation

The actual cost for road work (reconstruction, construction, maintenance) are within 10% of the estimates, but road work is only one part of plan implementation.

17.5 Trends in Special Uses

Special uses serve a public need and benefit by providing for use and occupancy of National Forest land. The Secretary of Agriculture is authorized to permit special uses on National Forest System lands by various Acts.

There are numerous and varied special uses on the Chattahoochee-Oconee National Forests. Some of these are communication sites, military uses, private water uses, private driveways, and utilities (water systems, power lines and gas pipelines). Some rights-of-way provide ingress and egress to private inholdings accessed only by crossing National Forest System land. As a designated urban national forest, the number and kinds of special use requests may be expected to increase in the future. Some of these may also be expected to be controversial.

Various types of recreation special uses are located on the Forest. Examples are: outfitter/guides, boat docks, target ranges, recreation residences and a shuttle service to Brasstown Bald. During FY 2013 fifteen special use application were approved, five were approved during FY 2014, seven special use application were approved on FY 2015 and ten during FY 2016. Table 19.2 show the number of special use application approved from FY 2004 to FY 2016.

MQ 18: Are silvicultural requirements of the Forest Plan being met?

Information
This monitoring question is responsive to goals 65 and 66.

Element
18.1: Are lands being adequately restocked within 5 years of regeneration treatments?

Lands are being adequately restocked within 5 years of regeneration treatments with a mixture of planted and natural regeneration. Forest plan standards along with forest service handbooks and manuals provide the direction and how these practices are applied. Field reviews, spot checks, and annual reports are utilized to monitor the compliance with this direction. Integrated resource reviews are to be conducted annually. Additionally, prior to making decisions, the decision documents are reviewed for compliance with the forest plan. Reviews, spot checks, and reporting databases (FACTS) indicate that silvicultural practices and project decisions are in compliance with the forest plan.

Element

18.2: Application of vegetation management requirements and progress toward achievement of DFC for vegetation

An important part of the forest planning process is to determine if the projects being implemented are indeed moving toward the desired future resource conditions, meeting goals and objectives, and applying standards as they are described in the Revised Forest Plan. Many valuable projects were began or completed over the last several years and more are currently being planned that will help move the Forest towards its goals. Through this process of forest plan monitoring and evaluation, it was evident that several of the quantitative objectives are not being met and are falling short of the 10 year goals set by the Plan. The Forest feels that many factors have contributed to these shortfalls, including budget constraints, available resources, key personnel vacancies, personnel turnover rates, and environmental concerns; however, the Forest will continue to move ahead in planning and implementing projects that will help achieve these goals and objectives.

Element

18.3: Suitability of lands identified as not suitable for timber production.

No lands identified as not suitable for timber production have become suitable during FY 2013 to 2016.

Element

18.4: Harvest unit sizes within the allowable limits.

18.5: Appropriateness of maximum harvest unit size limits.

The maximum size of an opening created by even-aged or two-aged regeneration treatments on the Chattahoochee-Oconee National Forests is 40 acres. For yellow pine, 80 acres is permitted if restoration required larger openings. No even aged or two-aged regeneration harvest area exceeded 40 acres during FY 2013 to FY 2016.

Element

18.6: Compliance of silvicultural practices with Forest Plans?

All silvicultural practices implemented during FY 2013 to FY 2016 were in compliance with the Forest Plan. The plan allows a variety of regeneration, timber stand improvement and restoration treatments to accomplish silvicultural needs.

Element

18.7: Appropriateness of harvest methods used on the Forest.

Appropriate harvest methods are used on the Chattahoochee-Oconee National Forests.

MQ 19: Are Forest Plan objectives and standards being applied and accomplishing their intended purpose?

Information

This monitoring question is responsive to objectives and standards in the Forest Plan as well as to changes that occurred since the Forest Plan was signed. The monitoring elements are defined as follows:

Element

19.1: Evaluate how diversity is affected by planned activities and whether expected results are being achieved.
19.2: Determine whether standards, guidelines, and management requirements are being met and are effective in achieving expected results.
19.3: Determine when changes such as Government Performance Results Act (GPRA), policies, or other direction, would have significant effects on Forest Plans.
19.4: Determine when changes such as Government Performance Results Act (GPRA), policies, or other direction, would have significant effects on Forest Plans.
19.5: Identify changes in ability of the planning area to supply goods and services in response to society's demands.
Results (1-5):

A Quality Assurance Plan Review was conducted in the Forest in August and September of 2013. NEPA practitioners on the CONF participated in an online survey to begin the oversight assessment process.

National Environmental Policy Act (NEPA) documents produced since the Forest Plan was implemented are shown in Table 19.1 and Figure 31.

Table 19.1: Chattahoochee-Oconee National Forests Number of Type of Decision completed by Fiscal Year

	Decision Types		
Fiscal Year	**Decision Memo (DM)**	**Decision Notice (DN)**	**Grand Total**
2004	37	11	48
2005	54	10	64
2006	31	5	36
2007	42	1	43
2008	44	9	53
2009	31	4	35
2010	28	2	30
2011	40	2	42
2012	17	1	18
2013	28	4	32
2014	13	1	14
2015	24	2	26
2016	18	2	20
Grand Total	**407**	**53**	**461**

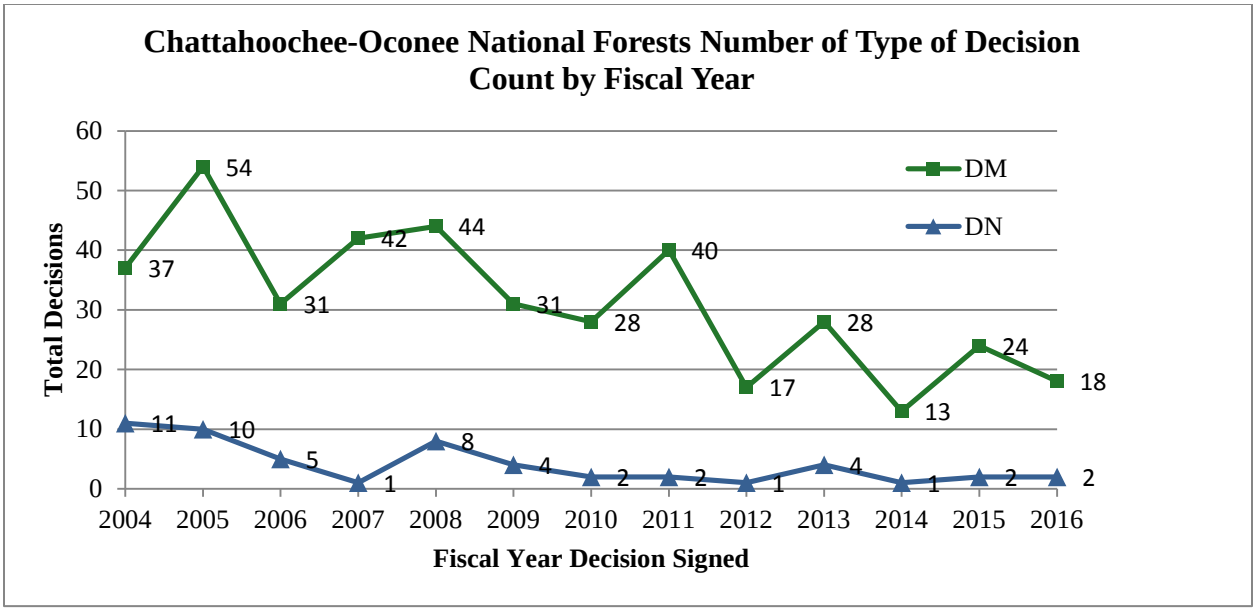


Figure 31: Chattahoochee-Oconee National Forests Number of Type of Decision Count by Fiscal Year

The types of projects on which NEPA was conducted are shown in Table 19.2. Many NEPA documents have more than one project purpose. There is currently little demand for mineral resources on the Chattahoochee-Oconee National Forests.

Table 19.2: Chattahoochee-Oconee NFs Project Purposes for NEPA documents

Project Purposes	Fiscal Year												
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Facility Management	1	4	0	2	0	2	2	0	0	0	1	2	0
Research	0	2	0	0	0	0	0	0	0	0	0	0	0
Fuels Management	1	3	0	0	0	3	0	1	1	2	1	3	1
Heritage Resource Management	0	0	0	0	0	0	0	0	0	0	0	0	0
Land Ownership Management	0	7	2	2	2	0	2	1	0	0	0	1	1
Land Acquisition	0	0	0	0	0	0	0	0	0	0	0	0	2
Minerals And Geology	0	0	0	0	0	0	0	0	0	0	0	0	0
Land Management Planning	0	0	0	0	0	0	0	0	0	0	0	0	0
Road Management	4	5	2	3	1	2	1	0	0	1	0	1	0
Grazing Management	1	0	0	0	0	0	0	0	0	0	0	1	0
Regulations, Directives, Orders	0	0	0	0	0	0	0	0	0	0	0	0	0
Special Area Management	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation Management	4	11	11	6	9	3	2	3	2	7	3	8	4
Special Use Management	6	6	7	17	5	11	15	24	11	15	5	7	10
Forest Products	1	0	1	0	1	3	0	1	0	0	1	0	0
Vegetation Management	18	19	10	9	26	8	4	10	4	7	4	2	3

Table 19.2: Chattahoochee-Oconee NFs Project Purposes for NEPA documents													
Project Purposes	**Fiscal Year**												
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
(Non-Forest Products)													
Wildlife, Fish, Rare Plants	7	4	2	4	5	4	2	1	0	3	0	1	0
Water Management	6	3	1	0	3	1	2	1	1	1	1	3	1

Chapter 3

Evaluation of Outcomes on the Land and Evaluating New Information

The following list contains the most current issues, concerns and opportunities for the Chattahoochee-Oconee National Forest.

- The need to restore native ecosystems and habitats that have become less abundant due to lack of management activities and past land use.
- Non-native invasive species (NNIS), including both invasive plants and invasive insects such as the Hemlock Woolly Adelgid (HWA), continue as a forest health issue for the forest.
- Emerging threats to forest health include spreading insects such as the emerald ash borer, and diseases such as thousand cankers disease. These and other threats will continue to be monitored for presence and preventative actions, such as those that maintain forest health, will be in place to respond to this threat.
- The need for thinning young pine stands that are overstocked for the purpose of reducing their risk to attacks from native pests, such as the southern pine beetle (SPB).
- The need to gather more information as it becomes available in order to adapt to changes in the environment due to global climate change.
- The need to adapt to fluctuating budgets and implement an adaptive budgeting process in order to prioritize projects based on available funding and resources needed to meet our objectives.

NNIS Eradication

The Forest continues treatment of invasive plants and insects, including the Hemlock Woolly Adelgid Treatment to limit the spread of these species. The Blue Ridge RD continues a partnership with Save Georgia Hemlocks and all three districts will continue treatment in the foreseeable future. Invasive plant eradication and native plant restoration continue to be a priority for the Forest.

In 2014, the Forest is beginning to implement a watershed restoration identification process, called the Landscape Scale Project Prioritization Process to establish a long term order of entry for large projects. This process is being implemented in order to allow for more FP Objectives to be met over a larger area, and hopefully accelerate restoration goals across the Forest.

Adapting to Economic and Budget Fluctuations

The annual budget continues to fluctuate over time. The FY 2012 budget continued the downward trend. The fluctuations impact our ability to adequately manage the forest in many ways. Vacant positions go unfilled. Many monitoring activities are accomplished using agreements and partnerships, which can be done through cost share activities and are instrumental in accomplishing this much needed work at a reduced cost to the forest.

There are a large number of new and important issues facing the forest including increasing urban interface, non-native invasive species, increased public interest, new policies, litigation and others. Budget fluctuations create new challenges and opportunities for the forest. To respond to these, the forest is implementing a project based budgeting approach that prioritizes projects and identifies needed funding early in the planning process. This will help alleviate some of the constraints caused by budget fluctuations and allow the forest to readily adapt to funding increases and decreases during the fiscal year.

Annual Forest Budget					
FY 2006	$15,324,282	**FY 2010**	$17,258,078	**FY 2014**	$14,906,517
FY 2007	$15,133,466	**FY 2011**	$16,465,099	**FY 2015**	$15,327,744
FY 2008	$18,620,808	**FY 2012**	$14,837,469	**FY 2016**	$15,806,084
FY 2009	$23,089,317	**FY 2013**	$13,696,802		

FY 2013-2016 Action Plan and Status

Actions Needed That Do Not Require Forest Plan Amendment or Revision

a) **Action**: Baseline acreage, condition and distribution of rare communities on the Forest.
Responsibility: Forest biologists and biological technicians
Date: Ongoing

Status: Survey the location and condition of rare communities on the Forest, including but not limited to canebrakes, basic mesic forests, glades, barrens, and woodlands, and table mountain/pitch pine communities, to be collected and tracked in GIS. Project effects to rare communities and the introduction and spread of invasive plants on understory plant communities are to be addressed in project analysis.

b) **Action**: Integrate projects to restore forest structure, rare communities, native understory, and major forest communities in decline, such as shortleaf pine and oak communities, into large-scale projects and analysis areas.
Responsibility: Forest biologists and silviculturists
Date: Ongoing

Status: Projects are currently being planned on the northern Districts (Chattooga River, Blue Ridge and Conasauga) that will address these issues.

c) **Action**: Incorporate wetland, riparian habitat inventory and hardwood restoration activities into FSVEG and analysis area projects on the forest.
Responsibility: Forest biologists and silviculturists
Date: Ongoing

Status: Vegetation inventories will be conducted in priority in riparian and other hardwood communities within priority watersheds.

d) **Action:** The Forest will work with the State of Georgia and supply information relative to prescribe burning on the Forest in order to help the State meet air quality standards relative to fine particulates and ozone.
Responsibility: Districts and SO.
Date: On-going

e) **Action:** Continue to improve forest health conditions and limiting forest health threats on the Chattahoochee-Oconee National Forest. The objective is to control non-native invasive plants emphasizing management prescriptions where biodiversity or restoration is a primary objective.
Responsibility: Biologists and Silviculturists
Date: Ongoing

Status: in-progress

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Appendices

Appendix A: List of Contributors

The following individuals contributed to this report:

Name	Position	Agency
Nelson E. Gonzalez-Süllow	Forest Environmental Coordinator	USDA-Forest Service
Michael Brod	Fire and Natural Resources Staff Officer	USDA-Forest Service
Jimmy Rickard	Forest Botanist/Ecologist	USDA-Forest Service
Carrie Radcliffe	Restoration Coordinator	Atlanta Botanical Garden
Katrina Morris	Wildlife Biologist	GA-DNR
John Thomson	Trout Stocking Coordinator	GA-DNR
Taylor Beard	Forest Soil Scientist	USDA-Forest Service
Mike Davis	Forest Fire Management Officer	USDA-Forest Service
Deborah Byrd	Forest Roads Engineer	USDA-Forest Service
Wanda Wetlesen-Shepherd	Civil Engineer	USDA-Forest Service
Kyle Grambley	Forest Recreation/Wilderness Manager	USDA-Forest Service
Erika Mavity	Forest GIS Coordinator	USDA-Forest Service
Alex Jaume	GIS Specialist	USDA-Forest Service
Danny Skojac	Contracting Officer	USDA-Forest Service
Mara Jones-Branch	Timber Resource Specialist	USDA-Forest Service
Jim Wentworth	District Wildlife Biologist	USDA-Forest Service
Ruth Stokes	District Wildlife Biologist	USDA-Forest Service
Elizabeth Caldwell	District Wildlife Biologist	USDA-Forest Service
David Vinson	District Wildlife Biologist	USDA-Forest Service
Mathias Wallace	Special Use Program Manager	USDA-Forest Service
Dequincy Gordon	Forest Fuels Specialist	USDA-Forest Service
Daniel Stratton	Regional Air Specialist	USDA-Forest Service
Sylvia Milner	Budget Officer	USDA-Forest Service
Vivian Satterfield	Program Support Specialist	USDA-Forest Service

Appendix B: Amendments to the Forest Plan

Since the Chattahoochee-Oconee Forest Plan was revised in January 2004, five amendments were completed.

- Amendment #1: Managing Recreation Uses in the Upper Segment of the Chattooga Wild and Scenic River Corridor (DN signed January 31, 2012).
- Amendment #2: Beasley Knob OHV Trail Improvement Project (DN signed February 28, 2013).
- Amendment #3: Disposal of the Toccoa Work Center Complex (DM signed December 5, 2014).
- Amendment #4: Revised Land and Resource Management Plan Administrative Change: 2012 Planning Rule Monitoring Program Transition (DM signed May 17, 2016).
- Amendment #5: Revised Land and Resource Management Plan Updating Standards for Federally Listed Bat Species (DN signed May 9, 2017).

Chattahoochee-Oconee National Forest
Fiscal Year 2016: MONITORING AND EVALUATION ANNUAL REPORT

COMMENT FORM

If you have any comments on this report, please fill out this form and return to the address below.

I have the following comments on the Monitoring and Evaluation Annual Report:

_____
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_____
_____
_____
_____

Name: _____
Address: _____
_____

Mail this form to: USDA Forest Service
Chattahoochee-Oconee National Forests
1755 Cleveland Hwy
Gainesville, GA 30501
Attention: Nelson Gonzalez-Süllow