Biennial Monitoring and Evaluation Report

Kisatchie National Forest

Fiscal Years 2020 and 2021

Claiborne, Webster, Grant, Rapides, Natchitoches, Vernon and Winn Parishes, Louisiana

United States Department of Agriculture

Forest Service

Southern Region

August 2022

Prescribed Burn, Kincaid Lake Recreation Area, Calcasieu Ranger District
Kisatchie National Forest

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Kisatchie National Forest
2500 Shreveport Highway
Pineville, Louisiana

2020 and 2021 Monitoring and Evaluation Report
Forest Supervisor's Certification

I have evaluated the monitoring results and recommended actions in this report. The 2022-2023 recommend actions will be implemented according to the timeframes indicated unless new information or changed resource conditions warrant otherwise. I find the management direction in the *Kisatchie National Forest's Revised Land and Management Plan, August 1999* sufficient to guide the Kisatchie National Forest in 2022.

LISA W. LEWIS
Forest Supervisor
Kisatchie National Forest
Date: 8/22/2022

EXECUTIVE SUMMARY

The Forest and Rangeland Renewable Resources Planning Act, as amended by the National Forest Management Act, directs that each national forest develop a comprehensive forest management plan, and that these plans be reviewed and updated every 10 to 15 years, or earlier if conditions change significantly. In addition to the above acts the National Environmental Policy Act of 1969 (NEPA), Government Performance and Results Act of 1993 and the 2015 Revision of the USDA Forest Service Strategic Plan guided the revision process.

The Kisatchie National Forest (hereafter, typically referred to "Kisatchie NF", "KNF", or "Forest") is currently operating under the *Revised Land and Resource Management Plan, August 1999* based on the Final Environmental Impact Statement and Record of Decision (hereafter referred to as "forest plan" or "KNF Revised LRMP"; USDA Forest Service 1999a, b, and c). This plan annually monitors and evaluates programs and projects to determine whether they comply with management direction in the forest plan.

Monitoring and evaluation has been an ongoing process since the forest plan became effective in 1999. It is designed to ensure that forest plan goals and objectives (KNF Revised LRMP, page 2-1 to page 2-7) are being achieved, standards and guidelines are being properly implemented, and environmental effects are occurring as predicted. Additionally, the process indicates whether the application of management area prescriptions is responding to public issues as well as management concerns. The evaluation of monitoring results allows the Forest Supervisor to initiate actions to improve compliance with management direction and determine if any amendments to the plan are needed to improve resource management.

The monitoring and evaluation report is structured to correspond to the monitoring items listed in Chapter five. These items were developed based on desired future conditions, goals, objectives and standards and guidelines. Each monitoring item considered in this report references the corresponding monitoring item from Table 5-1 in the forest plan. Additional items stem from the 2012 Planning Rule revisions. This report includes the implementation status of the previous fiscal year's monitoring recommendations, detailed results and an action plan for this year's report.

Sixty two monitoring questions identified in Chapter five of the forest plan focused on evaluating the Forest's accomplishment toward the eight forest-wide desired future conditions, goals, and objectives. Monitoring is conducted by field reviews of projects, inventory, survey work conducted by forest service resource specialists, research scientists, universities, state resource agencies, and other cooperators. Addressing the monitoring questions is accomplished by evaluating the results of annual monitoring activities.

Opportunity for Comment

If you have questions or comments regarding the accomplishments for fiscal years 2020 and 2021, please contact us in writing at Kisatchie National Forest, 2500 Shreveport Highway, Pineville, LA 71360 or contact Mr. David Byrd, Ecosystem Staff Officer, at (318) 473-7059. You may also send an electronic comment via email to david.byrd@usda.gov.

SECTION 1.0 SUMMARY OF MONITORING AND EVALUATION RESULTS AND FINDINGS

1.1 ECOSYSTEM HEALTH, CONDITION AND SUSTAINABILITY

1.1.1 Forest Health

There continues to be an emphasis on treatments that improve forest health, terrestrial and aquatic wildlife habitat. The Forest's prescribed burning program continues to restore and maintain an open understory with increased ground cover diversity:

- The Forest exceeds forest plan goals of acreage provided in each landscape community except the mixed hardwood-loblolly pine early stage and shortleaf (*Pinus echinata*) oak-hickory mid-to-late stage, which are well below forest plan goals.

- The Forest exceeds forest plan successional stage goals for mid-to-late mixed-hardwood-loblolly and longleaf late successional forest type. Early successional habitat is below forest plan goals.
- In fiscal years (FY) 2020 and 2021, 253 and 705 acres were planted with longleaf pine seedlings, respectively. Approximately 71 acres and 173 acres of shortleaf pine seedlings were planted in 2020 and 2021, respectively. Reforestation efforts are encouraged across the forest and continue to be a priority in order to create future Red-cockaded Woodpecker (*Picoides borealis,* RCW*)* habitat and meet the annual forest plan goals.

- In the last decade, bark beetle mortality within the state has been due to *Ips*. The forest had no reported Southern Pine Engraver Beetle (SPB) spots (*Dendroconus frontalis*). SPB collections in 2020 and 2021spring survey traps were negligible, however, numerous SPB were collected in portions of the forest in a 2021 Fall trapping survey. No disease epidemics were detected.

There continues to be an emphasis of prescribed fire use for reduction in fuel loads, forest health and biodiversity. Prescribed burn monitoring is ongoing to determine the effectiveness of the prescribed burns implemented and the response of the native vegetation to this management technique.

- Prescribed fire was applied to approximately 69,935 acres in FY 2020 and 44,466 acres in FY 2021. In FY 2020, approximately 69,440 acres were dormant season burns and 495 acres were growing season burns. In FY 2021, approximately 25,594 acres were dormant season burns and 18,872 acres were growing season burns.

- Prescribed burns are being applied to Land Type Associations (LTA) across the Forest. Dormant season and growing season burns were primarily conducted in LTAs 1, 2, 3, 4, 5, and 6.

- There continues to be a need to ensure all forest LTAs are receiving prescribed burns across the forest consistent with forest plan standards and guidelines. The scope and scale of prescribed burning that is needed to move towards restored landscape conditions will be further addressed during forest plan revision.

There continues to be an emphasis on enhancing terrestrial and aquatic biodiversity across the forest. One federally endangered species, the red-cockaded woodpecker and three federally

threatened species, the Louisiana pearlshell mussel (*Margaritifera hembeli,* LPM), northern long-eared bat (*Myotis septentrionalis,* NLEB), and the Louisiana pine snake (*Pituophis ruthveni,* LPS), occur on the Forest. However, no federally threatened or endangered botanical species are known to occur within the Kisatchie National Forest.

Vegetation

- No occurrences of threatened or endangered plant species were found on the Forest.
- No specific surveys for botanical Management Indicator Species (MIS) have occurred since 2002. A strategy for updating botanical MIS population and habitat trends is being developed for forest plan revision.
- There is a need to continue to use prescribed fire in all LTAs and follow forest plan standards and guidelines. Prescribed burning is the most efficient management tool along with non-native invasive plant treatments to promote biodiversity of the forest floor.
- The treatment of Non-Native Invasive Plants (NNIP) with fire continues to improve habitat for Threatened, Endangered, Sensitive and Conservation (TESC) species. There is a need to ensure that all vegetation/restoration projects include treatments for NNIP.

Terrestrial and Aquatic Wildlife

- When looking at a five-year trend, the average number of Potential Breeding Groups (PBG) on the KNF has increased since 2017. However, the population as a whole remains stable.
- The total LPM population on the KNF appears to be stable to slight decline. This decline in the LPM population is believed to be, in part, from environmental and management practices outside of the Forest Service boundaries.
- The NLEB was federally listed as threatened on May 4, 2015. A rule under the Endangered Species Act, section 4(d), was established for this species. The Forest does not have designated or proposed critical habitat for this species.
- The forest plan was signed in 1999 and MIS habitat has changed through time. Forest type and forest successional stages, compared with Management Indicator Species habitat associations, have shown the following forest changes across the landscape:
    - Longleaf Pine: Early successional habitat has changed by 82 percent since 1999. This is reflective of low restoration. Mid-successional (11-30 years) habitat changed by 4 percent and is increasing. Mid-successional (31-80 years) habitat changed by 47 percent and is decreasing. Late successional is up 1489% and is increasing.
    - Shortleaf Pine Oak Hickory: Early successional habitat has changed by 85 percent since 1999, which is decreasing. Mid-successional (11-30 years) habitat changed by 79 percent and is decreasing. Mid-successional (31-80 years) habitat changed by 50 percent and is decreasing. Late successional is up 365% and is increasing.
    - Mixed Hardwood-Loblolly Pine: Early successional habitat has not changed through the life of the forest plan and is in decline. Mid-successional (11-30 years) habitat changed by 99 percent and is decreasing. Mid-successional (31-80 years)

habitat changed by 62 percent and is increasing. Late successional is up 274% and is increasing.

- Small Stream Riparian: Early successional habitat has not changed through the life of the forest plan and is low. Mid-to-late successional habitat is stable to increasing.
- Large Stream Riparian: Early successional habitat has not changed through the life of the forest plan and is low. Mid-to-late successional habitat is stable to decreasing.

- Aquatic predator/prey populations across the Forest are sufficient for a sustainable recreational fishery. Young-of-year and recruitment of all age classes is evidence that sediment has not inhibited reproduction of fishes or altered habitat beyond natural conditions.
- Population trends of aquatic MIS suggest that best management practices and streamside habitat protection zones are adequately protecting the integrity and quality of watersheds within the Forest.
- Forest treatments focused on restoring native species composition. These treatments benefited deer, turkey, quail and rabbits. At a statewide-scale, deer populations are and have been considerably below the habitats' carrying capacity. Long-term declines have also been occurring in turkey populations for four of five habitat regions in Louisiana.

Water Quality

Water quality of nine streams occurring in the Forest are monitored quarterly in cooperation with the Louisiana Department of Environmental Quality (LDEQ). Quarterly samples indicated the streams met the state water quality standards for the parameters that were tested.

Air Quality

All areas of the Forest are in attainment of the National Ambient Air Quality Standards (NAAQS), including those for ozone. There were 69,935 and 44,466 acres burned within prescription plans and with the appropriate level of smoke management techniques during FYs 2020 and 2021 respectively.

1.2 SUSTAINABLE MULTIPLE FOREST AND RANGE BENEFITS

1.2.1 Recreation, Scenery, Minerals

Scenery

Management activities maintained landscapes with high scenic diversity. The forest's scenic integrity objective (SIO) or recreation opportunity class (ROS) were not degraded due to management activities. However, a forest-wide evaluation of the potential change in scenery integrity (as a result of management activities) has not been conducted due to staffing limitations.

Special Interest Areas (SIAs) were managed to the required minimum standard. Management within designated wilderness and wild and scenic rivers moved towards implementing the strategy developed by the Forest.

Lands and minerals

No non-Federal lands nor rights of ways were acquired in FYs 2020 or 2021. Forest landline maintenance continues to be a need to facilitate the prevention and location of encroachments. Encroachments are being entered into the Title Claims and Encroachment Management System.

1.2.2 Outputs- Timber/Range/Other

Timber

The forest plan does allocate allowable sale quantity (ASQ) by first and second decade and the ASQ is for the "life" of the plan. There are 308,889 acres of lands classified as suitable for timber production and 268,271 acres of lands classified as unsuitable for timber production, including RCW habitat and lands utilized by the military via special use authorization. The forest plan directs the Forest to offer an average of 9.69 million cubic feet (MMCF) of suitable timer sale volume on an annual basis. The allowable ASQ from the category "all lands" that is included in the timber commodity outputs and sale schedule is 13.16 MMCF.

- Suitable lands vegetation treatments yielded 13.99 MMCF (139,983 cubic feet/unit [CCF/cunit])) and approximately 7,100 acres were treated in 2020. In 2021, suitable lands yielded 11.82 MMCF (118,230 CCF) and approximately 8538 acres were treated..
- Vegetation treatments on unsuitable lands in 2020 (including RCW habitat, old growth areas, and lands utilized by the military via special use authorization) yielded approximately 1.79 MMCF (17,935 CCF) and approximately 1,060 acres were treated. In 2021, the unsuitable lands yielded 3.98 MMCF (39,850 CCF) and approximately 5,317 acres were treated.
- A comparison of FY 2020 to 2021 reflects an decrease of approximately 2.2 MMCF.
- The average annual output from 2012 to 2021 was approximately 14.6 MMCF annually.
- Neither the suitable or unsuitable volume has been exceeded during the implementation of the forest plan.

Range Allotments

There are no active range allotments on the Kisatchie National Forest. Grazing resources are declining in acreage available. Management practices require NEPA documentation, infrastructure inventory and condition assessment and allotment management plans prior to being implemented.

Heritage

- A total of 21,132 acres were inventoried during FY 2020 and 2021. These included large survey areas for land management activities, as well as smaller survey areas and categorical exclusions for other resources such as administrative and recreational trails and facilities and permits for partners and members of the public.
- The Forest continued government-to-government relations with eight federally recognized tribal nations. These include the Caddo Tribe of Oklahoma, the Chitimacha Tribe of Louisiana, the Coushatta Tribe of Louisiana, the Jena Band of the Choctaw Indians, the Tunica Biloxi Tribe, the Choctaw Tribe of Oklahoma, the Mississippi Band of Choctaw, and the Quapaw Tribe of Oklahoma. Of note, the Heritage Program has worked extensively with affiliated Tribes, the National Forests and Grasslands in Texas, NRCS and other

partners to develop a rivercane identification and restoration plan. This has resulted, so far, in the identification of over 50 rivercane patches on Kisatchie National Forest, and a pilot rivercane propagation program with the Jena Band of Choctaw Indians with 100 rivercane seedlings being grown at their cultural center.

- Six Archaeological Resources Protection Act damage assessments were completed on sites with unauthorized excavations, two of which saw convictions. The other cases are still in-process. The current funding levels are insufficient for law enforcement officers and heritage specialists to physically monitor all sites at risk.

1.3 ORGANIZATIONAL EFFECTIVENESS

1.3.1 Monitoring and Evaluation

The FY 2020 and 2021 annual monitoring and evaluation report was made available to the public on the Kisatchie website:http://www.fs.usda.gov/main/kisatchie/landmanagement/planning. Monitoring data and information has always has been available by contacting the Forest.

- The forest plan is being kept current based upon information in the annual Monitoring and Evaluation report.

- During FY 2016, forest plan monitoring questions were reviewed and evaluated for compliance with the new 2012 Planning Rule.

1.3.2 Cooperation, Coordination and Collaboration

The Forest is working with multiple agencies, universities, and non-governmental organizations to enhance Forest management activities. New technologies, information and best available science are incorporated into management activities.

SECTION 2.0 MONITORING RESULTS AND FINDINGS

Chapter five of the Forest plan established monitoring questions that are to be addressed over the course of the 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.

2.1 ECOSYSTEM HEALTH, CONDITION AND SUSTAINABLITY

2.1.1 Forest Health

Forest health is addressed in the forest plan's Goal one which has associated objectives containing specific monitoring questions. Sound timber management practices help establish and maintain healthy and productive forests. Forest management activities are proposed to improve forest health by increasing vigor, replacing off-site species with species appropriate to the site, or replacing non-native invasive species with native species. Forest health proposals are designed to eliminate, suppress or reduce infestations of forest insect and disease pests.

Forest Wide Desired Future Condition, Goal 1, Objective 1–5: Manage for productive and healthy forest ecosystems by utilizing comprehensive integrated approaches designed to prevent and minimize resource losses or damage due to insects and disease (USDA Forest Service 1999a, page 2-4).

Objective 1-5 Monitoring Question 1: Do management practices provide for correct site/species selection, reduce overstocked stands to optimum levels and insure prompt detection and control of insects and diseases? (I)

FY 2020 and 2021 Findings:

- Timber stand improvements were implemented on approximately 1,075 acres in FY 2020 and 597 acres in FY 2021. These improvements focused on reducing competition in young longleaf and shortleaf pine plantations, resulting in improving site/species selection.

FY 2022 and 2023 Recommended Actions:

- Continue to identify restoration and forest health needs through the inventory process.

Objective 1-5 Monitoring Question 2: Has management resulted in a decrease of susceptibility of southern pine beetle and other pests? Are pest incidents decreasing with applied integrated management? (E)

FY 2020 and 2021 Findings:

- SPB Prevention Program Funding provided for the thinning of 2,103 acres of loblolly stands (FY 2020: 1,019 acres, FY 2021:1,084 acres), reducing the SPB hazard rating of these acres. Additionally, 2,018 acres were converted from loblolly pine (*Pinus taeda*), highly preferred by SPB, to resistant longleaf pine (*P. palustris*).

- SPB populations have remained low and have had little observed impact on KNF forests or elsewhere in LA since the 1990s. In fact, prior to 2017 no SPB had been collected in

annual trapping surveys conducted on each of the KNF Ranger Districts or on private lands anywhere west of the MS River in many years. Since 2017, SPB have been collected by routinely trapping surveys on both KNF and private lands, but in very low numbers. Only one SPB was collected on the Catahoula RD over the entire trapping period in the spring of 2020 (although this period was abbreviated to 1-4 weeks on various Districts due to covid-19; no trapping was conducted on the Caney RD). Trapping resumed to a more normal level in the fall of 2020 (but no trapping conducted on the Caney RD). SPB collections over the six-week period ranged from 0.3 SPB/DAY on the Catahoula and Calcasieu R.D. to 0.1 and 0 SPB/DAY on the Winn and Kisatchie RD, respectively. Low trap detection rates correlated with aerial survey results; no SPB infestations were detected during aerial surveys in 2020. In 2021, SPB activity remained low. Collections over the six-week spring survey period ranged from 0.4 SPB/DAY on the Catahoula and Calcasieu R.D., to <0.1 SPB/DAY on the Winn; no SPB were detected on the Kisatchie or Caney Ranger Districts. Collections over the six-week fall trapping survey ranged from <0.1 SPB/DAY on the Catahoula and Calcasieu RD to 0 SPB/DAY on the Kisatchie and Winn RD (no fall survey on the Caney RD). Several small, inactive spots were detected and reported by LDAF on the Catahoula and Winn RD (<15) in late 2021, but all proved to be caused by Ips engraver beetle activity in older-aged (>50 yrs) stands (likely drought or other stress-related). Spots ranged in size from 5-15 trees.

- Hurricanes Laura and Delta resulted in widespread forest damage, some catastrophic, in the Calcasieu, Kisatchie, Winn, and Catahoula Ranger Districts in late 2020. Ips Engraver beetles and other insects quickly colonized the large amounts of debris and severely damaged trees. However, the fear that this spike in the population would lead to additional mortality of remaining trees was not realized. This was attributed to normal rainfall following the Hurricanes and a lack of droughty conditions in 2021, favoring the health and vigor of remaining trees. In a monitoring study of 80 RCW colonies on the Vernon Unit of the Calcasieu, less than 10 trees died in the aftermath of the Hurricanes. It should also be noted that an intensive salvaging effort in this area resulted in the removal of attractive host material for Ips engravers (and other insects), which certainly resulted in a decrease in the populations of these insects.

- Laurel Wilt Disease (LWD) is an aggressive fungal pathogen lethal to plant species in the family Lauraceae. It is vectored by its obligate ambrosia beetle (Xyleborus glabratus), which readily colonizes healthy hosts exclusively in the family Lauraceae. The beetle and pathogen were first detected in GA in 2002 and has since spread westward. Two tree species, Persea palustris (swampbay) and Sassafras albidum (sassafras), and the shrub Lindera benzoin (northern spicebush), occur in relatively low abundance in the KNF. LWD was first confirmed in dying sassafras in Union Parish on the Caney Ranger District in 2016. Dead and dying sassafras and swampbay trees were later observed and LWD confirmed in hosts on the Calcasieu, Winn, and Catahoula R.D. in 2018. To date, LWD has not been reported on the Kisatchie R.D., however it is likely there. Mortality among these hosts is now widespread on the Caney, western Calcasieu, Winn, and northern Catahoula Ranger Districts. The disease has effectively extirpated Persea borbonia (redbay) in GA and FL, where it has been present since at least 2002. The redbay ambrosia beetle preferentially attacks larger stems, and by late 2021 very few live sassafras greater than

two inches in DBH could be located on the Catahoula or Calcasieu RD. Swampbay mortality on these Districts is somewhat scattered, and unlike sassafras, not as extensive.

- One additional threat worthy of mention is the emerald ash borer (EAB). The nonnative beetle colonizes hosts belonging exclusively to the family Oleaceae, most notably Fraxinus alba and F. pennsylvanica (white and green ash) and Chionanthus virginicus (Grancy graybeard). It has resulted in the loss of tens of millions of ash trees in northern U.S. since its discovery in the U.S. in 2002. EAB was first detected in LA in 2015 in Webster Parish; it has since likely caused ash mortality on the district. In 2021, EAB was detected on private lands in northern Red River, Winn, and LaSalle Parishes. As is the case with LWD and sassafras and swampbay, the relatively low abundance of Fraxinus sp. on the primarily upland Districts will reduce the ecological impact of losses of these hosts across the KNF landscape.

FY 2022 and 2023 Recommended Actions:

- Overstocked loblolly pine stands should be thinned and, where appropriate, converted to longleaf pine. These management activities will have the most impact on reducing the susceptibility of pine stands to SPB. Thinning also will improve growing conditions in mixed pine-hardwood forest types for all residual tree species and reduce their susceptibility to abiotic and biotic stress.

- SPB populations are dynamic; findings from 2021 trapping efforts indicate that SPB populations have remined low. Continue routine aerial and trapping surveys of SPB activity in KNF.

2.1.2 Prescribed Fire

Prescribed fire is a common practice and occurs on a large majority of the Forest. It is used to mimic natural fire regimes required to maintain the Forest's fire-dependent ecosystems. Alterations to the Forest are implemented to mimic natural ecological processes. Visible changes in forested areas result primarily from stand regeneration, stand improvement practices and the periodic use of prescribed fire. Prescribed fire is addressed in the Forest plan's Goal 1 and 6 which have associated objectives that contain specific monitoring questions.

Forest Wide Desired Future Condition, Goal 1, Objective 1–4: Provide a level of wildfire protection which emphasizes cost effective wildfire prevention and suppression while minimizing loss of resources (USDA Forest Service 1999a, page 2-4).

Objective 1-4 Monitoring Question 1: Is wildfire protection being provided in a cost effective manner? Are losses to wildfire being minimized? (I)

FY 2020 and 2021 Findings:

- Currently there is no replacement for National Fire Management Analysis System (NFMAS) or Fire Planning Analysis, with no foreseeable replacement.

FY 2022 and 2023 Recommended Actions:

- The Forest will continue to operate at the current efficiency level until fire preparedness funding is increased and staffed accordingly.

Objective 1-4 Monitoring Question 2: Are resources identified in NFMAS being made available in accordance with budget funding levels? Are acres lost to wildfire within the range identified by NFMAS for the current budget level? (E)

FY 2020 and 2021 Findings:

- Resources identified in the maximum efficiency analysis are being made available in accordance with the level of funding.

- The Forest had 88wildland fires affecting approximately 2,786.23 acres in FY 2020. The Forest had 100 wildland fires affecting approximately 6,299.88 acres in FY 2021. The acceptable maximum identified in the plan is 2,108 acres.

FY 2022 and 2023 Recommended Actions:

- Manage for productive and healthy forest ecosystems by utilizing prescribed fire to prevent and minimize resource losses.

Forest Wide Desired Future Condition, Goal 6, Objective 6-2: Objective 6-2: Utilize prescribed fire in fire-dependent ecosystems, including the Kisatchie Hills Wilderness, to maintain natural plant communities by varying the fire timing, frequency, and intensity. Apply prescribed fire on 80,000 to 160,000 acres annually. (USDA Forest Service 1999a, page 2-6, as amended via Forest Plan Amendment 11 in 2021).

Objective 6-2 Monitoring Question 1: Are the prescribed fire regimes being applied to all appropriate landscapes as prescribed, to maintain fire-dependent ecosystems? (I)

FY 2020 and 2021 Findings:

- The prescribed burning goals in the forest plan range from 80,000 to 160,000 acres annually. In FY 2020, the Forest accomplished 69,935 acres, and in FY 2021, the Forest accomplished 44,466 acres.

- Prescribed fire was applied to approximately 69,935 acres in FY 2020 and 44,466 acres in FY 2021. Approximately 69,440 and 25,594 acres were prescribed burned during the dormant season in fiscal years 2020 and 2021, respectively; and 495 and 18,872 acres in the growing season, in fiscal years 2020 and 2021, respectively (see Figure 2). The percentage of the area burned during the growing season in FY 2020 and FY 2021 was 0.71 and 42.4 percent, respectively.

- Figure 3 indicates the land type association where prescribed burning during the dormant season was applied through time.

- Figure 4 indicates the land type association where prescribed burning was conducted during the growing season.

- Table 1 shows the type of burning and amount of acres in each forest LTA. The acres of prescribed fire needed to move towards habitat desired conditions needs to be assessed during forest plan revision. Forest Plan Amendment 11 was completed in 2021 and:
    - Updated the number of acres to which prescribed fire could be applied on the KNF to an average of 80,000 to 160,000 acres per year;
    - Removed restrictions on the percentage of acreage burned during the dormant versus growing season;
    - Modified the guideline on where growing season burns could be used (i.e., growing season burns could be used in any ecosystem based on management objectives); and
    - Updated some procedural forestwide management guidelines for the application of prescribed fire.

FY 2022 and 2023 Recommended Actions:

- Continue to monitor the weather and take advantage of every burning opportunity.
- Continue to maximize the implementation of growing season burns on longleaf pine plant community landscapes.
- Continue to maximize burn opportunities in the fall.
- Continue to have two regional fuels helicopters to increase the production and reduce the cost of call when helicopters are needed.

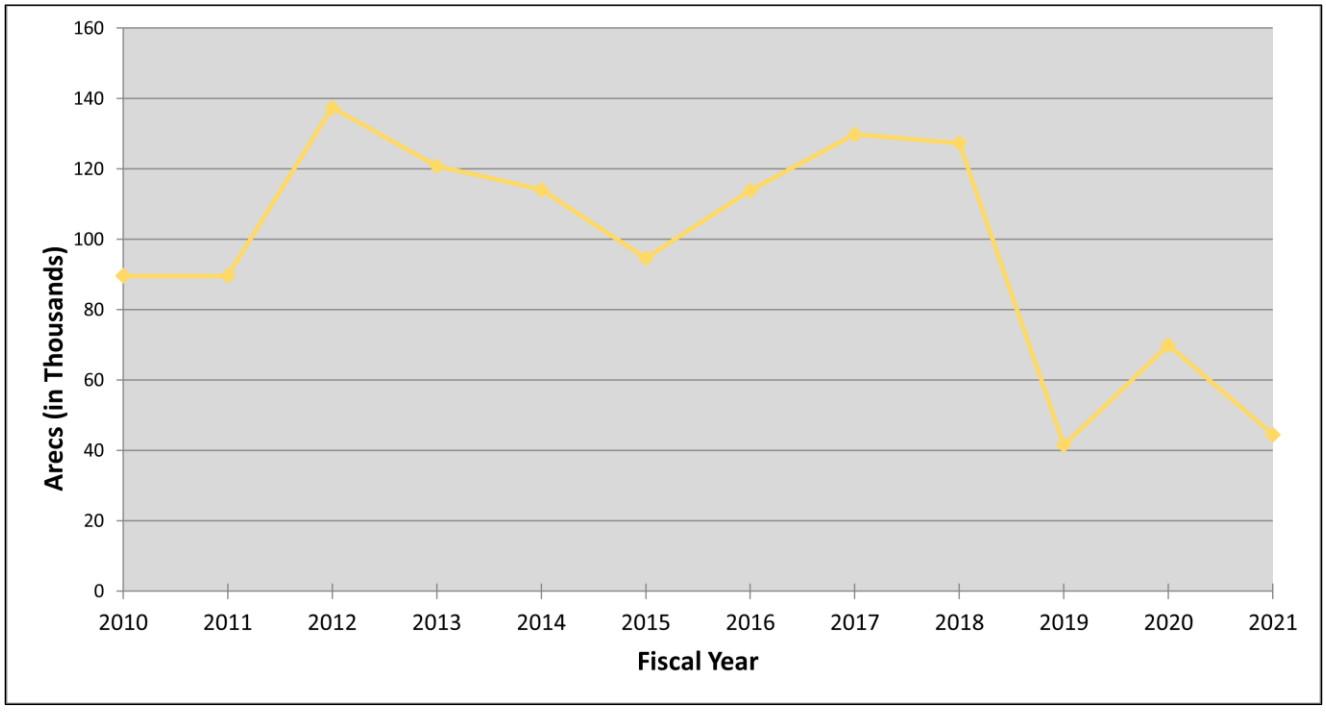

Figure 1. Forest acres treated with prescribed fire

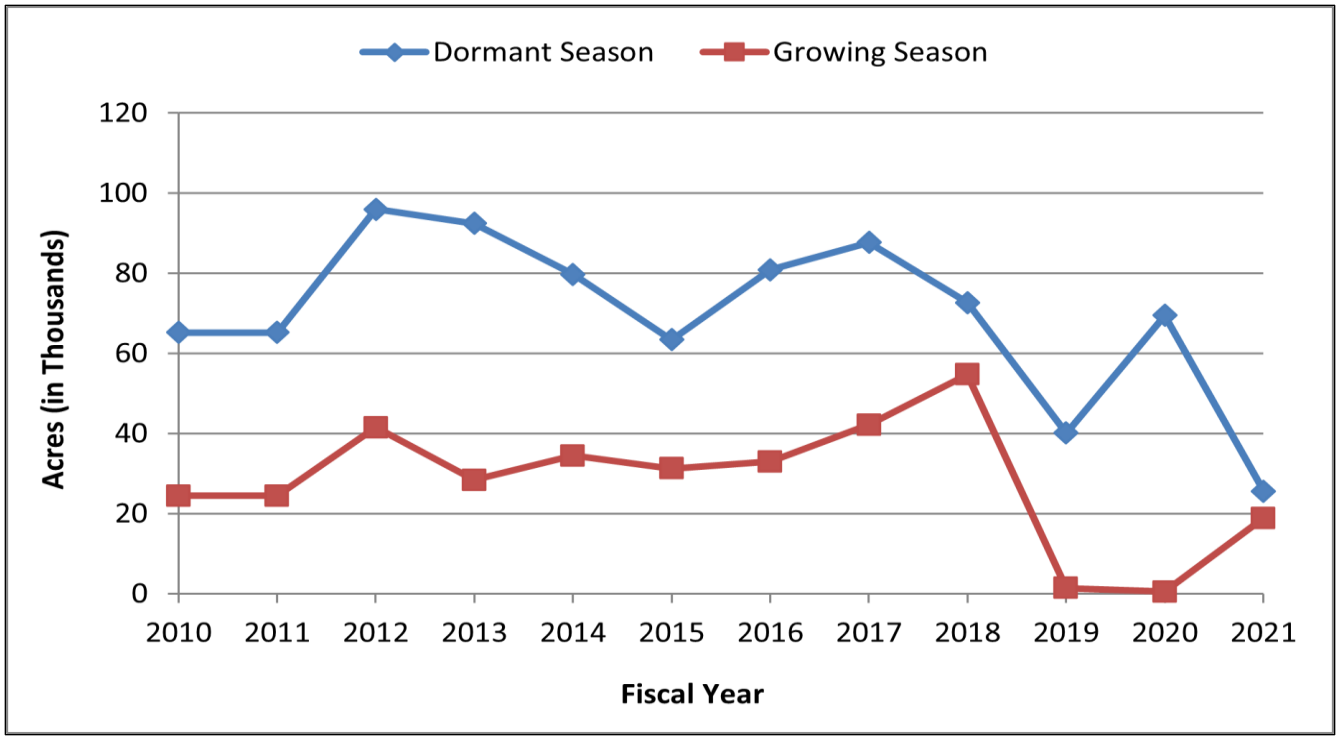

Figure 2. Annual dormant and growing season acres treated with prescribed fire

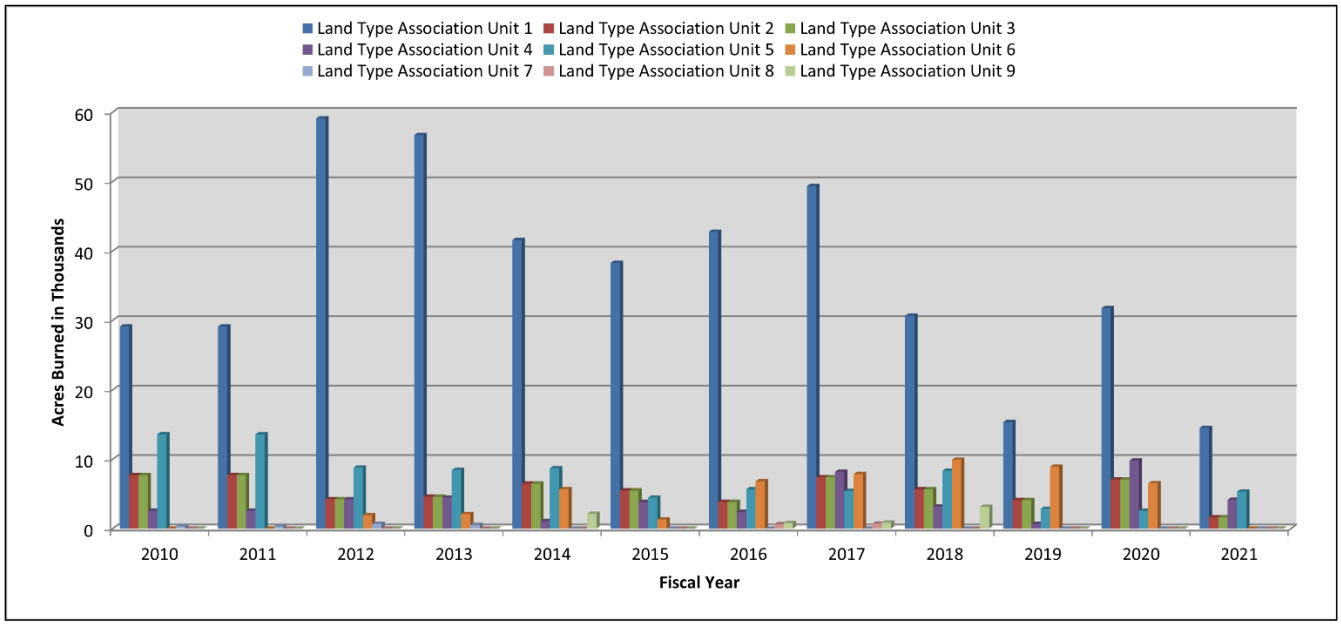

Figure 3. Acres treated with prescribed fire during the dormant season by Land Type Association

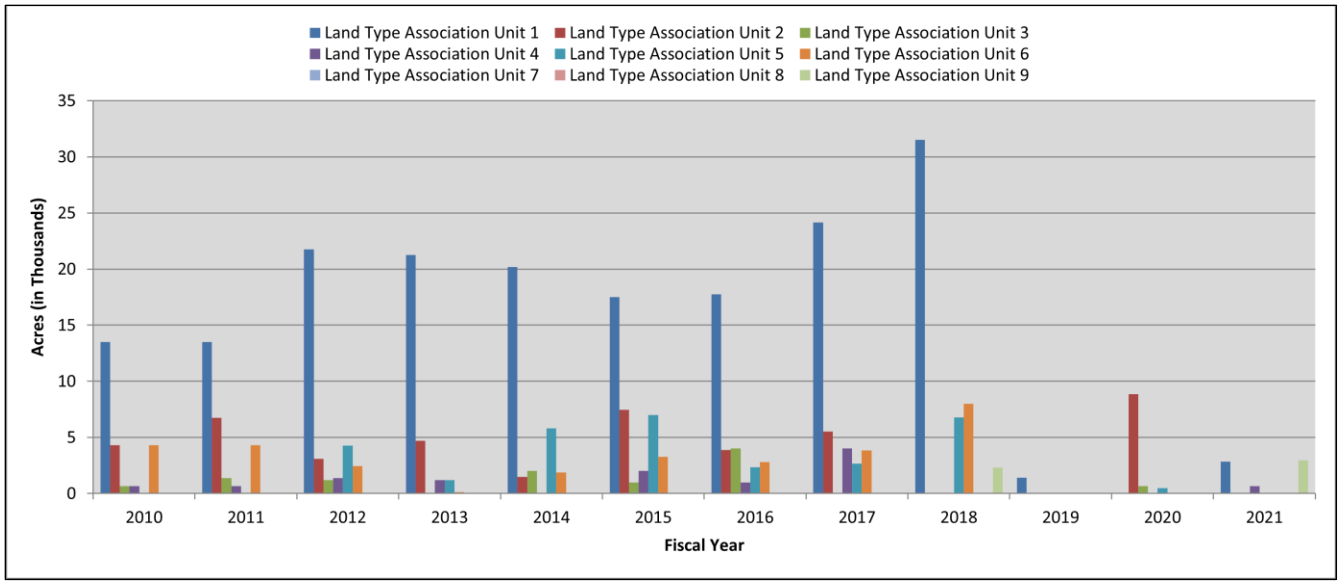

Figure 4. Acres treated with prescribed fire during the growing season by Land Type Association

Table 1. FY 2020 and 2021 acres of prescribed fire by Land Type Association

Land Type Association Unit	Dormant Season (Acres)		Growing Season (Acres)	
	2020	**2021**	**2020**	**2021**
1	31,749	14,505	0	2,861
2	11,698	0	0	8,845
3	7,085	1,613	0	3,560
4	9,800	4,151	0	659
5	2,580	5,325	495	0
6	6,528	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	2947
Total	**69,440**	**25,594**	**495**	**18,872**

Objective 6-2 Monitoring Question 2: Are the natural plant communities being maintained by the prescribed fire regimes? (E)

FY 2020 and 2021 Findings:

- Prescribed fire was applied to approximately 66,000 acres of natural plant communities in FY 2020.
- Prescribed fire was applied to 30,000 acres of natural plant communities in FY 2021.
- Some of the natural plant communities are being maintained by fire and some are not. Table 2 identifies the natural plant communities and fire responsiveness to prescribed fire for maintenance.
- Subjectively, at least four fire-dependent natural plant communities are being lost to encroachment by woody vegetation and vines (Table 2). This is due to the present ineffectiveness of prescribed fire as a tool to manage unwanted vegetation in these natural communities. The reasons for this are complicated but include a combination of Keetch-Byram Drought Index limits that are geared toward upland pine forests, RCW habitat management area (HMA) prioritization, larger burn areas and thus less attention to smaller burn units, greater reliance on ignition spheres as opposed to use of drip torches, and focus on hazardous fuel reduction at the expense of overall natural community restoration.
- Whether or not natural plant communities are being maintained by the prescribed fire regimes cannot be answered objectively because we do not have a large body of sampling data that could be analyzed to answer this question. Plant MIS are supposed to provide some part of this answer. Plant MIS data alone would not answer this question. What is needed is a more robust sampling scheme that would annually sample burn effects on classes or species of plants in controlled and non-controlled situations. Two skilled zone botanists could complete this work as part of their annual duties.

Table 2. Natural plant communities on the Kisatchie National Forest

	Natural Community	Fire Dependent	Fire Maintained
1	Bayhead Swamp	no	
2	Bottomland Forest	no	
3	Calcareous Forest	no	
4	Cook Mountain/Jackson Calcareous Prairie	yes	partial
5	Cypress-Tupelo Swamp	no	
6	Fleming Glade	yes	yes
7	Hardwood Slope Forest	no	
8	Hillside Bog	yes	partial
9	Mixed Hardwood-Loblolly Forest	yes	yes
10	Pine Flatwoods/Longleaf Pine Flatwood Savannah	yes	yes
11	Riparian Forest	no	
12	Sandstone Glade/Barren	yes	partial
13	Sandy Woodland	yes	partial

	Natural Community	Fire Dependent	Fire Maintained
14	Shortleaf Pine/Oak-Hickory Forest	yes	yes
15	Upland Longleaf Pine Forest	yes	yes
16	Wooded Seep	no	

FY 2022 and 2023 Recommended Actions:

- The Forest should invest in high-resolution infrared (IR) satellite imagery (4 bands) to better monitor changes in vegetation as a response to management actions.
- Specialists should review burn plans (inconsistent across districts).
- There should be greater focus on use of drip torches and smaller burn units, where possible.
- There should be post-burn monitoring for vegetation effects, in addition to fuel load monitoring.

2.1.3 Biodiversity

Biodiversity is addressed in the Forest plan's Goal 1, 2 and 6. Each of the goals have associated objectives that contain specific monitoring questions. These questions relate to ecological communities, major forest communities, terrestrial habitats, aquatic habitats and management indicator species. The questions, underlined in the text, are addressed by monitoring projects that directly or indirectly alter these communities, specifically projects that alter the overstory or understory vegetation such as timber sales and prescribed burning.

Forest Wide Desired Future Condition, Goal 2, Objective 2–1: Manage to restore or maintain the structure, composition, and processes of the four major landscape forest ecosystems known to occur on the Forest, and unique or under-represented inclusional communities embedded within them. Long-term objectives for each major forest community are as follows:

- Longleaf pine forest: 263,000 acres;
- Shortleaf pine / oak-hickory forest: 62,000 acres;
- Mixed hardwood-loblolly pine forest: 27,800 acres;
- Riparian forest: 181,000 acres (USDA Forest Service 1999a, page 2-4).

Objective 2-1 Monitoring Question 1: Are management practices designed to restore or maintain the structure, composition, and processes of the four major landscape forest ecosystems and the embedded plant communities within them being implemented? (I)

FY 2020 and 2021 Findings:

- Timber stand improvements were implemented on approximately 1075 acres in FY 2020 and 597 acres in FY 2021. These improvements focused on reducing competition in young longleaf and shortleaf pine plantations, resulting in improving site and species selection.
- Other management activities on the forest included wildlife habitat improvement and the prescribed burning program focused on restoring and maintaining an open understory that will increase ground cover diversity.

- Pine restoration efforts will increase over the next few years due to weather events that have occurred on the Forest as shown in Figure 5. Forest successional habitat trend, Figure 11, indicates low acreage for early succession, stable to increasing for mid succession and an increase in late succession for all forest types.

- All vegetation activities have been designed to maintain the structure and composition of the major landscape forest ecosystems and the embedded plant communities within them. Emphasis continues to be placed on commercial thinning for forest health and RCW habitat improvement. The Forest's prescribed burning program of approximately 69,440 acres in FY 2020 and 44,466 acres in FY 2021 focused on restoring and maintaining an open understory that will increase ground cover diversity.

FY 2022 and 2023 Recommended Actions:

- Continue to accomplish stand exams on 10 percent of the forest every year and continue preparing environmental documents addressing management practices on as many of these acres as possible.

- Continue to emphasize longleaf and shortleaf restoration in project level management activities.

- Continue to field-check samples of implemented project decisions.

- Continue to conduct NEPA analyses with emphasis on longleaf and shortleaf pine restoration.

Objective 2-1 Monitoring Question 2: Are the management practices successfully restoring or maintaining quality forest ecosystems; and, the structure, composition, and processes of the four major landscape forest ecosystems? (E)

FY 2020 and 2021 Findings:

- A total of 224 acres were planted with longleaf pine seedlings in FY 2020 that had been cleared by final harvests. 29 acres were planted with longleaf pine seedlings due to a tornado event from October 2018 on the Catahoula Ranger District. It was site prepped before planting.

- A total of 149 acres were planted with longleaf pine seedlings in FY 2021 that had been cleared by final harvests. 466 acres were planted in FY 2021 after salvaging from the December 2019 tornado event that hit the Calcasieu Ranger District. The majority of these sites were site prepared before Hurricane Laura hit near the end of August 2020. 90 acres were planted in FY 2021 and planted with longleaf pine seedlings after salvaging from a May 2019 tornado event that hit the Winn Ranger District. The 90 acres were site prepared before Hurricane Laura hit near the end of August 2020. The forest plan projected that 1,456 acres would receive final harvest annually for longleaf restoration. There is no indication that this target will be met in the future. The Forest has approximately 128,088 acres in the longleaf pine plant community, compared to the forest plan's goal of 263,000 acres.

- A total of 71 acres were planted with shortleaf pine seedlings in FY 2020 and approximately 173 acres in FY 2021. All were site prepped after final harvesting. The Forest has approximately 16,611 acre in the shortleaf pine / oak-hickory plant community, compared to the forest plan's goal of 62,000 acres.

- No areas were planted with mixed hardwood-loblolly pine seedlings and no areas were site prepped to be planted in FY 2020 and FY 2021 from final harvests. The Forest has approximately 374,428 acres in the mixed hardwood-loblolly pine plant community compared to the forest plan's long-term goal of 27,800 acres.

- Riparian plant communities continue to be maintained in concert with management practices. Riparian zones are typically excluded from mechanical harvesting activities except where selective thinning (commercial and noncommercial) are needed to improve the hardwood component for wildlife habitat improvement. In these cases, standards and guidelines are followed in order to protect the soil and water resources.

- Figure 5 shows the annual restoration accomplishments for longleaf and shortleaf pine since 2001. The mixed pine-hardwood category includes other pine species and hardwoods identified in the forest plan for each management area.

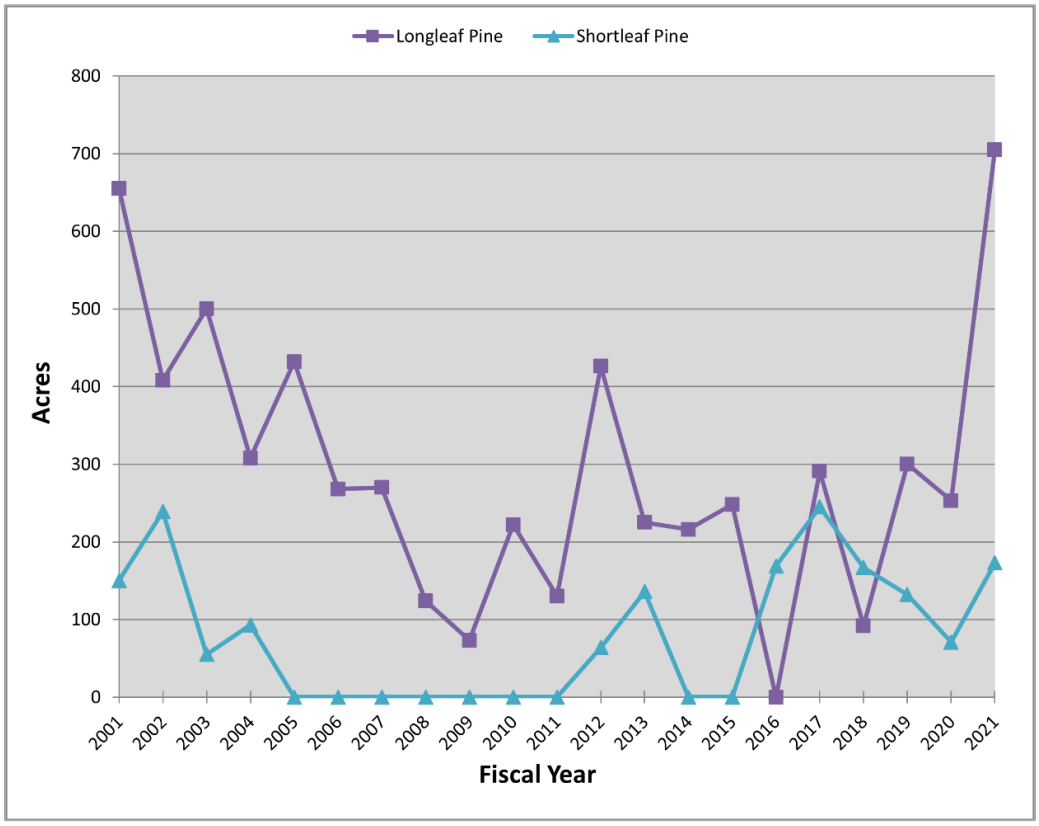

Figure 5. Acres of pine restored annually since 2001

FY 2022 and 2023 Recommended Actions:

- Strive to increase the number of acres restored to longleaf pine. Continue to monitor sites for additional treatment needs. Thinning prescriptions within RCW Habitat Management Areas (HMAs) should emphasize longleaf stand composition.

- Post-implementation field checks should be done on the thinning areas to ensure sufficient longleaf emphasis, evaluate species composition changes and update the FSVeg spatial database.

- Continue restoration treatments on shortleaf/hardwood sites where there is high priority for regeneration, such as stands damaged by disease, insect or storms and those stands showing signs of decline.

- Mixed hardwood-loblolly forest types exceed long-term desired future conditions currently with 374,428 acres over the landscape. Prescribe regeneration cuts on off-site stands where there is a high priority for regeneration, such as stands damaged by disease, fire, insect or storms or those stands showing signs of decline.

- Continue to monitor management practices being implemented within streamside and riparian area protection zones for compliance with the forest plan, through timber sale contract administration and field checks.

- Continue to consider selective thinning and hardwood planting treatments within riparian areas to enhance the hardwood component in appropriate management and sub management areas.

- Longleaf pine reforestation efforts are low. Revisit ability to move towards the longleaf pine desired future condition. The Forest currently has approximately 128,088 acres in the longleaf pine plant community, compared to the forest plan's goal of 263,000 acres. Weather events that have occurred in FY 2020 will give the Forest the chance to increase the longleaf pine reforestation efforts.

- Shortleaf pine reforestation efforts are low. Revisit ability to move towards the shortleaf pine desired future condition. The Forest currently has approximately 16,611 acres in the shortleaf pine/oak hickory community, compared to the forest plan's goal of 62,000 acres.

Forest Wide Desired Future Condition, Goal 2, Objective 2–2: Provide for healthy populations of all existing native and desirable nonnative wildlife, fish, and plants by managing major forest ecosystems at the scale and distribution appropriate to maintain species viability. In the next 10 years, management indicator habitat objectives are as follows, noting that there will be some overlap of riparian habitat and mixed hardwood loblolly pine, mid-to-late stages:

- Longleaf pine, all stages: 121,000 acres.

- Shortleaf pine / oak-hickory, early stages: 0 acres.

- Shortleaf pine / oak-hickory, Mid-to-late stages: 16,000 acres.

- Mixed hardwood-loblolly pine, early stages: 42,000 acres.

- Mixed hardwood-loblolly pine, Mid-to-late stages: 252,000 acres.

- Riparian, small streams: 85,000 acres.
- Riparian, large streams: 92,000 acres (USDA Forest Service 1999a, page 2-4).

Objective 2-2 Monitoring Question 1: Are management practices successfully expanding quality habitats for management indicators? (E)

FY 2020 and 2021 Findings:

- Based on inventoried forest type acreages, the forest meets or exceeds forest plan goals for acreage provided in each landscape community except the mixed hardwood-loblolly pine early stages, which is below the target. The following figures indicate the inventoried trends through time and the forest plan successional acreage goal for each community type:
    - Longleaf Pine community, Figure 6, all stages totaled 128,936 in 2020 and 129,840 acres in 2021, compared to the forest plan goal of 121,000 acres. Since 2005, inventoried acres on this community type has been above the forest plan goal.
    - Early succession Shortleaf Oak-Hickory community, Figure 7, in 2020 totaled 1161 acres and 1250 acres in 2021, compared to the forest plan goal of 0.0 acres. Since 2004, inventoried acreage on this community type has been above the forest plan goal.
    - Mid-to-late Shortleaf Oak-Hickory community, Figure 8, in 2020 totaled 15,242 acres and 15,431 acres in 2021 compared to the forest plan goal of 16,000 acres. Inventoried acreage on this community type continues moving toward the forest plan goal.
    - Early succession Mixed Hardwood-Loblolly community, Figure 9, in 2020 totaled 147 acres and 179 acres in 2021 compared to the forest plan acreage goal of 42,000 acres. Since 2004, inventoried acreage on this community type has been below the forest plan goal.
    - Mid-to-late Mixed Hardwood-Loblolly community, Figure 10, in 2020 totaled 375,396 acres and 374,791 acres in 2021 compared to the forest plan goal of 252,000 acres. Since 2004, inventoried acreage on this community type has varied but overall has been above the forest plan goal.
- Figure 11 and Table 3 shows the trend in acres of successional habitat types from fiscal years 2009 through 2021. Early successional habitat in 2020 was 3,256 acres and 3,862 acres in 2021. This has been relatively consistent since 2008 and is low compared to the forest plan's goal of greater than 20,000 acres. Mid successional habitat in 2020 was 110,014 acres and 121,365 acres in 2021. This is high compared to the forest plan's goal of 50,000 acres. Late successional habitat in 2020 was 350,498 acres and 360,666 acres in 2021. This is high compared to the forest plan's goal of 75,000 acres.
- Table 3 compares successional classes in all forest types from 1999 to 2021. Based on this information the forest continues to have a deficiency of early successional habitat in

Shortleaf Oak-Hickory. All forest types exceed the forest plan's goals for mid-to-late successional habitat compared to the MIS habitat.

Due to a tornado occurring in December 2019 (FY 2020) and a hurricane in August 2020 (FY 2020) on the Calcasieu Ranger District, many stands were totally destroyed. As FY 2020 and FY 2021 went along, salvage operations occurred across the landscape. Site preparation occurred so planting could be done. It will take time to get the areas back to where stand data is more accurately showing the age classes in Figure 10. The 0-10 age class will increase in the longleaf forest type over the next several years especially for the Calcasieu since this is the site-specific species to plant.

The swath of the December 2019 (FY 2020) tornado was over a half mile wide and remained on the ground for over 40 miles which affected both sides of the Calcasieu Ranger District. Approximately 2550 acres were damaged.

On August 27, 2020, Hurricane Laura slammed into the coast of south Louisiana as a category 4 hurricane with winds of 150 mph. It made landfall near Cameron, Louisiana. It traveled on a path north through the parishes of Cameron, Calcasieu, Beauregard, Vernon and beyond. The winds were in excess of 100 mph when it hit Vernon Parish. The devastation on the Calcasieu Ranger District in Vernon Parish was over 30,000 acres. The estimated severe damage to pine stands was 20,000 acres, moderate damage was 5000 acres and light damage was 5000 acres.

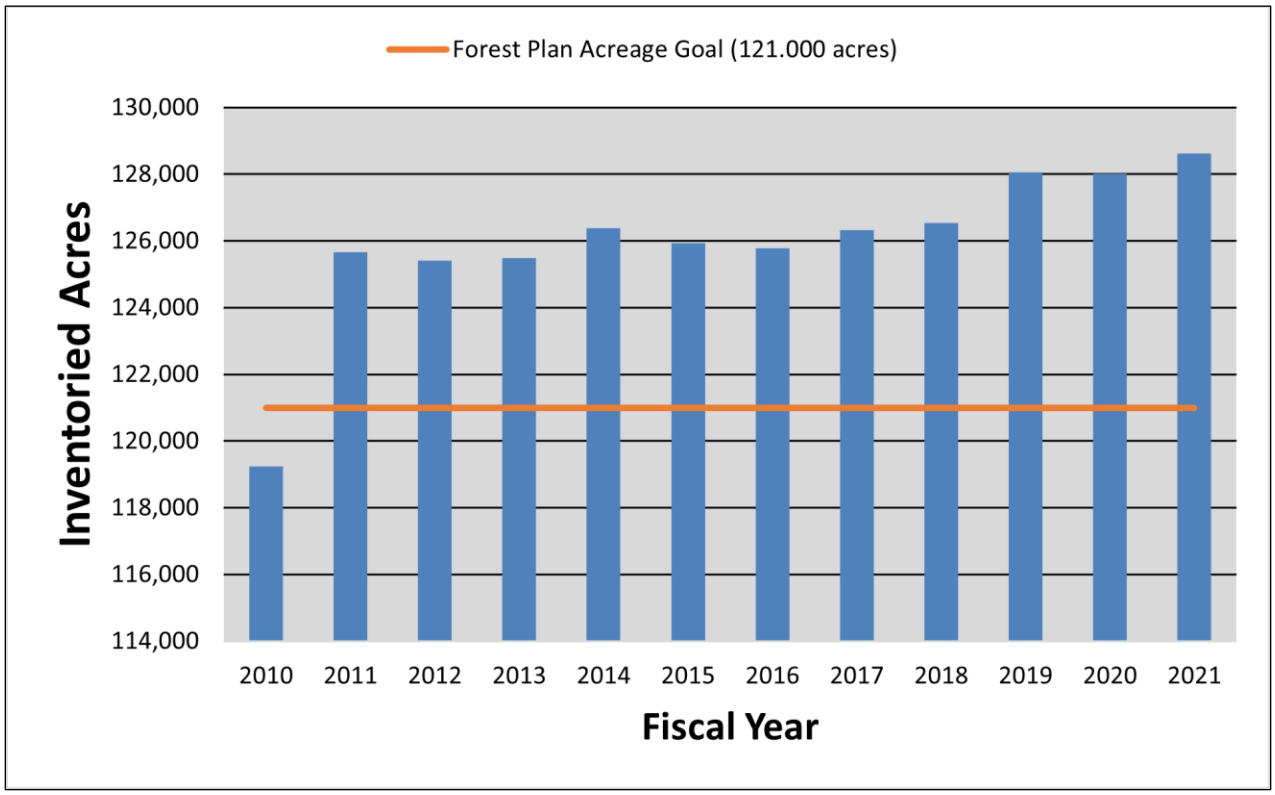

Figure 6. Acres of longleaf pine landscape community on the KNF

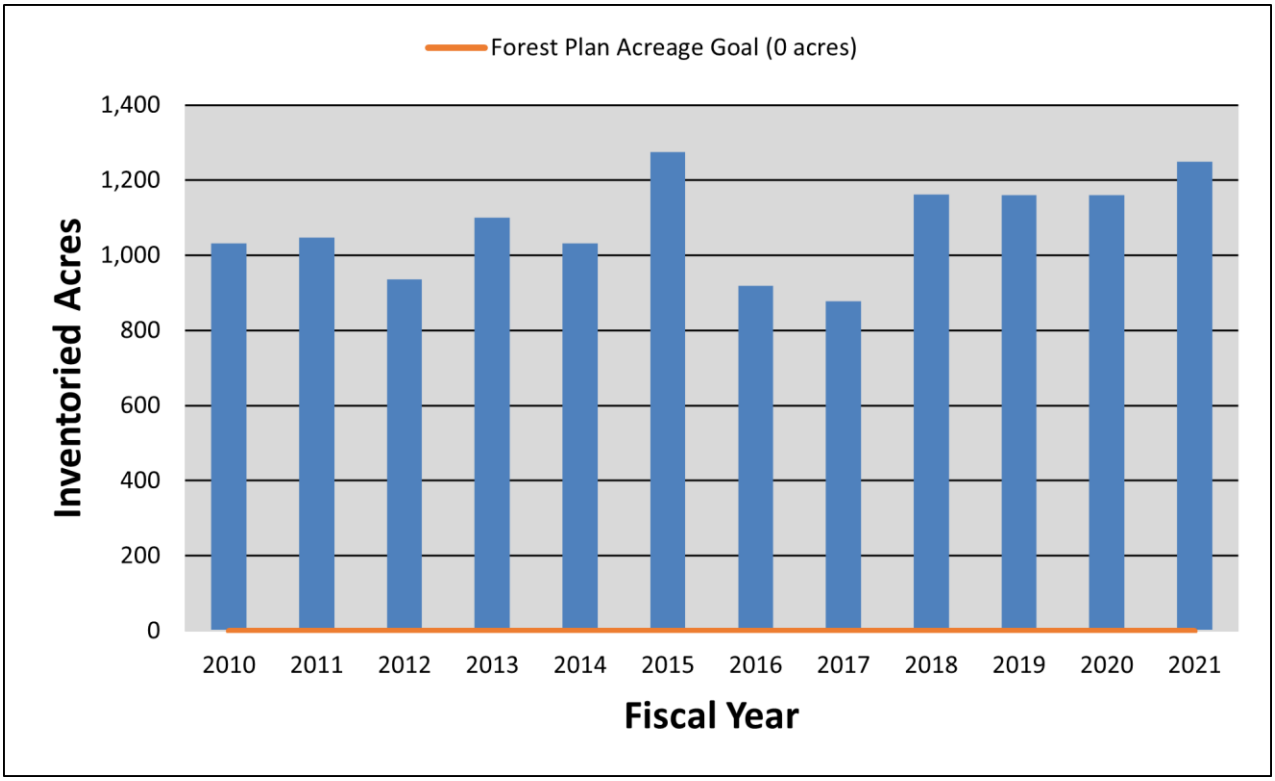

Figure 7. Acres of early succession shortleaf-oak-hickory community on the KNF

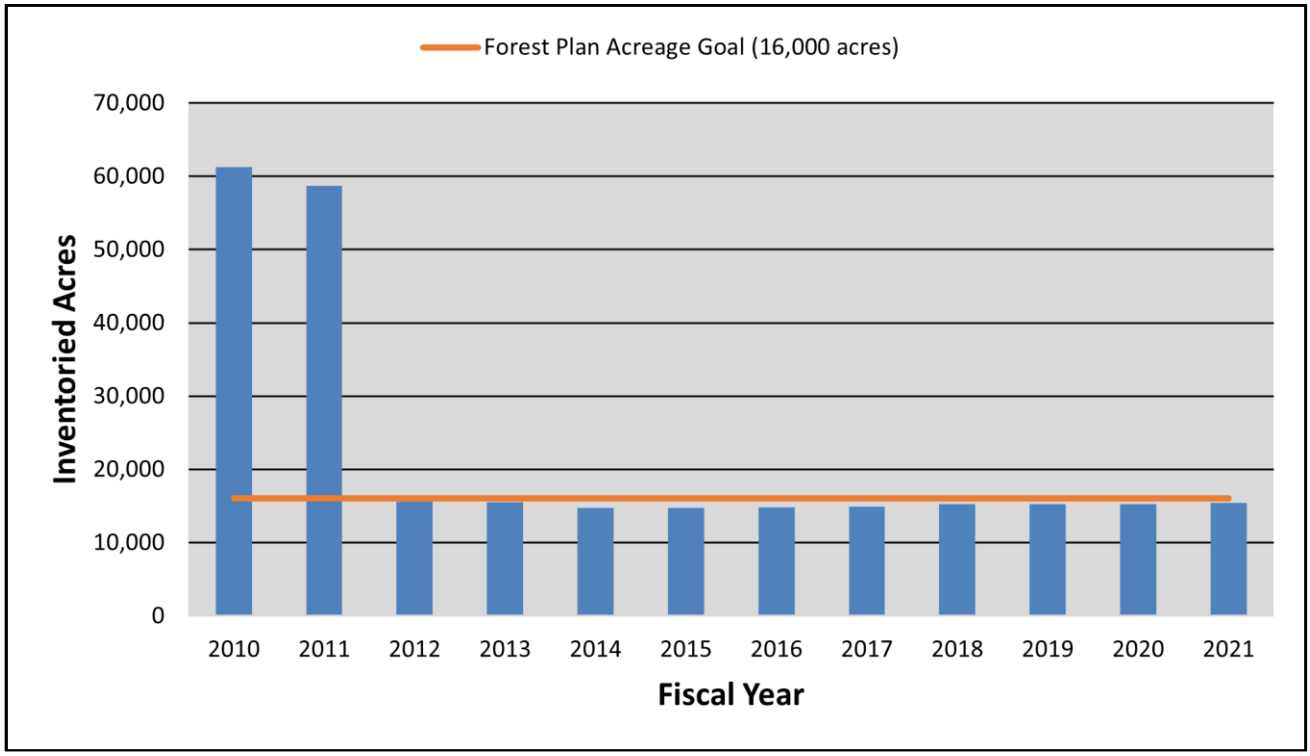

Figure 8. Acres of mid-to-late shortleaf-oak-hickory community on the KNF

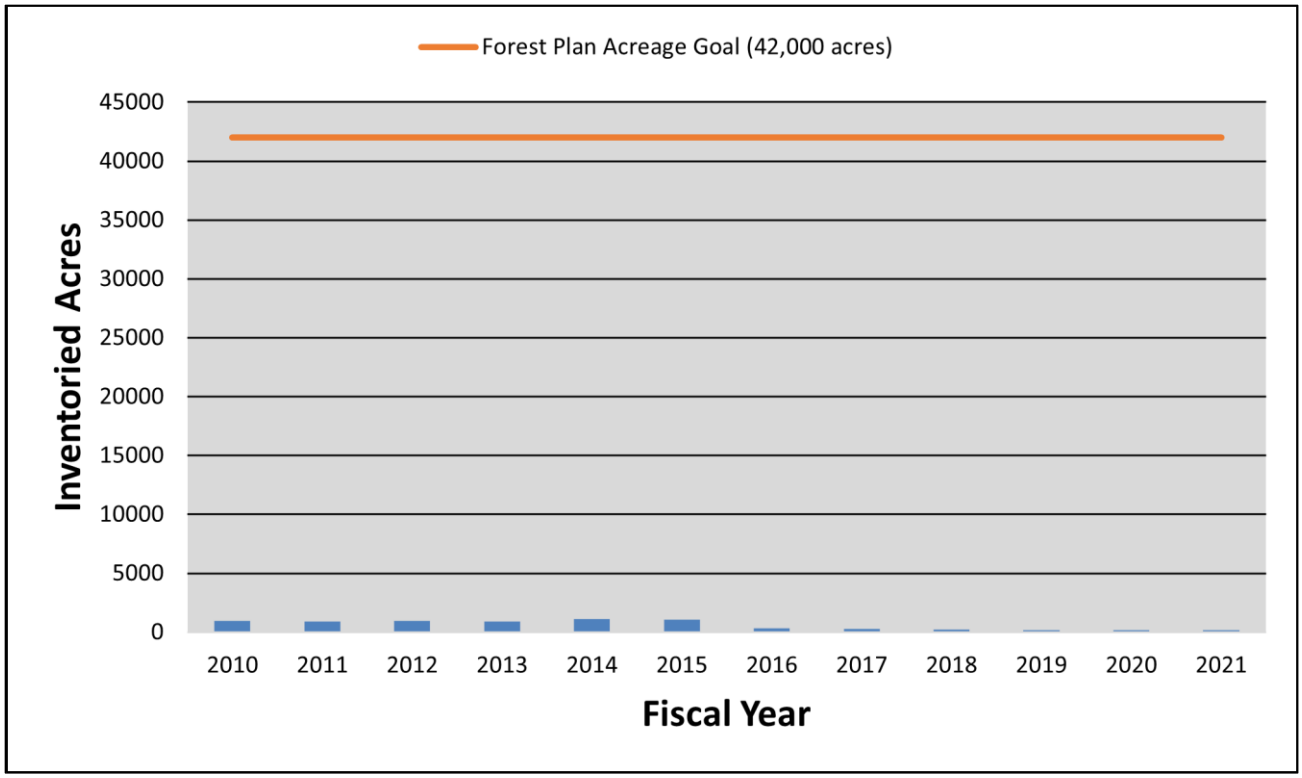

Figure 9. Acres of early succession mixed hardwood-loblolly community on the KNF

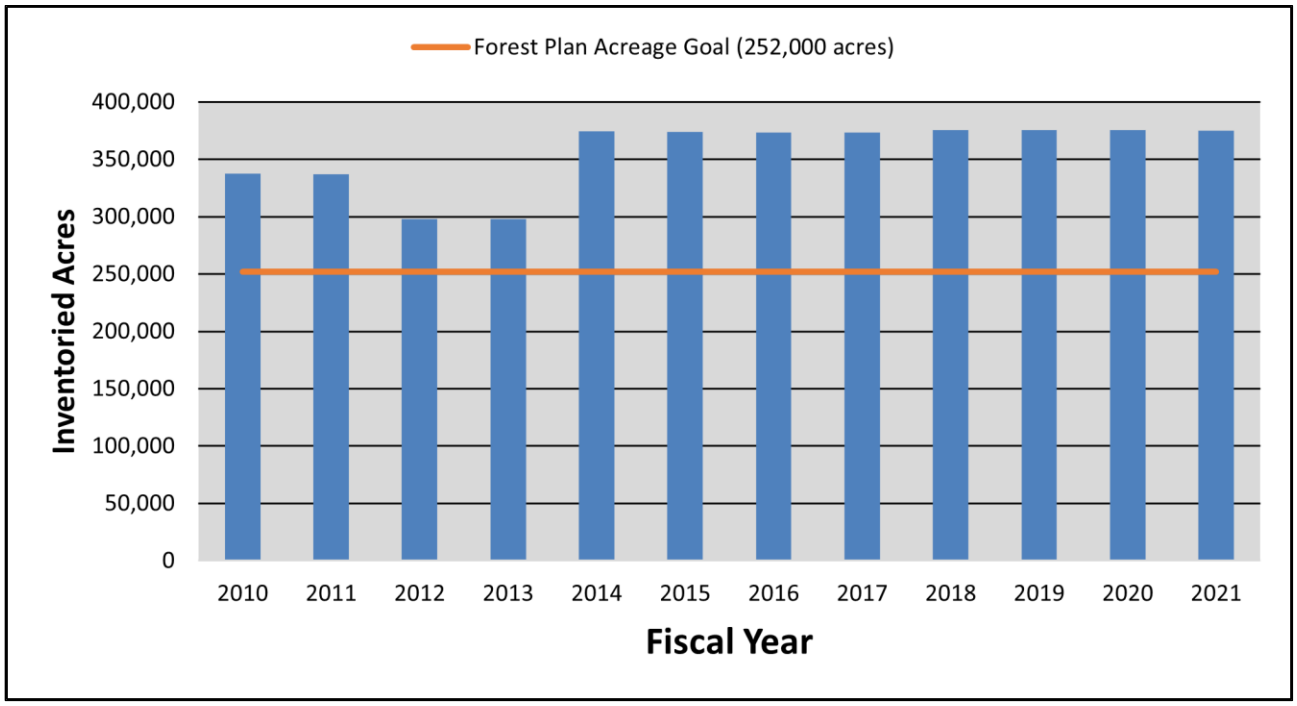

Figure 10. Acres of mid-to-late mixed hardwood-loblolly community on the KNF

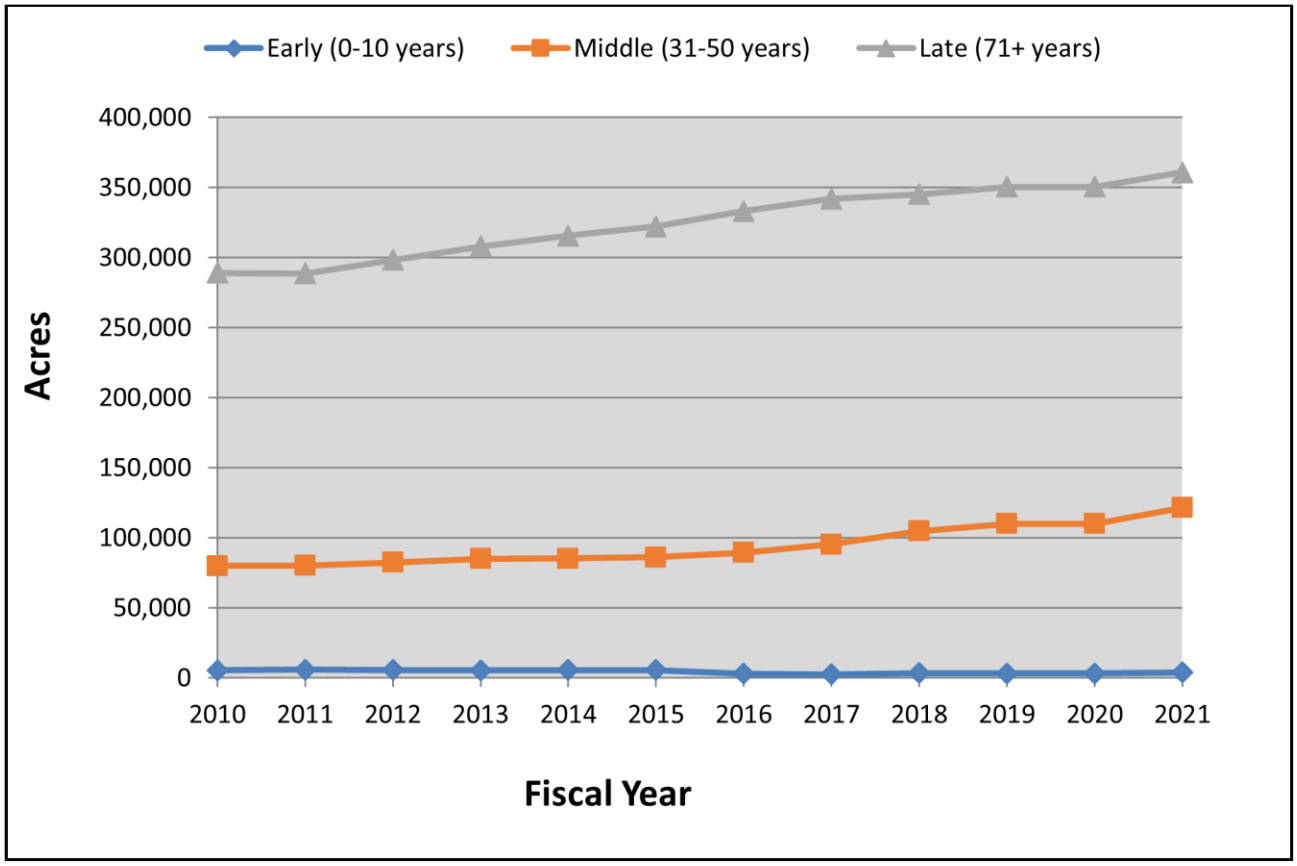

Figure 11. Forest successional habitat type trend

FY 2022 and 2023 Recommended Actions:

- Continue to adhere to forest plan guidance.

Objective 2-2 Monitoring Question 2: Are the habitat objectives for selected management indicators providing for healthy populations of all existing native and desirable nonnative wildlife, fish, and plants? (V)

FY 2020 and 2021 Findings:

Botanical Management Indicator Species

- No specific surveys for botanical MIS have occurred since 2002. A strategy for updating botanical MIS population and habitat trends is being developed for forest plan revision.
- There is a need to continue to use prescribe fire in all LTAs and follow forest plan standards and guidelines. Prescribed burning is the most efficient management tool along with non-native invasive plant treatments to promote biodiversity of the forest floor.

Aquatic Management Indicator Species

- Aquatic MIS appear to be viable and stable in the protected habitats and refuges across the forest. No MIS species have experienced an appreciable decline in relative abundance and all showed the presence of juveniles (Byrd, 2005, p 20). Although numbers of largemouth bass and sunfish on the forest are not indicative of eutrophic systems, viable populations

Table 3. Forest Management Indicator Species habitat

Management Indicator Species	Early Successional			Mid Successional						Late Successional		
	1999 Acres 0-10	2021 Acres 0-10	Change (%)/ Habitat Trend	1999 Acres 11-30	2021 Acres 11-30	Change (%)/ Habitat Trend	1999 Acres 31-80	2021 Acres 31-80	Change (%)/ Habitat Trend	1999 Acres 81+	2021 Acres 81+	Change (%)/ Habitat Trend
Longleaf Pine												
Bachman's Sparrow	13,614	2,423	82%/ Down									
Northern Bobwhite				10,179	10,594	4% / Up	95,690	50,697	47% / Down	4,162	66,116	1489% / Up
Prairie Warbler												
RCW												
Red-headed woodpecker												
Shortleaf Pine Oak Hickory												
Prairie Warbler	1,200	179	85% Down									
Yellowed billed cuckoo				7,551	1,577	79% / Down	40,095	19,850	50% / Down	12,667	58,935	365%/Up
Pileated woodpecker												
Wood thrush												
RCW												
Hooded warbler												

Mixed Hardwood-Loblolly Pine												
White-eyed Vireo	371	0	100% / Stable									
Eastern Wood pewee				2,958	27	99% / Down	25,071	9,488	62% / Up	8,229	30,815	274% / Up
Pileated Woodpecker												
Summer Tanager												
RCW												
Small Stream Riparian Landscape												
Acadian Flycatcher	522	0	100% / Stable	2,752	0	100% / Stable	24,809	7,451	70% / Up	5,480	21,782	297% / Up
Louisiana water thrush												
White-eyed Vireo												
Yellow-billed Cuckoo												
Large Stream Riparian Landscapes												
Kentucky Warbler	311	0	100% / Stable	2,664	21	99% / Down	29,917	5,357	82% / Down	12,045	39,768	230% / Up
Warbling Vireo,												
Northern Parula												
Pileated Woodpecker												
White-breasted Nuthatch												
Worm-eating Warbler												

The baseline data for 1999 was derived from Table 3-6 in the KNF Revised LRMP, page 3-23: Pine: 460,134 acres, Mixed Hardwood: 61,889 acres, Hardwood: 78,500 acres. Acres are based on 606,745 acres (KNF Revised LRMP, Appendix B-1, Table B-1, Stage 1)

do exist for a sustainable sport fishery. Forest-wide trends of largemouth bass and sunfish populations may fluctuate, but this is due to natural variability (Byrd, 2005, p 22).

- The KNF has partnered with the Center for Aquatic Technology Transfer (CATT) to develop standardized methods for stream monitoring, data collection, and data analysis. In FY 2017 sampling methods were standardized and stream sampling began. Sampling concluded in FY 21 and data was submitted to Louisiana State University (LSU) for data analysis. A report evaluating long-term status and trends in aquatic species is anticipated from LSU in FY 22.

Terrestrial Management Indicator Species

- Monitoring of distribution and abundance of breeding forest birds is an important aspect of the Forest Service commitment to providing habitats for these important indicators of habitat quality and stability. Avian point count data has been collected since 1998 across the forest. Annual surveys are conducted during the spring at fixed points throughout the forest. Annual evaluation of MIS trends across the forest are shown in Table 4 for each habitat type on the forest.

FY 2022 and 2023 Recommended Actions:

- The management indicator species list for plants should be modified by considering the following criteria:
    - Species occurs in a habitat that we are likely to affect through our management, or in an area that drives our management direction.
    - Species is closely associated with the habitat of interest, and population levels respond to changes in that habitat (ecological indicator species).
    - Basic biology or ecology (habitat requirements, threats, demography, etc.) is known for species or habitat.
    - Species is not so rare or obscure that its populations cannot be monitored with a reasonable amount of effort.
    - Species, or habitat, occurs at a scale that allows us to monitor population in replicate treatments and control units.
- Continue to monitor the health of lake and stream fisheries.
- Continue to work with the CATT team on any stream monitoring needs and LSU on data analysis.
- Continue avian surveys across the Forest.
- Revisit aquatic MIS data and validate habitat and population trends.

Table 4. Abundance trends of terrestrial management indicator species

Terrestrial MIS	Habitat Types	Occurrence by Year						
		'15	'16	'17	'18	'19	'20	'21
Acadian Flycatcher	Riparian habitats small stream	6	9	9	26	12	16	25
Bachman's Sparrow	Longleaf pine all stages	15	15	12	5	4	12	15
Eastern Wood-pewee	Shortleaf/oak-hickory mid-late succession stage	6	7	9	10	12	16	15
Hooded Warbler	Hardwood-loblolly mid &late successional stage	38	29	29	75	65	117	184
Kentucky Warbler	Riparian habitats large stream	33	31	29	14	9	17	28
Louisiana Waterthrush	Riparian habitats small stream	0	0	0	3	4	3	7
Northern Bobwhite	Longleaf pine all stages	1	2	3	10	3	18	32
Northern Parula	Riparian habitats large stream	6	5	6	9	9	8	15
Cooper's Hawk	Shortleaf/oak-hickory mid-late succession stage	0	0	0	0	0	1	0
Warbling Vireo	Riparian habitats large stream	0	0	0	0	0	1	0
Pileated Woodpecker	Shortleaf/oak-hickory mid-late succession stage, Hardwood-loblolly mid & late successional stage, Riparian habitats large stream	31	27	29	32	20	47	49
Prairie Warbler	Longleaf pine all stages, shortleaf/oak-hickory early succession stage	3	2	9	14	4	13	22
Red-cockaded Woodpecker	Longleaf pine all stages, shortleaf/oak-hickory mid-late succession stage, Hardwood-loblolly mid & late successional stage	5	5	9	5	0	7	12
Red-headed Woodpecker	Longleaf pine all stages	9	3	9	15	12	9	16
Summer Tanager	Shortleaf/oak-hickory mid-late succession stage	44	44	49	28	18	36	58
White-breasted Nuthatch	Riparian habitats large stream	0	0	0	4	0	0	10
White-eyed Vireo	Hardwood-loblolly early successional stage, Riparian habitats small stream	32	28	27	41	51	68	86
Wood Thrush	Hardwood-loblolly mid &late successional stage	6	7	9	9	15	11	11
Worm-eating Warbler	Riparian habitats large stream	0	0	0	7	0	5	13
Yellow-billed Cuckoo	Hardwood-loblolly mid & late successional stage, Riparian habitats small stream	58	53	59	28	32	38	37

Forest Wide Desired Future Condition, Goal 2, Objective 2–3: Manage to protect, improve, and maintain habitat conditions for all threatened, endangered, sensitive, and conservation species occurring on the Forest. Manage habitat conditions on 303,000 acres of pine and pine-hardwood within 5 established RCW HMAs to achieve a long-term forest -wide RCW population of 1,405 active clusters (USDA Forest Service 1999a, page 2-4).

Objective 2-3 Monitoring Question 1: Are management practices designed to protect, improve, and maintain threatened, endangered, sensitive, and conservation species being implemented? Are management strategies designed for red-cockaded woodpecker habitat management being implemented within designated habitat management areas? (I)

FY 2020 and 2021 Findings:

- The Forest's prescribed burning program is the most important management tool used for restoration of pre-settlement habitats. Prescribed fire can also be very effective in protecting, improving, and maintaining TESC species. On a small scale, some bogs were managed for the benefit of sensitive and conservation species by clearing encroaching shrubs and trees.
- Treatment of non-native invasive species continues to improve habitat for TESC species.
- In FY 2020, approximately 278 acres were treated to remove non-native invasive plants.
- In FY 2021, approximately 273 acres were treated to remove non-native invasive plants.

FY 2022 and 2023 Recommended Actions:

- Continue the current prescribed burning program of 80,000 to 160,000 acres per year.
- Increase the ratio of growing season burns to dormant season burns, since growing season burns are critical for successful gains in our botanical restoration efforts.
- It is important to increase efforts to remove encroaching woody plants in the Winn District prairies and in pitcher plant bogs throughout the forest, as these natural communities provide habitat for many of our TESC species.

Objective 2-3 Monitoring Question 2: Are habitat conditions for threatened, endangered, sensitive, and conservation species improving? (E)

FY 2020 and 2021 Findings:

- No known occurrences of threatened or endangered plant species are known to exist on the forest.
- The Forest's prescribed burning program is the most important practice used for restoration of pre-settlement habitats, which is proving to be very effective in protecting, improving, and maintaining TESC species.
- Thirty-six acres of prairies in 2021 were managed for the benefit of sensitive and conservation species, by clearing encroaching shrubs and trees.
- Treatment of non-native invasive species continues to improve habitat for TESC species.
- In FY 2020, approximately 278 acres were treated to remove non-native invasive plants.

- In FY 2021, approximately 273 acres were treated to remove non-native invasive plants.

- The Forest's prescribed burning program is the most important practice used for restoration of pre-settlement habitats, which is very effective in protecting, improving, and maintaining TESC species. Due to COVID-19-related work restrictions and severe weather events and their response, the number of acres burned decreased during FY 2020-2021. This has likely decreased the overall quality of TESC habitat on the Forest.

FY 2022 and 2023 Recommended Actions:

- Once COVID-19-related work restrictions are lifted, continue prescribed burning of 80,000 to 160,000 acres per year to return to Forest's normal burn rotation.

- Increase the ratio of growing season burns to dormant season burns, since growing season burns are critical for successful gains in our restoration efforts.

Objective 2-3 Monitoring Question 3: Are red-cockaded woodpecker and Louisiana pearlshell mussel population trends responding positively to management strategies? (V)

FY 2020 and 2021 Findings:

Louisiana pearlshell mussel

- Mussels were not monitored in FY 2020 and FY 2021. Monitoring is scheduled for FY 2022.

- The population trend for the LPM on the Evangeline Unit of the Calcasieu Ranger District appears to be increasing to stable (see Figure 12).

- The Grant Parish population has continued to decline since 2007 (see Figure 12). The mussel population on Forest Service land is now very close to complete extirpation. Drought and predation are believed to be the main causes of this decline in many of the streams. The Forest Service is working closely with the U.S. Fish and Wildlife Service (USFWS) on mussel propagation for future reintroductions.

- Quarterly water samples taken on mussel streams indicated good water quality.

- The USDA Animal and Plant Health Inspection Service (APHIS) continues to monitor beaver activity on LPM streams. Beavers and dams are removed when activity is negatively affecting LPM.

Red-cockaded woodpecker

- We experienced 2 tornadoes, 2 hurricanes, and hard freezes that caused historic damage to the Forest and wildlife habitat. Despite this, there was, overall, noticeable improvement in Forest trends for Red-cockaded woodpeckers (see Figure 13).

    - Catahoula Ranger District Potential Breeding Groups totaled 71 (2020) and 84 (2021).

    - Calcasieu District—Evangeline Unit Potential Breeding Groups totaled 130 (2020) and 133 (2021).

- Kisatchie Ranger District Potential Breeding Groups totaled 53 (2020) and 54 (2021).
- Winn Ranger District Potential Breeding Groups totaled 39 (2020) and 52 (2021).
- Calcasieu District—Vernon Unit Potential Breeding Groups totaled 160 (2020) and 158 (2021).

FY 2022 and 2023 Recommended Actions:

- Continue monitoring all known RCW populations. Prescribe burn the RCW nesting and foraging habitat. Engage in RCW translocations to bolster populations. Continue to work closely with the USFWS.
- Continue to monitor LPM streams that are prone to drought and investigate streams that are experiencing depredation. Control beaver activity and enforce regulations that prohibit off-road vehicles (ORV) from damaging LPM habitat. Continue to release mussels as they become available. Continue implementation of best management practices (BMP) and streamside habitat protection zones (SHPZ). Rehabilitate areas that are contributing to LPM habitat damage. Continue collaboration with other agencies, partners, private landowners, and volunteers. Provide assistance to the USFWS and interested parties with habitat improvements, monitoring, propagation, and reintroductions.
- Continue RCW management across the Forest. Identify and prioritize thinning of foraging habitat, improvement and expansion of RCW clusters, and mid-story reduction projects. Work with the USFWS to prioritize future projects and identify habitat needs.

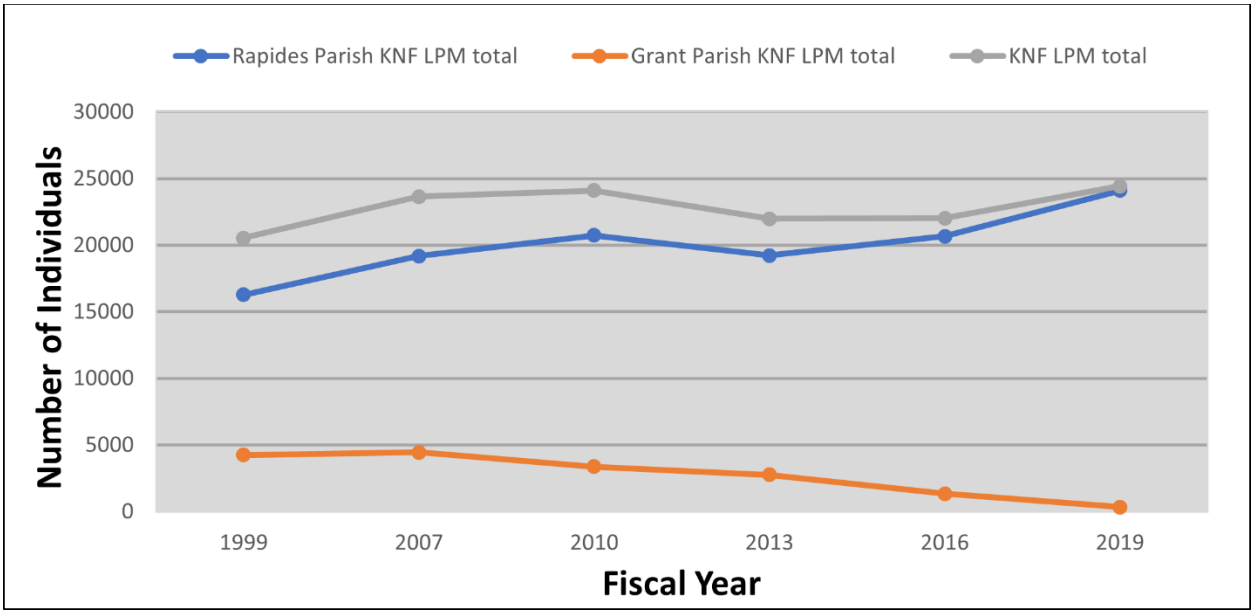

Figure 12. Louisiana pearlshell mussell population trend *(no new data since 2019)*

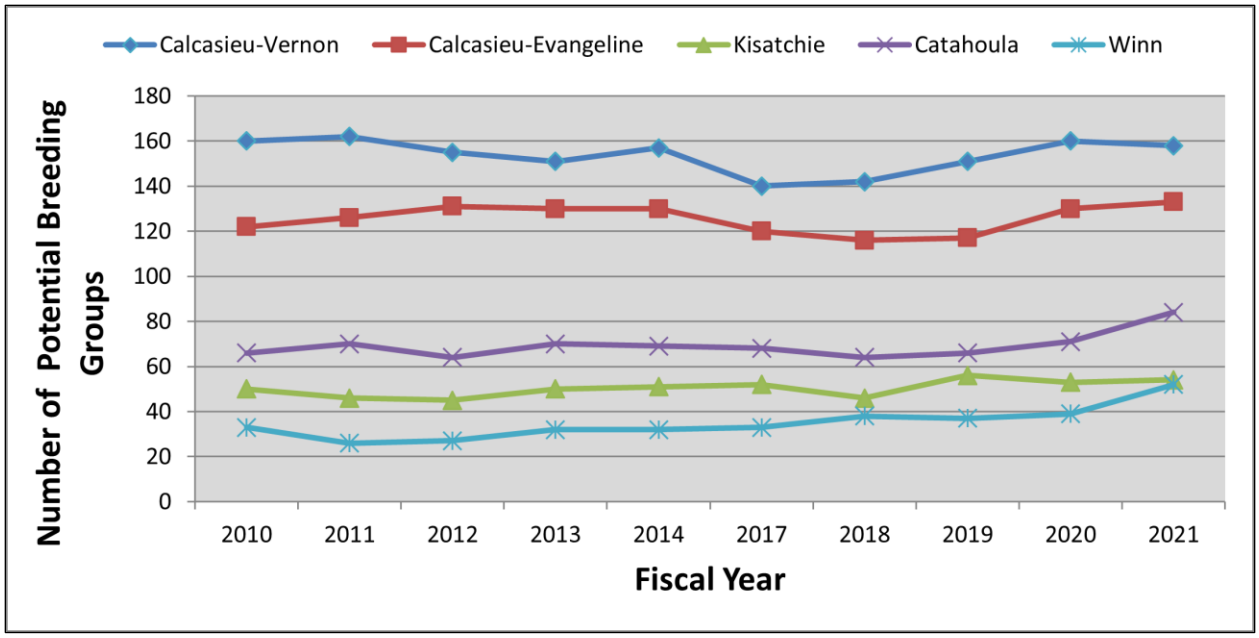

Figure 13. Red-cockaded woodpecker potential breeding groups trend

Forest Wide Desired Future Condition, Goal 2, Objective 2–4: Develop or maintain old-growth forest attributes, for their contribution to biological and visual diversity, habitats for plant and animal species, and maintenance of a natural gene pool, within designated patches on approximately 13 percent of the Forest based upon representation of the major forest ecosystems and old-growth community types. Long-term old-growth forest objectives are as follows:

Longleaf pine forest-dominated patches: 48,800 acres

- Coastal plain upland mesic hardwood: 2,550 acres
- Upland longleaf, woodland, and savanna: 45,350 acres
- Southern wet pine forest, woodland, and savanna: 780 acres
- Dry and xeric oak forest, woodland, and savanna: 120 acres

Shortleaf pine/oak-hickory forest-dominated patches: 13,500 acres

- Coastal plain upland mesic hardwood: 1,290 acres
- Dry and dry-mesic oak-pine forest: 11,630 acres
- Dry and xeric oak forest, woodland, and savanna: 60 acres
- Xeric pine and pine-oak forest and woodland: 50 acres
- Seasonally wet oak-hardwood woodland: 350 acres
- River floodplain hardwood forest: 120 acres

Mixed hardwood-loblolly pine forest-dominated patches: 6,100 acres

- Coastal plain upland mesic hardwood: 700 acres
- Seasonally wet oak-hardwood woodland: 300 acres
- Dry and dry-mesic oak-pine forest: 4,650 acres
- River floodplain hardwood forest: 450 acres

Riparian forest-dominated patches: 12,700 acres

- Coastal plain upland mesic hardwood: 1,820 acres
- River floodplain hardwood forest: 1,180 acres
- Cypress-tupelo swamp forest: 1,400 acres
- Eastern riverfront forest: 6,400 acres
- Seasonally wet oak-hardwood woodland: 1,400 acres
- Dry and dry-mesic oak-pine forest: 500 acres (USDA Forest Service 1999a, page 2-4 to page 2-5)

Objective 2-4 Monitoring Question 1: Are management practices designed to develop old-growth forest attributes being implemented? (I)

The 2006 Comprehensive Evaluation Report (CER, or 5-Year Review) noted, "Although these are considered long-term objectives, restoration of old growth areas is occurring at a slower pace than originally expected. This has been partially due to less emphasis than expected, since restoring upland longleaf for HMA improvement was typically the priority in project proposals and decisions. Another factor appeared to be a reluctance to improve old-growth characteristics due to uncertainties on how to effectively create or maintain old growth communities at the site level" (USDA 2007). Currently, there are very limited activities planned in old-growth patches. Commercial thinning in dense stands of timber within designated old growth areas are planned in order to maintain healthy conditions to grow the stands for the long term. These actions meet forest plan standards and guidelines for old-growth management.

FY 2020 and 2021 Findings:

- Treatments have been designed to restore species diversity and composition by increasing acres of native longleaf pine; to promote growth of trees into the larger, older age class to sustain RCW nesting and roosting habitat; and to move toward the historic disturbance regime by returning fire to the landscape.

FY 2022 and 2023 Recommended Actions:

- Continue to consider old growth areas during project level proposals and interdisciplinary team meetings.
- Evaluate old growth characteristics in project level NEPA analysis.

Objective 2-4 Monitoring Question 2: Are the management practices successfully developing or maintaining forest attributes similar to those found in old-growth? (E)

FY 2020 and 2021 Findings:

Stands are continuing to age since the forest plan was signed. The December 2019 tornado and Hurricane Laura destroyed many stands on the Calcasieu Ranger District that set many stands back to age zero. Old growth will be considered long into the future for many of these.

FY 2022 and 2023 Recommended Actions:

- Continue emphasis on tracking and reporting old growth allocations at the project and landscape scale.
- Continue prescribed fire and commercial thinning in some old growth patches in the uplands to enhance the old-growth attributes and help mold appropriate overstory and understory composition.
- Increase the ratio of growing season burns to dormant season burns, since growing season burns are critical for successful gains in restoration efforts.
- Increase efforts to remove encroaching woody plants in the Winn District prairies and in pitcher plant bogs throughout the forest, as these natural communities provide habitat for many of our TESC species.
- Adhere to the land management practices described in the forest plan, which calls for relatively older timber stands.

Forest Wide Desired Future Condition, Goal 2, Objective 2–5: Manage to protect or enhance the unique plant and animal communities, special habitat features, habitat linkages and corridors, and aquatic ecosystems associated with streamside habitat and riparian areas (USDA Forest Service 1999a, page 2-5).

Objective 2-5 Monitoring Question 1: Are streamside habitat protection zones and riparian area protection zones being delineated and managed as prescribed? (I)

FY 2020 and 2021 Findings:

- No unacceptable impacts to plant and animal habitat communities within streamside protected zones have been detected.
- Best management practices were last monitored in 2018 (see Table 5). The Forest Service's national BMP monitoring protocol was used, and a composite score of excellent was achieved for all sites monitored.

FY 2022 and 2023 Recommended Actions:

- Continue implementation of forest plan standards and guidelines.
- Continue to use the Forest Service's national BMP protocol for monitoring.

Objective 2-5 Monitoring Question 2: Are these zones successfully protecting or enhancing unique plant and animal communities, special habitat features, habitat linkages, and aquatic ecosystems? (E)

FY 2020 and 2021 Findings:

- BMPs were last monitored in FY18, see Table 5 for monitoring results. Almost all land management practices monitored demonstrated successful BMP implementation and effectiveness. BMPs were monitored using the Forest Service's national BMP monitoring protocol.

FY 2022 and 2023 Recommended Actions:

- Continue to use the Forest Service's national BMPs protocol for monitoring.

2.1.4 Watershed Conditions

Forest Wide Desired Future Condition, Goal 1, Objective 1–1: Maintain or improve the Forest's long-term soil productivity. This is accomplished through land management practices designed to meet requirements for minimizing soil erosion and compaction, by not exceeding allowable soil loss for any given soil, by revegetating disturbed areas and by restoring degraded areas to a natural condition (USDA Forest Service 1999a, page 2-3).

Objective 1-1 Monitoring Question 1: Are management practices designed to minimize soil erosion, compaction and loss of soil productivity being applied? (I)

FY 2020 and 2021 Findings:

- Design features and BMPs are part of all NEPA analyses and decisions.
- BMPs were not monitored in FY 2020 and FY 2021, see Table 5 for FY18 monitoring results. Almost all land management practices monitored demonstrated successful BMP implementation and effectiveness.

FY 2020 and 2021 Recommended Action:

- Continue to use the Forest Service's national BMPs protocol for monitoring.

Table 5. Best management practices monitoring results *(no new data since 2018)*

Monitored Activity	Evaluation Type	Fiscal Year	* Rating
Use of Prescribed Fire	Implementation and Effectiveness	2018	3 - Excellent
			1 - Good
			1 - Poor
Ground-Based Skidding and Harvesting	Implementation and Effectiveness	2018	2 - Excellent

*Excellent, Good, Fair, Poor, No Plan

Objective 1-1 Monitoring Question 2: Is allowable soil loss being exceeded? Are disturbed and degraded areas being restored and revegetated to a natural condition? (E)

FY 2020 and 2021 Findings:

- BMPs were not monitored in FY 2020 and FY 2021, see Table 5 for FY18 monitoring results. Almost all land management practices monitored demonstrated successful BMP implementation and effectiveness.

- Disturbed and degraded areas are being identified and restored to natural condition.

FY 2022 and 2023 Recommended Actions:

- Continue to monitor BMPs for implementation and effectiveness. Restore and revegetate disturbed areas as needed.

Objective 1-1 Monitoring Question 3: How do timber management practices, especially timber harvesting and consequent compaction, affect soil productivity? (V)

FY 2020 and 2021 Findings:

- The Southern Research Station's Long Term Soil Productivity study has not produced any new publications that would lead us to change our design features or BMPs.

FY 2022 and 2023 Recommended Actions:

- Continue to review any new Long Term Soil Productivity publications produced by the Southern Research Station.

- Continue to use the Forest Service's design features and BMPs.

Forest Wide Desired Future Condition, Goal 1, Objective 1–2: Maintain or improve the integrity of aquatic ecosystems to provide for high water quality, stream-channel stability, natural flow regimes, water yield, and aquatic resources by managing in accordance with the Clean Water Act and by meeting all state and federal water quality standards (USDA Forest Service 1999a, page 2-3 to page 2-4).

Objective 1-2 Monitoring Question 1: Are management practices designed to minimize contamination, sedimentation, and maintain stream channel stability being applied? (I)

FY 2020 and 2021 Findings:

- Design features and best management practices are part of all NEPA analyses and decisions.

- BMPs were not monitored in FY 2020 and FY 2021, see Table 5 for FY18 monitoring results. Almost all land management practices monitored demonstrated successful BMP implementation and effectiveness.

FY 2022 and 2023 Recommended Actions:

- Continue to use the Forest Service's national BMP protocol for monitoring.

Objective 1-2 Monitoring Question 2: Are state water quality standards and state anti-degradation policies being met? Is water quality being degraded? (E)

FY 2020 and 2021 Findings:

- Water quality on a select number of streams is monitored quarterly for the following parameters: temperature, specific conductivity (µS/cm), pH, turbidity (NTU), and dissolved oxygen (mg/L). All monitored streams have Louisiana pearlshell mussels except for Saline Bayou. Saline Bayou is a "Louisiana Natural and Scenic River" and a "National Scenic Stream." Quarterly samples indicate that streams meet state water quality standards for the parameters tested.

- Bi-weekly testing of fecal coliform levels at Kincaid (Calcasieu Ranger District), Caney Lake (Caney Ranger District), and Stuart Lake (Catahoula Ranger District) swim beaches indicated that water quality standards for protection of public health and safety were commonly met.

FY 2022 and 2023 Recommended Actions:

- In lieu of extensive water chemistry analysis of forest streams, monitor the same streams for temperature, specific conductivity (µS/cm), pH, turbidity (NTU), and dissolved oxygen (mg/L) via a portable water quality probe.

- Continue required monitoring for coliform bacteria at KNF swim beaches.

Forest Wide Desired Future Condition, Goal 2, Objective 2–6: Manage perennial and intermittent streams as well as natural and man-made lakes, reservoirs, and ponds for native and desirable nonnative fish species and aquatic communities (USDA Forest Service 1999a, page 2-5).

Objective 2-6 Monitoring Question 1: Are lake predator-prey populations in balance? Are management practices sufficiently protecting stream and lake habitats? Are primary aquatic food chain organisms being impacted by siltation? (I)

FY 2020 and 2021 Findings:

- Predator / prey populations across the Forest are sufficient for a sustainable recreational fishery.

- Water quality data was within acceptable limits and BMPs were last monitored in 2018 (see results in Table 5). Population trends of MIS suggest that BMPs are adequately protecting the integrity and quality of watersheds within the Forest.

- Young-of-year and recruitment of all age classes is evidence that sediment has not inhibited reproduction of fishes or altered habitat beyond natural conditions.

FY 2022 and 2023 Recommended Actions:

- Establish size and creel limits on the Forest if needed to ensure recruitment and sustainability of the resource. Continue stock assessments and replenish fish when needed.
- Continue to monitor water quality and BMP implementation and effectiveness to ensure that stream and lake habitats are being protected.
- Continue to monitor for the health of stream and lake ecosystems.

Objective 2-6 Monitoring-Question 2. Are lake populations healthy? Are nonnatives and / or generalist-omnivore natives affecting lake biomass and balance? Is lake habitat sufficient? (E)

FY 2020 and 2021 Findings:

- Relative weights of fish are within acceptable limits and no diseased fish have been observed.
- Lake water quality and habitat are adequate. Vegetation management and habitat work is ongoing on several lakes.

FY 2022 and 2023 Recommended Actions:

- Continue sampling and analyzing data.

2.1.5 Air Quality

The Forest's fundamental resources are conserved and protected. They continue to provide the basic elements for healthy, functioning ecosystems. Class II air quality is maintained. Smoke from prescribed fire occurs frequently and may temporarily affect air quality in localized areas. Smoke management practices provide for effective smoke dispersal. Air quality is addressed in the Forest plan's Goal 1 and the goal has associated objectives that contain specific monitoring questions.

Forest Wide Desired Future Condition, Goal 1, Objective 1–3: Manage for air quality consistent with the Clean Air Act by implementing practices which are designed to meet state air quality standards and are consistent with maintaining the general forest area in Class II air quality (USDA Forest Service 1999a, page 2-4).

Objective 1-3 Monitoring Question 1: Are Forest Service and the La. Dept. of Agriculture & Forestry's smoke management guidelines and regulations being applied? Are performance requirements concerning air quality being incorporated in permitted activities? (I)

FY 2020 and 2021 Findings:

- The Forest followed the direction and parameters of the "Louisiana Smoke Management Voluntary Guidelines". A burn plan is prepared for each prescribed fire. In addition, smoke sensitive areas, site specific concerns, and smoke management criteria for the individual burn units are identified in the burn plan.

FY 2022 and 2023 Recommended Actions:

- Continue to follow the direction and parameters of the "Louisiana Smoke Management Voluntary Guidelines."
- Continue preparation of burn plans for prescribed fires.

Objective 1-3 Monitoring Question 2: Does air quality meet NAAQS and state standards? (E)

FY 2020 and 2021 Findings:

- The Clean Air Act requires EPA to set NAAQS for six common air pollutants. These pollutants are particulate matter, photochemical oxidants (including ozone), carbon monoxide, sulfur oxides, nitrogen oxides and lead. The Forest consists of five ranger districts located within Claiborne, Grant, Natchitoches, Rapides, Vernon, Webster, and Winn Parishes of west-central and north-western Louisiana. All Parishes are within attainment (https://www3.epa.gov/airquality/greenbook/anayo_la.html).

FY 2022 and 2023 Recommended Actions:

- Continue to check U.S. Environmental Protection Agency's website for nonattainment areas.

2.1.6 Climate Variability

Monitoring Questions: How has climate variability changed and how is it projected to change across the region? How is climate variability and change influencing the ecological, social, and economic conditions and contributions provided by plan areas in the region? What effects do national forests in the region have on a changing climate? Are long and short leaf pine management activities moving toward a reduction in climate related vulnerability by restoring and maintaining a healthy resilient native ecosystem in appropriate management areas?

The impacts of climate variability and of management on climate is assessed at the regional scale. The Regional Broad-Scale Monitoring Strategy is posted on-line at **https://www.fs.usda.gov/main/r8/landmanagement/planning#Monitoring**. As of 2020, the Southern Region has updated the Regional Broad-Scale Monitoring Strategy. The Southern Region has decided to build this strategy in "stages", structured around the eight monitoring requirements identified in the 2012 Planning Rule at 36 CFR 219.12(a)(5). The Southern Region has completed the second stage. These regional monitoring reports identify monitoring questions and indicators addressing changes on plan areas related to climate change; and progress toward meeting social, economic and cultural desired conditions.

- Broad-Scale Climate Change Monitoring Evaluation Report for the Southern Region
- Five-Year Report for the Regional Broad-Scale Monitoring Strategy for the Forest Service Southern Region

FY 2020 and 2021 Findings:

- SPB disease epidemics were not detected and collections in 2020 and 2021 spring survey traps were negligible, however, numerous SPB were collected in portions of the forest in a 2021 fall trapping survey.
- NNIP threats to our Forest's resources are expected to increase as new species and introductions find their way to Forest lands.

FY 2022 and 2023 Recommended Actions:

- The concern for SPB outbreak creates the opportunity for better reforestation choices and an incentive for improved management.
- Control of NNIP should continue to be a part of every project planning process.

2.1.7 Economics/Social

Monitoring Questions: What changes are occurring in the social, cultural, and economic conditions in the areas influenced by national forests in the region? Are the identified contributions to social and economic sustainability in the Forest Plan desired conditions being achieved?

The impacts of changes in social, cultural, and economic conditions is assessed at the regional scale. These regional monitoring reports identify monitoring questions and indicators addressing progress toward meeting social, economic and cultural desired conditions.

- Broad-Scale Socioeconomic Monitoring Evaluation Report for the Southern Region
- Five-Year Report for the Regional Broad-Scale Monitoring Strategy for the Forest Service Southern Region

Locally, the annual budget continues to fluctuate over time (see Table 6). These fluctuations impact the forest management in many ways. There was a big drop from 2020 to 2021 due to USFS budget modernization and the creation of the Salary & Expenses budget line items; authority was held at the regional level and the KNF only had ceilings. The forest seeks to find new and innovative ways to continue the needed restoration and maintenance work as well as continuing to utilize conventional methods. Additionally, the authorities granted via the Agriculture Act of 2014 including permanent status of stewardship authorities gives the forest flexibility within fiscal constraints.

Table 6. KNF annual budget

Fiscal Year	Budget
2021	$3,292,998
2020	$17,187,947
2019	$16,150,487
2018	$14,490,229
2017	$14,889,000
2016	$12,969,000
2015	$13,363,000

Increasing urban interface, non-native invasive species, increased public interest, new policies, litigation, etc. create opportunities. Budget fluctuations increase the challenges of accomplishing goals and objectives, and adopting to new opportunities.

The local economy in Louisiana in communities in or near the Kisatchie NF are primarily dependent upon oil and gas exploration and forestry. The National Forest contributes to those economies in terms of employment and services and the levels of those services are directly related to budgets.

FY 2020 and 2021 Findings:

- Fluctuating budgets present challenges to accomplishing forest plan goals and objectives, but also provide opportunities for efficiencies in utilizing available funds.

FY 2022 and 2023 Recommended Actions:

- Continue to utilize all available sources of funding to accomplish program goals.

2.1.7 Focal Species

Per the 2012 Planning Rule Monitoring Transition, the plan monitoring program must include monitoring questions and indicators on the status of a select set of focal species to access ecological conditions (see 36 CFR 219.12(a)(5)(iii)). A “focal species” is defined as a “species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area” (36 CFR 219.19).

The following table (

Table 7) shows the species that have been identified as “focal species” for this plan’s monitoring program, along with ecological conditions that each focal species will serve as an indicator of.

These species are already being monitored in the existing monitoring program and will continue to be monitored according to the protocols already established. However, the evaluation of the information gathered from the monitoring of these species will now be used within the context of evaluating the integrity of the ecological system the species is a part of, along with the effectiveness of the plan in maintaining or restoring those ecological conditions. A “focal species” is defined as a “species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area” (36 CFR 219.19).

Table 7. Focal species, ecological system/conditions and status

Focal Species	Ecological System/Conditions	Status
longleaf pine	Longleaf pine landscape community	The KNF continues to make progress in the restoration of longleaf pine and associated native communities through active management activities: timber harvests, prescribe burning, natural and artificial regeneration, competitive vegetation control – See Figure 5 above.
shortleaf pine	Shortleaf oak-hickory landscape community.	The KNF continues to make progress in the restoration of shortleaf pine and associated native communities through active management activities: timber harvests, prescribe burning, natural and artificial regeneration, competitive vegetation control – See Figure 5 above.
red-cockaded woodpecker	Longleaf pine landscape community.	Population stable.

2.2 SUSTAINABLE MULTIPLE FOREST AND RANGE BENEFITS

2.2.1 Outdoor Recreation Opportunities

The Forest provides a wide variety of outdoor recreation opportunities and experiences. Historically hunting, camping, driving for pleasure, swimming, and fishing have been the five most popular outdoor recreation activities. Outdoor recreation is addressed in Forest plan Goals two, four and one which have associated objectives and contain specific monitoring questions.

Forest Wide Desired Future Condition, Goal 2, Objective 2–7: Provide quality habitat for game and fish populations (USDA Forest Service 1999a, page 2-5).

Objective 2-7 Monitoring Question 1: Are management practices successfully expanding quality habitats for game and fish species? (E)

FY 2020 and 2021 Findings:

- Figure 11 shows the trend in acres of successional habitat types from fiscal years 2010 through 2021. The forest has a shortage of early successional habitat and has an excess of mid-to-late successional habitat compared to forest plan goals.
- Grass carp in Caney, Corney, Fullerton and Stuart lakes continue to control and maintain a desirable level of aquatic vegetation.
- Caney, Corney, and Fullerton lake aquatic vegetation is being chemically treated as needed.

- Valentine and Fullerton lakes were limed, and artificial structure was deployed.
- Valentine lake was drawn down in FY 20.
- Management practices are designed to protect, restore, maintain, and improve aquatic habitats.
- Due to historic damage to stands caused by 2 tornadoes and 2 hurricanes, the forest has dramatically increased the amount of early successional habitat, mostly on the Calcasieu district.

FY 2022 and 2023 Recommended Actions:

- Continue to implement vegetation treatments that move toward achieving forest plan goals for expanding habitats for game and fish species.

Objective 2-7 Monitoring Question 2: Are habitat objectives for selected demand species management indicators providing game and fish populations sufficient for quality recreational opportunities? (V)

FY 2020 and 2021 Findings:

Louisiana contains a highly diverse ecological landscape and the physiographic distribution of species often corresponds to ecological boundaries. Areas which share similar ecological attributes such as vegetation, soils, geology, climate, hydrology, and wildlife can be classified as ecoregions, (see Figure 14). The Kisatchie NF occurs within two ecoregions based on the location of the Forest's districts. The Calcasieu, Kisatchie, Catahoula and Winn Ranger Districts are within the West Gulf Coastal Plain and the Caney Ranger District is within the Upper West Gulf Coastal Plain.

The West Gulf Coastal Plain is distinguished by a wide range of natural community types but is primarily known for its longleaf pine woodlands. In the central portion of this ecoregion, western upland longleaf pine woodlands are found in association with hardwood slope forests and mixed hardwood-loblolly forests. Bayhead swamps and western hillside seepage bogs occur along slopes and at lower elevations.

The Upper West Gulf Coastal Plain was once recognized as the shortleaf pine-oak-hickory woodland region of Louisiana, existing on sandy and clayey uplands north of the range of longleaf pine in the West Gulf Coastal Plain. Upon settlement, most of the shortleaf pine was logged and has been replaced most recently by loblolly pine plantations. However, some natural stands of shortleaf pine-oak-hickory woodland still exist in this ecoregion. Xeric sandhill woodlands occur on xeric sands in the Upper West Gulf Coastal Plain. Hardwood slope forests and mixed hardwood-loblolly forests develop on more mesic soils. Wet bottomlands include natural communities such as bayhead swamps, small streams, forests, bottomland hardwood forests, and cypress-tupelo-blackgum swamps.

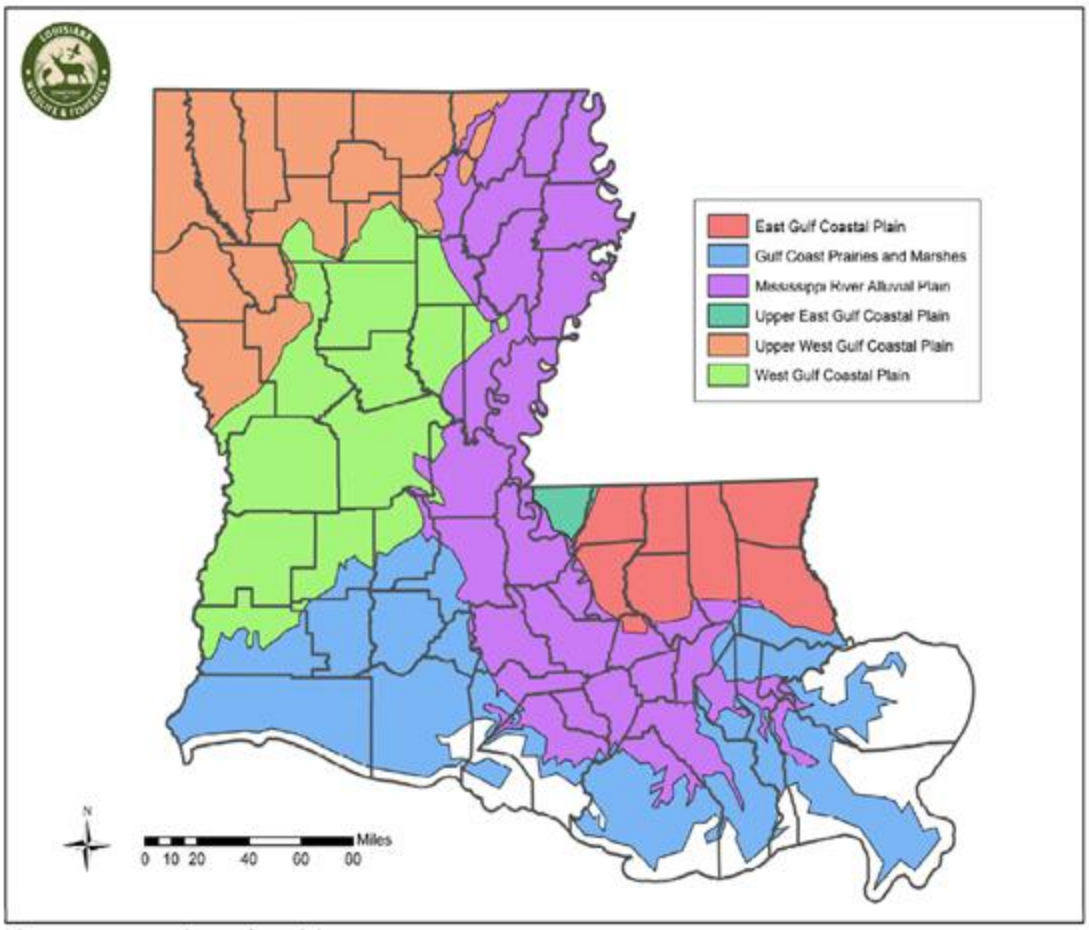

Figure 14. State of Louisiana ecoregions

- **Whitetail Deer Habitat**

No specific forest-wide data is available in areas outside the wildlife management preserves for whitetail deer populations. Deer harvest data collected was from Fort Polk-Vernon Wildlife Management Area (WMA; Figure 15), Catahoula National Wildlife Management Preserve (NWMP; Figure 16), and Red Dirt NWMP (Figure 17) from FY 2012 to FY 2021. Whitetail deer herd health and ratio of hunters that made a harvest on the two preserves is similar to numbers on Louisiana Department of Wildlife and Fisheries (LDWF) WMAs (LDWF 2021). Ft. Polk-Vernon WMA managed hunts were cancelled in FY 2020 and FY 2021 due to military training exercises.

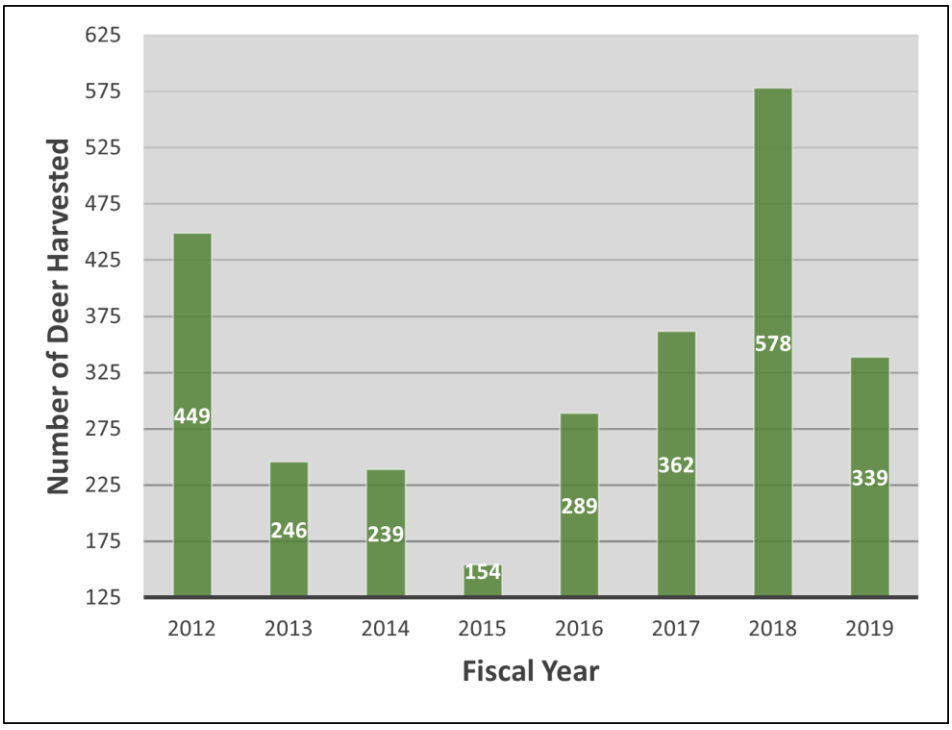

Figure 15. Fort Polk-Vernon WMA deer harvest trend fiscal years 2012-2019 (*no managed hunt took place in FY 2020 and FY 2021*)

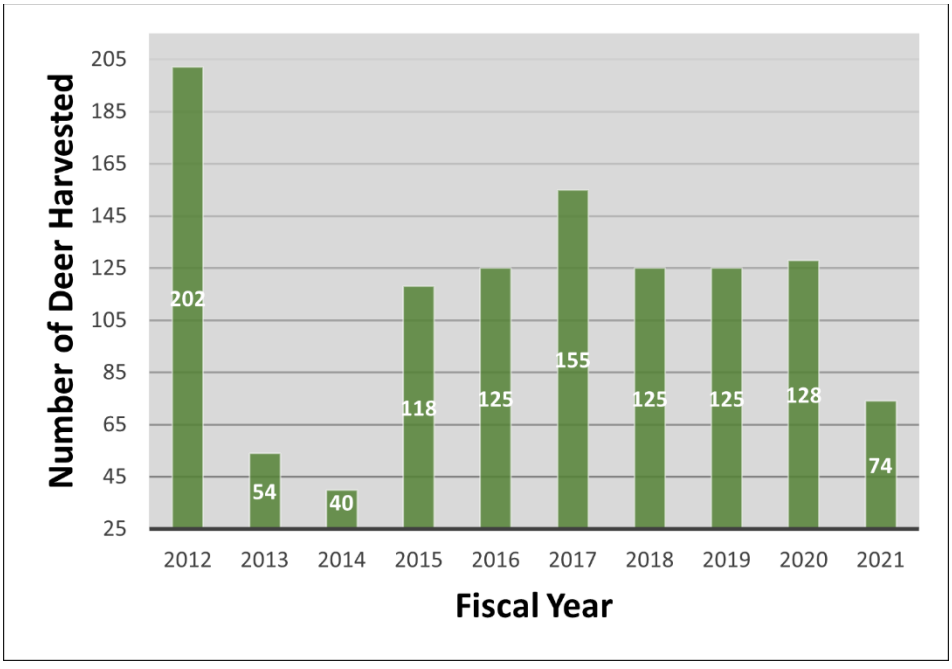

Figure 16. Catahoula NWMP deer harvest trend fiscal years 2012-2021

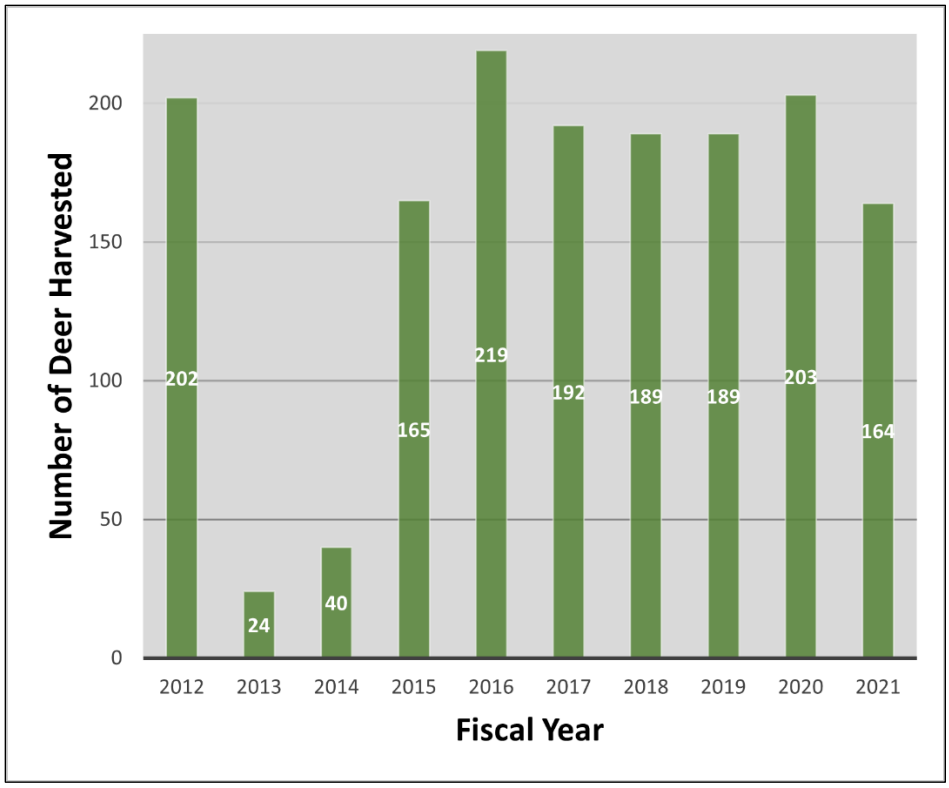

Figure 17. Red Dirt NWMP deer harvest trend fiscal years 2012-2021

- **Turkey Habitat**

Wild turkey brood surveys are valuable for examining population trends in various forest habitat regions of the state. These brood surveys are used to monitor poults per hen (PPH) which serves as an index to annual production. Prior to 1994, there were no statewide organized observations or recordings of wild turkey recruitment. As a result, there were only educated guesses based on weather patterns and casual observations. Beginning in 1994, the first standardized statewide survey was developed and implemented by LDWF, Wildlife Division personnel.

The Kisatchie's five ranger districts occur within two of five habitat / geological regions in the state. The Calcasieu, Catahoula, Kisatchie, and Winn districts occur within the Western longleaf pine habitat area. Soils located in this region are of the Coastal Plains, Mississippi Terrace and Loessial Hills, Flatwoods, Coastal Prairies and Recent Alluvium types. The Coastal Plains soils have permeable to moderately permeable subsoils in gently rolling areas. The Flatwoods consist of the poorly drained forested soils, while the Coastal Prairie areas consist of prairie soils with very slowly permeable subsoils. The Recent Alluvium soil area was derived from the older and recent sediments of the Mississippi and Red rivers. Historically, the major timber type was longleaf pine, but more recent timber practices have converted this area to loblolly pine plantations. Approximately 600,000 acres (13 percent) of the 4,593,000 of forested habitat are publicly owned. Bottomland hardwoods and cypress are found in the Recent Alluvium soils areas. Until recently, wild turkey populations have done very well in most parishes in this region. However, recent brood survey results suggest a possible decline in turkey numbers in this area (mean 2018/2019 PPH = 1.25 vs. mean 2020/2021 PPH = 0.85). Of possible concern is an exceptionally low 0.5 PPH in 2021. Lack of suitable habitat is believed to be the main reason for low populations in these parishes. The recent tornadoes and hurricanes have significantly thinned upland forest overstories in many areas of the Forest in the Western Longleaf Pine area, which may improve upland turkey

habitat over time. Conversely, the same wind events felled many hard mast-producing trees in the upland and, more significantly, bottomland areas of the Forest, decreasing an important food resource.

The Caney District occurs within the Northwest loblolly/shortleaf/hardwood habitat area. Wild turkeys are found throughout this region with the highest populations located in Bienville, Claiborne, Jackson, Lincoln, Union, and Webster parishes. Coastal Plain, Flatwoods and Recent Alluvium soil areas are found in this region. These include soils with permeable and moderately permeable subsoils in the rolling hills area of the Coastal Plain, poorly drained forested soils in the Flatwoods areas and alluvial soils derived from the Red and Mississippi rivers in the recent alluvium forest habitat. There are 4,000,000 acres of forested habitat in this region, and 270,000 (6.8 percent) are publicly owned. General forest habitats consist of loblolly/shortleaf pine and oak-hickory. Loblolly pine is the dominant commercial tree species in this region.

The 2020/2021 Summer Wild Turkey Survey indicates a slight increase from 2018/2019 in mean PPH for the northwest loblolly / shortleaf / hardwood habitat region (LDWF 2022).

- **Quail Habitat**

LDWF 2021 upland survey data was used to evaluate population trends in quail. The 2021 regional indices (calls per stop) remain below the long-term averages (Table 8). A previous LDWF report states adverse weather and habitat deterioration have reduced bobwhite quail abundance over the last 20 years.

Table 8. Fall bobwhite quail whistling survey results

Route	Calls per stop 2016	Calls per stop 2017	Calls per stop 2018	Calls per stop 2019	Calls per stop 2020	Calls per stop 2021
Camp Beauregard WMA	0.00	0.35	0.15	0.10	No surveys conducted	No surveys conducted
Ft. Polk WMA	0.062	0.10	0.10	0	0.3	0.2
Jackson-Bienville WMA	0.00	0.26	0.05	0.20	No surveys conducted	No surveys conducted
Peason Ridge WMA	0.10	0.20	0.10	0.10	0.1	0
South Peason Ridge WMA	0.10	0.35	0.15	0.10	0	0
Vernon Unit #1	0.20	0.10	0.10	0	0.2	0.35
Vernon Unit #2	0.20	0.26	0.05	0.20	0	0
	*Baseline years vary by route and do not include current year: Camp Beauregard WMA 1990-2013; Ft. Polk WMA 1983-2013; Jackson-Bienville WMA 1990-2013; Peason Ridge WMA 2003-2013; South Peason Ridge WMA 2014; Vernon Units #1 and #2 1990-2013.					

The longleaf region of western and central Louisiana was historically one of the best areas of The longleaf region of western and central Louisiana was historically one of the best areas of bobwhite habitat.

Habitat quality in this region has deteriorated as more land is subject to intensive pine management practices. The decreased use of prescribed burning as a forest management tool on private and industrial lands is probably the most important change in this area in the past several years. The report concludes that on the Forest, burning is still common and maintains favorable plant species composition across a large area. Burns are conducted in blocks that limit post burn proximal cover needed by quail. This area has been identified in the National Bobwhite Conservation Initiative 2.0 plan as most likely to benefit from quail specific habitat management (Palmer et al. 2011). Figure 18 shows the trend from 1984 to 2021 in longleaf pine which is representative for the Forest.

Year-to-year fluctuations are due largely to weather conditions. Deteriorating habitat conditions are thought to be responsible for the long-term decline (Palmer et al. 2011). Figure 20 shows the results of fall bobwhite whistling surveys conducted in 2020 and 2021 on selected WMAs and the Vernon Unit on the Calcasieu Ranger District. The 2021 regional indices (calls per stop) remain below the long-term averages. In addition to the random routes, Fall bobwhite whistling surveys were conducted on a WMA and a portion of the KNF (see Figure 18).

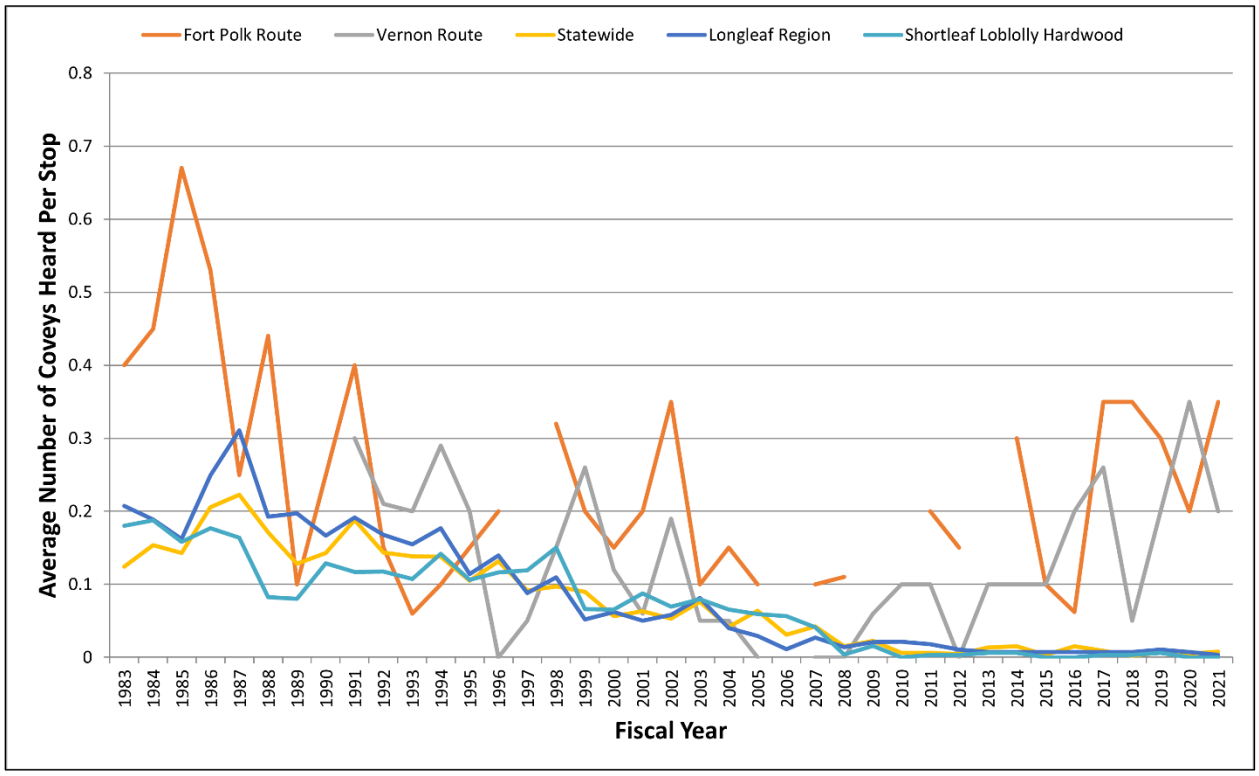

Figure 18. Statewide, longleaf pine, and shortleaf loblolly hardwood region vs. Fort Polk/Vernon routes fall quail route average number of coveys heard

FY 2022 and 2023 Recommended Actions:

- Adhere to the KNF Revised LRMP guidance.
- Continue to emphasize longleaf and shortleaf pine restoration.
- Continue working with LDWF in collecting and monitoring sample harvest data.
- Continue collaborating with LDWF in planning and implementing projects that improve and expand suitable wild turkey habitat.

Forest Wide Desired Future Condition, Goal 2, Objective 2–8: Protect, restore, maintain, acquire, and improve habitat on the Forest for waterfowl and wetland wildlife, as stated in the North American Waterfowl Management Plan (USDA Forest Service 1999a, page 2-5).

Objective 2-8 Monitoring Question 1: Are management practices designed to protect, restore, maintain, and improve waterfowl and wetland wildlife being implemented? (I)

FY 2020 and 2021 Findings:

- Appropriate Forest plan standards and applicable guidelines are included in management activities and associated project NEPA documents and are designed to protect, restore, maintain, and improve waterfowl and wetland wildlife.

FY 2022 and 2023 Recommended Action:

- Adhere to the KNF Revised LRMP guidance.

Objective 2-8 Monitoring Question 2: Are these management practices successfully providing for waterfowl and wetland wildlife? (E)

FY 2020 and 2021 Findings:

- Approximately 8 percent of the Kisatchie NF is categorized as riparian / bottomland hardwoods. This percentage and the amount of open and shallow water on the Forest hasn't changed over the years. This is a good indicator that sufficient habitat for waterfowl and other wetland wildlife species is being maintained Forest-wide. Consequently, we believe current management practices are adequately providing for waterfowl and wetland wildlife species.

FY 2022 and 2023 Recommended Actions:

- Adhere to the KNF Revised LRMP guidance.

Forest Wide Desired Future Condition, Goal 4 Objective 4–1: Manage the Forest to create and maintain landscapes having high scenic diversity, harmony, and unity for the benefit of society through the application of the Scenery Management System, and consistent with assigned SIOs. The SIOs are as follows:

- Very high: 8,699 acres;
- High: 93,980 acres;
- Medium: 89,155 acres;
- Low: 415,020 acres; and
- Very low: 1,278 acres (USDA Forest Service 1999a, page 2-5 to page 2-6).

Objective 4-1 Monitoring Question 1: Is the Forest being managed in accordance with the assigned SIOs? (I)

FY 2020 and 2021 Findings:

- Consultations with district staff reveal recent management actions do consider SIOs.

FY 2022 and 2023 Recommended Actions:

- Continue to review proposed projects for SIO compliance.
- Work with districts to implement new scenery management system (SMS) guidelines.
- Encourage participation at interdisciplinary team meetings.
- Increase education of personnel on scenery management.

Forest Wide Desired Future Condition, Goal 4, **Objective 4–2**: Provide visitors the opportunity to pursue a wide variety of developed and dispersed recreation activities, with a minimum amount of regulation, consistent with the assigned ROS class. The Forest's ROS class objectives are as follows:

- Primitive: 8,700 acres;
- Semiprimitive nonmotorized: 57,269 acres;
- Semiprimitive motorized: 89,963 acres;
- Roaded natural-appearing: 217,152 acres;
- Roaded natural modified: 191,671 acres;
- Rural: 6,162 acres (USDA Forest Service 1999a, page 2-6).

Objective 4-2 Monitoring Question 1: Has class eligibility shifted significantly? (E)

FY 2020 and 2021 Findings:

- Shifts in ROS class eligibility did not occur because only minor road construction or decommissioning was planned and accomplished.
- ROS class eligibility changes are primarily dependent on changes in road density and ORV management status.

FY 2022 and 2023 Recommended Actions:

- ROS class eligibility changes are primarily dependent on changes in road density and ORV management status. Monitor new projects and changes in trails or roads to identify any possible ROS class eligibility changes.
- Continue to monitor for changes annually as the Motor Vehicle Use Map (MVUM) is monitored and updated.

Forest Wide Desired Future Condition, Goal 4, Objective 4–3: Develop, maintain, and protect existing and potential developed and dispersed recreation sites and trails consistent with public use and demand through construction, operation, maintenance, and rehabilitation activities (USDA Forest Service 1999a, page 2-6).

Objective 4-3 Monitoring Question 1: How satisfied are our recreation customers? Are recreation resources managed in a manner that is responsive to public recreation needs yet as cost effective as possible, in accordance with the negotiated recreation program of work based on Meaningful Measures standards? (I)

FY 2020 and 2021 Findings:

- Recreation site inventories were completed and data was updated to the corporate INFRA database and critical standards are being met.
- Customer service response has continued to improve. The customer service representative receives requests, questions, or complaints. The representative answers or refers to appropriate district or source for best response.
- During the pandemic, efforts to keep visitors educated and recreation areas open were successful.
- Some recreation areas were closed due to damage from Hurricane Laura. Efforts to obtain funding and a recovery plan is underway so that the areas can be reopened.
- The National Visitor Use Monitoring Surveys for FY 2020 was completed.

FY 2022 and 2023 Recommended Actions:

- Continue the annual update of INFRA data. Continue management of the recreation program using the IWEB INFRA system and the recreation sustainability process.
- Continue to improve customer service through the customer service representative. The recreation program manager will assist with customer service requests and also assist with the INFRA database and inventory needs. Review the National Visitor Use Monitoring (NVUM) results and use that information to assist in meeting visitor needs.

2.2.2 Infrastructure

The Forest's transportation system provides a broad spectrum of facility types and service levels to all users and visitors. Forest roads provide convenient access to developed recreation sites, trail heads, scenic areas, wilderness, lakes and streams, and wildlife management areas; and basic access requirements for management and protection. Infrastructure is addressed in the Forest plan Goal 3, which has associated objectives that contain specific monitoring questions.

Forest Wide Desired Future Condition, Goal 3, Objective 3–7: Manage the transportation system to ensure that any roads constructed are designed according to standards appropriate to the planned uses (USDA Forest Service 1999a, page 2-5).

Objective 3-7 Monitoring Question 1: Is the transportation facility serviceable by the intended user? (E)

FY 2020 and 2021 Findings:

- Approximately 60 miles of local roads were reconstructed in FY 2020 which was an increase of 2 miles from 2019. About 60 miles of roads were reconstructed in FY 2021 which was an increase of 0 miles from 2018.

- Of all of the roads reviewed, 100 percent of the road length was observed to be serviceable by the intended user and required no significant increase in the level or frequency of maintenance. Table 9 illustrates the comparison through time of road reconstruction, construction and monitoring miles.

FY 2022 and 2023 Recommended Actions:

- Review 100 percent of the roads reconstructed or constructed, to ensure they are serviceable by the intended user and require no significant increase in the level or frequency of maintenance.

- Continue to complete transportation specialist reports for project level NEPA analysis.

2.2.3 Human Influences

Forest Wide Desired Future Condition, Goal 1, Objective 1–6: Manage national forest lands in an efficient manner to provide for the future needs of society by pursuing opportunities to make land ownership adjustments that improve management effectiveness and enhance public benefits through land consolidation; acquiring rights-of-way that facilitate efficient management; issuing land use authorizations necessary to meet public and private needs only when no viable alternative to long-term commitments on Forest land exists; and establishing and maintaining all landline boundaries (USDA Forest Service 1999a, page 2-4).

Objective 1-6 Monitoring Question 1: Are non-federal lands being acquired to enhance public benefits and improve management effectiveness? Are acquired rights-of-way achieving better Forest management? Are land use authorizations being issued only after all other alternatives are explored to provide goods and services? How well are landline boundaries being established, maintained, and protected from obliteration? (I)

FY 2020 and 2021 Findings:

- No non-federal lands nor ROW were acquired in FY 2020 or FY 2021

- All land use authorizations must meet both first and second level screening as well as all NEPA requirements.

- In FY 2021 57 miles of landlines and corner markers were maintenance.

FY 2022 and 2023 Recommended Actions:

- The KNF will continue to require proponents to pass both first and second screening as well as meet all NEPA requirements.

- The boundary and corner markers management program target will be based on funds provided.

Table 9. Forest road reconstruction and construction

Functional Class	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
	Local/ Collector	Local/ Collector	Local/ Collector	Local/ Collector	Local/ Collector	Local/ Collector	Local/ Collector	Local/ Collector	Local/ Collector	Local/ Collector	Local/ Collector	Local/ Collector
Road Reconstruction/ Construction (miles)	5.13/0	22.0/0	14/0	14/0	18.0/0	19.0/0	37.16/0	30.02/0	60/0	58/0	60/0	60/0
Roads Monitored (miles)	5.13	22.0	14	14	18.0	19.0	37.16	30.02	60/0	58/0	60/0	60/0
Roads requiring increased level/frequency of maintenance or not serviceable by use (miles)	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0

Objective 1-6 Monitoring Question 2: Are newly acquired lands compatible with management practices in the Management Area where they are located? Are encroachments discouraged by well-defined property lines? (E)

FY 2020 and 2021 Findings:

- No lands were acquired in FY 2020 and FY 2021.
- Due to lack of funding encroachment areas may not have well- defined property lines.

FY 2022 and 2023 Recommended Actions:

- Secure funding for Boundary Management Program.

Forest Wide Desired Future Condition, Goal 3, Objective 3–6: Assist local Forest communities in diversifying and enhancing existing economies with an emphasis on the conservation of natural, cultural, and recreational resources of the Forest and the State (USDA Forest Service 1999a, page 2-5).

Objective 3-6 Monitoring Question 1: Are programs and opportunities for improving rural economies and social conditions being developed? (I)

FY 2020 and 2021 Findings: None.

FY 2022 and 2023 Recommended Actions:

- The Forest has not received any Economic Recovery grant proposals since 2004. This is a result of the funding cuts.
- See response to Objective 3-1, question 1 for other opportunities for improving rural economies and social conditions.

Objective 3-6 Monitoring Question 2: Are programs and opportunities improving sustainable local economies and social conditions? (E)

FY 2020 and 2021 Findings: None.

FY 2022 and 2023 Recommended Actions:

- Continue emphasis on new communities and capacity building projects that result in increased local job opportunities and local incomes.

2.2.4 Roadless Areas/Wilderness/Wild and Scenic Rivers

Emphasize maintaining and protecting the enduring resource of wilderness as one of the multiple uses of Kisatchie National Forest while providing a wide range of suitable wildlife habitats for all native wildlife. The majority of trail system within the Wilderness is maintained to support hiking and equestrian uses. Infrastructure is addressed in the Forest plan Goal 5, which has associated objectives that contain specific monitoring questions.

Forest Wide Desired Future Condition, Goal 5, Objective 5–6: Manage each Special Interest Area as an integral part of the Forest, with emphasis on protecting, enhancing, or interpreting its unique values (USDA Forest Service 1999a, page 2-6).

Objective 5-6 Monitoring Question 1: Is Forest plan SIA direction being applied? (I)

FY 2020 and 2021 Findings:

- The sustainability process is assisting the recreation staff in identifying projects that may be associated with SIAs. The public is learning more about these areas through educational efforts.
- Saline Bayou Interpretive Panels to enhance visitor education and interpretation were installed.
- An agreement for a partnership was instrumental in continued maintenance of Saline Bayou.
- An agreement for a partnership with American YouthWorks provided opportunities for the LACC and TXCC crews to work on wilderness trail maintenance.

FY 2022 and 2023 Recommended Actions:

- Continue to update and add information to the new Wild and Scenic River NRM database.
- Work with district personnel to determine needs and work towards solutions for SIA management.
- Work towards building partnerships for Saline Bayou education and maintenance.

Forest Wide Desired Future Condition, Goal 5, Objective 5–7: Manage the Kisatchie Hills Wilderness to enhance and perpetuate wilderness as a resource. Avoid resource damage resulting from overuse (USDA Forest Service 1999a, page 2-6).

Objective 5-7 Monitoring Question 1: Is Kisatchie Hills Wilderness being managed to enhance and perpetuate wilderness values? Are natural processes allowed to operate freely? Is Forest plan direction that would ensure the above being applied? (I)

FY 2020 and 2021 Findings:

- The Forest continues to update contents for all six education kits for the districts and the supervisor's office.
- The Forest continues to integrate into the new wilderness monitoring strategy and INFRA reporting as required.
- Continued to have a representative from the Kisatchie Ranger District as a member of the Southern Wilderness Advisory Group
- Minimum standards were not maintained under the new performance standards, but significant progress was made.

- American YouthWorks LACC and TXCC crews worked with District personnel on wilderness trail maintenance.

- SAWs worked with District personnel to use primitive tools to down hazard trees after Hurricane Laura.

- SAWs provided a primitive tools training for Forest personnel to increase skills for them in the wilderness environment.

FY 2022 and 2023 Recommended Actions:

- The Forest will continue integrating into the new wilderness monitoring strategy and INFRA reporting as required.

- Continue to have a representative from the Kisatchie Ranger District as a member of the Southern Wilderness Advisory Group.

- Continue to work towards meeting and exceeding minimum performance standards set for wilderness management.

- Develop a Forest Wilderness Advisory Group.

- Work towards building partnerships for Wilderness education and maintenance of trails.

2.2.5 Timber

The Kisatchie provides timber products to a 30-parish market area within central and northern Louisiana. Within that area, the national forest timber supply competes with timber from private ownerships. Timber is addressed in the Forest plan Goal 3 and 6, which have associated objectives that contain specific monitoring questions.

Forest Wide Desired Future Condition, Goal 3 Objective 3-1: Provide for long-term sustainable production of commodities for economies, local community stability, and people (USDA Forest Service 1999a, page 2-5).

Objective 3-1 Monitoring Question 1: <u>How does the flow of commodity outputs to local economies and people compare with the Forest plan projections? (I)</u>

FY 2020 and 2021 Findings:

- The forest plan timber sale volume is an average of volume sold on an annual basis (USDA Forest Service 1999a, Objective 3-2, page 2-5). There are 308,889 acres of lands classified as suitable for timber production and 268,271 acres of lands classified as unsuitable for timber production (USDA Forest Service 1999a, Table B-2 and Table 8-3). The forest plan (Objective 3-2) directs the Forest to offer an average of 9.69 MMCF of timber in the first decade and 11.43 MMCF of timber by the fifth decade of the plan on an annual basis (average annual ASQ). The ASQ is from the category "suitable lands" that is included in the timber commodity Outputs and Sale Schedule (USDA Forest Service 1999a, Table A-3). Timber volume from "all lands" includes the ASQ as well as timber harvest from unsuitable lands to meet forest stewardship needs and the personal use by local citizens. Figure 19 shows the trend over time of the Forest timber volume by production area and the volume thresholds as identified in the Forest Plan. The average suitable/unsuitable volume has not been exceeded during the implementation of the Forest Plan.

- Vegetation treatments on suitable lands in 2020 yielded 13.99 MMCF (139,983 CCF) and approximately 7,100 acres were treated. In 2021, suitable lands yielded 11.82 MMCF (118,230 CCF) and approximately 8538 acres were treated.

- Vegetation treatments on unsuitable lands in 2020 (including RCW habitat, old growth areas, and lands utilized by the military via special use authorization) yielded approximately 1.79 MMCF (17,935 CCF) and approximately 1,060 acres were treated. In 2021, the unsuitable lands yielded 3.98 MMCF (39,850 CCF) and approximately 5,317 acres were treated.

- The average annual output from 2012 to 2021 was approximately 14.6 MMCF annually.

- Figure 19 and Figure 20 show the Forest timber volume sold and target trend over time. The Forest slightly missed the 2020 timber target of 170,000 and met the FY 2021 timber target of 185,000 CCF. In 2020, volume sold totaled 160,137 CCF, including forest stewardship and personal use sales. In 2021, volume sold totaled 186,184 CCF.

- Figure 21, Figure 22, Figure 23, Figure 24, and Figure 25 show the timber volumes and target trends for each of the Ranger Districts. The following lists the Ranger District and the district timber target and volume sold in 2020 and 2021:

    - 2020 Catahoula Ranger District Timber Target 36,000 CCF; Volume Sold 39,280 CCF

    - 2020 Calcasieu Ranger District Timber Target 48,000 CCF; Volume Sold 51,144 CCF

    - 2020 Kisatchie Ranger District Timber Target 15,000 CCF; Volume Sold 6,436 CCF

    - 2020 Winn Ranger District Timber Target 48,000 CCF; Volume Sold 39,449 CCF

    - 2020 Caney Ranger District Timber Target 23,000 CCF; Volume Sold 23,828 CCF

    - 2021 Catahoula Ranger District Timber Target 38,000 CCF; Volume Sold 31,000 CCF

    - 2021 Calcasieu Ranger District Timber Target 51,000 CCF; Volume Sold 64,335 CCF

    - 2021 Kisatchie Ranger District Timber Target 18,000 CCF; Volume Sold 19,494 CCF

    - 2021 Winn Ranger District Timber Target 52,000 CCF; Volume Sold 44,369 CCF

    - 2021 Caney Ranger District Timber Target 26,000 CCF; Volume Sold 29,986 CCF

- Prices and markets continue to drive the demand for wood products. The future demand is uncertain, as housing starts have been in decline; markets are cautiously optimistic. Markets such as wood pellets are continuing to increase. Capacity and markets are constraining the program's ability to increase and achieve the average of the offer/sold levels outlined in the forest plan.

- The Secure Rural Schools and Community Self Determination Act, passed in 2000 and extended in 2007 and 2008, was not effective in 2020 or 2021. Local parishes relied on proceeds from 25 percent of the value of receipts. The total value of timber receipts in 2020 was $3,955,497 and in 2021 the total value of timber receipts was $5,742,853.

FY 2022 and 2023 Recommended Actions:

- Maintain the current level of timber sale offering, providing economic benefits to local communities. Monitor the average annual offering and compare to the Forest Plan output identified for the second decade.

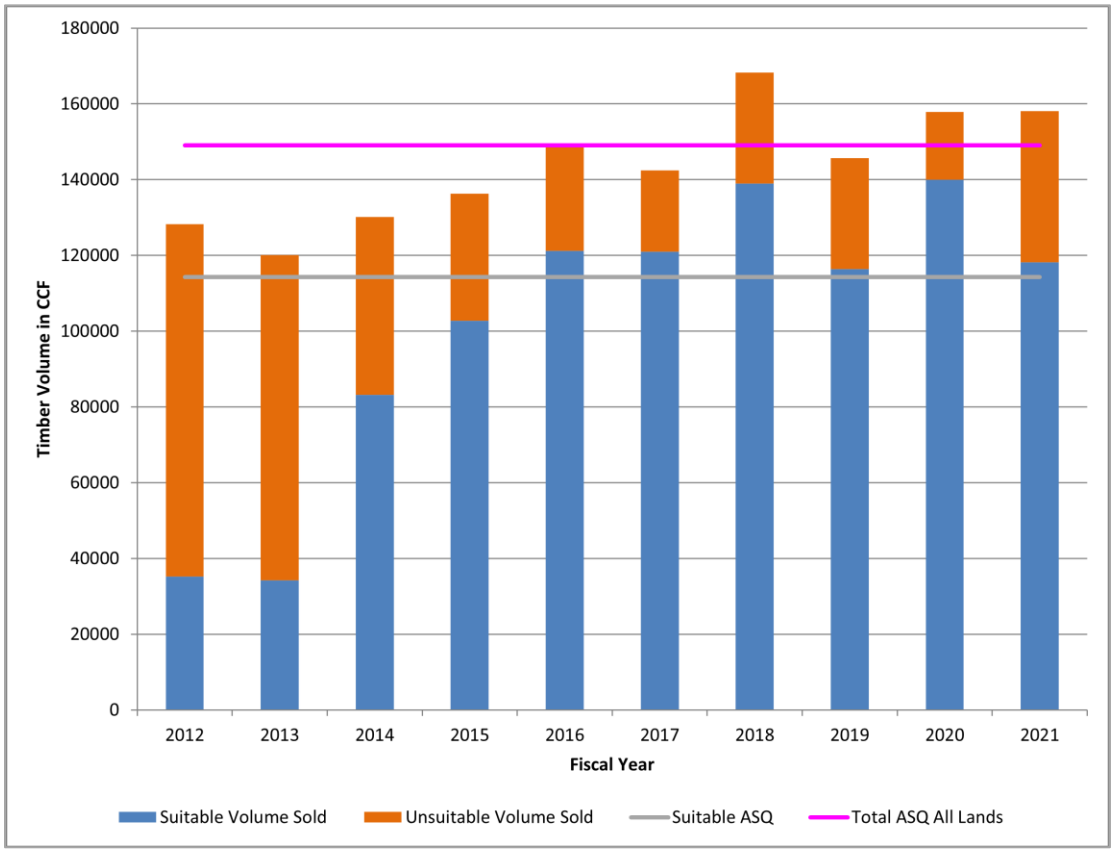

Figure 19. Forest timber volume by suitable and unsuitable production area

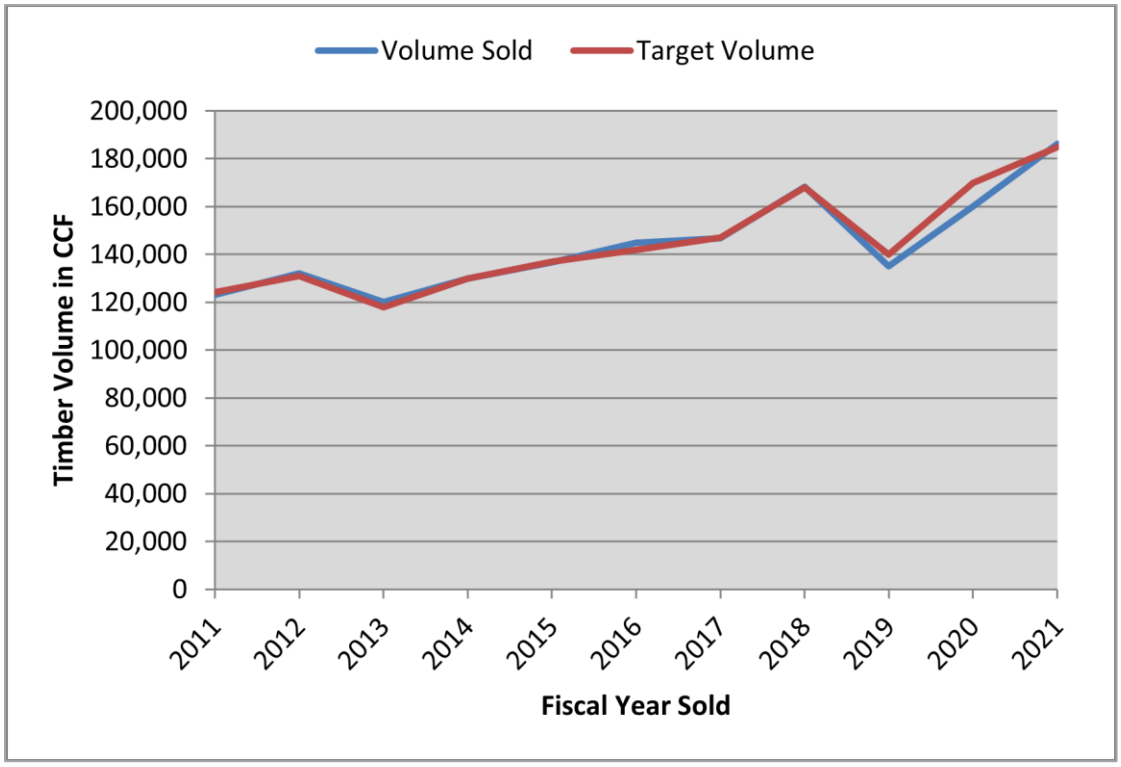

Figure 20. Forest timber volume sold and target volume

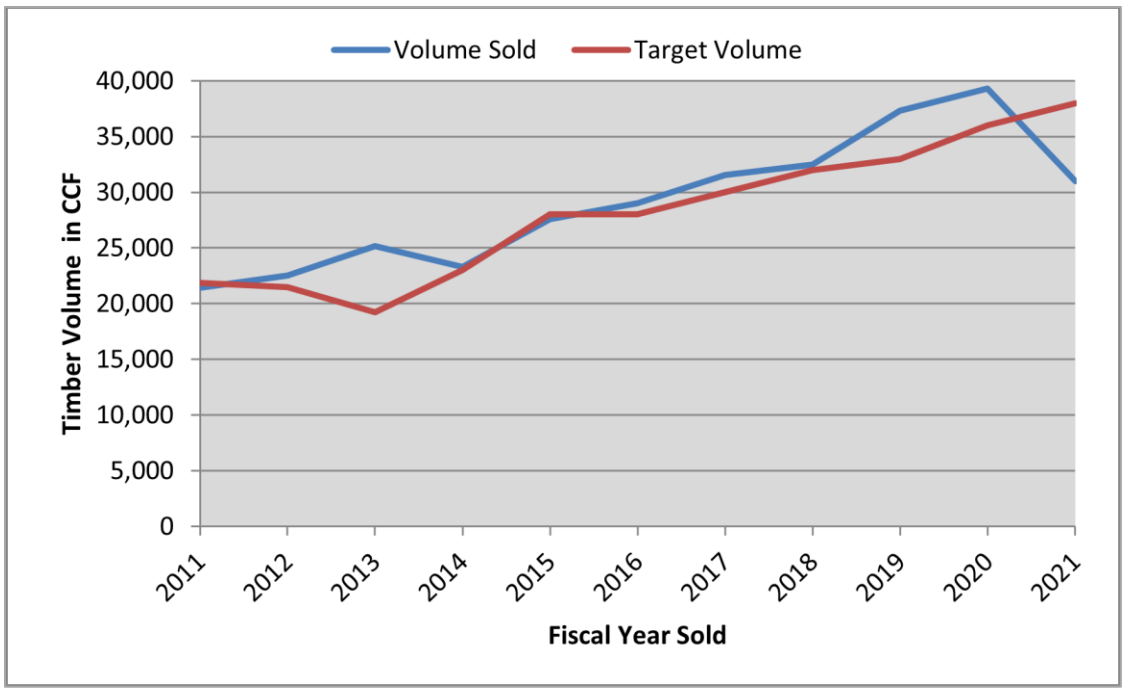

Figure 21. Catahoula Ranger District timber volume sold and target volume

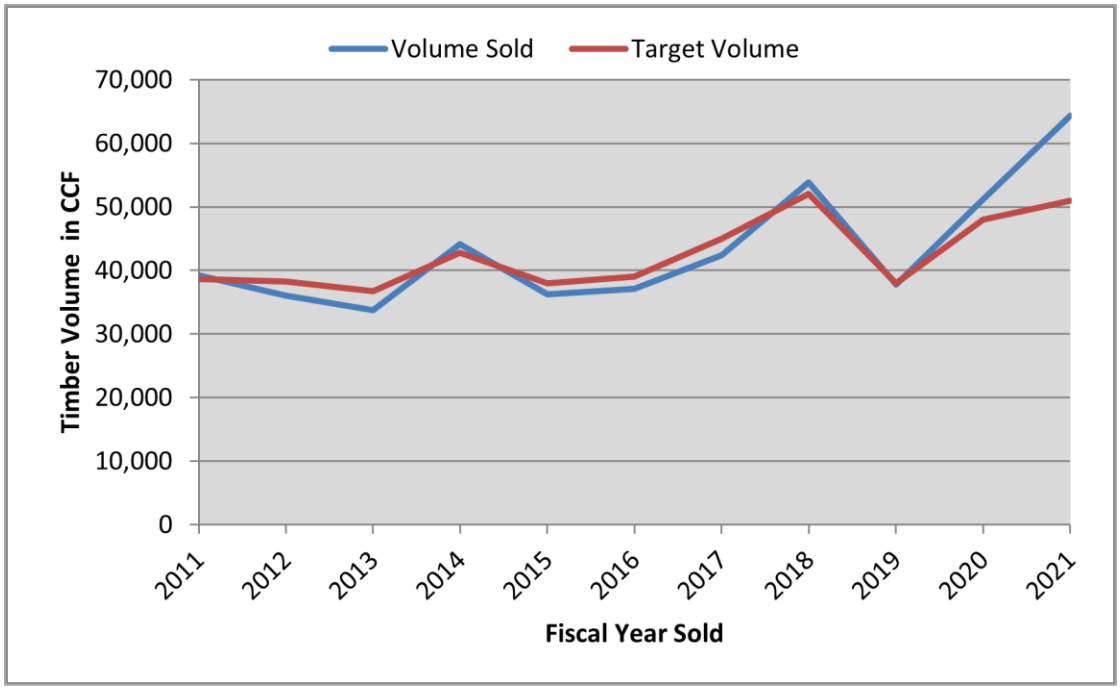

Figure 22. Calcasieu Ranger District timber volume sold and target volume

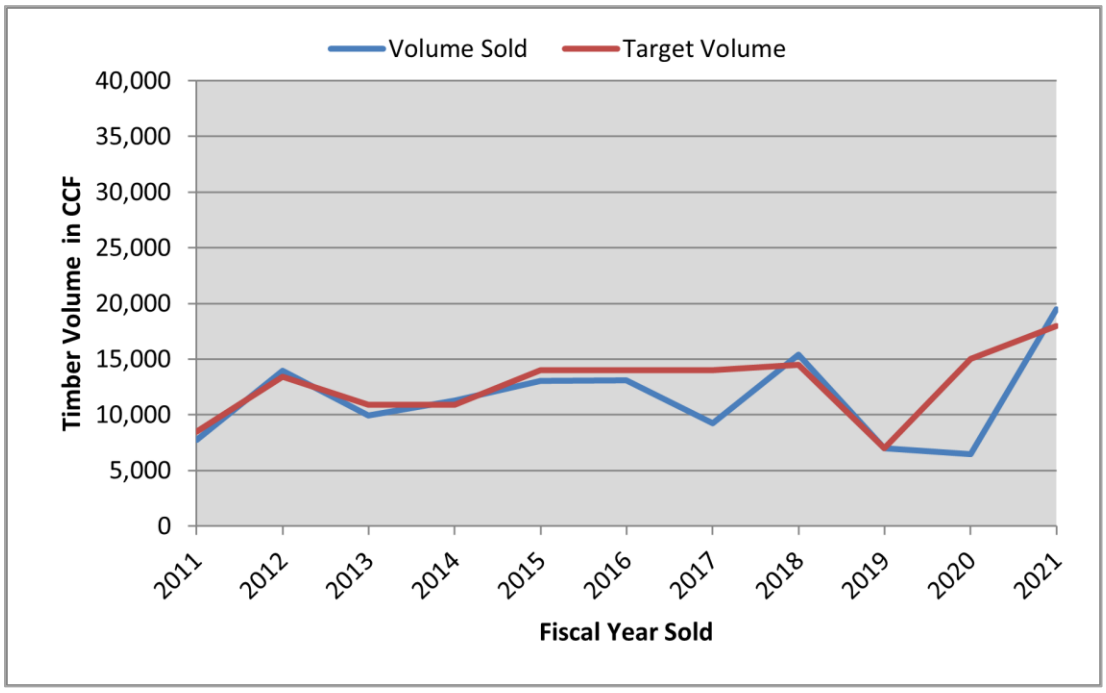

Figure 23. Kisatchie Ranger District timber volume sold and target volume

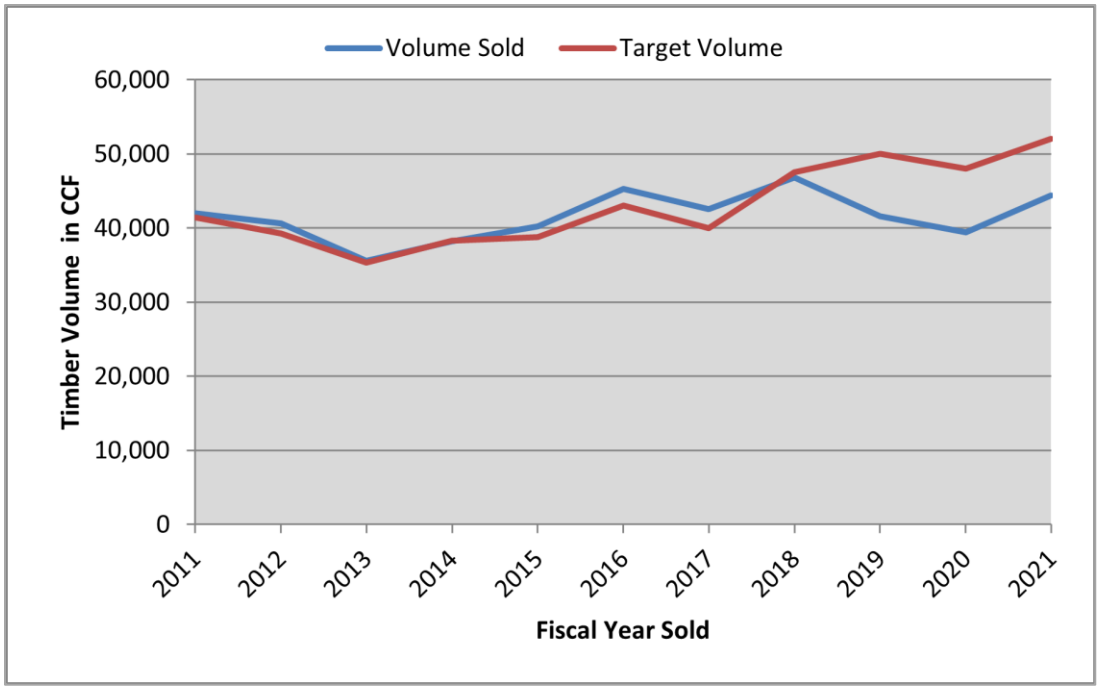

Figure 24. Winn Ranger District timber volume sold and target volume

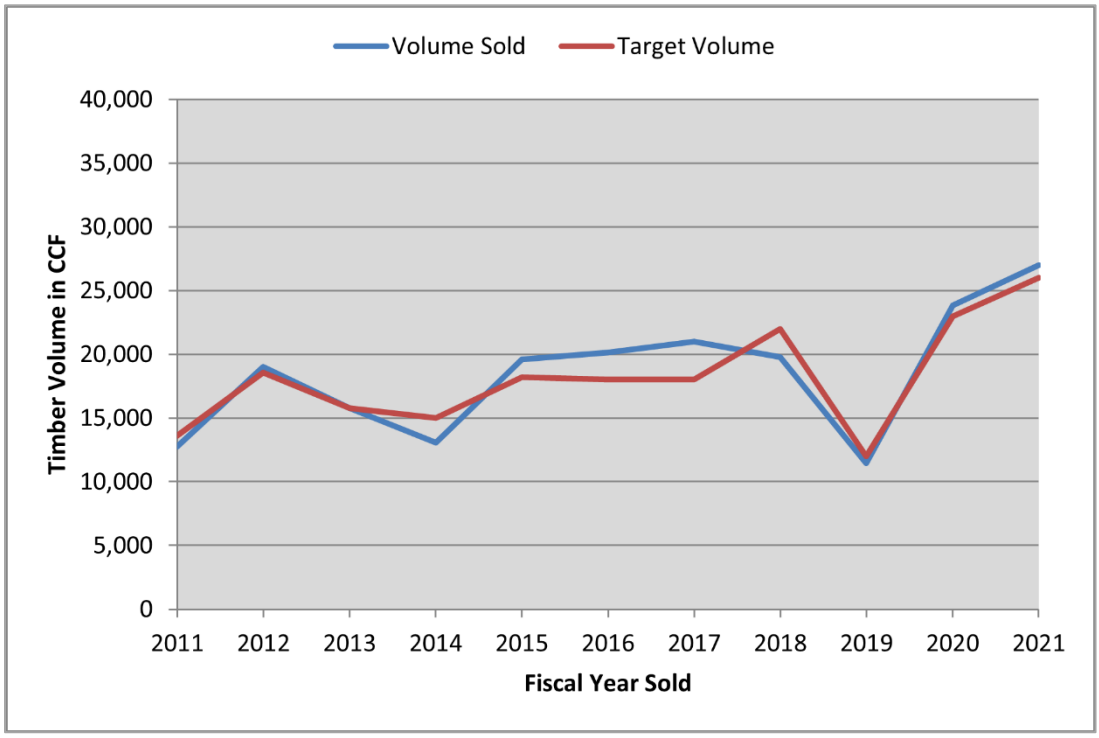

Figure 25. Caney Ranger District volume timber target and volume sold

Forest Wide Desired Future Condition, Goal 3, Objective 3–2: Offer for competitive bid an average of 9.69 million cubic feet of timber sale volume on an annual basis for the first decade of the Plan (USDA Forest Service 1999a, page 2-5).

Objective 3-2 Monitoring Question 1: Is the Forest providing for competitive bid the average annual allowable sale quantity it projected for the first decade? (I)

Forest Wide Desired Future Condition, Goal 6, Objective 6-1: Manage the Forest to achieve a mixture of desired future conditions using even-aged, two-aged, and uneven-aged silvicultural systems and regeneration methods; and a variety of manual, mechanical, prescribed fire, and herbicide vegetation management treatments. Apply the uneven-aged silvicultural system on a minimum of 32,000 acres (USDA Forest Service 1999a, page 2-6).

Objective 6-1 Monitoring Question 1: Are management practices designed to achieve a mixture of desired future conditions being applied? (I)

FY 2020 and 2021 Findings:

- Timber sales sold in FY 2020 included 1,227 acres of regeneration and 3,759 acres of thinning for even-aged systems.
- Timber sales sold in FY 2020 included 7,032 acres of salvaged stands due to the tornado that occurred in December 2019 on the Calcasieu Ranger District.
- Timber sales sold in FY 2021 included 1,082 acres of regeneration and 3,976 acres of thinning for even-aged systems.
- Timber sales sold in FY 2021 included 9,780 acres of salvaged stands due to Hurricane Laura that occurred in August 2020 on the Calcasieu Ranger District.
- Approximately 7,506 acres of vegetation was treated in FY 2020. Treatments included young plantation tree release, invasive species work, mid-story removal, clearcuts for restoration and a variety of thinning.
- Approximately 8,244 acres of vegetation was treated in FY 2021. Treatments included young plantation tree release, invasive species work, mid-story removal, clearcuts for restoration and a variety of thinning.
- Prescribed burning occurred on 69,935 acres in 2020 to reach the forest plan desired conditions.
- Prescribed burning occurred on 44,466 acres in 2021 to reach the forest plan desired conditions.

FY 2022 and 2023 Recommended Actions:

- Increase scope and scale of longleaf and shortleaf pine restoration where applicable.
- Assure that treatment of NNIP is interwoven into each vegetation project. Evaluate and monitor NNIP response to treatment.
- Strive to increase the number of acres restored to longleaf pine. Continue to monitor sites for additional treatment needs.
- Thinning prescriptions within RCW HMAs should emphasize the needed longleaf stand composition.

- Post implementation field checks should be done on the thinnings to ensure sufficient longleaf emphasis, evaluate species composition changes and update the FSVeg database.

- Continue restoration treatments on shortleaf/hardwood sites where there is high priority for regeneration such as stands damaged by disease, insect or storms as well as those stands showing signs of decline.

- Continue to complete field exams and prescriptions to meet Forest plan goals.

2.2.6 Forage

Forage production is only one component of providing forage for livestock consumption. The other aspect requires adequate structural improvements (fences, stock watering facilities, etc.) to facilitate herd management and resource protection. Regulated grazing allotments were established on the Forest in 1967. Earlier, domestic livestock were grazed on all districts except the Caney on an open range basis. Range is addressed in the Forest plan Goal three and has associated objectives that contain specific monitoring questions.

Forest Wide Desired Future Condition, Goal 3, Objective 3–4: Maintain or improve forage resources for domestic livestock grazing on 86,000 acres within designated grazing allotments to meet the needs of local demand (USDA Forest Service 1999a, page 2-5).

Objective 3-4 Monitoring Question 1: Are forage resources being maintained or improved on the designated allotments? (I)

FY 2020 and 2021 Findings:

- There are no active range allotments on the Kisatchie National Forest.

FY 2022 and 2023 Recommended Actions:

- Evaluate management needs, forage condition and reasons for decline in use of these resources.

- Encourage/foster greater participation in the range program.

Objective 3-4 Monitoring Question 2: Are active allotments meeting the needs of the local demand for forage resources? (E)

FY 2020 and 2021 Findings:

- There are no active range allotments on the Kisatchie National Forest.

FY 2022 and 2023 Recommended Actions:

- There are no active range allotments on the Kisatchie National Forest.

2.2.7 Other Products

Other Forest products such as minerals development, firewood and pine straw add to the local economy and contribute towards community stability. Local communities continue to increase their economic diversity. Timber is addressed in the Forest plan Goal three which has associated objectives that contain specific monitoring questions.

Forest Wide Desired Future Condition, Goal 3, Objective 3–3: Make all U.S. minerals available for lease except in areas where consent has been legislatively or administratively withdrawn. Development of federal minerals will be allowed within the constraints of the lease and accompanying stipulations and restrictions. To the extent legally possible, manage surface occupancy to avoid or minimize environmental effects where reserved and outstanding mineral rights exist. As allowed by state and federal law and under the terms of the severance deed, ensure that surface resources will not be adversely affected to an unacceptable degree by the exercise of reserved and outstanding mineral rights (USDA Forest Service 1999a, page 2-5).

Objective 3-3 Monitoring Question 1: Are parcels being made available for lease according to U.S. ownership and management restrictions? Are applications for minerals exploration and development being processed according to directions and in a timely manner? Are operating plans for exploration of private minerals being reviewed for compliance with existing state and federal laws? (I)

FY 2020 and 2021 Findings:

- There were no new oil and gas leases on FY 2020 and FY 2021.

FY 2022 and 2023 Recommended Actions:

- Process Mineral applications in accordance with USFS and BLM direction.

Forest Wide Desired Future Condition, Goal 3, Objective 3-5: Provide other forest products such as firewood and pine straw as available, as long as their use does not impair ecosystem health or the achievement of other resource objectives (USDA Forest Service 1999a, page 2-5).

Objective 3-5 Monitoring Question 1: How does management of these products compare with Forest plan direction? (I)

FY 2020 and 2021 Findings:

- The interest in special wood products from the Forest continues to remain steady. It should be noted that with many items, such as firewood, demand normally exceeds supply; however in 2020, Hurricanes Laura and Delta provided a significant increase in available firewood.

- In 2020, 200 CCF of Biomass was offered in one timber sale. No biomass was offered in 2021 sales, however a portion of the roundwood harvested from KNF lands was hauled to the pellet mill in Urania and utilized as biomass.

- The public interest in collection of pinestraw has decreased over the life of the Forest Plan. There are currently no contracts for pinestraw collection, and no requests for commercial use of pinestraw. In 2020 there were eight free use pinestraw permits issued and five in 2021.

- In 2020, there were twenty-six permits issued for forest products other than firewood on the forest; and in 2021, there were ten.

- The Forest issued three permits for native seed collection and fifteen (15) permits for Forest Botanical Products in 2020. In 2021, the Forest issued one permit for native seed collection and six permits for Forest Botanical Products.

FY 2022 and 2023 Recommended Actions:

- Continue offering special wood products, especially firewood, where it is appropriate.
- Continue offering roundwood products in normal timber sales, which gives Purchasers options to utilize these products as biomass as the demand and prices allow.
- Continue offering Forest Botanical Products where it is appropriate.

Objective 3-5 Monitoring Question 2: Is the Forest providing opportunities for other specialty forest products without negatively impacting forest health or other resources? (V)

FY 2020 and 2021 Findings:

- The interest in special wood products from the Forest continues to remain steady. It should be noted that normally many in items, demand exceeds supply. However, Hurricanes Laura and Delta temporarily increased the supply of firewood.
- The number of permits issued year to year is about the same, with slight variation. The demand for woody biomass continued to remain low. Demand is directly tied to the price of fuel in the marketplace.
- The Forest did not offer any green biomass for sale in 2021; in 2020 the opportunities for optional biomass with Stewardship Contracting was offered and utilized by one Purchaser.
- There were no known negative impacts on forest health or resources noted.
- In 2020, there were three permits issued for Forest Botanical Products on the forest; and in 2021, one permit for the collection of Forest Botanical Products was issued. These permits were for native seed collection.
- There was no demand for commercial collection of pinestraw.

FY 2022 and 2023 Recommended Actions:

- Continue offering firewood and other specialty forest products.
- Monitor sustainability and effects on soil and water.

2.2.8 Heritage Resources

Significant heritage resources are protected, managed, and interpreted to provide visitors an understanding of the cultural heritage of the Forest. Heritage resources are addressed in the Forest plan Goal 5 and have associated objectives that contain specific monitoring questions.

Forest Wide Desired Future Condition, Goal 5, Objective 5–1: Manage the nonrenewable heritage resources of the Forest in a spirit of stewardship for the American public. Include the Louisiana State Historic Preservation Officer (SHPO) and interested federally recognized tribes as primary partners in managing the Forest's heritage resources (USDA Forest Service 1999a, page 2-6).

Objective 5-1 Monitoring Question 1: Are significant archeological and historical sites being identified, prior to project decisions, through inventories conducted in consultation with the Louisiana State Historic Preservation Officer according to the National Historic Preservation Act (NHPA), 36 CFR 800, NEPA, and the Southern Regional Heritage Programmatic Agreements (PA)? (I)

FY 2020 and 2021 Findings:

- All compliance reviews and consultations pursuant to Section 106 of the NHPA were completed prior to agency decisions. A total of 39 requests for survey were completed in FY 2020 (15,292 acres of survey), and 37 requests for survey in FY 2021 (5,840 acres of survey). These included large survey areas for land management activities, as well as smaller survey areas and categorical exclusions for other resources such as administrative and recreational trails and facilities and permits for partners and members of the public.

- Combined, 68 new archaeological sites and 42 new isolated finds were recorded in FY 2020 and 2021. Additionally, 55 previously recorded sites were revisited. Site rehabilitation plans were developed for two listed NRHP properties; Fullerton Mill and Gum Springs Recreation Area which were both damaged as a result of Hurricanes Laura and Delta. In addition, Drake's Saltworks was submitted and accepted for nomination to the NRHP.

- The Forest continued government-to-government relations with eight federally recognized tribal nations. These include the Caddo Tribe of Oklahoma, the Chitimacha Tribe of Louisiana, the Coushatta Tribe of Louisiana, the Jena Band of the Choctaw Indians, the Tunica Biloxi Tribe, the Choctaw Tribe of Oklahoma, the Mississippi Band of Choctaw, and the Quapaw Tribe of Oklahoma. Of note, the Heritage Program has worked extensively with affiliated Tribes, the National Forests and Grasslands in Texas, NRCS, and other partners to develop a rivercane identification and restoration plan. This has resulted, so far, in the identification of over 50 rivercane patches on Kisatchie National Forest, and a pilot rivercane propagation program with the Jena Band of Choctaw Indians with 100 rivercane seedlings being grown at their cultural center.

- The programmatic agreement amendment has been completed and is currently being routed to signatories for finalization.

- Northwestern State University and University of Louisiana Lafayette have assisted in curating both artifacts and documents to proper curation standards.

FY 2022 and 2023 Recommended Actions:

- Hurricane Laura and Delta Damage Assessment Plan identified $3.8 million in heritage needs to address over 150 archaeological sites damaged in the hurricanes, primarily through uprooted trees. To date, only $1 million of this work has been allocated. Completing remaining site restoration is a high priority.

Forest Wide Desired Future Condition, Goal 5, Objective 5–2: Provide protection for heritage resource sites that preserves the integrity of scientific data that they contain, for the benefit of the public and scientific communities (USDA Forest Service 1999a, page 2-6).

Objective 5-2 Monitoring Question 1: Is law enforcement and heritage support provided at sufficient levels to protect significant heritage sites from internal and/or external activities? (I)

FY 2020 and 2021 Findings:

- Six ARPA damage assessments were completed on sites with unauthorized excavations, two of which saw convictions. The other cases are still in-process.

FY 2022 and 2023 Recommended Actions:

- Progress has been made with regard to coordinating with Tribes, US attorneys and magistrates; however, a meeting is very much needed to formalize investigation procedures.
- More funding, capacity, and support is needed for cameras and other monitoring requirements to adequately address rising ARPA violations across the forest.

Objective 5-2 Monitoring Question 2: Are protection measures effective at preventing unacceptable damage? (E)

FY 2020 and 2021 Findings:

- Zone archaeologists and Heritage Program Manager work closely with all resource areas to ensure sites are not damaged by internal activities.

- Pilot testing of sharing digital site boundaries and placing temporary flagging, rather than physically marking them with white paint, has been effective in preventing internal site damage while also not broadcasting site locations for unauthorized excavations.

FY 2022 and 2023 Recommended Actions:

- Continue evaluating new methods of site boundary marking in lieu of permanent white paint.
- Maximize usage of blowers on firelines near archaeological sites so that they are not inadvertently plowed into.

Forest Wide Desired Future Condition, Goal 5, Objective 5–3: Reduce the existing backlog of heritage sites needing formal evaluation so that the overall number decreases each year (USDA Forest Service 1999a, page 2-6).

Objective 5-3 Monitoring Question 1: Are sufficient numbers of significant or potentially significant sites being evaluated so that the number of backlogged properties decreases each year? (I)

FY 2020 and 2021 Findings:

- Backlogged sites continue to increase. With hurricane disaster funding, up to 45 backlogged sites will be evaluated through Phase II testing on the Vernon Unit.

FY 2022 and 2023 Recommended Actions:

- Completing remaining site restoration of damaged sites on the Winn and Catahoula Districts, as well as the Evangeline Unit is a high priority. This will result in site evaluations and reducing backlog, as well as critical site rehabilitation and salvage needs.

- Site evaluations and backlog are also a high priority for unevaluated sites located either within or immediately adjacent to firelines, to minimize the potential for internal damage.

Forest Wide Desired Future Condition, Goal 5, Objective 5–4: Enhance and interpret appropriate sites and heritage values to the American public (USDA Forest Service 1999a, page 2-6).

Objective 5-4 Monitoring Question 1: Are sites and heritage values being identified for public interpretation? (I)

FY 2020 and 2021 Findings:

- Drake's Saltworks site nomination has been accepted and is currently being finalized for submission to the Secretary of the Interior.
- KNF participated in cultural days associated with the Jena Band of Choctaw educational expositions.
- Hurricane disaster excavations with UL Lafayette's public archaeology laboratory will bring the largest university collaboration to the KNF in many years.
- Began working on interpretive plan for Calvin, LA CCC camp on the Winn District.

FY 2022 and 2023 Recommended Actions:

- Utilize information from Phase II evaluations to produce research publications.

- Maximize public outreach opportunities with hurricane salvage excavations.

Objective 5-4 Monitoring Question 2: Has interpretation enhanced awareness of heritage values among the general public? (E)

FY 2020 and 2021 Findings:

- No major interpretive initiatives were conducted in 2020 and 2021 due to hurricanes and COVID; however, the listing of Drake's Saltworks on the NRHP, and the hurricane salvage excavations provide great potential for future interpretation needs.

- Hurricane damage to currently interpretive sites such as Gum Springs and Fullerton Mill resulted in public support and outcry for site restorations, emphasizing the importance of heritage on KNF to the public.

FY 2022 and 2023 Recommended Actions:

- Maximize interpretive potential with hurricane salvage excavations and newly listed Drake's Saltworks.
- Continue interpretation development plans with the Calvin community on the CCC camp area.
- Produce publications about KNF's cultural heritage.

Forest Wide Desired Future Condition, Goal 5, Objective 5–5: Provide an ongoing interpretive services program that accurately and adequately develops an interest in and understanding for the natural and cultural environment of the Forest and the mission of the Forest Service in managing it (USDA Forest Service 1999a, page 2-6).

Objective 5-5 Monitoring Question 1: Does the interpretive services program provide usable information to the public about the full scope of forest management practices and philosophy? (I)

FY 2020 and 2021 Findings:

- Sustaining the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations is the mission the interpretive services program strives to accomplish though offering a wide array of programs, services, and resources to people of all ages, from pre-school to senior adult groups.
- Fiscal Years 2020 and 2021 turned out to be unprecedented and difficult years for the agency and the Kisatchie National Forest. Beginning March 23, 2020, the COVID-19 global pandemic began, and basically all interaction with the public was halted. Regular annual public events such as forest fishing derbies, school presentations, Forestry Awareness Week, and other civic-organization-requested presentations were canceled during the time period from March 23, 2020, through September 30, 2021. In addition to the pandemic, two major hurricanes, Laura and Delta, hit the Kisatchie National Forest in late summer 2020, resulting in many closures, shutting down major campgrounds and trails for many months and causing some recreation areas to be closed for multiple years. As a result of these major catastrophes, outreach efforts during this reporting period were severely affected which is reflected in the diminished numbers reported.

    - Informing the public of the Forest Service's mission and our progress in meeting our goals is achieved by utilizing newspaper and television media outlets. Television appearances were conducted for the local NBC affiliate morning talk show "*Good Day Cenla*" with five in-person appearances and 5 call-in interviews (10 total) conducted in FY 2020 and eight call-in interviews conducted in FY 2021.

    - Four television segments were arranged for local television stations KALB and KLAX to cover special topics about the Kisatchie National Forest in their nightly news programming.

    - Five news releases were sent out during this period disseminating information about the activities of the Kisatchie.

- Facebook and the worldwide web became a valuable means of communication with the public during the pandemic and during hurricanes Laura and Delta. When the catastrophic hurricane hit Louisiana, people turned to Facebook for the latest, most up-to-date information about recreation lands. The Kisatchie National Forest created a Facebook page in June 2019, four months prior to FY 2020.

    - During FY 2020, 215 Facebook posts had a combined reach of 385,389; 7,435 page visits, and 2,255 new page likes (Figure 26). This increased reach was due to Hurricane Laura updates on closures and in January 2021 when the Kincaid eagles' egg hatched and subsequent smaller spikes correlate to the egg hatching, eaglet growing, and ultimately fledging.

    - During FY 2021, 218 Facebook posts had a combined reach of 442,435; 19,080 page visits, and 4,315 new page likes (Figure 27).

FY 2022 and 2023 Recommended Actions:

- Assist with the conversion of the external website to the new, nation-wide national forest web skin.

- Continue to make regular appearances on the local television stations, submit press releases as needed, and conduct presentations for the schools and civic organizations as requested.

- Remain supportive in providing funding and/or staffing for high-profile and effective interpretive programs such as Passport in Time, National Association of Conservation Districts, Louisiana Association of Conservation Districts, National Hunting and Fishing Day, Louisiana Women in Agriculture, Earth Day, LSU AgMagic, Kent House Bug Day, multiple Forestry Awareness Weeks and Project Learning Tree sessions in the colleges and local schools.

- Continue to post on Facebook information on recreation sites and other Forest activities, utilizing Facebook's wide reach with the public to disseminate information in a timely manner.

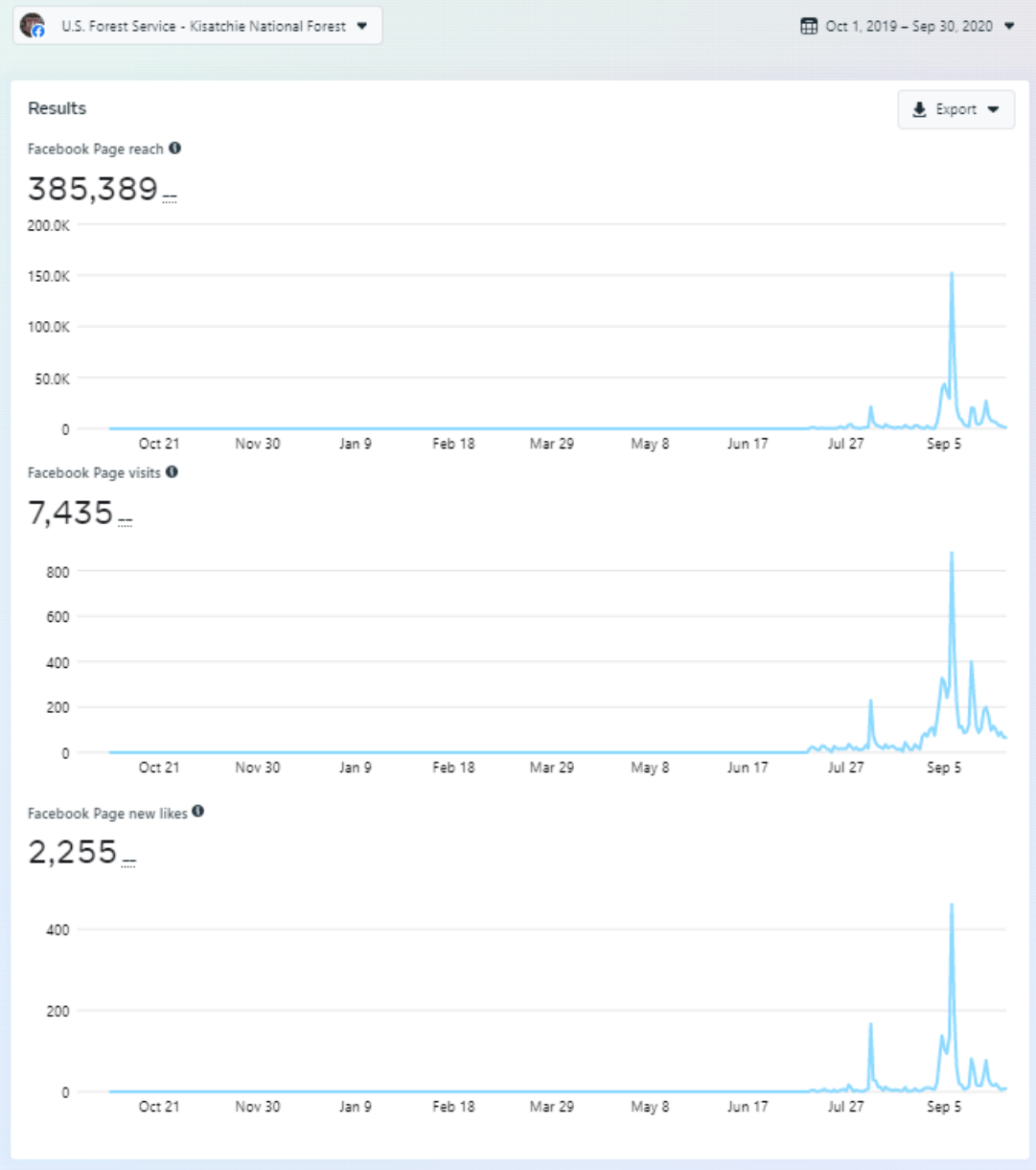

Figure 26. Kisatchie National Forest Facebook analytics showing spikes of public interest during hurricanes Laura and Delta

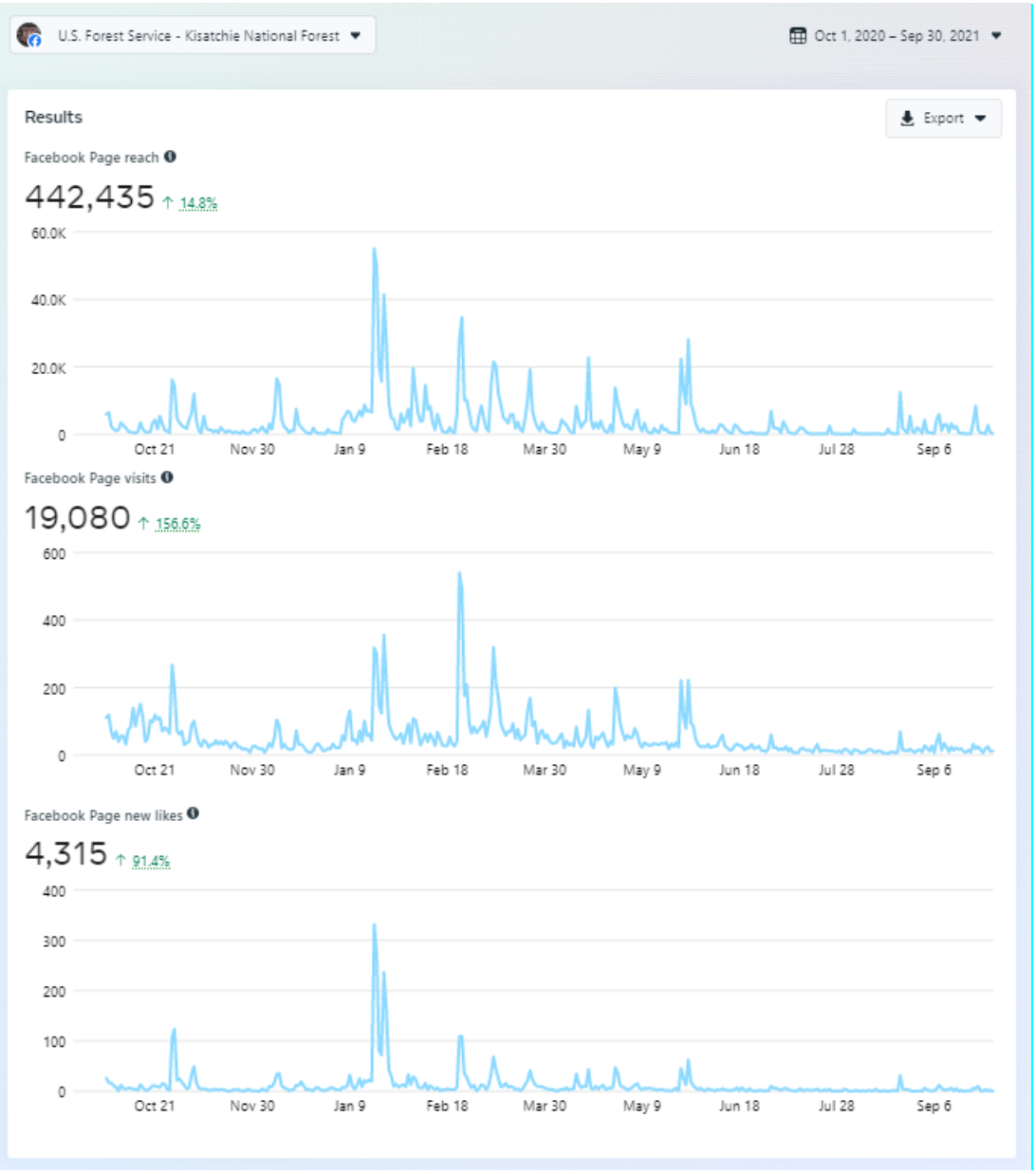

Figure 27. FY 2021 Facebook analytics showing major interest spikes from the public occurring in October 2020

Objective 5-5 Monitoring Question 2: Has interpretive services increased measurable public support of Forest Service resource management goals and objectives? (E)

FY 2020 and 2021 Findings:

- With the addition of Facebook as a tool in the Kisatchie National Forest's outreach toolbox, interpretive services have dramatically increased, reaching 10,000 page followers in just under two years. Our audience reach goes well beyond Louisiana, reaching people in other countries such as Canada, Taiwan, and the United Kingdom, to name a few.

- Outreach efforts were severely hampered by the pandemic, reducing the number of in-person activities; however, the number of people reached actually increased thanks to virtual platforms such as the website and Facebook.

FY 2022 and 2023 Recommended Actions:

- Maintain an active presence in social media, utilizing Facebook as a means to share information.

- Resume outreach events as allowed, delivering presentations to civic groups, non-profit organizations, and other nontraditional audiences throughout the state and outside the Forest's boundaries.

2.3 ORGANIZATION EFFECTIVENESS

In order to keep the revised Forest plan dynamic and responsive to changing conditions, an annual Monitoring and Evaluation Report is completed that evaluates the results of our management. This report includes the implementation status of the previous fiscal year monitoring recommendations as well as the detailed results and action plan of the fiscal year being monitored. Evaluation of new information is addressed in the Forest plan Goal 7 and 8, which have associated objectives that contain specific monitoring questions.

2.3.1. Monitoring and Evaluation

Forest Wide Desired Future Condition, Goal 7, Objective 7–1: Monitor and document the annual progress towards accomplishment of Forest goals, objectives, and desired future conditions (USDA Forest Service 1999a, page 2-6).

Objective 7-1 Monitoring Question 1: Is the Forest preparing and distributing a yearly monitoring and evaluation report to the public? (I)

FY 2020 and 2021 Findings:

- This annual report documents monitoring results for FY 2020 and FY 2021 activities and provides recommendations for FY 2022 and FY 2023.

- The annual monitoring and evaluation report is available to the public on the Kisatchie National Forest (http://www.fs.usda.gov/main/kisatchie/landmanagement/planning) and Southern Region's Forest Service website. Information from previous monitoring reports have always been available by contacting the Forest.

FY 2022 and 2023 Recommended Actions:

- Ensure all Monitoring and Evaluation reports completed are available for viewing on the Kisatchie National Forest Web page.

Forest Wide Desired Future Condition, Goal 7, Objective 7–2: Evaluate new information and monitoring results; adapt management accordingly (USDA Forest Service 1999a, page 2-6).

Objective 7-2 Monitoring Question 1: Is the Forest plan being kept current through timely changes as identified in the annual M&E Report? (I)

FY 2020 and 2021 Findings:

- The forest plan is being kept current. No forest plan amendments were completed in 2020 and one forest plan amendment was completed in 2021. See Appendix B for a complete list of forest plan amendments.

- The LPS was federally listed as threatened on April 6, 2018. The final rule under the authority of section 4(d) of ESA was established for this species on February 27, 2020 and became effective March 30, 2020. This information is available at www.regulations.gov, Docket # FWS-R4-ES-2018-0010-0025 Rule. The potential designation of critical habitat and a recovery plan will be forthcoming.

FY 2022 and 2023 Recommended Actions:

- Revisit ability to move towards longleaf pine and shortleaf pine restoration efforts in project level planning.

- Continue reviewing timber outputs and prescribed fire accomplishments to document forest plan compliance. Movement toward forest plan desired future conditions is dependent on the use of fire.

- Evaluate consistency for including old growth analysis as part of site-specific project analyses.

2.3.2. Cooperation, Coordination and Collaboration

Forest Wide Desired Future Condition, Goal 8, Objective 8–1: Benefit from research information, technical assistance and technology development by maintaining a close, continuous working relationship with scientists at the Southern Research Station, academic institutions, and Forest Health Protection units (USDA Forest Service 1999a, page 2-6).

Objective 8-1 Monitoring Question 1: Are cooperative relationships being developed and maintained? (I)

FY 2020 and 2021 Findings:

- See response to Objective 9-1 monitoring question 1 and Objective 9-2 monitoring question 1.

FY 2022 and 2023 Recommended Actions:

- Continue partnerships.

Forest Wide Desired Future Condition, Goal 8, Objective 8–2: Continue to identify research needs as the Forest implements the Plan (USDA Forest Service 1999a, page 2-6).

Objective 8-2 Monitoring Question 1: Are research needs being identified in a timely manner? (I)

FY 2020 and 2021 Findings:

- The Kisatchie NF is working with multiple agencies, universities and non-government organizations to stay consistent with the best available science.
- The Kisatchie NF accommodates and recommends research activities on the Forest.

FY 2022 and 2023 Recommended Actions:

- Evaluate management impacts on soil productivity and the resulting longleaf pine ecosystem.
- Evaluate effectiveness of the Kisatchie NF standards and guidelines in reducing non-point source pollution.
- Reduce soil loss due to prescribed burning on erosive soils, particularly sensitive soils that are vulnerable to management activities.

Forest Wide Desired Future Condition, Goal 9, Objective 9–1: Continue coordination and cooperation efforts with other federal and State agencies, such as the USFWS, the LDWF, the LDEQ, LDAF, and the Louisiana SHPO on issues of mutual concern (USDA Forest Service 1999a, page 2-6).

Objective 9-1 Monitoring Question 1: Are coordination and cooperation efforts being conducted with federal and state agencies? (I)

FY 2020 and 2021 Findings:

- Federal and state agencies were consulted as new project level proposals were developed and evaluated through the National Environmental Policy Act process. Six Environmental Assessments were completed and Decision Notices signed for projects on the Forest (2 in FY 2020 and 4 in FY 2021). Twenty Decision Memos were completed associated with categorically-excluded actions (10 in FY 2020 and 10 in FY 2021). Federal and state agencies were provided an opportunity for comment during the public scoping period for each of these NEPA documents. There is a long history of providing project level coordination and cooperation efforts with federal and state agencies through the NEPA process. Public scoping is completed for each level of NEPA. The lowest level of NEPA, categorical exclusions, will result in a Decision Memo and a Decision Notice is completed for an Environmental Assessment. Figure 28 shows the number of NEPA decisions completed since 2008.
- Forest Plan Amendment 11 was completed in 2021 and:
    - Updated the number of acres to which prescribed fire could be applied on the KNF to an average of 80,000 to 160,000 acres per year;

- Removed restrictions on the percentage of acreage burned during the dormant versus growing season;
- Modified the guideline on where growing season burns could be used (i.e., growing season burns could be used in any ecosystem based on management objectives); and
- Updated some procedural forestwide management guidelines for the application of prescribed fire.

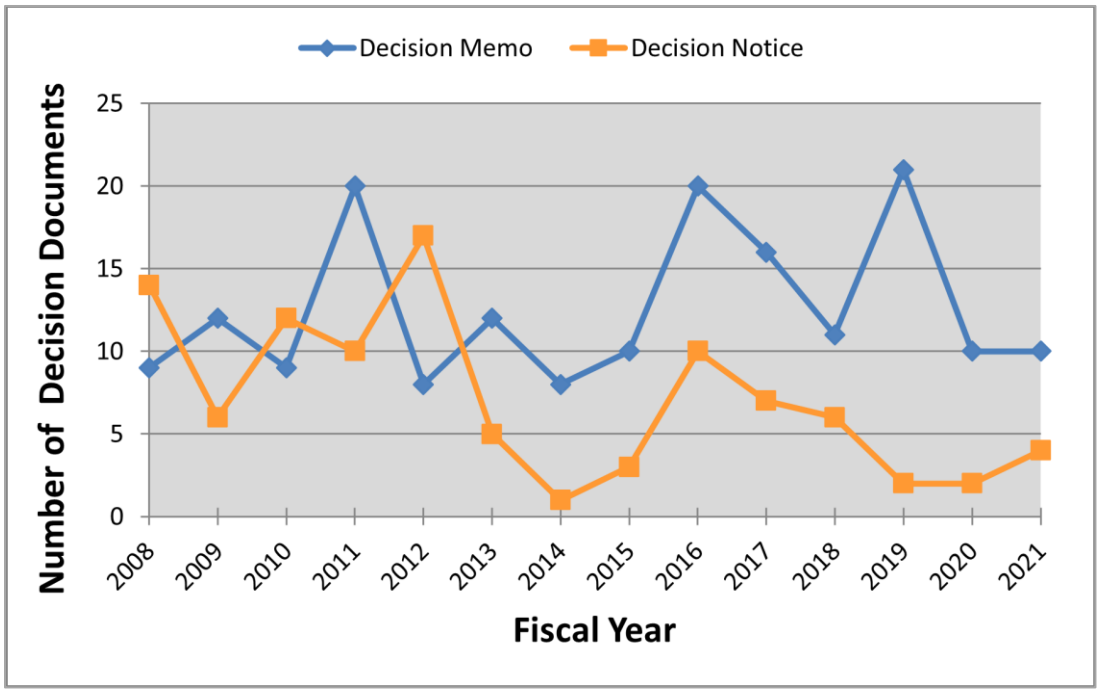

Figure 28. NEPA decisions completed 2008-2021

FY 2022 and 2023 Recommended Actions:

- Continue coordination with tribal, federal, and state agencies as needed for project level proposals.
- Continue participation in Special use authorizations with the Department of Defense, Fort Polk and the Joint Readiness Training Center, U.S. Air Force Reserve at Barksdale Air Force Base, and the State of Louisiana Army National Guard.

Forest Wide Desired Future Condition, Goal 9, Objective 9–2: Seek to increase the participation of other federal and State agencies, academic institutions, federally recognized Native American tribes, organizations and individuals in the accomplishment of Forest goals and objectives through the use of memorandums of understanding, cooperative agreements, partnerships, and challenge cost share agreements (USDA Forest Service 1999a, page 2-7).

Objective 9-2 Monitoring Question 1: Are memorandums of understanding, cooperative agreements, partnerships, and challenge cost share agreements being developed? Are we increasing the participation of groups and individuals in the accomplishment of Forest plan goals and objectives? (I)

FY 2020 and 2021 Findings:

In FY 2020 and FY 2021 the following agreements were in place:

- National Wild Turkey Federation and Kisatchie National Forest -Calcasieu Ranger District Stewardship Supplemental Project Agreement.
- National Wild Turkey Federation and Kisatchie National Forest Collection Agreement to assist with wild turkey management and monitoring.
- National Wild Turkey Federation and Kisatchie National Forest Challenge Cost Share Agreement for Shared Position.
- USDA APHIS Interagency Agreement to assist with the protection of Louisiana pearlshell mussel watersheds and nuisance animal removal
- Louisiana State University Participating Agreement for R8 Bird Point monitoring
- Louisiana Department of Wildlife and Fisheries Memorandum of Understanding Agreement
- Louisiana Department of Wildlife and Fisheries Master Stewardship Agreement
- Louisiana Department of Wildlife and Fisheries Stewardship Supplemental Project Agreement Corney Bayou Stewardship for wood duck management
- Louisiana Department of Wildlife and Fisheries Good Neighbor Authority Master Agreement
- Louisiana Department of Wildlife and Fisheries Good Neighbor Authority Supplemental Project Agreements (2 SPAs): Shared Botanist Positions and Forest-wide Habitat Restoration Assistance
- Challenge Cost Share Agreements with the local Soil and Water Conservation Districts (SWCDs)
    - Calcasieu SWCD; Shared Wildlife Technician position
    - Dugdemona SWCD; Nuisance Animal Removal and shared technician position on private lands surrounding the Kisatchie NF
- Memphis Zoo Stewardship Agreement to captively propagate and release threatened Louisiana pinesnakes
- U.S. Fish and Wildlife Service Interagency Agreement to monitor threatened Louisiana pinesnakes
- U.S. Army – Fort Polk Interagency Agreement for biologist support.

FY 2022 and 2023 Recommended Actions:

- Continue to accommodate interested partners who wish to form partnerships, cooperative agreements, memorandums of agreements and memorandums of understanding consistent with Forest Plan goals and objectives.

SECTION 3.0 EVALUATION OF OUTCOMES ON THE LAND

This section evaluates the perceived outcome of the monitoring results for this reporting fiscal years 2020 and 2021. The effectiveness of much of the plan's direction during its first five years of implementation was evaluated during the CER (or 5-Year Review), which was done in FY 2006 (USDA 2007). Based on FY 2020 and FY 2021 monitoring results, the following observations were made:

Biodiversity

- In FYs 2020 and 2021, movement towards vegetation structure, composition, disturbance regime and desired conditions continued in three of four landscape community types. The desired quantity of mixed hardwood-loblolly early stages and longleaf pine remains below the forest plan desired conditions, although older stands of pine and hardwood have increased since 1999 when the forest plan was signed.

- There is a need to improve tracking of old growth allocations at the project and landscape scale.

- There is a need to increase the pace and scope of longleaf pine restoration. There is a need to reduce the acres of mid and late successional mixed hardwood loblolly pine by prescribing regeneration cuts on off-site stands where there is a high priority for regeneration, such as stands damaged by disease, insect or storms and stands showing signs of decline.

- There is a need to increase acreage of mixed hardwood loblolly pine early successional stage that is currently deficit. In prairies and pitcher plant bogs throughout the Forest, there is a need to move towards native plant community desired conditions by removing encroaching woody plants. These natural communities provide habitat for many TESC species.

- In addition to commercial thinning, use of prescribed fire continues to be critical to achieving and maintaining natural communities and quality habitat. The prescribed burning program is the most important practice used for restoration of pre-settlement habitats, which is effectively protecting, improving and maintaining TESC species habitat. The treatment of non-native invasive plants continues to improve habitats for TESC species. There are opportunities to include non-native invasive plant treatments in all vegetation projects and there is a need to annually evaluate how projects are incorporating NNIP treatments.

- RCW potential breeding group numbers were comparable to group numbers in 2019.

- According to 2019 data, the total LPM population on the KNF appears to be increasing to stable (Calcasieu District, Evangeline Unit) and on a downward trend (Catahoula Ranger District). The downward trend of the LPM population is believed to be from environmental and management practices outside of the Forest Service boundaries. This region has seen drought years in which one LPM stream on the Catahoula went dry.

- The Natchitoches National Fish Hatchery, with the support of the Forest Service and the Louisiana Department of Wildlife and Fisheries, has been conducting research on the LPM in an attempt to better understand the mussel's lifecycle so that propagation techniques can

be developed. LPM spawning habits and a host fish have been identified and propagation techniques are being developed.

- Habitat objectives for selected botanical management indictors are being met mainly as a result of the forest's prescribed burn program.
- Habitat objectives for selected terrestrial management indicators are being met for mid-to-late successional habitats on the forest; however, early succession habitat is low for longleaf pine, mixed hardwood loblolly pine and small and large stream riparian landscapes.
- Aquatic MIS appear to be viable and stable in the protected habitats and refuges across the forest.
- Management practices have supported the forest plan desired conditions for long term soil productivity and aquatic ecosystem integrity.
- Management practices strive to satisfy customers by meeting critical public health and safety standards in developed recreation sites, having a transportation system that is serviceable, responding to special use permit requests in a timely manner and maintaining landlines as funding allowed.
- Predator / prey populations across the Forest are sufficient for a sustainable recreational fishery.

Forest Health

- Suitable lands vegetation treatments yielded 13.99 MMCF (139,983 cubic feet/unit [CCF/cunit])) and approximately 7,100 acres were treated in 2020. In 2021, suitable lands yielded 11.82 MMCF (118,230 CCF) and approximately 8538 acres were treated..
- Vegetation treatments on unsuitable lands in 2020 (including RCW habitat, old growth areas, and lands utilized by the military via special use authorization) yielded approximately 1.79 MMCF (17,935 CCF) and approximately 1,060 acres were treated. In 2021, the unsuitable lands yielded 3.98 MMCF (39,850 CCF) and approximately 5,317 acres were treated.
- There were no SPB spots reported during FY 2020 or 2021.
- Timber stand improvements were implemented on approximately 1,075 acres in FY 2020 and 597 acres in FY 2021. These improvements focused on reducing competition in young longleaf and shortleaf pine plantations, resulting in improving site/species selection.

Watershed Conditions

- Population trends of aquatic MIS suggest that best management practices and streamside habitat protection zones are adequately protecting the integrity and quality of watersheds within the Forest.
- Water quality in nine streams occurring in the Forest are monitored quarterly in cooperation with the LDEQ. These quarterly samples indicated that streams meet state water quality standards for the parameters that were tested.
- The USDA Animal and Plant Health Inspection Service monitored streams for beaver activity and dams. Beavers and dams were removed when they were negatively affecting LPMs.

Outdoor Recreation Opportunities

- Shifts in ROS class eligibility are not likely to have occurred because only minor road construction or decommissioning was planned and accomplished. ROS class eligibility changes are dependent, primarily, on changes in road density and ORV management status.
- Densities of select game species on the forest vary. Populations of deer, turkey and quail are below carrying capacity.
- Recreation site inventories were completed and data was updated to the corporate INFRA database and critical standards are being met.
- Full compliance with all National Minimum Quality standards is not possible at current funding level.
- Customer service response has continued to improve. The customer service representative receives requests, questions or complaints. The representative answers or refers to appropriate district or source for best response.

Infrastructure

- All roads were found to be serviceable by the intended user and required no significant increase in the level or frequency of maintenance.

Human Influences

- No land acquisitions were completed in FY 2020 or FY 2021. With the continued decrease in funding, property lines will not be well-defined, which will lead to encroachments.

Timber

- A comparison of FY 2020 to 2021, reflects an increase of approximately 2.2.
- Regeneration harvests continue to be far below the anticipated forest plan outputs.

Forage

- A 30-year trend of decreasing demand from the public for grazing resources continues. There are no active allotments. Given the continued non-use of the majority of KNF allotments, carefully scrutinize future expenditures for cost-effectiveness.

Other Products

- No oil and gas wells were drilled in FY 2020 or 2021.

Heritage Resources

- All compliance reviews and consultations pursuant to Section 106 of the National Historic Preservation Act were completed prior to agency decisions.

- A total of 21,132 acres were inventoried during FY 2020 and 2021. These included large survey areas for land management activities, as well as smaller survey areas and categorical exclusions for other resources such as administrative and recreational trails and facilities and permits for partners and members of the public.

- The Forest continued government-to-government relations with eight federally recognized tribal nations. These include the Caddo Tribe of Oklahoma, the Chitimacha Tribe of Louisiana, the Coushatta Tribe of Louisiana, the Jena Band of the Choctaw Indians, the Tunica Biloxi Tribe, the Choctaw Tribe of Oklahoma, the Mississippi Band of Choctaw, and the Quapaw Tribe of Oklahoma. Of note, the Heritage Program has worked extensively with affiliated Tribes, the National Forests and Grasslands in Texas, NRCS, and other partners to develop a rivercane identification and restoration plan. This has resulted, so far, in the identification of over 50 rivercane patches on Kisatchie National Forest, and a pilot rivercane propagation program with the Jena Band of Choctaw Indians with 100 rivercane seedlings being grown at their cultural center.

- Six ARPA damage assessments were completed on sites with unauthorized excavations, two of which saw convictions. The other cases are still in-process.

Evaluation of New Information

- Federal and state agencies were consulted as new proposals were developed and underwent the NEPA process. Louisiana SHPO and Tribal Historic Preservation Officials contributed during the preparation and analysis for EAs. The USFWS provided consultation and effects analysis for game and non-game animals potentially affected by project proposals.

- New planning rules were published in 2012 and changed Forest plan monitoring program requirements. During FY 2016 the forest's monitoring program was evaluated for compliance as stated in 36 CFR 219.12.

SECTION 4.0 SUMMARY OF MONITORING AND EVALUATION PLANNED FOR 2022

This section of the report provides information on all monitoring items that need action during FY 2020 and FY 2021. In addition to the specific recommended actions listed below, the general recommendation for FY 2022 and FY 2023 is to continue implementing the revised forest plan using guidance provided in Chapters 2 and 3 of the forest plan in order to reach the objectives stated. Long-term goals for the Forest are to reach the desired future conditions for individual management and sub-management areas. In order for the forest to reach planned goals and objectives, individual project proposals should consider the guidance provided for each management area, use appropriate NEPA procedures to evaluate the site-specific effects of the proposal and alternatives and reach a decision consistent with forest plan direction. Recommendations for those items that need attention follow:

4.1 FOREST HEALTH

Objective 1-3:

- Continue to follow the direction and parameters of the "Louisiana Smoke Management Voluntary Guidelines."
- Continue preparation of burn plans for prescribed fires.
- Continue to check U.S. Environmental Protection Agency's website for nonattainment areas.

Objective 1-4:

- The Forest will continue to operate at the current efficiency level until fire preparedness funding is increased and staffed accordingly.
- Manage for productive and healthy forest ecosystems by utilizing prescribed fire to prevent and minimize resource losses.

Objective 1-5:

- Continue to identify restoration and forest health needs through the inventory process.
- Overstocked loblolly pine stands should be thinned and, where appropriate, converted to longleaf pine. These management activities will have the most impact on reducing the susceptibility of pine stands to SPB. Thinning also will improve growing conditions in mixed pine-hardwood forest types for all residual tree species and reduce their susceptibility to abiotic and biotic stress.
- SPB populations are dynamic; findings from 2021 trapping efforts indicate that SPB populations have remined low. Continue routine aerial and trapping surveys of SPB activity in KNF.

4.2 WATERSHED CONDITIONS

Objective 1-1:

- Continue to use the Forest Service's national BMP protocol for monitoring.
- Continue to monitor BMPs for implementation and effectiveness. Restore and revegetate disturbed areas as needed.
- Continue to review any new Long Term Soil Productivity publications produced by the Southern Research Station.
- Continue to use the Forest Service's design features and BMPs.

Objective 1-2:

- Continue to use the Forest Service's national BMP protocol for monitoring.
- In lieu of extensive water chemistry analysis of forest streams, monitor the same streams for temperature, specific conductivity (µS/cm), pH, turbidity (NTU), and dissolved oxygen (mg/L) via a portable water quality probe.
- Continue required monitoring for coliform bacteria at KNF swim beaches.

Objective 2-6:

- Establish size and creel limits on the Forest if needed to ensure recruitment and sustainability of the resource. Continue stock assessments and replenish fish when needed.
- Continue to monitor water quality and BMP implementation and effectiveness to ensure that stream and lake habitats are being protected.
- Continue to monitor for the health of stream and lake ecosystems.
- Continue sampling and analyzing data.

4.3 BIODIVERSITY

Objective 2-1:

- Continue to accomplish stand exams on 10 percent of the forest every year and continue preparing environmental documents addressing management practices on as many of these acres as possible.
- Continue to emphasize longleaf and shortleaf restoration in project level management activities.
- Continue to field-check samples of implemented project decisions.
- Continue to conduct NEPA analyses with emphasis on longleaf and shortleaf pine restoration.
- Strive to increase the number of acres restored to longleaf pine. Continue to monitor sites for additional treatment needs. Thinning prescriptions within RCW HMAs should emphasize longleaf stand composition.

- Post-implementation field checks should be done on the thinning areas to ensure sufficient longleaf emphasis, evaluate species composition changes and update the FSVeg spatial database.

- Continue restoration treatments on shortleaf/hardwood sites where there is high priority for regeneration, such as stands damaged by disease, insect or storms and those stands showing signs of decline.

- Mixed hardwood-loblolly forest types exceed long-term desired future conditions currently with 374,428 acres over the landscape. Prescribe regeneration cuts on off-site stands where there is a high priority for regeneration, such as stands damaged by disease, fire, insect or storms or those stands showing signs of decline.

- Continue to monitor management practices being implemented within streamside and riparian area protection zones for compliance with the forest plan, through timber sale contract administration and field checks.

- Continue to consider selective thinning and hardwood planting treatments within riparian areas to enhance the hardwood component in appropriate management and sub management areas.

- Longleaf pine reforestation efforts are low. Revisit ability to move towards the longleaf pine desired future condition. The Forest currently has approximately 128,088 acres in the longleaf pine plant community, compared to the forest plan's goal of 263,000 acres. Weather events that have occurred in FY 2020 will give the Forest the chance to increase the longleaf pine reforestation efforts.

- Shortleaf pine reforestation efforts are low. Revisit ability to move towards the shortleaf pine desired future condition. The Forest currently has approximately 16,611 acres in the shortleaf pine/oak hickory community, compared to the forest plan's goal of 62,000 acres.

Objective 2-2:

- Continue to adhere to the forest plan guidance.

- The management indicator species list for plants should be modified by considering the following criteria:
    - Species occurs in a habitat that we are likely to affect through our management, or in an area that drives our management direction.
    - Species is closely associated with the habitat of interest, and population levels respond to changes in that habitat (ecological indicator species).
    - Basic biology or ecology (habitat requirements, threats, demography, etc.) is known for species or habitat.
    - Species is not so rare or obscure that its populations cannot be monitored with a reasonable amount of effort.
    - Species, or habitat, occurs at a scale that allows us to monitor population in replicate treatments and control units.

- Continue to monitor the health of lake and stream fisheries.
- Continue to work with the CATT team on any stream monitoring needs and LSU on data analysis.
- Continue avian surveys across the Forest.
- Revisit aquatic MIS data and validate habitat and population trends.

Objective 2-3:

- Continue the current prescribed burning program of 80,000 to 160,000 acres per year.
- Increase the ratio of growing season burns to dormant season burns, since growing season burns are critical for successful gains in our botanical restoration efforts.
- It is important to increase efforts to remove encroaching woody plants in the Winn District prairies and in pitcher plant bogs throughout the forest, as these natural communities provide habitat for many of our TESC species.
- Once COVID-19-related work restrictions are lifted, continue prescribed burning of 80,000 to 160,000 acres per year to return to Forest's normal burn rotation.
- Increase the ratio of growing season burns to dormant season burns, since growing season burns are critical for successful gains in our restoration efforts.
- Continue monitoring all known RCW populations. Prescribe burn the RCW nesting and foraging habitat. Engage in RCW translocations to bolster populations. Continue to work closely with the USFWS.
- Continue to monitor LPM streams that are prone to drought and investigate streams that are experiencing depredation. Control beaver activity and enforce regulations that prohibit ORVs from damaging LPM habitat. Continue to release mussels as they become available. Continue implementation of BMPs and SHPZs. Rehabilitate areas that are contributing to LPM habitat damage. Continue collaboration with other agencies, partners, private landowners, and volunteers. Provide assistance to the USFWS and interested parties with habitat improvements, monitoring, propagation, and reintroductions.
- Continue RCW management across the Forest. Identify and prioritize thinning of foraging habitat, improvement and expansion of RCW clusters, and mid-story reduction projects. Work with the USFWS to prioritize future projects and identify habitat needs.

Objective 2-4:

- Continue to consider old growth areas during project level proposals and interdisciplinary team meetings.
- Evaluate old growth characteristics in project level NEPA analysis.
- Continue emphasis on tracking and reporting old growth allocations at the project and landscape scale.
- Continue prescribed fire and commercial thinning in some old growth patches in the uplands to enhance the old-growth attributes and help mold appropriate overstory and understory composition.

- Increase the ratio of growing season burns to dormant season burns, since growing season burns are critical for successful gains in restoration efforts.
- Increase efforts to remove encroaching woody plants in the Winn District prairies and in pitcher plant bogs throughout the forest, as these natural communities provide habitat for many of our TESC species.
- Adhere to the land management practices described in the forest plan, which calls for relatively older timber stands.

Objective 2-5:

- Continue implementation of forest plan standards and guidelines.
- Continue to use the Forest Service's national BMP protocol for monitoring.

Objective 2-6:

- Establish size and creel limits on the Forest if needed to ensure recruitment and sustainability of the resource. Continue stock assessments and replenish fish when needed.
- Continue to monitor water quality and BMP implementation and effectiveness to ensure that stream and lake habitats are being protected.
- Continue to monitor for the health of stream and lake ecosystems.
- Continue sampling and analyzing data.

Objective 6-1:

- Increase scope and scale of longleaf and shortleaf pine restoration where applicable.
- Assure that treatment of NNIP is interwoven into each vegetation project. Evaluate and monitor NNIP response to treatment.
- Strive to increase the number of acres restored to longleaf pine. Continue to monitor sites for additional treatment needs.
- Thinning prescriptions within RCW HMAs should emphasize the needed longleaf stand composition.
- Post implementation field checks should be done on the thinnings to ensure sufficient longleaf emphasis, evaluate species composition changes and update the FSVeg database.
- Continue restoration treatments on shortleaf/hardwood sites where there is high priority for regeneration such as stands damaged by disease, insect or storms as well as those stands showing signs of decline.
- Continue to complete field exams and prescriptions to meet Forest plan goals.

Objective 6-2:

- Continue to monitor the weather and take advantage of every burning opportunity.
- Continue to maximize the implementation of growing season burns on longleaf pine plant community landscapes.

- Continue to maximize burn opportunities in the fall.
- Continue to have two regional fuels helicopters to increase the production and reduce the cost of call when helicopters are needed.
- The Forest should invest in high-resolution infrared (IR) satellite imagery (4 bands) to better monitor changes in vegetation as a response to management actions.
- Specialists should review burn plans (inconsistent across districts).
- There should be greater focus on use of drip torches and smaller burn units, where possible.
- There should be post-burn monitoring for vegetation effects, in addition to fuel load monitoring.

4.4 OUTDOOR RECREATION OPPORTUNITIES

Objective 2-7:

- Continue to implement vegetation treatments that would move toward achieving forest plan goals for expanding habitats for game and fish species.
- Adhere to the KNF Revised LRMP guidance.
- Continue to emphasize longleaf and shortleaf pine restoration.
- Continue working with LDWF in collecting and monitoring sample harvest data.
- Continue collaborating with LDWF in planning and implementing projects that improve and expand suitable wild turkey habitat.

Objective 2-8:

- Adhere to the KNF Revised LRMP guidance.

Objective 4-1:

- Continue to review proposed projects for SIO compliance.
- Work with districts to implement new scenery management system (SMS) guidelines.
- Encourage participation at interdisciplinary team meetings.
- Increase education of personnel on scenery management.

Objective 4-2:

- ROS class eligibility changes are primarily dependent on changes in road density and ORV management status. Monitor new projects and changes in trails or roads to identify any possible ROS class eligibility changes.
- Continue to monitor for changes annually as the MVUM is monitored and updated.

Objective 4-3:

- Continue the annual update of INFRA data. Continue management of the recreation program using the IWEB INFRA system and the recreation sustainability process.
- Continue to improve customer service through the customer service representative. The recreation program manager will assist with customer service requests and also assist with the INFRA database and inventory needs. Review the National Visitor Use Monitoring (NVUM) results and use that information to assist in meeting visitor needs.
- Review 100 percent of the roads reconstructed or constructed, to ensure they are serviceable by the intended user and require no significant increase in the level or frequency of maintenance.
- Continue to complete transportation specialist reports for project level NEPA analysis.

4.5 HUMAN INFLUENCES

Objective 1-6:

- The KNF will continue to require proponents to pass both first and second screening as well as meet all NEPA requirements.
- The boundary and corner markers management program target will be based on funds provided.
- Secure funding for Boundary Management Program.

4.6 TIMBER

Objective 3-1:

- Maintain the current level of timber sale offering, providing economic benefits to local communities. Monitor the average annual offering and compare to the Forest Plan output identified for the second decade.

Objective 3-6:

- The Forest has not received any Economic Recovery grant proposals since 2004. This is a result of the funding cuts.
- See response to Objective 3-1, question 1 for other opportunities for improving rural economies and social conditions.
- Continue emphasis on new communities and capacity building projects that result in increased local job opportunities and local incomes.

4.7 ROADLESS AREAS / WILDERNESS/WILD AND SCENIC RIVERS

Objective 5-6:

- Continue to update and add information to the new Wild and Scenic River NRM database.
- Work with district personnel to determine needs and work towards solutions for SIA management.
- Work towards building partnerships for Saline Bayou education and maintenance.

Objective 5-7:

- The Forest will continue integrating into the new wilderness monitoring strategy and INFRA reporting as required.
- Continue to have a representative from the Kisatchie Ranger District as a member of the Southern Wilderness Advisory Group.
- Continue to work towards meeting and exceeding minimum performance standards set for wilderness management.
- Develop a Forest Wilderness Advisory Group.
- Work towards building partnerships for Wilderness education and maintenance of trails.

4.8 FORAGE

Objective 3-4:

- Evaluate management needs, forage condition and reasons for decline in use of these resources.
- Encourage/foster greater participation in the range program.
- There are no active range allotments on the Kisatchie National Forest.

4.9 OTHER PRODUCTS

Objective 3-5:

- Continue offering special wood products, especially firewood, where it is appropriate.
- Continue offering roundwood products in normal timber sales, which gives Purchasers options to utilize these products as biomass as the demand and prices allow.
- Continue offering Forest Botanical Products where it is appropriate.
- Continue offering firewood and other specialty forest products.
- Monitor sustainability and effects on soil and water.

Objective 3-6:

- Continue emphasis on new communities and capacity building projects that result in increased local job opportunities and local incomes.

4.10 HERITAGE RESOURCES

Objective 5-1:

- Hurricane Laura and Delta Damage Assessment Plan identified $3.8 million in heritage needs to address over 150 archaeological sites damaged in the hurricanes, primarily through uprooted trees. To date, only $1 million of this work has been allocated. Completing remaining site restoration is a high priority.

Objective 5-2:

- Progress has been made with regard to coordinating with Tribes, US attorneys and magistrates; however, a meeting is very much needed to formalize investigation procedures.
- More funding, capacity, and support is needed for cameras and other monitoring requirements to adequately address rising ARPA violations across the forest.
- Continue evaluating new methods of site boundary marking in lieu of permanent white paint.
- Maximize usage of blowers on firelines near archaeological sites so that they are not inadvertently plowed into.

Objective 5-3:

- Completing remaining site restoration of damaged sites on the Winn and Catahoula Districts, as well as the Evangeline Unit is a high priority. This will result in site evaluations and reducing backlog, as well as critical site rehabilitation and salvage needs.

- Site evaluations and backlog are also a high priority for unevaluated sites located either within or immediately adjacent to firelines, to minimize the potential for internal damage.

Objective 5-4:

- Utilize information from Phase II evaluations to produce research publications.

- Maximize public outreach opportunities with hurricane salvage excavations.

- Maximize interpretive potential with hurricane salvage excavations and newly listed Drake's Saltworks.
- Continue interpretation development plans with the Calvin community on the CCC camp area.
- Produce publications about KNF's cultural heritage.

Objective 5-5:

- Assist with the conversion of the external website to the new, nation-wide national forest web skin.

- Continue to make regular appearances on the local television stations, submit press releases as needed, and conduct presentations for the schools and civic organizations as requested.

- Remain supportive in providing funding and/or staffing for high-profile and effective interpretive programs such as Passport in Time, National Association of Conservation Districts, Louisiana Association of Conservation Districts, National Hunting and Fishing Day, Louisiana Women in Agriculture, Earth Day, LSU AgMagic, Kent House Bug Day, multiple Forestry Awareness Weeks and Project Learning Tree sessions in the colleges and local schools.

- Continue to post on Facebook information on recreation sites and other Forest activities, utilizing Facebook's wide reach with the public to disseminate information in a timely manner.

- Maintain an active presence in social media, utilizing Facebook as a means to share information.

- Resume outreach events as allowed, delivering presentations to civic groups, non-profit organizations, and other nontraditional audiences throughout the state and outside the Forest's boundaries.

4.11 ORGANIZATIONAL EFFECTIVENESS

Objective 7-1:

- Ensure all Monitoring and Evaluation reports completed are available for viewing on the Kisatchie National Forest Web page.

Objective 7-2:

- Revisit ability to move towards longleaf pine and shortleaf pine restoration efforts in project level planning.

- Continue reviewing timber outputs and prescribed fire accomplishments to document forest plan compliance. Movement toward forest plan desired future conditions is dependent on the use of fire.

- Evaluate consistency for including old growth analysis as part of site-specific project analyses.

Objective 8-1:

- Continue partnerships.

Objective 8-2:

- Evaluate management impacts on soil productivity and the resulting longleaf pine ecosystem.
- Evaluate effectiveness of the Kisatchie NF standards and guidelines in reducing non-point source pollution.
- Reduce soil loss due to prescribed burning on erosive soils, particularly sensitive soils that are vulnerable to management activities.

Objective 9-1:

- Continue coordination with tribal, federal, and state agencies as needed for project level proposals.
- Continue participation in Special use authorizations with the Department of Defense, Fort Polk and the Joint Readiness Training Center, U.S. Air Force Reserve at Barksdale Air Force Base, and the State of Louisiana Army National Guard.

Objective 9-2:

- Continue to accommodate interested partners who wish to form partnerships, cooperative agreements, memorandums of agreements and memorandums of understanding consistent with Forest Plan goals and objectives.

SECTION 5.0 STATUS OF FY 2018 & 2019 MONITORING AND EVALUATION REPORT RECOMMENDATIONS

5.1 IMPLEMENTED RECOMMENDED ACTIONS IN 2020 and 2021

All the objectives listed below were implemented in FY 2020 and FY 2021.

Objective 1-3:

- The national BMP protocol was utilized to evaluate how Louisiana Smoke Management Guidelines are being followed.
- Continued to coordinate with LDEQ Air Quality Department for monitoring.
- Continued to monitor burn plan compliance.

Objective 1-4:

- The Forest continued to operate at the current efficiency level for fire preparedness funding.
- Managed for productive and healthy forest ecosystems by utilizing prescribed fire to prevent and minimize resource losses to wildland fires.

Objective 1-5:

- Continued to identify restoration and forest health needs through the inventory process.
- Continued to monitor areas for forest decline and bug spots through aerial surveillance flights.
- Monitored the health of KNF forests by aerial surveys and ground-truthing.

5.2 WATERSHED CONDITIONS

Objective 1-1:

- Continued to use the national BMP protocol for monitoring.
- Continued monitoring prescribed fire management and timber management activities for implementation of forest plan standards and guidelines.
- Continued to restore and revegetate disturbed areas.
- Continued to coordinate with and assist the Southern Research Station with the Long Term Soil Productivity Study.

Objective 1-2:

- Continued to monitor prescribed burning and timber management activities for implementation of Standards and Guidelines.
- Continued to use the national BMP protocol for monitoring (USDA Forest Service 2012).

- Continued to monitor streams for temperature, specific conductivity (µS/cm), pH, turbidity (NTU), and dissolved oxygen (mg/L) via a portable water quality probe.
- Continued monitoring for coliform bacteria at the Forest's swim beaches.

Objective 2-6:

- Continued stock assessments and replenished fish when needed.
- Continued to monitor and assess the effectiveness of management strategies on the Forest concerning aquatic resources.
- Continue to monitor for the health of stream and lake ecosystems.
- Continue sampling and analyzing data.

5.3 BIODIVERSITY

Objective 2-1:

- Continued to accomplish stand exams on 10 percent of the forest every year and continued preparing environmental documents addressing management practices on as many acres as possible. Emphasized longleaf and shortleaf restoration where possible. The forest silviculturist continued to field-check samples of implemented project decisions.
- Increased the number of acres restored to longleaf pine. Continued to monitor sites for additional treatment needs. Thinning prescriptions within RCW habitat management areas should emphasize the needed longleaf stand composition. Conduct post implementation field checks on thinnings to ensure sufficient longleaf emphasis. Evaluate species composition changes and update the FSveg database with these changes.
- Continued restoration treatments on shortleaf / hardwood sites where there is high priority for regeneration, such as stands damaged by diseases, insects or storms and stands showing signs of decline.
- Prescribe regeneration cuts on off-site stands where there is a high priority for regeneration, such as stands damaged by diseases, insects or storms and stands showing signs of decline.
- Continued to track old growth allocations at the project and landscape scale.
- Continued to monitor management practices being implemented within streamside and riparian area protection zones for compliance with the forest plan through timber sale contract administration and field checks.
- Continued to consider selective thinning and hardwood planting treatments within riparian areas to enhance the hardwood component in appropriate management and sub management areas.

Objective 2-2:

- Continued to adhere to forest plan guidance.
- Continued avian surveys on the forest.

- Did not resume botanical MIS.
- Revisited aquatic MIS data and validated habitat and population trends.
- Clarified forest-wide habitat acres by species.

Objective 2-3:

- Continued emphasis on RCW management across the Forest. Identified and prioritized thinning of foraging habitat, improvement, and expansion of RCW clusters, and mid-story reduction projects.
- Monitored all known RCW populations. Prescribed burned the RCW nesting and foraging habitat. Engaged in RCW translocations and continued to work closely with the USFWS.
- Coordinated with the USFWS to prioritize future projects and identified habitat needs. Identified all LPM beds on the Forest, developed means of stream improvement projects and continued monitoring the number of mussels on a recurring basis.
- Continued to monitor LPM streams prone to drought and investigate streams experiencing depredation. Controlled beaver activity and enforced regulations prohibiting ORVs from damaging LPM habitat to the extent possible.
- Continued implementation of best management practices and streamside habitat protection zones in LPM habitat. Rehabilitate areas that are contributing to LPM habitat damage. Encouraged collaboration from other agencies, partners, private landowners and volunteers to help protect the LPM. Provided assistance to the USFWS and interested parties with monitoring and research efforts.

Objective 2-4:

- Continued prescribed burn program. Increased the ratio of growing season burns to dormant season burns, since growing season burns are critical for successful gains in restoration efforts.
- Increased efforts to remove encroaching woody plants in the Winn District prairies and in pitcher plant bogs throughout the forest, as these natural communities provide habitat for many of our TESC species.
- Adhered to the land management practices described in the forest plan which calls for relatively older timber stands.

Objective 2-5:

- Continued using the national BMP protocol for monitoring.
- Continued to monitor prescribed burning and timber management activities for implementation of forest plan standards and guidelines.

Objective 2-6:

- Continued to monitor the weather and burn opportunities. Maximized implementation of growing season burns on longleaf pine plant community landscapes.

- Continued to maximize the prescribed burn opportunities in the fall. Continued to have two regional fuels helicopters to increase the production and reduce the cost of call when helicopters are needed.
- Continued the current prescribed burning program.
- Continued sampling and analyzing data.

5.4 OUTDOOR RECREATION OPPORTUNITIES

Objective 2-7:

- Continued providing habitat for game and fish populations and continued to implement the ecosystem management practices utilized in 2015.
- Worked with LDWF in collecting and monitoring harvest data.
- Collaborated with LDWF in planning and implementing projects that improve and expand suitable wild turkey habitat.

Objective 2-8:

- Adhered to forest plan guidance.

Objective 4-1:

- Continued to review proposed projects for SIO compliance.
- Worked with districts to implement SMS guidelines.
- Encouraged participation at interdisciplinary team meetings.
- Ensured that Scenery management was included in the Pace It project evaluation process.

Objective 4-2:

- Continued to monitor for changes as the travel management rule continues to be implemented.

Objective 4-3:

- Continued the annual update of INFRA data. Continued management of the recreation program using the IWEB INFRA system and the recreation realignment process.
- Continued to improve customer service through the customer service representative.

Objective 3-7:

- Reconstructed / constructed 30 miles of local and collector roads. Reviewed all 30 miles and 100 percent of the road length to check for this compliance Roads were observed to be serviceable by the intended user and required no significant increase in the level or frequency of maintenance.

5.5 HUMAN INFLUENCES

Objective 1-6:

- Recommended that a surveyor position be prioritized.

Objective 3-1:

- Cautiously continued the increase in timber sale offering, providing economic benefits to local communities. Monitor the average annual offering and compare to the Forest Plan output identified for the second decade.

5.6 ROADLESS AREAS / WILDERNESS/WILD AND SCENIC RIVERS

Objective 5-6:

- Continued to update and add information to the new Wild and Scenic River NRM database.
- Worked with district personnel to determine needs and work towards solutions for SIA management.
- Continued to promote the area and educate users.
- Maintained minimum standards.
- Moved towards implementing the strategy developed by the Forest and implemented more standards (above the minimum).
- Prepared for the next phase of strategy being developed for future standards.

5.7 TIMBER

Objective 5-7:

- Increased scope and scale of longleaf and shortleaf pine restoration.
- Assured that treatment of non-native invasive species is interwoven into each restoration project. Evaluated integration on an annual basis.

5.8 FORAGE

Objective 3-4:

- Scrutinized future expenditures for cost-effectiveness in the range program.

5.9 OTHER PRODUCTS

Objective 3-3:

- Continued to improve working relationship with BLM and eastern states in responding to "Expressions of Interest" in a timely manner. Worked to streamline responses to BLM Expressions of Interest and other leasing questions by upgrading the minerals database on the Forest. The Forest reviewed mineral acres for oil and gas leasing when an Expression of Interest was received.

5.10 HERITAGE RESOURCES

Objective 5-1:

- Continued the current course of pre-decisional inventories and consultations. Worked with interested tribes to establish required government-to-government relations and partnerships. Made amendments to the PA as needed.
- Continued strategies for site and buffer zone delineation which appeared effective and were continued.
- Consulted with the Louisiana SHPO and Tribes to explore funds to conduct cultural site evaluations for all sites in backlogged status.
- Continued to offer Passport in Time projects, classroom and civic organization presentations, and partner with the Louisiana SHPO in Louisiana Archeology Month.

Objective 5-5:

- Continued to provide funding and/or staffing for high-profile and effective interpretive programs such as Passport in Time, National Association of Conservation Districts, Louisiana Association of Conservation Districts, National Hunting and Fishing Day, Women in Agriculture, Audubon Zoo Earthfest, Kent House Bug Day, multiple Forestry Awareness Weeks and Project Learning Tree sessions in the colleges and local schools.

5.11 ORGANIZATION EFFECTIVENESS

Objective 7-2:

- Revisited ability to move towards longleaf pine desired future condition.
- Continued reviewing timber outputs (suitable and unsuitable categories) and prescribed fire accomplishments to document forest plan compliance. Movement toward restoration and forest plan desired future conditions is dependent on the use of fire. The scope and scale of prescribed burning required to restore landscape conditions will be addressed during forest plan revision.
- Evaluated old growth analysis consistency as part of site-specific project analyses.

Objective 8-1:

- Continued partnerships.
- Evaluated effectiveness of the Kisatchie NF standards and guidelines in reducing non-point source pollution.
- Reduced soil loss due to prescribed burning on erosive soils, particularly the Kisatchie severely eroded soil type.
- Continued participation with cooperators and partners such as LDWF, National Wild Turkey Federation, Louisiana Wildlife Federation and in the Non-point Source Interagency Committee with LDEQ, Natural Resources Conservation Service (NRCS), LDWF, National Wildlife Turkey Foundation (NWTF), LDAF and other agencies under the Forest's Memorandum of Agreement with the State of Louisiana on Non-Point Source Pollution Control.

Objectives 9-1 and 9-2:

- Continued participation with cooperators and partners such as LDWF, NWTF, Louisiana Wildlife Federation and in the Non-point Source Interagency Committee with LDEQ, NRCS, LDWF, NWTF, LDAF and other agencies under the Forest's Memorandum of Agreement with the State of Louisiana on Non-Point Source Pollution Control.

5.12 RECOMMENDED 2019 ACTIONS REQUIRING ADDITIONAL ATTENTION

- Establish size and creel limits on the Forest, if needed, to ensure recruitment and sustainability of the resource.
- Botanical MIS surveys were not resumed.
- Revisit aquatic MIS data and validate habitat and population trends.
- Consolidate and evaluate various forest mailing lists and seek input from interested parties on preferred method of receiving information.
- Evaluate management impacts on soil productivity.
- Revisit ability to move towards longleaf pine desired future condition.
- For purposes of documenting movement towards native forest community desired conditions, identify how many acres of forest community type will be improved in each vegetation environmental analysis / project.
- Evaluate consistency for including old growth analysis as part of site-specific project analyses.

SECTION 6.0 LIST OF ACRONYMS

Acronym/Abbreviation	Word or Phrase
AABC	Alabama Aquatic Biodiversity Center
APHIS	Animal and Plant Health Inspection Service
ASQ	allowable sale quantity
BLM	Bureau of Land Management
BMP	best management practice
CATT	Center for Aquatic Technology Transfer
CCF	100 cubic feet
CER	Comprehensive Evaluation Report
Forest	Kisatchie National Forest
Forest plan/forest plan	Kisatchie National Forest Revised Land and Resource Management Plan
FSveg	Forest Service database that contains spatial data
FY	fiscal year
HMA	habitat management area
INFRA	Forest Service database used to manage information on resources including buildings, trails, roads, wilderness areas and water systems
Ips	pine engraver beetle
IR	infrared
IWEB	USDA grants and agreements database
Kisatchie NF	Kisatchie National Forest
KNF	Kisatchie National Forest
KNF Revised LRMP	Kisatchie National Forest Revised Land and Resource Management Plan
LDAF	Louisiana Department of Agriculture and Forestry
LDEQ	Louisiana Department of Environmental Quality
LDWF	Louisiana Department of Wildlife and Fisheries
LPM	Louisiana pearlshell mussel
LPS	Louisiana pine snake
LRMP	Land and Resource Management Plan
LTA	Land Type Association
LSU	Louisiana State University
LWD	Laurel Wilt Disease
MIS	Management Indicator Species
MMCF	million cubic feet
MVUM	Motor Vehicle Use Map
NAAQS	National Ambient Air Quality Standards

Acronym/Abbreviation	Word or Phrase
NEPA	National Environmental Policy Act
NF	National Forest
NFMAS	National Fire Management Analysis System
NHPA	National Historic Preservation Act
NLEB	Northern long-eared bat
NNFH	Natchitoches National Fish Hatchery
NNIP	non-native invasive plant
NRCS	Natural Resources Conservation Service
NVUM	National Visitor Use Monitoring
NWMP	National Wildlife Management Preserve
NWTF	National Wild Turkey Foundation
ORV	off-road vehicle
PA	Programmatic Agreement
PBG	Potential Breeding Group
PPH	poults per hen
RCW	red-cockaded woodpecker
ROS	Recreation Opportunity Spectrum
SPB	southern pine beetle
SHPZ	streamside habitat protection zone
SHPO	State Historic Preservation Office
SIA	Special Interest Areas
SIO	Scenic Integrity Objective
SMS	Scenery Management System
SPA	Supplemental Project Agreement
SWCD	Soil and Water Conservation District
TESC	Threatened, Endangered, Sensitive and Candidate Species
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WMA	Wildlife Management Area

SECTION 7.0 LIST OF PREPARES

U.S. Forest Service, Kisatchie National Forest, Supervisor's Office

Barbara Bell	Forest Silviculturist
Matthew Helmer	Forest Archaeologist
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David Byrd	Forest Ecosystem Conservation Staff Officer
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Shanna McCarty	Forest Environmental Affairs Coordinator and Planner
Alvin Wells	Forest Sales Forester and Timber Sales Program Manager
Dave Moore	Forest Botanist/Ecologist
Robert Smith	Forest Wildlife Biologist
Ted Soileau	Forest Biological Scientist
Errol Solomon	Forest Lands and Minerals Program Manager

U.S. Forest Service, Region 8 Southern Research Station, Alexandria Forestry Center

Wood Johnson	Forest Health Protection, Entomologist

SECTION 8.0 REFERENCES

Byrd, David C. 2005. Addendum to the Wildlife Management Indicator Species Population and Habitat Trends Kisatchie National Forest. Produced for the Kisatchie National Forest to assess aquatic MIS.

Louisiana Department of Wildlife and Fisheries. 2019. Wild Turkey Poult Production Data. 2018. Unpublished Data.

Louisiana Department of Wildlife and Fisheries. 2018. Quail Survey Data. 2018. Unpublished Data.

Louisiana Department of Wildlife and Fisheries. 2018. Deer Harvest Data. 2018. Unpublished Data.

Louisiana State University. No date. Louisiana Smoke Management Guidelines for Agriculture. Publication 3246. Louisiana State University Agriculture Center. Available online at: http://www.lsuagcenter.com/NR/rdonlyres/EC7D865A-9BA3-4C5A-9BCC-F800DF664A71/90040/pup3246louisianasmokemanagementguidelinesforagricu.pdf Last viewed 22 October 2018.

Palmer, W.E., T.M. Terhune, and D.F. McKenzie (eds). 2011. National Bobwhite Conservation Initiative: A Range-Wide Plan For Recovering Bobwhites. National Bobwhite Technical Committee Technical Publication, ver. 2.0, Knoxville, TN. Available online at: http://bringbackbobwhites.org/strategy/nbci-2-0, accessed on November 13, 2013. Last viewed 4 March 2019.

USDA Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. Volume 1: National Core BMP Technical Guide. FS-990a. April, 2012. Available online at: http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf

USDA Forest Service. Southern Region. 1999a. Revised Land Management and Resource Plan, Kisatchie National Forest. Atlanta, Georgia. Available online at: http://www.fs.usda.gov/detail/kisatchie/landmanagement/planning/?cid=STELPRDB5391441.

USDA Forest Service. Southern Region. 1999b. Summary of the Final Environmental Impact Statement: Revised Land and Resource Management Plan, Kisatchie National Forest. Atlanta, Georgia. Available online: http://www.fs.usda.gov/main/kisatchie/landmanagement/planning

USDA Forest Service. Southern Region. 1999c. Record of Decision. Final Environmental Impact Statement for the Revised Land and Resource Management Plan, Kisatchie National Forest Pineville, Louisiana. August, 1999. Pp. 24.

USDA Forest Service. 2007. 2006 5-Year review and Recommendations. The Kisatchie National Forest's Revised Forest Land and Resource Management Plan. Pp. 224.

2020-2021 Monitoring and Evaluation Report Appendices

APPENDIX A

2012 Planning Rule

On April 9, 2012, the U.S. Department of Agriculture adopted final planning regulations for the National Forest System at 36 CFR part 219 (77 FR 21161). The 2012 Planning Rule was effective on May 9, 2012. These regulations, known collectively as the 2012 Planning Rule, provide broad programmatic direction in developing and implementing land management plans. The rule explicitly directs the Chief of the Forest Service to establish planning procedures in the Forest Service Directives System (36 CFR 219.2(b)(5)(i)). Responsible Officials implementing the 2012 Planning Rule shall follow the regulations at 36 CFR part 219 and the revised planning directives.

The purpose of forest plan monitoring is to provide information about the effects of plan implementation which "enable the responsible official to determine if a change in plan components or other plan content that guide management of resources on the plan area may be needed" (§ 219.12(a)(1)). The plan monitoring program consists of a set of monitoring questions and associated indicators to evaluate whether and management activities are maintaining or achieving progress toward future desired conditions. The rule states that the responsible official shall "modify the plan monitoring program within 4 years of the effective date of this part, or as soon as practicable, to meet the requirements of this section" (36 CFR 219.12(c)(1)).

The purpose of forest plan monitoring is to provide information about the effects of plan implementation that "enable the responsible official to determine if a change in plan components or other plan content that guide management of resources on the plan area may be needed" (§219.12(a)(1)). The plan monitoring program consists of a set of monitoring questions and associated indicators to evaluate whether plan components and management activities are maintaining or achieving progress toward desired conditions and objectives for the plan area.

The purpose of this process is to evaluate the 1999 Kisatchie National Forest monitoring plan and it's compatibility with the 2012 Planning Rule requirements for monitoring plans. The Kisatchie National Forest plan needs to be in compliance with the monitoring plan requirements, as stated in 36 CFR 219.12, by May 9, 2016.

The Forest Service Handbook 1909.12 Chapter 30 Section 32.1 Developing the Plan Monitoring Program states the following:

The Responsible Official has discretion to set the scope, scale, and priorities for plan monitoring within the financial and technical capabilities of the administrative unit, but shall include one or more monitoring question(s) and associated indicator(s) for the eight items set out in the Planning Rule at 36CFR 219.12(a)(5).

(5) Each plan monitoring program must contain one or more monitoring questions and associated indicators addressing each of the following:

i. The status of select watershed conditions.

ii. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.

iii. The status of focal species to assess the ecological conditions required under §219.9.

iv. The status of select set of the ecological conditions required under §219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.

v. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.

vi. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.

vii. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.

viii. The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)). (36 CFR 219.12(a))

The number of monitoring questions and indicators is not fixed; however, all items in 36 CFR 219.12(a)(5)(i) through (viii) must be covered.

APPENDIX B

Forest Plan Amendments

Amendment Number	Effective Date	Level of Significance	Amendment Summary
1	09/2002	Non-significant	Clarified direction for the preparation of site-specific biological evaluations including inventory requirements for proposed, threatened, and endangered species.
2	05/2003	Non-significant	Increased the land allocation for U.S. Air Force uses under permit
3	08/2004	Non-significant	Revised the percent of the Forest open to off-road vehicles and specified percent of Forest that is open to motorized vehicles on designated trails only. Prohibited off road vehicle use in the Red Dirt Wildlife Management Preserve
4	08/2004	Non-significant	Revised the percent of the Forest open to off-road vehicles. Prohibited off road vehicle use on the Calcasieu District
5	10/2005	Non-significant	Added new direction and modified direction in response to the 2003 Recovery Plan for the red-cockaded woodpecker issued by USDI USFWS
6	04/2006	Non-significant	Modified trail users to exclude horses and include motorcycles
7	11/2007	Non-significant	Designated a motorized transportation system (and season of use) of over 2,000 miles of roads and 264 miles of trails. Prohibited motorized use off designated routes forest-wide. Designated dispersed camping and big game retrieval corridors
8		Non-significant	Revised the percent of the Forest open to off-road vehicles. Limited off road vehicle use on the Calcasieu District to designated routes and areas
9	02/2012	Non-significant	Added a new standard prohibiting the use of dogs to hunt deer on the Forest and retained guideline FW-707
10	04/2016	Non-significant (Administrative Change)	Brought the plan monitoring program into conformance with the requirements of the 2012 Planning Rule.
11	08/2021	Non-significant	Updated the number of acres to which prescribed fire could be applied on the KNF to 160,000 acres per year, removed restrictions on the percentage of acreage burned during the dormant versus growing season, modified a guideline on where growing season burns could be used, and updated some procedural forestwide management guidelines for the application of prescribed fire.