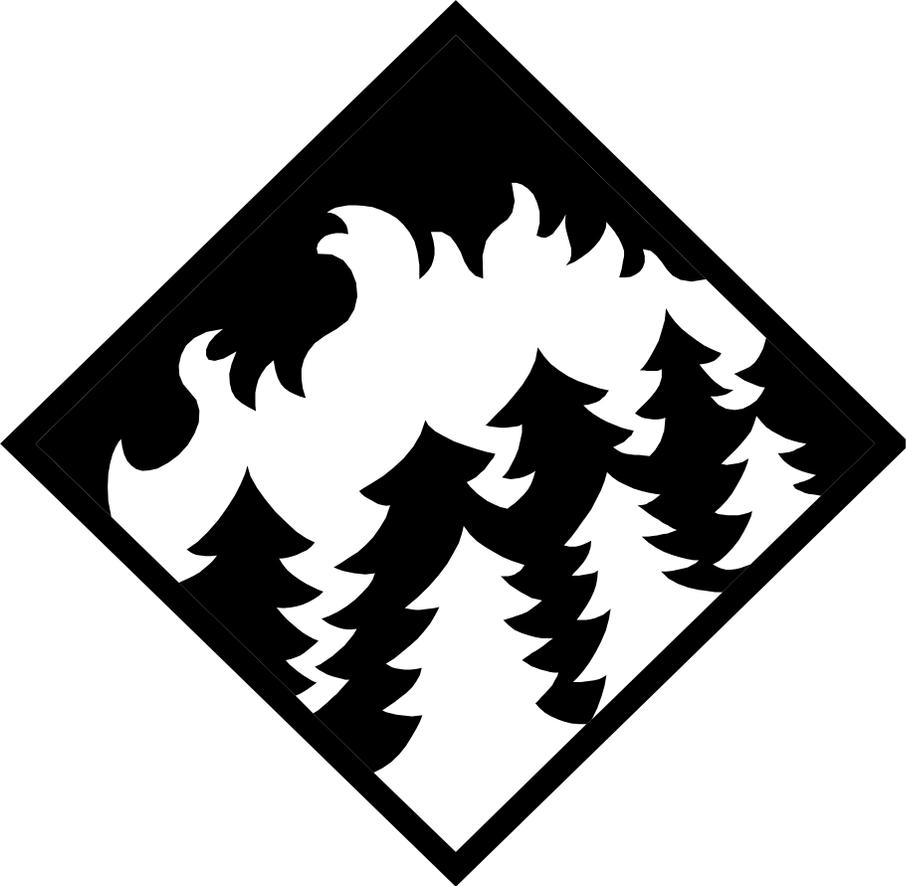


2013 Forest Plan Monitoring and Evaluation Report

National Forests in Florida



Message from the Forest Supervisor

Monitoring, evaluation, and research are the heart of adaptive management and are the quality control mechanisms for the Revised Land and Resource Management Plan for the National Forests in Florida (Forest Plan). Fiscal year 2013 (Oct. 1, 2012 – Sept. 30, 2013) was the fourteenth year of Forest Plan implementation. Each year, we examine trends in monitoring data to assess whether we are achieving the goals and objectives laid out in the Forest Plan. These trends are evaluated to determine if there is a need to adjust our management strategies or amend the plan's goals, objectives, or standards and guidelines to achieve the desired future conditions of the land we manage. Alternatively, as we learn about the effects of our activities and management priorities shift, some monitoring questions may no longer be needed to assure that the overall goals of the Forest Plan are achieved.

Findings in this report indicate there is no immediate need to revise or amend the Forest Plan based on monitoring trends. However, changes in the monitoring program will be required beginning in FY 2014 to ensure that future monitoring efforts are consistent with the recently finalized Forest Service regulations guiding the content of Forest Plans (i.e., the "2012 Planning Rule") and related directives for monitoring in the Forest Service Handbook (section 1909.12, chapter 30).

The FY 2013 report builds on the FY 2012 report and differs from previous reports in four important ways: 1. The report focuses on monitoring items related to management of natural resources and trends in natural resource conditions. Social and economic monitoring items will be included in future reports. 2. Questions or indicators for which we have no new information have been mostly omitted. General information about these items may be found in past monitoring reports, which are available on the National Forests in Florida website (<http://goo.gl/iWdR3w>) or upon request (contact Matthew Trager at mdtrager@fs.fed.us or 850-523-8582). 3. Where applicable, anticipated future changes to the monitoring program are noted. In particular, incorporation of ecological condition models and changes to assure compliance with new Forest Service planning regulations will result in development of new monitoring questions and new items to measure that will be incorporated from FY 2014 to FY 2016. 4. There are no action plans. Expected future actions (if any) are noted for each monitoring question. Additionally, the Forest Plan objectives and goals related to each question have not been repeated unless directly relevant for the evaluation of results; these may be found in previous monitoring reports or in Table 5.1 of the Forest Plan.

Certification Statement

I have evaluated the monitoring results and evaluations in this report. I have directed the National Forests in Florida staff to consider these findings in the development of site-specific projects, particularly for accomplishing forest strategic priorities in areas that have not met Forest Plan objectives. I have considered funding requirements in the budget necessary to implement these actions. Both the trends in monitoring data and the current and upcoming changes in the monitoring program demonstrate that the Forest Plan remains a relevant framework for forest management activities.

This report is approved.

SUSAN JEHEBER-MATTHEWS, Forest Supervisor

Date

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Section 1. Ecological conditions and individual species

1.1 Is the health of natural forest communities being maintained or improved?

Item to Measure: Management indicator species

The Forest Plan monitoring program includes multiple questions related to the health of forest plant and animal communities. Management Indicator Species (MIS) were monitored because their population changes were believed to indicate the effects of management activities. Forest Plan Amendment 10 was finalized in 2011 and revised the list of MIS to include only species that are more closely linked to the quality of managed habitats and that are amenable to study.

The monitoring program in the Forest Plan prescribes that this item be reported on a five-year frequency to discern trends in how Management Indicator Species (MIS) respond to forest management activities. In FYs 2009-2012, long-term plots and new survey protocols were initiated to better assess trends of the new MIS plant species, and annual monitoring of a subset of plots will continue with reports on trends made available at least every five years.

The 2012 Planning Rule removed Forest Plan requirements for MIS from planning regulations and replaced them with plan components addressing ecosystem health and species-specific plan components for focal species (36 CFR 219.12). In future reports, it is likely that a subset of species currently considered as MIS will be referred to as “focal species” that indicate ecological conditions.

Results: This question will be addressed upon completion of multiple years of monitoring data and in compliance with the new planning regulations regarding Forest Plan monitoring. The population statuses of several MIS that are good candidates for designation as focal species (e.g., red-cockaded woodpecker, Florida scrub-jay) are reported elsewhere in this report.

1.2 What are the habitat conditions of the major habitat associations?

Item to Measure: Acres of each habitat association by major forest type age class.

The monitoring program in the Forest Plan prescribes that this item be reported on a five-year frequency. In the past, the population trends of red-cockaded woodpeckers (RCW) were used to address this question, but RCW do not occur in all major habitat types and there are areas of appropriate habitat that are not occupied by RCWs. Therefore, more direct measurements of ecological conditions are preferable.

The National Forests in Florida has recently developed Ecological Condition Models for major forest types that more directly address this question. These models include data for tree density, vegetation structure, fire history and ground-truthing of remotely sensed data to evaluate the condition of managed terrestrial habitats within the National Forests in Florida. In FY 13 an ecological condition model was developed for the major manage habitats (flatwoods, sandhill, wet prairie, upland pine) of the Apalachicola National Forest.

One of the critical components of developing an ecological condition model is defining the spatial arrangement of natural communities across the National Forests in Florida. The Natural

Areas Inventory developed a map of the historic natural communities for the Apalachicola National Forest that will be used as reference conditions in the spatially-explicit evaluation of ecological condition. For example, in an area that was historically wet prairie or savanna (a habitat with high grass cover and very few trees) a tree density and age structure appropriate for a good condition in flatwoods would actually indicate a degraded ecological condition. The map of natural communities is below.

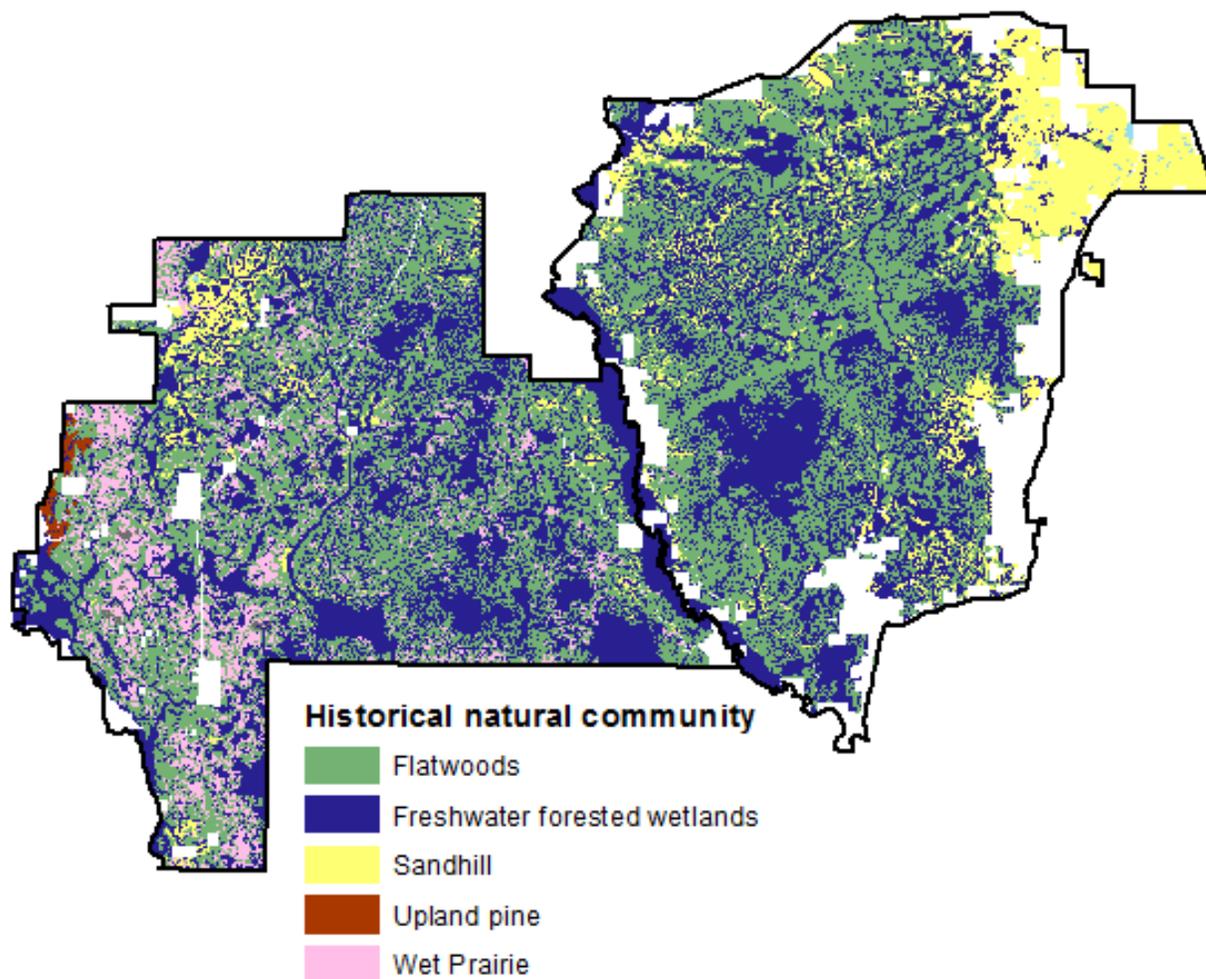


Figure 1. Historical distribution of natural communities in the Apalachicola National Forest. Five additional minor natural communities accounted for ~1% of the total area (see Table 1 below).

Table 1. Acres of historical natural communities mapped on the Apalachicola National Forest.

Historical Natural Community	Area (acres)	Percent
Flatwoods (includes wet and mesic flatwoods)	247,156	43.2%
Sandhill	54,289	9.5%
Wet prairie	36,705	6.4%
Upland pine	1,631	0.3%
Freshwater forested wetlands	230,849	40.4%

FNAI collected 89 ecological condition monitoring (ECM) plots on the ANF and 71 on the OsNF. In the ANF, ECM plots were collected in wet prairie (53 plots), sandhill (6 plots), scrubby

flatwoods (3 plots), wet flatwoods (15 plots), and mesic flatwoods (12 plots). This includes 27 ECM plots collected by TNC staff members in the Wakulla District.

Results: By comparing the current conditions within habitats delineated in the historical natural communities map to desired conditions, National Forests in Florida staff developed a five-tier ecological condition model for flatwoods, sandhills, wet prairies and upland pine habitats on the Apalachicola National Forest (Tables 2-5, Figure 2). Freshwater forested wetlands are not actively managed and were not included in the ecological condition model.

Table 2. Overall ecological condition scores on the Apalachicola National Forest.

Condition	Area (acres)	Percent
Tier 1 - Excellent	1,954	0.6
Tier 2 - Good	77,183	23
Tier 3 - Fair	97,140	28
Tier 4 - Poor	73,571	23
Tier 5 - Very poor	91,232	26

Table 3. Ecological condition scores for flatwoods habitat.

Condition	Area (acres)	Percent
Tier 1 - Excellent	110	0.04
Tier 2 - Good	57,709	23
Tier 3 - Fair	69,623	28
Tier 4 - Poor	52,734	21
Tier 5 - Very poor	69,499	28

Table 4. Ecological condition scores for sandhill habitat.

Condition	Area (acres)	Percent
Tier 1 - Excellent	18	0.03
Tier 2 - Good	14,262	26
Tier 3 - Fair	19,699	36
Tier 4 - Poor	12,386	22
Tier 5 - Very poor	8,860	16

Table 5. Ecological condition scores for wet prairie habitat.

Condition	Area (acres)	Percent
Tier 1 - Excellent	1,823	5
Tier 2 - Good	4,871	14
Tier 3 - Fair	7,461	22
Tier 4 - Poor	8,123	24
Tier 5 - Very poor	12,222	35

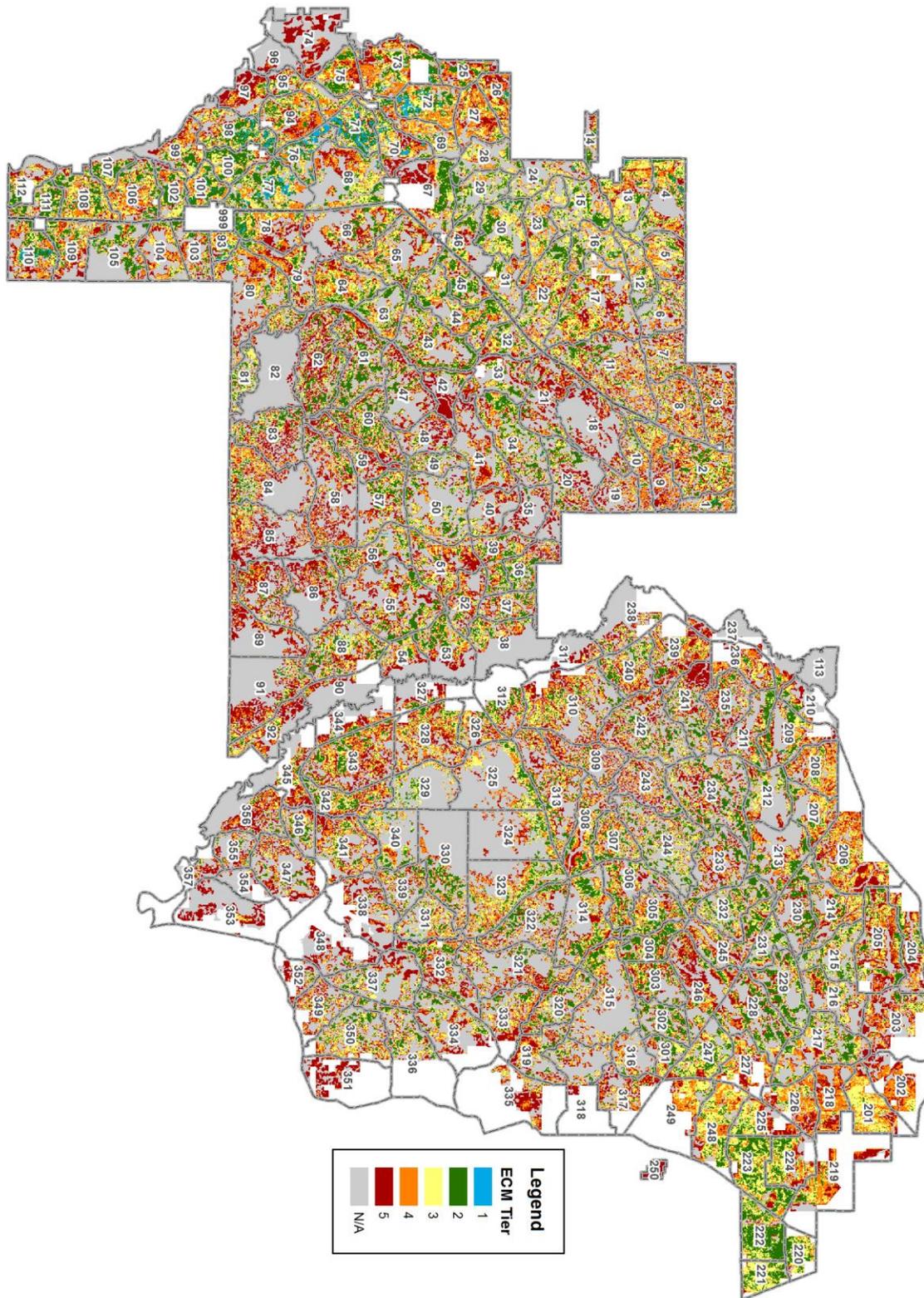


Figure 2. Map of ecological condition scores for four major natural communities on the Apalachicola National Forest.

In FY 2013, FNAI also generated a historical natural community map for the Sandlin Bay area of the Osceola NF, which is currently a priority for land acquisition in the Pinhook purchase unit. This evaluation of natural communities may serve as a basis for expanding and refining the Osceola Ecological Condition Model.

Most of the area (62%) of Sandlin Bay is an enormous, contiguous wetland of swamp, baygall, marsh, and other frequently flooded natural communities (collectively called "swamp matrix" in the map). This matrix of mostly forested wetlands drives natural processes in the larger landscape by influencing drainage and impeding fire. Mesic flatwoods is the dominant pyrogenic community type occupying some of the highest ground in this area. Wet flatwoods occupies the lower upland areas and often serves as the ecotone between the mesic flatwoods and wetland types. Several more xeric areas were identified on the Sandlin Bay but no true sandhill was mapped. A few small areas of "dry" mesic flatwoods occur in the extreme NE portion of the property along SR 2 and one scrubby flatwoods area was identified in the southwest portion of the project area. Smaller swamps (often cypress dominated) that occur within the pyrogenic uplands are classified as dome swamps and are a prominent feature of this landscape.

Table 6. Historical natural communities mapped on the Osceola NF, Sandlin Bay area.

Historic Natural Community	Acres	Percentage
Mesic flatwoods	14,170	19.3%
Wet flatwoods	9,435	12.8%
Scrubby flatwoods	30	<0.01%
Swamp matrix	45,694	62.4%
Dome swamp	3,006	4.1%
Basin swamp	818	1.1%
Baygall	51	0.06%
Open water	33	<0.01%
Basin marsh	23	<0.01%
Depression marsh	8	<0.01%

1.3 Are we maintaining RCW populations on the National Forests in Florida?

Item to Measure: Number of effective groups; number of active clusters, compartment group survey.

Results: All three forests are continuing their long-standing monitoring of red-cockaded woodpeckers, with more detailed monitoring of a subset of clusters on the Apalachicola and Osceola populations that contribute to the translocation program for the species.

With continued emphasis management activities that improve RCW habitat (e.g., thinning pines, hardwood midstory removal, prescribed burning, groundcover improvement) as well as installation of artificial cavities and translocation, the viability of the red-cockaded woodpecker is ensured on the National Forests in Florida. Currently, three of the populations have met the population objectives described in Forest Plan Objective 8 (Apalachicola, Osceola and Ocala), and the two districts currently not meeting them (Wakulla and Osceola) are growing at an acceptable pace.

Table 7. Number of active red-cockaded woodpecker clusters

Year	Apalachicola RD	Wakulla RD	Osceola NF	Ocala NF
1991	503	186	44	12
1992	503	182	43	11
1993	494	150	43	13
1994	500	Incomplete	45	10
1995	504	150	51	15
1996	504	154	53	10
1997	505	157	51	10
1998	505	125	Incomplete	13
1999	486	125	66	18
2000	486	138	Incomplete	22
2001	488	140	Incomplete	30
2002	486	140	Incomplete	29
2003	485	134	77	37
2004	473	137	84	44
2005	473	104	88	53
2006	489	120	91	53
2007	494	130	100	55
2008	513*	140	112	65
2009	533*	146	124	65
2010	546*	147	137**	67
2011	545*	151	142**	75
2012	549*	162	143**	92
2013	557*	170	143	112

* Population estimated from direct measurement of a sample of clusters each year, resulting in every cluster being visited at least once every three years.

** Numbers adjusted from 2012 report based on re-evaluation of data

It is possible that population growth on the Osceola has been hindered by proportionally large contributions of fledglings for the RCW translocation program (totaling 118 in the past 6 years).

Table 8. Osceola NF RCW clusters and contributions to the translocation program.

Year	Active Clusters	PBGs	# of Birds Translocated
2004	84	81	0
2005	88	82	
2006	91	86	
2007	100	97	
2008	112	106	20
2009	124	111	16

Year	Active Clusters	PBGs	# of Birds Translocated
2010	137	117	24
2011	142	123	20
2012	143	129	20
2013	143	132	18

The Apalachicola District also continues to contribute fledglings to the translocation program. In fact, the district is the single largest donor, accounting for 740 birds since 1989.

Table 9. Apalachicola NF contributions to the translocation program.

Fiscal Year	Females	Males	Total	(Pairs)
1989-03	186	114	300	(99)
2004	23	19	42	(19)
2005	21	21	42	(21)
2006	24	26	50	(24)
2007	28	26	54	(26)
2008	23	21	44	(21)
2009	23	23	46	(23)
2010	33	31	64	(31)
2011	27	27	54	(27)
2012	22	22	44	(22)
Totals	410	330	740	313

1.4 What are the population trends of scrub jay? How is management affecting scrub jay? How many acres are suitable for scrub jay?

Items to Measure: Scrub jay population demographics, reproduction, dispersion, number of acres in 3-12 year age class in sand pine.

The Ocala National Forest is continuing work with the Florida Fish and Wildlife Conservation Commission and researchers associated with the US Geological Survey unit at the University of Florida to develop and refine survey methods for Florida scrub-jays. The history of these efforts is described in the FY 2011 Monitoring and Evaluation Report. The population data for FY 2012 and 2013 were derived from sampling methods that were determined to best balance accuracy and efficiency, but may be further refined in the future.

Results: The population estimates for Florida scrub-jays in FY 2012 and 2013 show a substantial increase from 2007, the last year that data were available. It is not clear how much of this change is due to actual population differences rather than differences in survey methods, so multiple years of data collected with consistent methodology will be required to discern any trends. However, it is clear that the Ocala National Forest continues to support a large scrub-jay population that meets Forest Plan Objective 9's target population size of 742-907 groups.

Table 10. Florida scrub-jay population and habitat trends

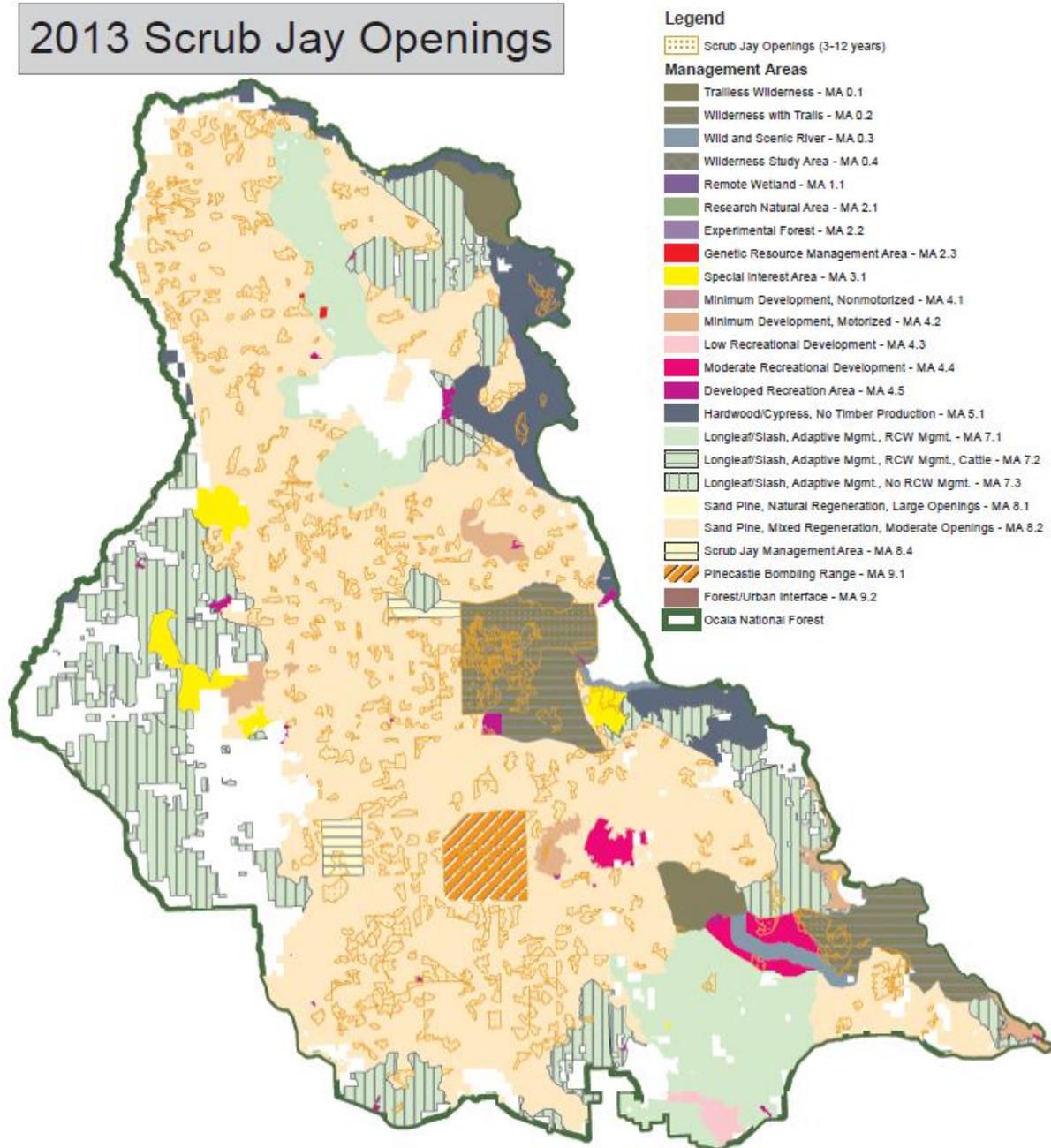
Year	Number of groups/birds		Acres of suitable habitat
	Lake George RD	Seminole RD	
1994	454/no count	245/no count	ND
1995	460/1313	247/694	ND
1996	466/1398	249/693	ND
1997	468/1336	259/774	ND
1998	473/893	272/799	ND
1999	333/893	413/1050	52,089
2000	351/1020	412/1048	47,188
2001	384/1120	401/969	45,508
2002	421/1258	394/955	42,895
2003	425/1251	355/881	36,775
2004	426/1253	354/868	33,854
2005	790/2,136		30,523
2006	786/2,129		30,633
2007	803/2,313		29,454
2008	ND		30,022
2009	ND		29,578
2010	ND		31,870
2011	ND		31,990
2012	1100/2,970		40,729
2013	1100-1250 groups		43,101

In FY 2013, there were approximately 43,101 acres of appropriate Florida scrub-jay habitat (scrub with 3-12 years of regrowth following fire, harvest or chopping) on the Ocala National Forest. The 2012 habitat estimate was higher than previous years largely due to a large wildfire

in the Juniper Prairie Wilderness in 2009 that generated large areas of high-quality scrub-jay habitat. Most of the increase in suitable habitat from 2012 to 2013 was due to several thousand acres in the Pinecastle bombing range reaching 3 years since fire. However, current amount of suitable habitat is still less than the habitat goal of 45,000-55,000 acres in Forest Plan Objective 9 and recent increases have not been due to active management by the Forest Service. Efforts are underway to create more and larger areas of early successional scrub habitat through a variety of management activities, including some that are not dependent on traditional harvest of mature sand pines.

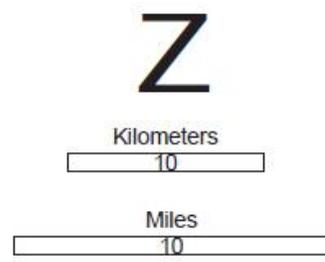
See also monitoring questions 1.16 and 1.17. The current habitat is shown in the map below.

2013 Scrub Jay Openings



- Legend**
- Scrub Jay Openings (3-12 years)
 - Management Areas**
 - Trailless Wilderness - MA 0.1
 - Wilderness with Trails - MA 0.2
 - Wild and Scenic River - MA 0.3
 - Wilderness Study Area - MA 0.4
 - Remote Wetland - MA 1.1
 - Research Natural Area - MA 2.1
 - Experimental Forest - MA 2.2
 - Genetic Resource Management Area - MA 2.3
 - Special Interest Area - MA 3.1
 - Minimum Development, Nonmotorized - MA 4.1
 - Minimum Development, Motorized - MA 4.2
 - Low Recreational Development - MA 4.3
 - Moderate Recreational Development - MA 4.4
 - Developed Recreation Area - MA 4.5
 - Hardwood/Cypress, No Timber Production - MA 5.1
 - Longleaf/Slash, Adaptive Mgmt., RCW Mgmt. - MA 7.1
 - Longleaf/Slash, Adaptive Mgmt., RCW Mgmt., Cattle - MA 7.2
 - Longleaf/Slash, Adaptive Mgmt., No RCW Mgmt. - MA 7.3
 - Sand Pine, Natural Regeneration, Large Openings - MA 8.1
 - Sand Pine, Mixed Regeneration, Moderate Openings - MA 8.2
 - Scrub Jay Management Area - MA 8.4
 - Pinecastle Bombing Range - MA 9.1
 - Forest/Urban Interface - MA 9.2
 - Ocala National Forest

Management Area	Count	FY 2013 Acres	FY 2012 Acres	% Change from FY 2012
Developed Recreation Area - MA 4.5	2	83	72	15%
Hardwood/Cypress, No Timber Production - MA 5.1	6	454	470	-3%
Longleaf/Slash, Adaptive Mgmt., No RCW Mgmt. - MA 7.3	7	353	238	48%
Longleaf/Slash, Adaptive Mgmt., RCW Mgmt. - MA 7.1	4	143	158	-10%
Minimum Development, Motorized - MA 4.2	2	65	68	-4%
Moderate Recreational Development - MA 4.4	4	364	374	-3%
Pinecastle Bombing Range - MA 9.1	14	4351	1813	140%
Sand Pine, Mixed Regeneration, Moderate Openings - MA 8.2	503	28207	27815	1%
Scrub Jay Management Area - MA 8.4	2	257	302	-15%
Special interest Area - MA 3.1	2	236	215	10%
Trailless Wilderness - MA 0.1	2	33	32	2%
Wild and Scenic River - MA 0.3	1	62	89	-30%
Wilderness with Trails - MA 0.2	14	8493	8571	-1%
Total		43101	40217	15%



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Author: Paul Medley

Figure 3. Scrub jay habitat on the Ocala NF.

1.5 Are we maintaining viable populations of PETS animal species and habitats to support them?

Item to Measure: Number of PETS animals or acres of suitable habitat.

This question has been addressed in past reports with a list of federally listed or sensitive animal species accompanied by any information regarding their natural history or presence on the National Forests in Florida. Population size or trends were available for very few species, so the data presented were not appropriate for answering the question. Given the large number of federally listed or sensitive species, the rarity of many of them and the logistical challenges of monitoring populations that are often small, widely-dispersed or difficult to detect, it is unlikely that future monitoring will generate data for all species or habitats. Instead, a combination of intensive monitoring on some important species (e.g., MIS including the federally listed red-cockaded woodpecker and Florida scrub-jay) and ecological conditions will likely be used to address this question in the future.

Results: For this report we focus on notable observations or management activities related to frosted flatwoods salamanders that occurred during FY 2013:

In FY 2013, known or possible frosted flatwoods salamander (*Ambystoma cingulatum*) breeding ponds stayed dry until very late into the winter/early spring. As a result, only 20 dip net surveys were conducted on known salamander breeding "hot spots." No larvae were found to support further monitoring. However, Pierson Hill claims to have seen larvae in two ponds while on the forest at night, encouraging USGS to use those sites for an eDNA study. Anna McKee and William "Jamie" Barichivich of USGS sampled ponds 77.001 and 77.010, collecting 4 water samples at each site. They repeated this 4 weeks later. Over the 8 samples, each pond had at least one "positive" test, though dip-net surveys at each sampling event did not produce any larvae. The usefulness of this method for assessing occupancy is uncertain, but efforts to refine the methods and interpretation may continue if knowledgeable personnel and funding are available.

Habitat restoration activities continued and a decision signed in early FY 2013 authorized mechanical and chemical removal of shrub and hardwood encroachment from over 700 known isolated wetlands on the Apalachicola NF. In FY 2013, 15 sites were re-treated for 13.5 acres and 7 new sites were treated for 12.1 acres. Additional treatment was planned and funded, but the contractors were unable to complete the project prior to the funding deadline. Photopoints were taken prior to restoration at all sites. Post-work photos are taken each summer following treatment, and the restoration treatments appear to be successful.

All projects were funded and managed by FWC Aquatic Habitat Restoration and Enhancement Sub-Section (AHRES), with TNC staff as daily site inspector. In FY 13, FWC AHRES awarded ANF a \$50,000 project for salamander pond improvement work.



A. Before treatment in summer 2011



B. After treatment in summer 2013

Figure 4. Frosted flatwoods salamander pond (70.008) before (A) and after (B) restoration.

1.7 Are we maintaining viable populations of PETS plant species and habitats to support them?

Item to Measure: Locations and numbers of PETS plant populations.

Relatively little systematically collected data has been presented in recent Monitoring and Evaluation Reports. However, since 2011, the Florida Natural Areas Inventory (FNAI) and National Forests in Florida staff have continued censuses of some permanent plots for federally listed plant species collected occurrence data for many other species from plots used to develop the ecological condition models and historical natural communities maps discussed above. This report summarizes new data from FYs 2011-2013 and incorporates it into population trends for some species or presents it as baseline information for future monitoring of other species.

Results: In FYs 2011 and 2012, at least 411 acres were intensively surveyed for rare plants across 1,447 sample locations. This sampling included targeted surveys of sites where rare plants had been previously reported as well as opportunistic discovery of new locations coincident with plots used in the development of the ecological condition models or historical natural communities. These efforts focused on the Apalachicola National Forest because it has the largest number of PETS plant species, including some that are known from few other locations.

Table 11. Total number of locations where PETS plant species were identified in FYs 2011 and 2012 on the Apalachicola National Forest

Species	Locations Mapped	Federal Status ¹	State Status ²
<i>Baptisia simplicifolia</i>	10	N	LT
<i>Calapogon multiflorus</i>	3	N	LE
<i>Epidendrum conopseum</i>	1	N	CE
<i>Gentiana pennelliana</i>	24	N	LE
<i>Harperocallis flava</i>	88	LE	LE
<i>Hymenocallis henryae</i>	62	N	LE
<i>Litsea aestivalis</i>	1	N	LE
<i>Macbridea alba</i>	17	LT	LE
<i>Nolina atopocarpa</i>	3	N	LT
<i>Nyssa ursina</i>	11	N	N
<i>Phoebanthus tenuifolius</i>	1	N	LT
<i>Physostegia godfreyi</i>	2	N	LT
<i>Pinguicula caerulea</i>	2	N	LT
<i>Pinguicula ionantha</i>	69	LT	LE
<i>Pinguicula lutea</i>	1	N	LT
<i>Platanthera ciliaris</i>	1	N	LT
<i>Polygala lewtonii</i>	18	LE	LE
<i>Rhexia parviflora</i>	1	N	LE
<i>Ruellia noctiflora</i>	1	N	LE
<i>Sarracenia minor</i>	11	N	LT
<i>Scutellaria floridana</i>	16	LT	LE

<i>Stachydeoma graveolens</i>	2	N	LE
<i>Verbesina chapmanii</i>	27	N	LT

¹ N = None, LE = listed as endangered, LT = listed as threatened

² N = None, LE = listed as endangered, LT = listed as threatened, CE = candidate for listing as endangered

In FY 2013 the Florida Natural Areas Inventory conducted detailed surveys for rare plants and sensitive habitats in the Beasley project area on the Apalachicola NF (Compartments 25, 26, 27 and 28). The results were summarized in a report (FNAI 2013):

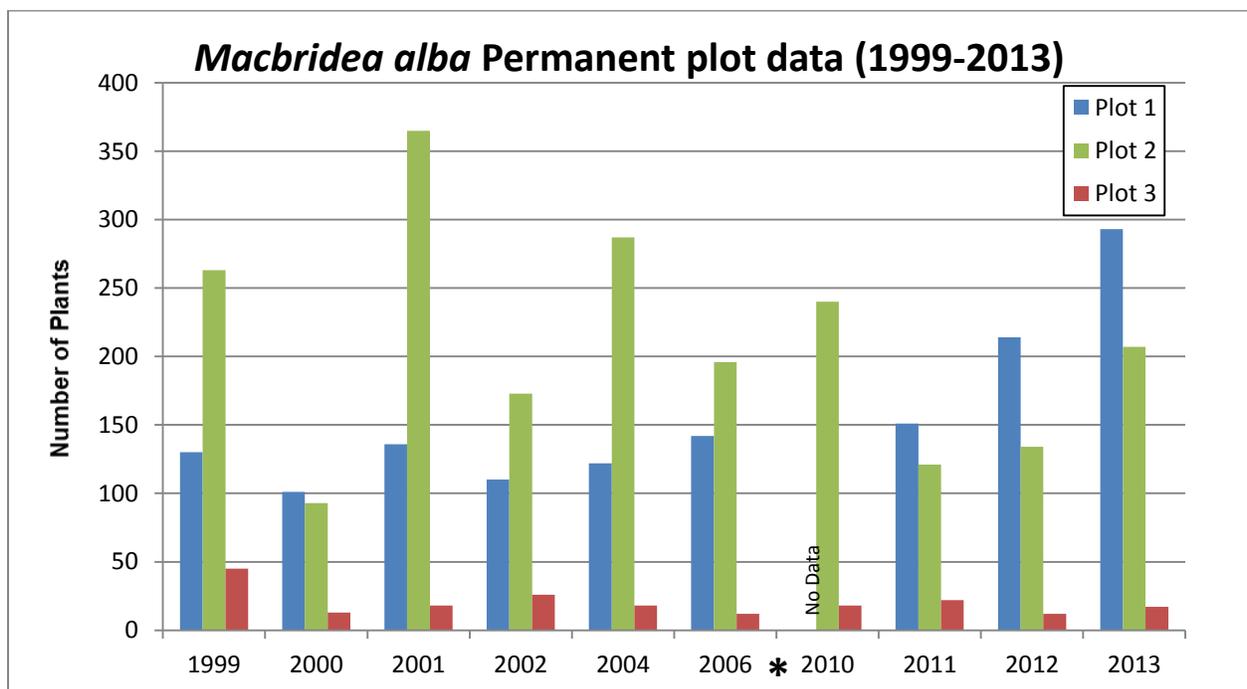
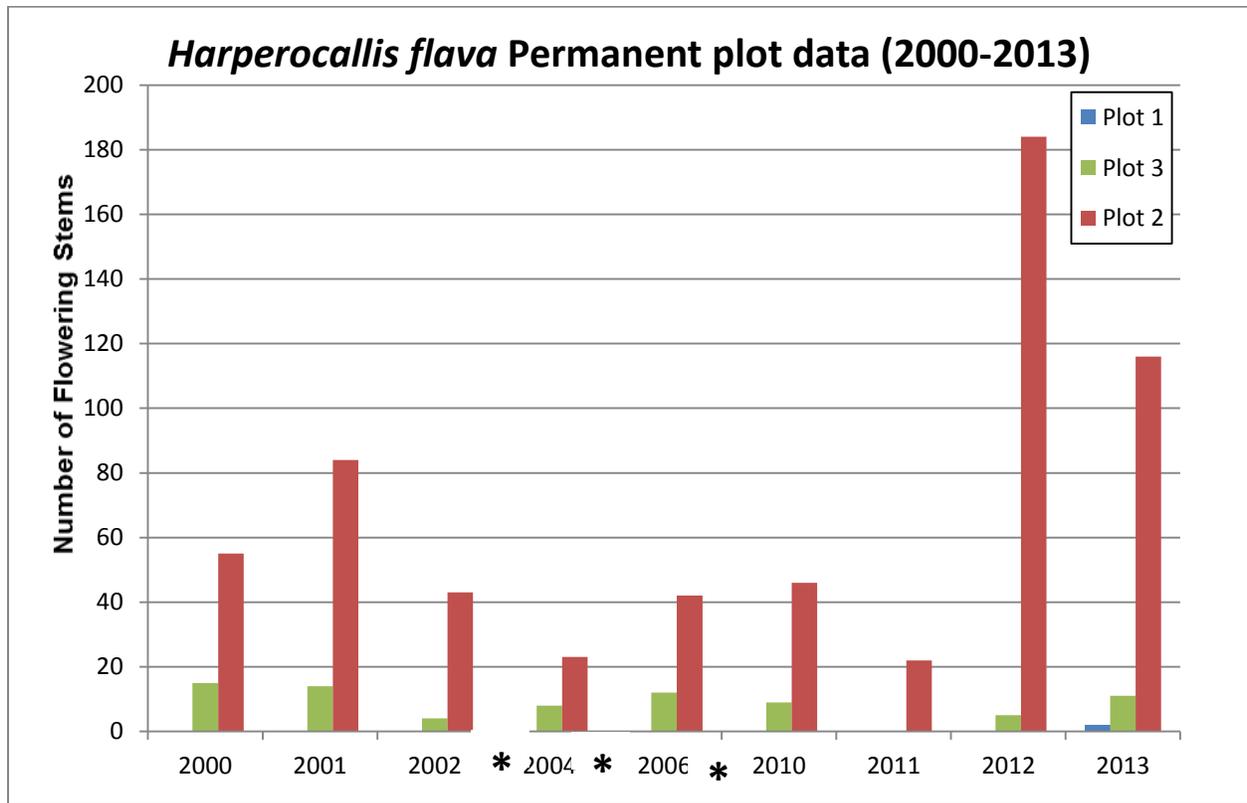
In Compartment 27, surveys for Florida skullcap during its flowering period two months after the compartment was burned in February 2013 netted close to 2000 plants at 4 locations within a roughly 2 square km area in the center of the compartment. Plants were found not only in open wet prairies but also in light shade under shrubs and scattered pines at their edges.

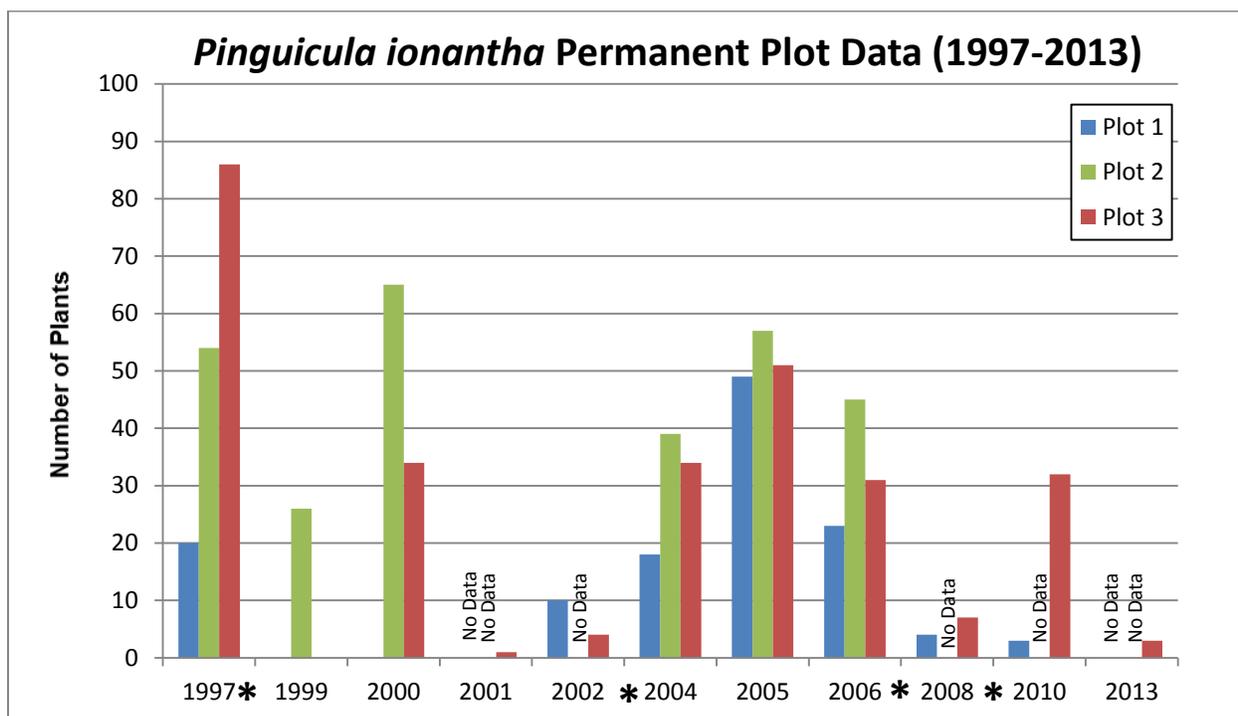
Surveys for the three other Federally-listed species were conducted in 2012 and 2013 during their flowering periods in March, April and May, on sites that appeared open on current aerial photographs within the historical area of the wet prairie in Compartments 26 and 27. No occurrences of white birds-in-a-nest or Harper's beauty were found. In 2012, one occurrence of Godfrey's butterwort consisting of 10 plants was found in Compartment 26 and one of 21 plants in Compartment 27. In 2013, 80 plants of Godfrey's butterwort were found in the northwest corner of Compartment 28 along the narrow grassy borders of swamps.

In 2012 six state-listed plant species were found on the Beasley Tract in the course of the survey, two in the upland pine community on compartment 25, mock pennyroyal (*Hedeoma graveolens*) and narrow-leaved phoebanthus (*Phoebanthus tenuifolia*); two in wet prairie in Compartment 27, Chapman's crownbeard (*Verbesina chapmanii*) and Apalachicola dragon-head (*Physostegia godfreyi*); one scare-weed (*Baptisia simplicifolia*) in mesic flatwoods in Compartment 27, and one, greenfly orchid (*Epidendrum conopseum*), in a dome swamp in Compartment 27. In 2013 a second larger population of mock pennyroyal, consisting of about 350 plants, was found in Compartment 25, also in upland pine community near the western boundary of the Forest.

In addition to documenting and mapping locations of rare species, FNAI also identified sensitive habitats in the Beasley project area. Of the 24 areas identified, most are wet prairie, with some high-quality flatwoods and floodplain swamps. Compartment 25 in this project area contains most of the upland pine habitat on the Apalachicola NF, which is characterized by clay soils, pine overstory with a diverse hardwood midstory including red oak, dogwood and magnolia. Ecological condition monitoring plots were established in several of the sensitive habitats and rare plant locations.

In addition to this project-level survey, more intensive sampling of *Harperocallis flava*, *Macbridea alba* and *Pinguicula ionantha* was conducted at three long-term monitoring plots.





Asterisks indicate years that sampling did not occur. “No Data” indicates plots that were not sampled in a given year.

Additionally, in FY 2013, four permanent plots were established for future monitoring of *Scutellaria floridana* on the Apalachicola NF.

1.8 What is the burn interval of upland pine acres? In what months have upland pine been burned?

Items to Measure: Acres of upland pine burned. Acres by month.

Results: Total acres burned on the National Forests in Florida in the last 3 years are shown in Table 12 and broken down for FY 2013 by individual forest in Table 13 and by month in Table 14.

Table 12. Area burned in the past three years

Year	Acres
2011	112,334
2012	87,739
2013	145,747
Total	395,799

Based on the upland pine Management Area 7.1 of 504,583 acres, 69% of the upland pine type was burned in the last 3 years.

Table 13. Area burned by forest in FY 2013

Forest	Acres burned	Total Acres of Upland Pine Habitat (MA 7.1)
Apalachicola	97,613	375,311
Osceola	23,104	93,480
Ocala	25,030	35,792
Total	145,747	504,583

Table 14. Percent of upland pine burned each month of FY 2013

Month	Percent
October	3
November	0
December	1
January	11
February	6
March	17
April	24
May	15
June	9
July	4
August	2
September	8

An average of 168,000 acres a year should be burned to maintain the upland pines. The Forest should strive to burn 50% of those acres (75,000 acres) between March 15 and September 30, and 20% (30,000 acres) between May 1 and July 31.

Based on the upland pine Management Area 7.1 acres of 504,583, 69% of this type, 345,820 acres, were burned in the last 3 years (2011, 2012, 2013). For 2013, 29% of the total burned between May 1 and July 31. The Forest burned 72% of total acres in the period from March 15 thru September with 28% during the dormant season between October and February. Average yearly acreage burned over the past three years is 115,273.

Weather patterns were not favorable for prescribed burning with drought influencing the area most of the year. Growing season burns are critical to habitat enhancement, but if growing season burns cannot be achieved, the overall fire frequency is the highest priority. The Forests took advantage of burn opportunities in January, and March thru May, when weather patterns provided for some relief from drought conditions.

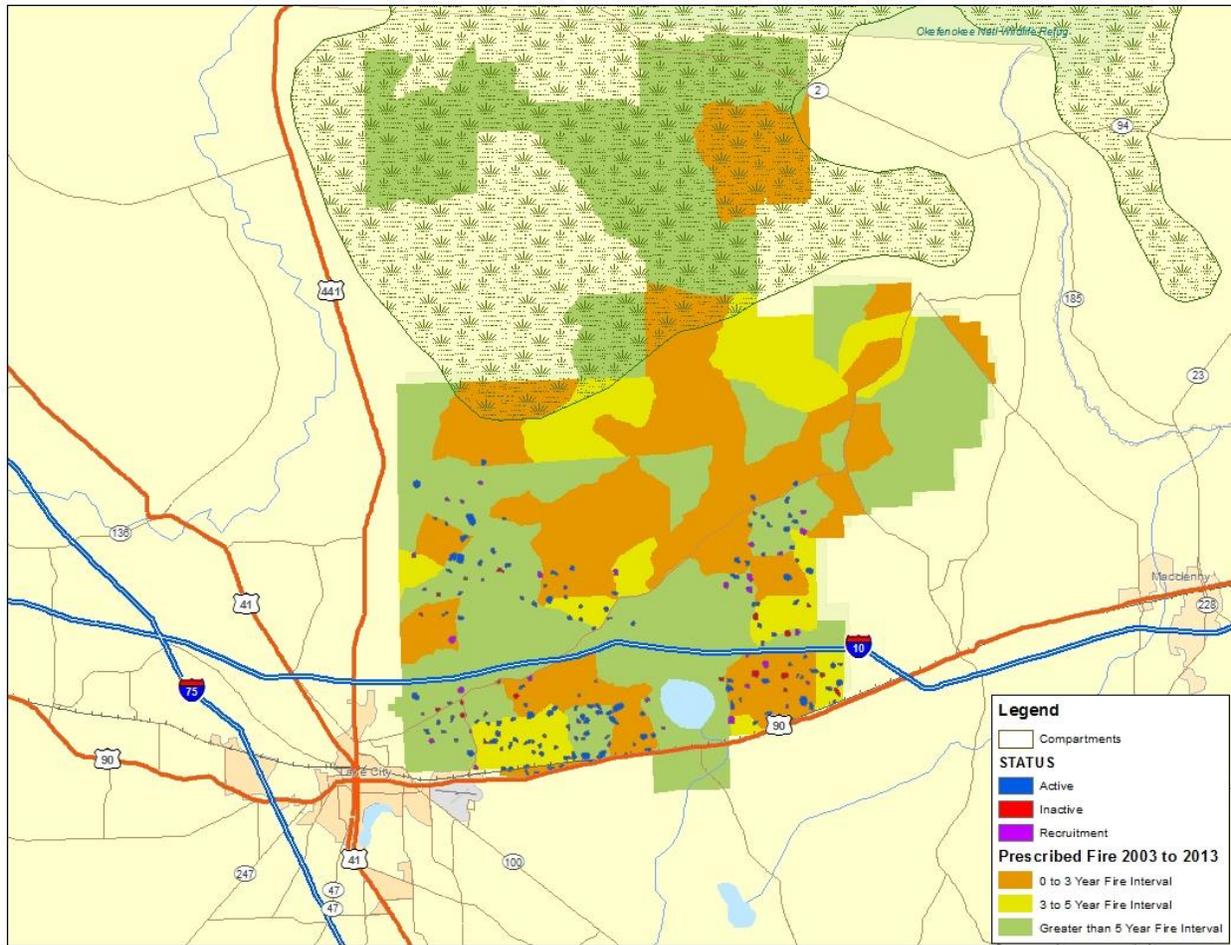


Figure 5. Time since fire in relation to RCW clusters on the Osceola NF.

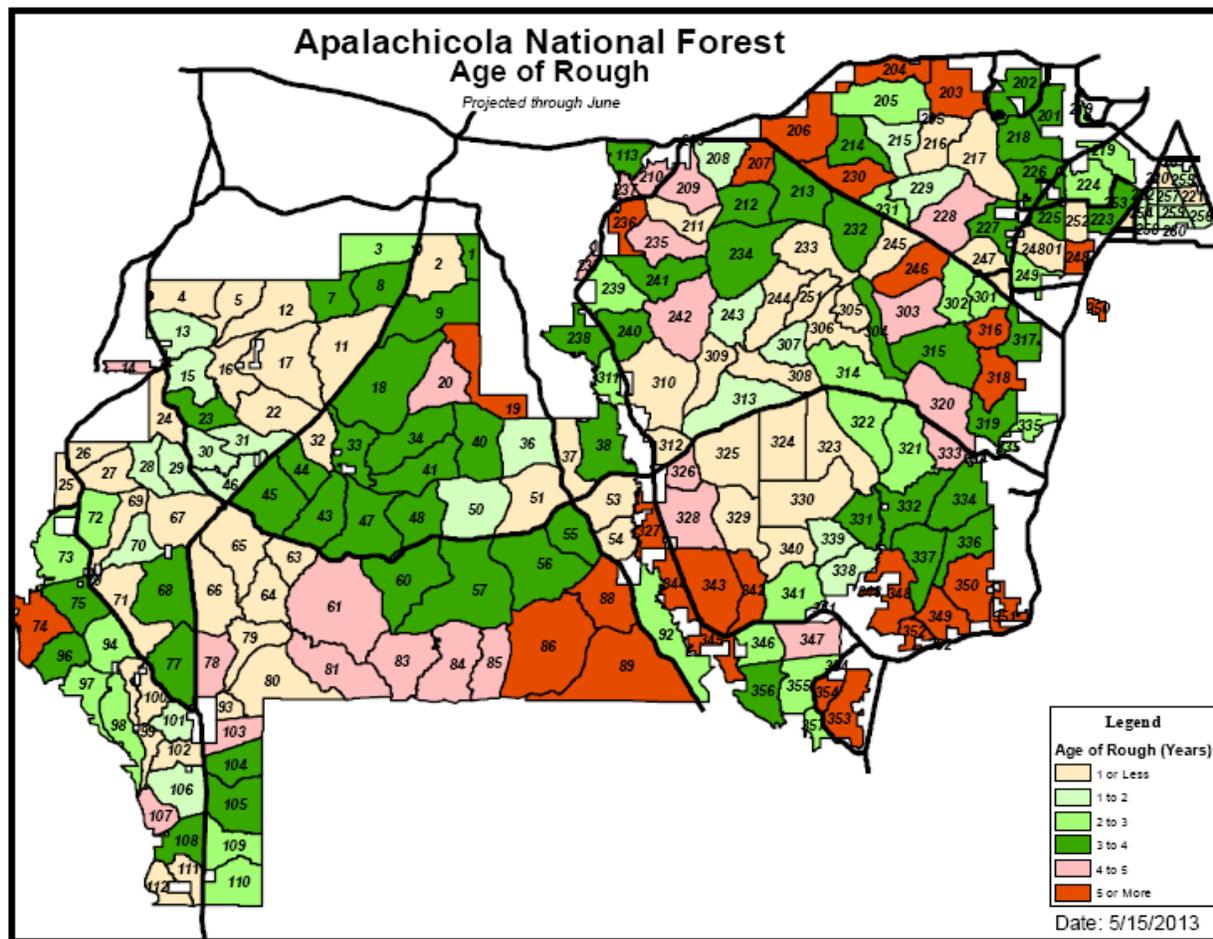


Figure 6. Time since fire for the Apalachicola NF.

**1.9 How many miles of firelines were plowed for prescribed fire and wildfires?
How many miles were restored?**

In FY 2013 the Forest minimized the use of plowed firelines and optimized the use of alternative firelines to the extent possible for both prescribed fire and wildfire. Alternative firelines include existing roads, trails and wet lines (water or foam).

1.10 How much off-site slash pine has been restored to other types?

Item to Measure: Acres type-converted from slash pine to other species.

Results: In the first 10 years of the Forest Plan (FY1999-2009), 6960 acres (35% of the target) were restored to longleaf pine from off-site slash pine. In FY 2013, 78 acres of off-site slash pine were clearcut and planted to longleaf pine. Including longleaf pine restoration through clearcutting off-site slash pine and removal of slash pine from longleaf stands, from FY2010 to FY2013, 3,720 acres have been restored (47% of the Forest Plan objective for that period).

Evaluation: In order to meet the 10-year objective, efforts should be made to increase the acreage of restoration in future years. More effort should be made to schedule removal of slash pine from mixed stands on the Osceola National Forest.

Future biomass and stewardship contract projects may provide opportunities to treat more off-site slash pine. CFLRP will also accelerate the rate of conversion on the Osceola.

1.11 Are we collecting data on understory structure?

Item to Measure: CISC report data on understory field.

The CISC database has been replaced by the FSveg database, which allows for collection of detailed understory vegetation information. Additionally, the plot data used to develop and ground-truth the ecological condition models includes extensive information on understory structure and composition.

Results: None for FY 2013. As the ECM plots are revisited, we will present data on trends in understory structure and the response of understory species to management activities.

1.12 How many acres have been offered for thinning?

Item to Measure: Number of acres of thinning harvest offered.

Results: The annual target is to offer 5,200 acres of thinning. In FY 2013, there were 2,331 acres offered for thinning. The acreage offered for thinning varies from year to year depending on management needs, weather limitations and the project planning process. The average acreage offered for thinning from FY2010-FY2013 is 3,245 acres, approximately 62% of the annual target.

A variety of efforts have been initiated to increase the acres of thinning offered in areas within Forest Service control. These include development of ecological condition and prioritization models and more efficient project planning. Funding is expected to continue to limit our ability to meet objectives.

1.13 How much off-site sand pine has been restored, and to what other types?

Item to Measure: Acres type-converted from off-site sand pine to other species.

Results: The Ocala NF planted 175 acres of longleaf pine in FY 2013 on previously off-site sand pine sites.

1.14 On how many acres have we initiated uneven-aged management harvests? Is the group selection method producing the anticipated desired conditions in the longleaf pine ecosystem and what are the effects of group selection harvest in longleaf pine?

Item to Measure: Number of acres offered with uneven-aged harvest. Tree stem diameter and frequency, frequency of seed crops, longleaf pine regeneration establishment and survival, growth, and development of seedlings, pine midstory development and distribution, costs and return of implementation of harvesting, costs and effects of burning within harvest units, plant species frequency and distribution, PETS species population trends/habitat conditions, MIS plant/animal population trends/habitat conditions.

Results: In FY 2013, 0 acres of uneven-aged harvest were completed, bringing the total to 845 acres over the implementation period of the Forest Plan (FY2000 – FY2013). There was one study initiated in FY 2012. Areas that may be suitable for this work are being surveyed, examined, and assessed for inclusion in future years work scheduling. Group selection and uneven-aged management in longleaf stands may be important management tools in the future, but current emphasis is on thinning stands (which often encourages natural regeneration that leads to uneven-aged structure) and conversion of off-site slash or sand pine to longleaf pine.

In order to meet the objectives of the Forest Plan related to this question, efforts should be made to increase the acreage offered for uneven-aged harvest. Otherwise, it may be the case that these management methods have limited utility given current priorities.

1.15 How many acres have we initiated irregular shelterwood harvest? Is the irregular shelterwood method producing the anticipated desired conditions in the slash pine forest?

Item to Measure: Number of acres offered with uneven-aged harvest. Growth and development of seedlings, costs and returns of implementation of harvesting, costs and effects of burning within harvest units, plant species frequency and distribution, PETS species effects/population trends.

Results: There were no acres of irregular shelterwood offered for harvest in FY 2013. Since approval of the 1999 LRMP, there have been no identified opportunities or proposals to implement irregular shelterwood harvest during site-specific project development. Use of irregular shelterwood remains a viable silvicultural tool, however it may not be an appropriate Forest Plan objective.

1.16 How many acres of sand pine have had a regeneration harvest?

Item to Measure: Number of acres offered with sand pine regeneration harvest.

Results: 2,855 acres of sand pine were harvested in FY 2013 and 3,711 acres of sand pine were offered for regeneration harvest through timber sales that will be implemented in future years. Both of these values are higher than recent years (Table 15), resulting from an increased effort to manage sand pine scrub for Florida scrub jays.

The forest has consistently been below this objective. This shortfall has been primarily the result of reduced budgets and personnel limitations. A variety of efforts have been initiated to increase the acreage treated. A Landscape Scale Assessment was completed for scrub habitat in 2009 and included a programmatic effort to subdivide scrub habitat into manageable blocks to facilitate a more practical scheduling process. In addition, a variety of sale preparation procedures including use of weight scaling and combining sawtimber and pulpwood products are being utilized to streamline the sale process.

Table 15. Area of sand pine regeneration harvest per year

Year	Acres
2006	2,645
2007	1,341
2008	2,494
2009	2,369
2010	2,750
2011	2,091
2012	892
2013	2,855

See related information and a map of current openings under monitoring question 1.4 and 1.17. In future monitoring reports it may be beneficial to combine these monitoring questions.

1.17 What is the size and distribution of openings in sand pine?

Item to Measure: Size of openings.

Results: The average size of sand pine openings created by timber harvest from 2000-2009 was 70 acres. Efforts have been undertaken to increase the size and connectivity of openings created by sand pine harvest, including revision of standards in Forest Plan Amendment 8. The average size of openings created by timber harvest in 2009 was 86 acres; this was increased to 138 acres in 2010. There were 5 openings greater than 100 acres created in 2011. In FY2012, there were 6 openings created from timber harvest greater than 100 acres, with the average size of 149 acres. In FY2013, a large salvage operation following the Hopkins Prairie fire created an opening of almost 1,000 acres in sand pine scrub habitat. The average size opening in scrub created by green timber harvest was 100 acres, and 11 of the 27 openings were larger than 100 acres.

See related information and a map of current opening under monitoring question 1.4 and 1.16. In future monitoring reports it may be beneficial to combine these monitoring questions.

1.18 Have old-growth stands been designated in each community type?

Item to Measure: Acres of old growth by community type designated in CISC.

Table 16. Old growth objectives by plant community

Old-Growth Community	Acres
Upland Longleaf Pine Forest	10,200
Southern Wet Pine Forest, Woodland, and Savannah	11,000
Cypress/Tupelo Swamp Forest	17,700
River Floodplain Hardwood Forest	2,900
Hardwood Wetland Forest	24,200
Dry and Dry Mesic Oak/Pine Forest	2,200
Coastal Plain Upland Mesic Hardwood Forest	1,700
Dry and Xeric Oak Forest, Woodland, and Savannah	2,100
Total	72,000

Results: Old growth has only been designated on the Apalachicola NF and the table below shows the acres of each community designated.

Table 17. Old growth designations on the Apalachicola National Forest

Old-Growth Community	Acres
Upland Longleaf Pine Forest	6,836
Southern Wet Pine Forest, Woodland, and Savannah	9,944
Cypress/Tupelo Swamp Forest	6,120
River Floodplain Hardwood Forest	1,548
Hardwood Wetland Forest	8,423
Dry and Dry Mesic Oak/Pine Forest	1,686
Coastal Plain Upland Mesic Hardwood Forest	315
Dry and Xeric Oak Forest, Woodland, and Savannah	410
Total	35,282

Old growth should be designated on the Ocala and Osceola National Forests, though past designation of Management Areas that limit timber harvest may have effectively protected potential old growth stands.

Section 2. Major findings and evaluation

Most of the monitoring items reflect expected outcomes and are progressing at the rate necessary to achieve the desired conditions, goals, and objectives of the Forest Plan. There are some areas where monitoring indicates follow-up action is needed, but the extent to which some activities may be implemented is limited by a decreasing forest budget and shifting management priorities. The Forest Plan Objectives were developed given an average annual budget (in Appendix F of the Forest Plan), but the actual allocation of funds varies from year to year. Therefore, as noted in the Forest Plan (p. 5.14) “outputs and activities in any given year may be significantly different from planned or proposed.”

2.1 Vegetation Management

The timber harvest program has consistently met targets assigned by the Regional Office but has frequently not met Forest Plan objectives. Table 18 below summarizes the situation concerning timber harvest objectives and accomplishments through fiscal year 2012.

Table 18. Forest Plan timber harvest objectives and accomplishments

Clearcutting Sand Pine for Scrub Jay Habitat	
Objective (Acres)	4,000
Accomplishment (Acres)	2,855
Difference (Acres)	-1,145
Thinning Over-stocked Pine Stands	
Objective (Acres)	5,200
Accomplishment (Acres)	2,331
Difference (Acres)	-2,869
Uneven-aged Group Selection Regeneration Harvest	
Objective (Acres)	3,250
Accomplishment (Acres)	0
Difference (Acres)	-3,250
Irregular Shelterwood Regeneration Harvest	
Objective (Acres)	188
Accomplishment (Acres)	0
Difference (Acres)	-188
Longleaf Restoration removing off-site slash pine	
Objective (Acres)	1180
Accomplishment (Acres)	60
Difference (Acres)	-1,120
Removing Slash Pine from Longleaf Stands	
Objective (Acres)	800
Accomplishment (Acres)	0
Difference (Acres)	-800
Allowable Sale Quantity	
Objective (Million Cubic Feet)	10.3
Accomplishment (Million Cubic Feet)	5.8*
Difference (Million Cubic Feet)	-4.5

*Note that the accomplishment of 5.8 Million CF exceeds the target set by the Region 8 Regional Office of 5.73 Million CF for FY2012.

It is expected that some of the vegetation management objectives cannot be attained under current and anticipated budgets as well as workload conflicts with other forest priorities. Priorities need to be established for those treatments that are critical to habitat restoration and overall forest health.

We continue to make progress in implementing the Accelerating Longleaf Pine Restoration CFLR project. Partnerships for our longleaf ecosystem restoration work include National Park Service, US Fish and Wildlife Service, Florida Division of Forestry, The Conservation Fund, The Nature Conservancy, and the National Wild Turkey Federation (Stewardship Agreement).

Table 19. FY 2013 Accomplishments from the CFLR program on the Osceola NF.

Accomplishments	Acres
Reforestation of Longleaf Pine	2,149
Timber Stand Improvement for Longleaf Pine Restoration	741
Prescribed Burning (Half of this was growing season burns)	26,000
Rx Burning in the WUI	20,736
Understory Improvement	1,487
Wildlife Habitat Enhancement for Longleaf Associated Species	34,000
Soil and Water Improvement	1,395
Timber Sales to Promote Longleaf and Red-Cockaded Woodpecker Restoration	2,218

The result of these treatments is a reduction in the average wildfire size of 526 acres in untreated areas to only 2 acres in treated areas. All wildfires in the treated areas were less than 14 acres compared to several large wildfires in untreated areas, the largest of which has consumed more than 35,000 acres. As new projects are approved in the Region, we are providing advice to other managers based on our experience with this program.

2.2 Management Indicator and Endangered, Threatened and Sensitive Species

Management Indicator Species (MIS) are selected during development of Forest Plans to indicate effects of management activities. In general, most populations of MIS for which we have adequate monitoring data are either stable or increasing.

All Monitoring Reports since 2001 have indicated that there was a need to re-evaluate the list of MIS since some of the former MIS were difficult to monitor and had limited utility to indicate effects of management activities. A Forest Plan Amendment was completed in FY 2011 that added Bachman's sparrow and the Florida scrub lizard as MIS and removed the following species from MIS status: bald eagle, bobwhite quail, large-mouth bass, pileated woodpecker, prothonotary warbler, sand skink, southeastern kestrel, white-tailed deer, and wild turkey. Trend data for those species therefore will no longer be included in this section of the report, and trends for current MIS will be included as we refine sampling methods and conduct surveys.

Proposed, Endangered and Threatened (PET) species are listed by the US Fish and Wildlife Service. The Endangered Species Act requires us to consider the impacts of all federal actions on these species, and to conserve all populations to the extent possible. Sensitive (S) species are designated by the Forest Service, and receive this designation because of their local and/or global rarity. They receive additional consideration during all Forest Service actions, and we are committed to maintaining viable populations of all these species. This monitoring report shows that all PETS species for which we, or a partner organization, are capable of collecting population or occurrence data continue to maintain viable populations.

Plan implementation follows standards and guidelines to protect PETS species and these measures generally seem to be working as expected. Habitat improvement will result from increased frequency of prescribed fire and vegetation management. Detailed discussion can be found under monitoring questions 1.1, 1.2, 1.3, 1.5, and 1.6.

2.3 Prescribed Burning and Integrated Fuels Management

One of the goals of the 1999 Land and Resource Management Plan for the National Forests in Florida was to emphasize seasonality of burns, conducting more growing season burns. Given staffing and resource levels, we have learned over the last 12 years that it is too difficult to burn every area of the forest in the right season. Emphasis has moved to burn frequency: burning areas more frequently appears to be more important for maintaining native ecosystems, and we should strive for a 2-3 year frequency wherever possible.

Forest Plan Amendment #9 was completed in FY10 and is expected to help increase burning accomplishments on the forests. This amendment updated Forest-wide Objective 4 describing prescribed burning frequency to clarify that while early to mid-growing season burning is critical, if growing season burns cannot be achieved, the overall fire frequency is the highest priority. It also updated wildland fire response terminology to incorporate current direction for Federal Wildland Fire Policy on all National Forest System lands to allow management of wildland fires for other management objectives in areas outside Wilderness.

Based on the upland pine Management Area 7.1 of 504,583 acres, 69% of this type was burned in the last 3 years (2011, 2012, 2013) for a total of 345,820 acres burned, a yearly average of 115,273 acres, below the average objective of 168,000 acres. The Forests burned 29% of the total acres between May1 and July 31, and burned 72% of total acres in the period from March 15 thru September. Dormant season burns (between October and February) comprised 28% of the total acres burned.

Use of fire in the longleaf pine wiregrass ecosystem continues to be integral to the restoration of these systems and to recovery of the red-cockaded woodpecker. Both winter and growing season burns will continue to be used in these recovery efforts. Internal and external dialogue continues on the application and use of fire for these objectives.

The Forest was able to treat 4,718 acres mechanically to enhance burning opportunities in areas with high fuel concentrations. This was accomplished through the use of specialized equipment to create defensible fire lines especially near private property and adjacent to major highways.

2.4 Research Needs

Monitoring efforts during 2013 did not reveal any immediate need for research efforts to support the implementation and monitoring of the National Forests in Florida Forest Plan. However, some research projects could contribute to understanding forest ecosystem interactions as well as impacts of management and public activities on forest systems. A better understanding of these interactions would allow managers to identify any changes needed in management activities or direction in the Forest Plan. Possible research needs include:

1. Research to determine how long T&E plant species are able to persist between disturbances in sand pine scrub habitat.
2. Research to evaluate the long-term effectiveness of management techniques for site preparation in Florida scrub habitat and potential impacts to rare plants. Primary techniques which should be evaluated are prescribed burning and mechanical roller chopping.
3. Research to determine habitat variables affecting movement of Florida scrub-jay over time. Emphasis may be on spatial constraints as well as potential barriers to movements.
4. Research to determine optimum burning intensities, frequencies and seasons required to return longleaf/palmetto flatwoods ecosystems to conditions existing prior to fire suppression management.
5. Research to determine upland use by adult and juvenile flatwoods salamanders.
6. Research to identify impacts of habitat fragmentation on flatwoods salamanders and striped newts.
7. Research to evaluate pond management strategies to optimize habitat for flatwoods salamanders and striped newts.
8. Research on harvest methods and other options for removal of small diameter wood for hazardous fuel reduction. Research would focus on overcoming barriers that hinder use of biomass and development of markets utilizing biomass for fuel or other purposes.
9. Research current issues related to forest management within the Wildland Urban Interface.
10. Evaluate potential for treating titi encroachment utilizing biomass harvest technology.
11. Examination of the relationship between foraging habitat quality and RCW performance.