United States Department of Agriculture

Biennial Monitoring Evaluation Report for the Ozark-St. Francis National Forests

Forest Service Ozark-St. Francis National Forests October 2020

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About our Plan Monitoring Program

Purpose

The Plan Monitoring Program is described in the 2005 Revised Land and Resource Management Plan (Forest Plan). This biennial monitoring evaluation report is not a decision document—it evaluates monitoring questions and indicators presented in the Plan Monitoring Program as described in the Forest Plan. The purpose of the biennial monitoring evaluation report is to help the responsible official determine whether a change is needed in Forest Plan direction, such as plan components or other plan content that guide management of resources in the plan area. The biennial monitoring evaluation report represents one part of the Forest Service's overall monitoring program for this national forest unit.

Our monitoring plan covers these eight topics required under FSH 1909.12, in addition to social, economic and cultural sustainability. You'll find each of these topics addressed in this report.

1. The status of select watershed conditions.
2. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.
3. The status of focal species to assess the ecological conditions required under § 219.9.
4. The status of a 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.
5. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
6. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.
7. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.
8. 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))

How Our Plan Monitoring Program Works

Monitoring and evaluation requirements have been established through the National Forest Management Act (NFMA) at 36 CFR 219. Additional direction is provided by the Forest Service in Chapter 30 – Monitoring – of the Land Management Handbook (FSH 1909.12).

The Ozark-St. Francis National Forests monitoring program was developed during the 2005 revision of the Land and Resource Management Plan. Monitoring questions and indicators were selected to inform the management of resources on the plan area and not every plan component was determined necessary to track [36 CFR 219.12(a)(2)]. See the Plan Monitoring Program at https://www.fs.usda.gov/main/osfnf/landmanagement/planning for discussion on how the monitoring questions were selected and consistent with the 2012 planning regulations 36 CFR 219.12.

Providing timely, accurate monitoring information to the responsible official and the public is a key requirement of the plan monitoring program. This biennial monitoring evaluation report is the vehicle for disseminating this information.

Monitoring Objectives

The objectives of our Plan Monitoring Program include:

- Assess the current condition and trend of selected forest resources.
- Document implementation of the Plan Monitoring Program.
- Evaluate relevant assumptions, changed conditions, management effectiveness, and progress toward achieving the selected desired conditions, objectives, and goals described in the Forest Plan.
- Assess the status of previous recommended options for change based on previous monitoring & evaluation reports.
- Document scheduled monitoring actions that have not been completed and the reasons and rationale why.
- Present any new information not outlined in the current Plan Monitoring Program that is relevant to the evaluation of the selected monitoring questions.
- Incorporate broader scale monitoring information from the Regional Broader Scale Monitoring Strategy that is relevant to the understanding of the selected monitoring question.
- Present recommended change opportunities to the responsible official.

Monitoring Results Summary

Monitoring from 2017-2019 revealed that there are two monitoring elements (of 195 total) that may need to be changed or dropped and two monitoring elements that should be dropped. Also, there was one element that needs to be modified to better reflect current conditions. These are described in Table 2. In addition, three areas were identified where a need to add monitoring elements was recommended. These are described in Table 4. These changes would potentially affect both the Forest Plan and the

Plan Monitoring Program. There were also 15 elements where no change to the Forest Plan or Plan Monitoring Program is recommended, but where a need to increase the pace and scale of management activities described in the Forest Plan was identified not only in this monitoring report, but also in the 2016 monitoring report. While the Forests are making strides to achieve the goals set in the Forest Plan, there are more acres that need to be treated to achieve the desired conditions described in the Forest Plan. These 15 elements are described in Tables 2 and 3. More specific information about each of the monitoring elements is also contained in the attached sections which summarize the results of the nine topics of the monitoring plan as described on page 3.

Tables 1-4 below summarize current recommendations for line officer consideration, as well as providing a status for recommendations from past reports.

Table 1. Quantitative summary of recommendations for all monitoring results addressed in this report (200 total)

Recommendation	Yes, need for change	Uncertain	No
Results inconsistent with Forest Plan direction		2	193
Change to future Forest Plan may be warranted	6	2	187
Change to Plan Monitoring Program may be warranted	6	2	187
Change to management activities warranted	15		180

Table 2. Summary of findings for each plan monitoring item (objectives and indicators)

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Major Forest Community				
Dry Oak Woodland Community				
Total abundance of the community	2016	Yes	No	N/A
Abundance of mature forest and woodland (>70 years old)	2016	Yes	No	N/A
Abundance of woodland (age 40+, Canopy Closure 10-60)	2016	Yes	Yes	Increase management activities
Abundance of mature and mid-aged forest that is in an open canopy condition (age 41+ with Canopy Closure of (61-80)	2016	Yes	No	N/A
Abundance of old growth (110+)	2016	Yes	No	N/A
Abundance of regenerating and young forest (0-40)	2016	Yes	Yes	Increase management activities
Abundance of regenerating forest (0-10)	2016	Yes	Yes	Increase management activities
Proportion of the community burned at desired intervals and seasons (2-7 years) use 7, % burned in growing season (April 1- October 15)	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Shortleaf Pine-Oak Forest and Woodland				
Total abundance of the community (GIS product)	2016	Yes	No	N/A
Abundance of mature forest and woodland (>70 years old)	2016	Yes	No	N/A
Abundance of mature and mid-aged forest that is in an open canopy condition (age 41+ with Canopy Closure of (61-80)	2016	Yes	No	N/A
Abundance of old growth (110+)	2016	Yes	No	N/A
Abundance of regenerating and young forest (0-40)	2016	Yes	Yes	Increase management activities
Abundance of woodland (age >40, canopy closure 10-60%)	2016	Yes	Yes	Increase management activities
Abundance of regenerating forest (0-10)	2016	Yes	Yes	Increase management activities
Proportion of the community burned at desired intervals and seasons (2-5 years), use 5, % burned in growing season (April 1- October 15)	2016	Yes	No	N/A
Dry-Mesic Oak Forest				
Total abundance of the community (GIS product)	2016	Yes	No	N/A
Abundance of mature and mid-aged forest that is in an open canopy condition (age 41+ with Canopy Closure of (61-80)	2016	Yes	No	N/A
Abundance of mature forest and woodland (>70 years old)	2016	Yes	No	N/A
Abundance of old growth (110+ and 8% of uneven-aged stands)	2016	Yes	No	N/A
Abundance of regenerating and young forest together (0-40) includes 33% of uneven-aged stands.	2016	Yes	Yes	Increase management activities
Abundance of regenerating forest (0-10)	2016	Yes	Yes	Increase management activities
Abundance of woodland (age >40, canopy closure 10-60%)	2016	Yes	Yes	Increase management activities
Proportion of the community burned at desired intervals and seasons (% burned in last 7 years, % burned April 1- October 15- in the last 7 years)	2016	Yes	No	N/A
Mesic Hardwood Forest				
Monitor and evaluate trends in total abundance of the community (Total acres classified as Mesic Hardwood)		Yes	No	N/A
Riparian Forest				
Monitor and evaluate trends in total abundance of the community (Total acres classified as Riparian)	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Loblolly Pine Forest				
Monitor and evaluate trends in total abundance of the community on both Forests (Acres of Loblolly Pine)	2016	Yes	No	N/A
Loess Slope Forest, St. Francis NF				
Total abundance of the community	2016	Yes	No	N/A
Abundance of mature and mid-aged forest that is in an open canopy condition (% > 70 years old with crown closure of 60-80)	2016	Yes	No	N/A
Abundance of mature forest (70+)	2016	Yes	No	N/A
Abundance of old growth (>140)	2016	Yes	No	N/A
Abundance of regenerating and young forest together (0-40) includes 33% of uneven-aged.	2016	Yes	No	N/A
Abundance of regenerating forest (0-10) includes 8% of uneven-aged.	2016	Yes	No	N/A
Proportion of the community burned at desired intervals and seasons (% burned in last 10 years, % burned April 1- October 15 in last 10 years)	2016	Yes	No	N/A
Bottomland and Floodplain Forest, St. Francis				
Total abundance of the community	2016	Yes	No	N/A
Abundance of mature forest (> 70 years Old) includes 42% of uneven-aged	2016	Yes	No	N/A
Abundance of old growth (>110) includes 8% of uneven-aged	2016	Yes	No	N/A
Abundance of regenerating and young forest together (0-40)	2016	Yes	No	N/A
Abundance of regenerating forest (0-10)	2016	Yes	No	N/A
Rare Communities				
Number of occurrences and acreage of each rare community type	2016	Yes	No	N/A
Percent of occurrences or (and) acreage at desired conditions	2016	Yes	No	N/A
Fish and Wildlife				
Fish and Wildlife - NNIS				
Abundance and distribution of selected non-native invasive species (GIS) Database	2016	Yes	No	N/A
Fish and Wildlife - Remote Habitat				
Abundance of remote habitat (1/4 mile from road)	2016	Yes	No	N/A
Fish and Wildlife - TES				
Habitat and (trends in) status of federally listed threatened and endangered species, and of selected sensitive and locally rare species	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Fish and Wildlife - MIS				
Habitat and population trends for management indicator species (Table 1-3)	2016	Yes	Yes	Remove MIS Terminology. This element is sufficiently covered under the TES category.
Fish and Wildlife - Fish				
Composition of stream fish communities	2016	Yes	No	N/A
Fish and Wildlife - Stream				
Relative abundance of all species in stream communities focusing on feeding and breeding groups as part of an index to biotic integrity (IBI)	2016	Yes	No	N/A
Watershed				
Watershed - BMPs				
Annually report the level of BMP compliance as a percent of the number of projects investigated	2016	Yes	No	N/A
Watershed - Restoration				
Annually track the acres of watershed restoration/improvement and soil/water conservation projects	2016	Yes	No	N/A
Watershed - Stream Condition				
Conduct stream condition surveys during watershed analysis and report combined results every five years	2016	Yes	No	N/A
Watershed - Trend Analysis (BMPs, Streams)				
Conduct five-year trend analysis based on the above monitoring (% BMP compliance, Acres watershed restore/improve & soil/water conservation projects, stream conditions)	2016	Yes	No	N/A
Lands				
Land Adjustment				
Annually report acres of land adjustment (purchase, easements, etc.) and the reasons for that adjustment	2016	Yes	No	N/A
Survey and Trespasses				
Report annually miles surveyed to establish clear boundaries and the number of occupancy trespasses resolved	2016	Yes	No	N/A
Lands Interface				
Evaluate land ownership complexity and determine progress in reducing the amount of interface with private lands and the number of occupancy trespasses	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Special Uses				
Determine if resource values in permitted areas are being sustained and being used efficiently (minimizing acres encumbered) in harmony with other uses and resources	2016	Yes	No	N/A
Recreation				
Recreation - Sites				
Report the number of recreation sites maintained to standard and occupancy/use rates	2016	Yes	No	N/A
Recreation - Facility				
Maintain a facility condition and maintenance backlog index	2016	Yes	No	N/A
Recreation - NVUM				
Evaluate trends in annual indicators and visitor satisfaction surveys to determine if the Forests have provided quality recreational experiences that result in increased visitor satisfaction (currently through NVUM process)	2016	Yes	No	N/A
Recreation - Conservation Education				
Conservation Education - Certificates				
Document the number of certificates for appreciative behavior; number of non-government organizations, groups, and volunteers involved in activities	2016	Yes	No	N/A
Conservation Education - Programs				
Document the number and type of educational programs developed and the number of students reached	2016	Yes	No	N/A
Evaluate the interdisciplinary conservation education program and its effectiveness	2016	Yes	No	N/A
Recreation Scenery				
Scenery - Landscape Architect				
Report whether a landscape architect was consulted where project implementation was likely to affect scenic integrity, and if applicable, to what degree SIOs were maintained/achieved	2016	Yes	No	N/A
Scenery - Projects				
Report annually the number and type of management projects conducted in areas having a high SIO	2016	Yes	No	N/A
During implementation monitoring reviews, determine if the project under review adequately considered SIOs	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Recreation – Heritage Resources				
Heritage - Sites				
Report sites managed to standard (sites inventoried, evaluated, protected, promoted, preserved, restored, rehabilitated, monitored, or enhanced)	2016	Yes	No	N/A
Heritage - Resources				
Evaluate progress in increasing the number of heritage resources protected and managed to standard	2016	Yes	No	N/A
Heritage - Overview				
Update the Heritage Resource Overview (10-year report)	2016	Yes	No	N/A
Tribal and Native American Interests				
Tribal Interests - Consultations				
Report the number and acres of resources protected, conserved or restored; agreements and protocols executed; and number of consultations	2016	Yes	No	N/A
Tribal Interests - Satisfaction				
Evaluate Native American feedback and satisfaction as an indicator of progress toward the desired condition	2016	Yes	No	N/A
Tribal Interests - TBAG				
Participate in the leadership of the To Bridge a Gap Conference	2016	Yes	No	N/A
Law Enforcement				
Law Enforcement - Activity				
Report on the number of accidents, citations, acres, and type of impact of each illegal activity	2016	Yes	No	N/A
Law Enforcement - Trends				
Evaluate trends in unlawful or criminal behaviors including cumulative impacts to natural resources	2016	Yes	No	N/A
Facilities				
Report numbers of facilities maintained to standard	2016	Yes	No	N/A
Maintain a facility condition and maintenance backlog index	2016	Yes	No	N/A
Evaluate trends in the facility condition index and maintenance backlog to determine progress toward the desired condition	2016	Yes	No	N/A
Transportation and Public Access				
Transportation and Public Access				
Report the number of miles of road and trails maintained and operated to meet the objective maintenance level and class	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Report the number of miles of unclassified roads removed or classified into the system	2016	Yes	No	N/A
Evaluate trends in miles of road and trail facilities and trends in number of accidents per year	2016	Yes	No	N/A
Off Highway Vehicles				
Report the total miles of roads and trails available for use by off-highway vehicles	2016	Yes	No	N/A
Evaluate visitor satisfaction surveys, including the number of conflicts identified by field staff or reported by the public and the resolution of the complaints to determine if progress is being made toward the desired condition	2016	Yes	No	N/A
Review off-road vehicle management plans and temporary designations implemented since the last annual review. OHV plan revisions will be subject to public participation as stated in 36 CFR Section 295.3.	2016	Yes	No	N/A
Review the OHV use strategy and designations to determine whether the open or closed OHV use designations, location of the trails, vehicle types, and seasons of use are still valid	2016	Yes	No	N/A
Minerals				
Report the number of operating plans managed to standard including the number and type of mitigation standards implemented	2016	Yes	No	N/A
Evaluate the percentage of mineral developments that reduce the surface disturbance footprint and reduce siltation or other sources of environmental degradation	2016	Yes	No	N/A
Range				
Document the number of acres in allotments managed to standard	2016	Yes	No	N/A
Evaluate rangeland condition and trends to determine progress toward the desired condition	2016	Yes	No	N/A
Fire Management				
Fire Management - Fuels				
Report the number of acres of hazardous fuel reduction in WUI including those implemented through cooperative agreements	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Fire Management - Communities				
Document the number of communities or facilities protected by treatments	2016	Yes	No	N/A
Fire Management - High Risk				
Every fifth year, evaluate progress toward the desired condition through an analysis of the status of high hazard and high-risk areas	2016	Yes	No	N/A
Planning				
LMP Monitoring and Evaluation				
OBJ01. Complete an Environmental Management System (EMS)	2016	Yes	No	N/A
Vegetation and Forest Health				
Major Forest Community				
OBJ02. Follow silviculture allocation direction for management areas outlined in Appendix F of this LRMP. Performance Indicator: Through FACTS, report annually, acres allocated by management area and silviculture prescription.	2016	Yes	No	N/A
OBJ03. Across all community types, maintain more than 50% of the total forest and woodland acreage in a mature condition. Over time, develop old growth conditions on approximately 20% of forested acres. Performance Indicator: Percent of mature forest and old growth forest.	2016	Yes	No	N/A
OBJ04. Restore and maintain at least 22,000 acres of oak woodland over the 1st decade, with a long-term objective of 110,000 acres of oak woodland. Performance Indicator: Acres of oak woodland restored annually.	2016	Yes	Yes	Increase management activities
OBJ05. Restore at least 20,000 acres of pine woodland over the 1st decade, with a long-term objective of 100,000 acres of pine woodland. Performance Indicator: Acres of pine woodland restored annually.	2016	Yes	Yes	Increase management activities
OBJ06. Across all community types, maintain a range of 3.8 – 6.8% of the total forest (and woodland) acreage in regenerating forest conditions (0-10 years old). Performance Indicator: Percentage of forest in regenerating conditions.	2016	Yes	Yes	Increase management activities

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
OBJ07. Across all community types, burn under prescribed conditions 120,000 acres annually on average. Burn approximately one-third of this acreage within the growing season (April 1 through October 15). Performance Indicator: Acres burned under prescription per year, and acres burned within the growing season.	2016	Yes	No	N/A
Insect and Disease				
OBJ08. Reduce the risk of oak and pine mortality events by thinning and regenerating at least 150,000 acres within the first decade. Performance Indicator: Acres thinned and regenerated annually.	2016	Yes	Yes	Increase management activities
NNIS				
OBJ09. Treat at least 200 acres per year for reduction or elimination of non-native, invasive species. Performance Indicator: Acres treated.	2016	Yes	No	N/A
Fish and Wildlife				
Fish and Wildlife – Demand Species				
OBJ10. Improve and then maintain bobwhite quail habitat on 5,000 acres per year for the 1st decade. Performance Indicator: Acres improved through oak or pine woodland restoration, or acres in early seral stages.	2016	Yes	Yes	Increase management activities
OBJ11. Improve and then maintain habitat for whitetail deer on 10,000 acres per year for the 1st decade. Performance Indicator: Acres improved annually.	2016	Yes	No	N/A
OBJ12. Improve and then maintain habitat for eastern wild turkey on 10,000 acres per year for the 1st decade. Performance Indicator: Acres improved annually.	2016	Yes	Yes	Increase management activities
OBJ13. Improve and then maintain habitat for black bear on 8,000 acres per year for the 1st decade. Performance Indicator: Acres improved annually.	2016	Yes	No	N/A
OBJ14. Improve winter forage grounds and maintain high grass and forb plant communities for elk on 480 acres over the 1st decade. Performance Indicator: Acres improved (or maintained).	2016	Uncertain	Uncertain	Monitor next cycle to confirm whether element should be updated or dropped.

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
OBJ16. Increase the amount of fish structures in large lakes by 100 acres over the 1st decade. Performance Indicator: Acres of structural improvement annually.	2016	Yes	No	N/A
Fish and Wildlife – TES				
OBJ 17. Improve roosting and foraging conditions in secondary buffers around Indiana Bat hibernacula on 750 acres per year for the 1st decade. Performance Indicator: Acres improved annually	2016	Yes	No	May be affected next cycle by upcoming Forest Plan Amendment decision for bat conservation measures.
Soil, Water, Air				
Air				
OBJ18. Protect and improve the Air Quality Related Values of the Class I Area. Performance Indicator: Number of AQRV monitoring sites, number of PSD permits reviewed, and number of regional air quality planning committees participated in.	2016	Yes	No	N/A
Watershed				
OBJ19. Conduct watershed improvements on 20 acres per year. Performance Indicator: Acres treated.	2016	Yes	No	N/A
SMZs				
OBJ20. Fence out livestock from SMZs and riparian areas as identified. Performance Indicator: Miles of SMZ fenced.	2016	Uncertain	Uncertain	Either drop or change to miles maintained instead of built.
Stream Condition				
OBJ21. Maintain or restore between 30–70% of the total perennial stream/river surface area of the NHD (National Hydrography Dataset) reaches as pool habitat in the 1st decade. Performance Indicator: Percentage of NHD streams pool habitat	2016	Yes	No	N/A
OBJ22. Maintain or restore LWD (Large Woody Debris) levels in perennial streams/rivers at 75–200 pieces/mile for all LWD larger than 3.3 feet long and 3.9 inches in diameter in the 1st decade. Performance Indicator: LWD composition in perennial streams after 10 years.	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
OBJ23. Maintain or restore LWD levels in perennial streams/rivers at 8-20 pieces/mile for all LWD larger than 16.4 feet long and 19.7 inches in diameter in the 1st decade. Performance Indicator: LWD composition in perennial streams after 10 years.	2016	Yes	No	N/A
Lands				
Boundaries				
OBJ24. Maintain existing known corner monuments. Performance Indicator: Number of corners maintained.	2016	Yes	No	N/A
OBJ25. Survey and monument lost/obliterated or found corners on a township basis (the basic PLSS unit which is also the most cost effective). Performance Indicator: Number monuments restored.	2016	Yes	No	N/A
OBJ26. Establish new (heretofore not marked to FS standard) on-the-ground boundary line to the extent funding is available. Performance Indicator: New boundary lines established.	2016	Yes	No	N/A
OBJ27. Maintain existing (heretofore marked to FS standard) on-the-ground boundary line to the extent funding is available. Performance Indicator: Miles of line maintained.	2016	Yes	No	N/A
Recreation				
Recreation - Trails				
OBJ28. In conjunction with designating low maintenance standard roads develop a system of motorized trails that address the needs of OHV enthusiasts. Performance Indicator: Miles of new motorized trails.	2016	Yes	No	N/A
OBJ29. Within the first five years of the planning period, provide maps that show OHV route systems and using designated roads. Performance Indicator: Maps completed.	2016	Yes	No	N/A
OBJ30. Conduct maintenance on at least 100 miles of trails (non-motorized use) per year. Performance Indicator: Miles of trail maintained to standard annually	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Recreation/Wildlife – Conservation Education				
OBJ31. Increase partnerships by approximately 20% during the planning cycle. Performance Indicator: Percent increase in partnerships.	2016	Yes	No	N/A
Recreation – Scenery Management				
OBJ32. Within three years, the Forests will map the existing scenic integrity levels to compare with the proposed scenic integrity objectives for each management area. Performance Indicator: Inventory of existing scenic integrity level.	2016	Yes	No	N/A
OBJ33. Within one year, update the scenery treatment guide for both Forests. Performance Indicator: Updated guide.	2016	Yes	No	N/A
OBJ34. Improve or maintain all designated scenic overlooks at least once per decade. Performance Indicator: Number improved or maintained per year; percent maintained or improved per decade.	2016	Yes	No	N/A
Recreation – Heritage Resources				
OBJ35. Evaluate historic sites for appropriate management. Develop site management plans for noteworthy heritage resources wherever they occur. Performance Indicator: Number of management plans.	2016	Yes	No	N/A
OBJ36. Provide public involvement programs with opportunities for people to partner in the stewardship of heritage resource sites. Performance Indicator: Number of programs (PIT, AAS digs, etc.)	2016	Yes	No	N/A
OBJ37. Develop public involvement programs to foster partnership in heritage resource stewardship to aid in identifying and evaluating heritage sites. Performance Indicator: Number of partnerships.	2016	Yes	No	N/A
OBJ38. Increase the heritage resource database by surveying non-project acreage. Performance Indicator: Acres of non-project surveys.	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Tribal and Native American Interests				
Tribal Native American Relationships				
OBJ39. Within this planning cycle, develop government-to-government programmatic agreements which define protocols with all local recognized tribes and organized groups of interested Native Americans. Performance Indicator: Programmatic agreements developed.	2016	Yes	No	N/A
OBJ40. During the next 3-5 years, expand the Native American Wildland Firefighting Training program. Performance Indicator: Native American fire fighters trained annually.	2016	Yes	No	N/A
Facilities				
Facilities				
OBJ41. Identify and evaluate applicable property or buildings of potential historic value in support of the facility master plan. Remove the facilities that have been abandoned or no longer needed and restore the sites to natural conditions. Performance Indicator: Number of facilities removed.	2016	Yes	No	N/A
OBJ42. Construct new facilities to accommodate supplementary fire employees and equipment. Performance Indicator: Number of facilities constructed.	2016	Yes	No	N/A
OBJ43. Eliminate two leased facilities by 2015. Performance Indicator: Leases eliminated by 2015.	2016	Yes	No	N/A
OBJ44. Eliminate 10% of other non-essential administrative facilities by 2015. Performance Indicator: Non-essential facilities remaining as a percentage of the FY 2005 baseline (to be determined).	2016	Yes	No	N/A
OBJ45. Upgrade all identified publicly accessible facilities to Architectural Barriers Act standards as appropriate. Performance Indicator: Percentage of publicly accessible facilities upgraded.	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
OBJ46. Complete energy efficiency upgrades on all administrative buildings and complete identified work on 10% of administrative buildings needing upgrades by 2015. Performance Indicator: Percentage of administrative buildings needing work with energy efficiency upgrades completed by 2015.	2016	Yes	No	N/A
Facilities (Health & Safety)				
OBJ47. Inspect all buildings compliance with health and safety standards and address all identified health and safety issues. Performance Indicator: Percentage of inspected buildings that met health and safety standards.	2016	Yes	No	N/A
Transportation and Public Access				
Transportation System				
OBJ48. Add unclassified roads to the Forest Service Road System when site-specific road analysis determines there is a need for the road. Performance Indicator: Number of roads added.	2016	Yes	No	N/A
OBJ49. Decommission roads and trails unnecessary for conversion to either the road or trail systems through the roads analysis process. Performance Indicator: Number of roads decommissioned.	2016	Yes	No	N/A
OBJ50. Reduce the number of unnecessary or redundant unclassified roads. Performance Indicator: Number of roads removed from the Forest Service Road System.	2016	Yes	No	N/A
OBJ51. Identify by the 1st decade all system roads that should be obliterated. Performance Indicator: Miles of system roads decommissioned.	2016	Yes	No	N/A
OBJ52. Obliterate 15 percent of roads identified under the previous objective by the 2nd decade. Performance Indicator: Miles of road obliterated.	2016	Yes	No	N/A
OBJ53. Reduce miles of road under Forest Service maintenance. Performance Indicator: Miles of system roads eliminated from road maintenance inventory per year.	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Transportation System - AOP				
OBJ54. Improve aquatic organism passage on an average of no less than six stream crossings per year (where there are road-related barriers to passage). Performance Indicator: Number of stream crossings	2016	Yes	No	N/A
Fire Management				
Fire Management – Community Protection				
OBJ55. Improve condition class in all WUI areas within five years. Performance Indicator: Acres of improved condition class per year and cumulative percent of all WUI acres with improved condition class.	2016	Yes	No	N/A
OBJ56. Within 15 years, restore 15 to 20% of all ecological communities into Fire Regime CC 1. Performance Indicator: Acres restored into FRCC Class 1 annually.	2016	Yes	No	N/A
OBJ57. Annually complete 50,000 to 100,000 acres of hazardous fuel reduction. Performance Indicator: Acres burned, mechanically or chemically treated for fuels reduction per year.	2016	Yes	No	N/A
Fire Management – Prescribed burns				
OBJ58.Priority 1-Treat approximately 3,500 acres of Federal lands adjacent (within 1/2 mile) of Communities at Risk over the next 5 years. Emphasize mechanical treatments designed specifically to lower condition class and associated wildfire risk. In concert with the Arkansas Forestry Commission, over the next 5 years, treat approximately 55,000 acres of private and Federal lands in the wildland urban interface/intermix (WUI) areas as identified in http://silvis.forest.wisc.edu/projects/WUI_Main.asp. Performance Indicator: Acres treated within ½ mile of Communities at Risk.	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
OBJ59. Priority 2–Expand treatments applied Priority 1 to improve condition class ratings in WUI areas that are within 1.5 miles of private ownerships with structures. Treat approximately 100,000 to 150,000 acres over the next 5-10 years. Identify and treat areas where snag hazards pose safety problems to firefighters and/or the public (particularly in oak mortality areas). Performance Indicator: Acres treated within 1.5 miles of Communities at Risk.	2016	Yes	No	N/A
OBJ60. Priority 3 - Over the next 5-10 years, treat approximately 100,000 to 150,000 acres with resource objectives combining hazardous fuel reduction with the restoration of fire-adapted ecosystems. Focus on restoration of habitat for threatened, endangered, or sensitive species where periodic fire and reference conditions are expected to promote species viability. Prioritize work to take full advantage of partnerships with non-government organizations (NGOs) and other state and Federal agencies. Performance Indicator: Acres burned annually.	2016	Yes	No	N/A
OBJ61. Across all community types, burn under prescribed conditions 120,000 acres annually on average. Performance Indicator: Acres burned under prescription per year.	2016	Yes	No	N/A
Commodities – Timber				
OBJ62. Provide 731 MMBF (146 MMCF) per decade of sawtimber and pulpwood. Performance Indicator: Volume of timber sold per year and a running annual average.	2016	Yes	Yes	In the next iteration of the Forest Plan, this objective needs to be clearly tied to forest production capacity as well as ecological, social and economic indicators.

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
OBJ63. In Management Area 3.E and appropriate portions of other MAs, apply appropriate silviculture prescriptions to provide the following forest products: 18" to 20" sawtimber with grade 1 or 2 butt logs and/or Yellow Pine 18" sawtimber. Performance Indicator: During inventory, determine average diameter.	2016	Yes	No	N/A
OBJ64. In MA 3.C and appropriate portions of other MAs, apply appropriate silviculture prescriptions to provide the following forest products: 14" to 16" sawtimber with grade 2 butt logs and/or yellow pine 18" sawtimber. Performance Indicator: During inventory, determine average diameter.	2016	Yes	No	N/A
Commodities – Minerals				
OBJ65. Process all applications for federal mineral leases, licenses, and permits within 120 days. Performance Indicator: Number and percent of applications processed in 120 days.	2016	Yes	No	N/A
OBJ66. Process all operations proposed under outstanding and reserved mineral rights within 60 days and 90 days. Performance Indicator: Number and percent of operations proposed within 60-90 days.	2016	Yes	No	N/A
Management Areas				
1.A.& 1.B Wilderness				
MAOBJ.1 Conduct inventories to determine the presence and extent of non-native invasive species in wildernesses by 2010. Based on results of these inventories, develop and implement appropriate monitoring and treatment programs. Performance Indicators: Inventories completed; monitoring plans completed; acres treated for invasive species control.	2016	Yes	No	N/A
Monitor and evaluate trends in old roads and trails reverting back to a natural appearance.	2016	Yes	No	N/A
Monitor and evaluate trends in visitor use and resource damage using the Limits of Acceptable Change (LAC) process.	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
1.C & 1.D Wild and Scenic Rivers				
MAOBJ.2 Review and revise wild and scenic river plans 1st decade. Performance Indicator: Plans revised.	2016	Yes	No	N/A
Within the Wild and Scenic River Management Area, monitor and evaluate trends in changes in: Outstandingly remarkable values for both scenic and recreational sections.	2016	Yes	No	N/A
Within the Wild and Scenic River Management Area, monitor and evaluate trends in: Visitor satisfaction.	2016	Yes	No	N/A
Within the Wild and Scenic River Management Area, monitor and evaluate trends in: Visitor use in wild sections.	2016	Yes	No	N/A
1.F Research Natural Areas				
Within the RNA Management Area, monitor and evaluate trends in: Ecological communities' conditions to be used as a baseline to compare against other forest ecosystems.	2016	Yes	No	N/A
1. G Special Interest Areas				
Within the SIA Management Area, monitor and evaluate trends in: Management plans completed.	2016	Yes	No	N/A
Within the SIA Management Area, monitor and evaluate trends in: Public interpretation of unique SIA values.	2016	Yes	No	N/A
1.H Scenic Byway Corridors				
MAOBJ.3 Improve or maintain all designated scenic overlooks at least once per decade. Performance Indicators: Number improved or maintained per year; percent maintained or improved per decade.	2016	Yes	No	N/A
MAOBJ.4 Complete one scenic byway management plan each year: Performance indicator: Management plans completed annually.	2016	Yes	Yes	Drop. Scenic Byway management adequately covered by Forest Plan.
Within the Scenic Byway Management Area, monitor and evaluate trends in meeting scenic integrity objectives.	2016	Yes	No	N/A
2.A Ozark Highlands Trail				
Within the OHT Management Area, monitor and evaluate trends in trail maintenance completed.	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
2. B State Parks				
Monitor and evaluate trends in: Public health and safety through the permit	2016	Yes	No	N/A
Monitor and evaluate trends in: Visitor satisfaction related to the partnership.	2016	Yes	No	N/A
2.C Developed Recreation Areas				
MAOBJ.5 Reduce the recreation facilities maintenance backlog by approximately 10% within 3-5 years. Performance Indicator: Backlog sites maintained.	2016	Yes	No	N/A
MAOBJ.6 Improve accessibility within at least one recreation site per year. Performance Indicator: Sites improved for accessibility annually.	2016	Yes	No	N/A
MAOBJ.7 Maintain all recreation facilities to standard. Performance Indicator: Facilities maintained to standard annually.	2016	Yes	No	N/A
Monitor and evaluate trends in public health and safety.	2016	Yes	No	N/A
Monitor and evaluate trends in visitor satisfaction.	2016	Yes	No	N/A
2.D Upper Buffalo Dispersed Recreation Area				
Monitor and evaluate trends in visitor satisfaction.	2016	Yes	No	N/A
2.E Wedington Unit Urban Recreation Area				
Monitor and evaluate trends in visitor satisfaction.	2016	Yes	No	N/A
2.F Indian Creek Dispersed Recreation Area				
MAOBJ.8 Closure or obliteration of roads which do not meet the above criteria will be a priority in this MA. Performance Indicator: Miles of road closed not meeting criteria.	2016	Yes	No	N/A
MAOBJ.9 Inventory current and potential dispersed recreation activities and develop a motorized access plan to support them. Performance Indicator: Inventory and access plan completed.	2016	Yes	No	N/A
Monitor and evaluate trends in visitor satisfaction.	2016	Yes	No	N/A
3.A Pine Woodland				
Within the Pine Woodland MA, monitor and evaluate trends in abundance of pine woodland.	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
Within the Pine Woodland MA, monitor and evaluate trends in proportion of the Shortleaf Pine-Oak Forest and Woodland community burned at desired intervals and seasons.	2016	Yes	No	N/A
3.B Oak Woodland				
Within the Oak Woodland MA, monitor and evaluate trends in abundance of oak woodland.	2016	Yes	No	N/A
Within the Oak Woodland MA, monitor and evaluate trends in proportion of the Oak Woodland community burned at desired intervals and seasons.	2016	Yes	No	N/A
3.C Mixed Forest				
MAOBJ.10 Apply appropriate silviculture prescriptions to provide the following forest products on medium to high sites: 14" to 16" sawtimber with grade 2 butt logs and/or Yellow Pine 18" sawtimber. Performance Indicator: During inventories, determine average diameter	2016	Yes	No	N/A
Within the Mixed Forest Area, monitor and evaluate trends in number of acres harvested.	2016	Yes	No	N/A
3.D Oak Decline Restoration Areas				
Within the Oak Decline Restoration Areas MA, monitor and evaluate trends in number of acres restored to a red oak/white oak/hickory forest type.	2016	Yes	No	N/A
3.E High Quality Forest Products				
MAOBJ.11 Apply appropriate silviculture prescriptions to provide the following forest products on medium to high sites: 18" to 20" sawtimber with grade 1 or 2 butt logs and/or Yellow Pine 18" sawtimber. Performance Indicator: During inventories, determine average diameter.	2016	Yes	No	N/A
Within the High Quality Forest Products MA, monitor and evaluate number of acres harvested.	2016	Yes	No	N/A
3.I Riparian Corridors				
MAOBJ.12 Map acres of other land meeting riparian definitions to incorporate in MA 3.I. Performance Indicator: Acres mapped annually.	2016	Yes	No	N/A

Monitoring Item	Last Year Updated	Consistency with Forest Plan Intent[1]	Change or Update?	Type of Change or Update Recommended[2]
MAOBJ.13 Treat up to 300 acres per decade to meet riparian area species groups habitat needs. Performance Indicator: Acres treated per decade	2016	Yes	No	N/A
Within the Riparian Corridors MA, monitor and evaluate number of acres harvested.	2016	Yes	No	N/A
3.K Wildlife Emphasis Area				
Within the Wildlife Emphasis Area MA, work with Arkansas Game and Fish Commission (AGFC) and other partners to provide elk habitat.	2016	Yes	No	N/A

[1]Do results demonstrate progress toward achievement of the plan components associated with this monitoring item?

[2]Refer to pages below for more details regarding any specific recommendations for change.

Table 3. Past monitoring recommendations status summary

Monitoring Items	Year of Recommendation	Previous Observation and Current Status
Major Forest Communities Vegetation and Forest Health Desired Conditions	2016	The 2016 Monitoring Report found similar trends in the distribution of age classes across the major forest communities as were found in this report. There is a continuing increase in the percentage of forest >40 years old and a lack of forest 0-40 years old. It was also recognized that the amount of thinning treatments to open stands could be increased to support habitat needs for wildlife as well as increase forest health. There continues to be a need to increase creation of early seral habitat and regeneration harvest. Though much progress has been made thinning stands to achieve an open condition, there is still ample opportunity to continue to create open woodland habitat and early seral habitat by increasing regeneration cutting, thinning, and continued burning maintenance in treated areas.
Fish and Wildlife	2016	The same concerns for bobwhite quail, wild turkey, and small-mouth bass discussed in this report were also highlighted in the 2016 Monitoring Report. It is important that the Forests continue to prioritize habitat needs for those species. An increase in open woodland and early seral habitat would benefit both bobwhite quail and wild turkey. Also, it will be increasingly important to monitor stream temperatures in order to protect small mouth bass populations.

Table 4. Recommended elements for addition to monitoring program

Monitoring Item	Recommended Change	Status
Climate Change	There are no monitoring objectives in the current Forest Plan to monitor the effects of climate change on the Forests. It is possible that this element will continue to be covered adequately in the regional report. However, the Forests could consider the following elements at a local level: 1. What are the local effects of management on carbon storage? 2. What are the local effects of management on forest resilience? 3. What are the local effects to species sensitive to changes in climate?	This report has considered these elements as suggested in the national template. Future monitoring reports can continue to consider these elements and a decision can be made on how to address these elements in the Forest Plan during the next plan review or renewal.
Watershed/ Productivity	There are no monitoring objectives in the current Forest Plan to measure the effects of management on productivity specifically for soils. In order to be in compliance with NFMA, the Forests could consider the following element: 1. Have management practices maintained or improved soil productivity?	This report has considered these elements as suggested in the national template. Future monitoring reports can continue to consider these elements and a decision can be made on how to address these elements in the Forest Plan during the next plan review or renewal.
Fish and Wildlife	There is no monitoring objective in the current Forest Plan to track increases in stream temperature. It will be increasingly important to monitor stream temperatures in order to protect small mouth bass populations. The Forests could consider the following element: 1. Are stream temperatures rising in response to natural conditions or management activities?	This report has considered this element in relation to small mouth bass as a demand species; however, there is no specific requirement to monitor stream temperature in the current monitoring plan. Future monitoring reports can continue to consider this element and a decision can be made on how to address this element in the Forest Plan during the next plan review or renewal.

Forest Supervisor's Certification

This report documents the results of monitoring activities that occurred through Fiscal Year 2019 on the Ozark-St. Francis National Forests. Monitoring on some topics is long-term and evaluation of those data will occur later in time.

I have evaluated the monitoring and evaluation results presented in this report. I have examined any recommended changes to the 2005 Revised Land and Resource Management Plan, as amended at this time. Based on these results and my evaluation, I consider the 2005 Revised Land and Resource Management Plan sufficient to continue to guide land and resource management of the Ozark-St. Francis National Forests.

LORI WOOD Digitally signed by LORI WOOD Date: 2020.10.16 09:25:48 -05'00'

LORI D. WOOD
Forest Supervisor

Date:

Status of Select Watershed Conditions

Summary

Streams and rivers on the OSFNFs are needed for aquatic habitat, riparian dependent species, and for recreation, municipal, commercial, and agricultural uses. Many streams and river systems within north and central Arkansas originate within National Forest boundaries. These streams supply water to the five major rivers – White, Buffalo, Little Red, Illinois, and Arkansas. Potential sources of negative effects on water quality come from recreation, road construction, timber harvesting, agriculture, urban development, and natural disturbances.

The goal of monitoring is to determine if watersheds are being maintained (and where necessary restored) to provide resilient and stable conditions to support the quality and quantity of water necessary to protect ecological functions and support intended beneficial uses. These results will help to prioritize areas in need of management attention in regard to watershed conditions. Due to the potential effects of the road system on water quality, that is discussed here.

Monitoring Questions and Indicators

Is water quality being protected by application of appropriate best management practices (BMPS) during project implementation?

Are watershed improvements conducted on at least 20 acres per year?

Is the road system being managed to protect water quality where possible?

Are livestock impacts on water quality being reduced?

Key Results

- Monitoring has verified adherence to application of BMPs for evaluated Forest activities. Occasional small sediment releases occur despite adherence to the practices which is represented by the rare Fair or Poor rating for a review. Though some amount of sediment in the stream course is unavoidable, the Forests are making progress reaching the goal of 100% excellent ratings.

Year	# Excellent	# Good	# Fair	# Poor
2017	86%	0	0	14%
2018	57%	29%	14%	0
2019	86%	0	14%	0

- The number of acres of watershed improvements completed varies yearly depending on proposed projects and funding available to accomplish them, but at least 20 acres are accomplished annually.

Year	Acres Accomplished
2017	67
2018	64
2019	114

- Unpaved roads in the Forests are one of the highest manmade contributors of sediment to streams on national forest. Therefore, the Forests' objective is to maintain a transportation system that allows for forest management and access to the public while still closing and decommissioning roads where appropriate.
- Over the reporting period, the amount of open road has decreased. Also, the amount of open road maintained to standard has increased and the Forests continue to identify and reconstruct problem areas. This is a highly budget driven endeavor and is very sensitive to reduced budget levels such as the elimination of Legacy Roads Program funding.

Open Roads Receiving Maintenance (miles)		Open Roads Receiving Improvements (miles)	
FY 2016	**FY 2019**	**FY 2016**	**FY 2019**
427	575	21	30

- The miles of roads being decommissioned have increased over this reporting period and continue to be a priority at the project level.

Roads Decommissioned (FY2017 - FY2019)		
Year	**Classified (miles) (System)**	**Unclassified (miles) (Non-System)**
FY2017	16.06	0.53
FY2018	8.80	--
FY2019	1.10	--
Total =	25.96	0.53

- Stream conditions are generally slowly improving across the Forests as projects are completed to disconnect roads from streams, improve aquatic organism passages, and maintain or improve riparian areas.

Recommended Changes

1. Though the Forest Plan has an objective to fence out livestock from SMZs and riparian areas, no fencing was built this reporting period. It is possible that the fencing has been completed in all the Forests' allotments, but that data was not collected. In the next monitoring period, a decision needs to be made if there is more fencing to be built or if the monitoring indicator should be changed to miles of fence maintained instead of new fence. Alternatively, it may be appropriate to drop this element or indicator entirely.

Status of Select Ecological Conditions

Summary

Aquatic habitat can be enhanced by increasing the diversity of stream conditions. Forest Plan objectives include increasing pool habitat by placing large woody debris in-stream and improving aquatic organism passage. It is also important to monitor any effects on stream flow and water quality including water temperatures. The Forest Plan also has set objectives for range management and treatment of non-native invasive species (NNIS). These ecological indicators or monitoring elements haven't been covered elsewhere in this monitoring report.

Monitoring Questions and Indicators

Are the Forests improving and/or maintaining aquatic communities and habitat?

Are range allotments managed to standard and what is their progress toward desired condition?

Are Forest Plan objectives being met to reduce or eliminate occurrences of non-native, invasive species?

Key Results

- When new projects are initiated, personnel check streams within the project area for pool habitat and recommend addition of large woody debris to help develop pool habitat where appropriate. Large woody debris is often added to project descriptions and accomplished during project implementation.
- The Forest Plan calls for improvement of six stream crossings per year. However, due to the high cost of these improvements, the Forests perform closer to one per year. Increased funding would support the Forests' ability to meet this goal.
- All active allotments have been fully managed to standard from 2017 to 2019. All allotments, with few exceptions, have either stable to improving ecological conditions and are either at, or moving toward, desired conditions.
- At least 200 acres per year have been consistently treated for reduction or elimination of nonnative, invasive species.

Recommended Changes

No need for change.

Status of Focal Species

Summary

The results of this section will identify areas in need of management attention regarding focal species. The goal is to identify species with notable changes in status or trends in either their habitat or population. This information can inform management where extra effort may be needed to stabilize populations that are dependent on various habitat types that are managed by the Forests.

Focal Species	Management Focus
Ovenbird Scarlet Tanager	Dry-Mesic Hardwood Forests
Acadian Flycatcher Northern Parula	Mesic Hardwood Forest
Red-Headed Woodpecker Brown-Headed Nuthatch Bobwhite Quail	Pine and Oak Woodlands Grasslands
Yellow-Breasted Chat Prairie Warbler	Regenerating Forests
Cerulean Warbler	Complex Canopy Structure (Diverse Closed Canopy and Dense Mid-Story)
Pileated Woodpecker	Snag-Dependent Species
White-Tailed Deer Eastern Wild Turkey American Black Bear	Demand Species
Largemouth Bass Smallmouth Bass	Fisheries Conditions

Monitoring Questions and Indicators

Are the Forests improving and/or maintaining habitat for focal species?

Does population data show any trends for focal species that would suggest a need to change forest management or monitoring plans?

Key Results

- Eastern Wild Turkey population trends are concerning. The population is down, but harvest numbers are similar to those levels reported 1975 through 1980, 1993, and 2011 so the numbers are low but not unprecedented. Habitat improvement acres meet the Forest Plan's goals, so it is unclear why the habitat improvements have not resulted in improved population numbers. There have been a number of studies by University of Arkansas and Arkansas State University attempting to provide habitat management recommendations, but at this point what management changes may be effective at influencing the population are unknown.

- The number of bobwhite quail continues to decline in the established R8 Bird Point Counts despite emphasis and focus on open woodland and grassland habitat management. Habitat improvement acres meet the Forest Plan's goals, but it may just not be at the scale to reverse trends in bobwhite quail. It is possible that a significant increase in treatment acres is necessary to better represent open woodland and grassland habitat across the Forests.

- Ovenbird, scarlet tanager, Acadian flycatcher, and northern parula populations are all doing well and the habitat types they prefer are well represented on the Forests. The numbers show some reaction to treatment; however, it is a necessary trade-off to create some younger or open stands in order to support other focal species that are dependent on habitat types that are under-represented.

- Both red-headed woodpeckers and brown-headed nuthatches are increasing numbers in the bird points on the Forests. However, the number of either of these two species is still quite modest on the Forests. Cerulean warbler has low overall abundance in the point count; however, the trend indicates stability in the habitat. The abundance of pileated woodpeckers on the Forests reflects good availability of snag habitat.

- Yellow-breasted chat numbers in the point counts have increased over the period of monitoring, while prairie warbler numbers have declined. Yellow-breasted chat are more able to utilize stands that have some over-story left, but the prairie warbler needs larger open blocks. Glade restoration is another practice that can result in areas with complex shrub layers and open canopies, which can benefit prairie warblers and similar species. Young stands are under-represented on the Forests compared to objectives in the Forest Plan.

- Habitat improvement was not well defined for white-tailed deer or American black bear. However, it is assumed that anything done to improve forest conditions would in turn improve habitat. The Forests are treating more than enough acres to meet the plan objectives for these two species. White-tailed deer and American black bear populations are trending in a good direction. If anything, the numbers are getting high enough that there could be some consequences of high population density in these two demand species. One thing to note may be a trend to less remote habitat due to increased motorized recreation and more human – bear conflict potential at recreation sites.

- Habitat and population numbers for both largemouth and smallmouth bass remain stable at this time.

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Recommended Changes

1. Monitoring for the condition of existing elk habitat was not completed this monitoring cycle as no negative trends were expected. However, it needs to be included in the next cycle in order to have the data available to make a decision on whether the element needs to be updated or removed from the Plan Monitoring Program.

2. There is a concern of decreasing smallmouth bass populations due to warming stream temperatures over time so a monitoring element for measuring trends in stream temperature may be warranted.

Status of Select Set of Ecological Conditions Required to Contribute to Species Recovery

Summary

Conditions required to contribute to species recovery are monitored to measure management specific effects to federally listed threatened and endangered species, and of selected sensitive and locally rare species. It is important to identify species with notable changes in status or trends for both habitat and population. The desired condition is populations of threatened, endangered, or sensitive species and other species of viability concern above the levels necessary for long-term viability and available habitat to maintain and support the recovery of these species.

Monitoring Questions and Indicators

Are forest management actions contributing to declines or recovery of populations of species with viability concerns on the Forest?

Key Results

- There are four Endangered Species Act (ESA) listed bats on the OSFNFs, including gray bats, Indiana bats, Ozark big-eared bats, and Northern long-eared bats.
- Gray bat populations have increased in recent years on the Forests. Indiana bat populations on the Forests have been relatively stable in recent years. Ozark big-eared bat numbers have also been stable in long-term monitoring sites. Northern long-eared bats were among the most common bats on the Forests but have declined dramatically due to the spread of white-nose syndrome.
- In addition, multiple bat species are found on the Regional Forester's Sensitive Species List including: Southeastern myotis, tri-colored bats, Rafinesque big-eared bats, and small-footed bats. Tri-colored bat populations have also been reduced significantly by the arrival of white-nose syndrome.
- The Forest Service has responded to the threats for bats by closing caves to reduce the risk of human-caused spread of white-nose syndrome, gating important Indiana bat and gray bat hibernacula, and improving forest foraging and roosting habitat in the Indiana bat conservation zones.
- Treatments have targeted the improvement of forest foraging and roosting habitat in the Indiana bat conservation zones. The Forests are meeting the objective to improve roosting and foraging conditions in secondary buffers around Indiana bat hibernacula on 750 acres per year.

- An amendment to the Forest Plan which will update bat conservation measures is currently being analyzed. Once a decision is signed for that amendment, it will be important to update the monitoring plan accordingly for the next report.
- No other category of federally listed threatened and endangered species, selected sensitive, or locally rare species exhibited remarkable change in distribution or abundance this monitoring cycle.

Recommended Changes

No need for change.

Visitor Use, Satisfaction, and Progress on Recreation Objectives

Summary

Abundant opportunities exist for the public to use and enjoy the Ozark-St. Francis National Forests. Areas or facilities include developed recreation sites, wilderness areas, trails (motorized and non-motorized), wild and scenic rivers, and special interest areas. This section will discuss visitor use and satisfaction as well as track success on recreation objectives.

Monitoring Questions and Indicators

Are developed and dispersed recreation opportunities being managed and maintained to national quality standards?

Are Wild and Scenic Rivers being managed for free-flowing, outstandingly remarkable values, and water quality?

Are scenic byways managed for view-shed quality and visual interpretation?

Are wilderness character indicators (trends) improving or diminishing over time for the

Key Results

- All districts maintain developed and dispersed recreation areas to national and regional quality standards and follow appropriate inspection protocol for ensuring the health and safety of visitors. Monitoring has shown a substantial and unprecedented increase in the use of Forest off-highway vehicle (OHV) trails.
- Results of monitoring show that visitor experience is typically high and/or moderate and rarely if ever low or very low. This shows that standards are being met, however, there is increased pressure on all sites and budgets are continuing to decrease. This will make it difficult to keep up with maintenance needs in the future. Lower budgets also limit the ability to conduct monitoring including visitor satisfactions surveys and wilderness character monitoring.
- All districts incorporate view-shed quality and visual interpretation when accomplishing management activities along scenic byways through the NEPA process. Overlooks and public viewing points are being maintained by districts with attention to view-shed quality and visual interpretation.
- Monitoring results show that Wild and Scenic Rivers are being managed for free-flowing, outstandingly remarkable values and water quality. Utilizing Section 7 (WSR Act) analyses allows forests to review and track any potential projects and decisions that could affect the rivers characteristics for which they were designated and prevent degradation of these indicators.

- Wilderness Stewardship scores showed a slight decrease. However, this is due to a change in the criteria and how those criteria are measured. No significant management actions have been undertaken to change wilderness character. Multiple measures under the new criteria were lacking information in this monitoring cycle and the scores are cumulative. Once wilderness character monitoring and solitude monitoring are completed in 2021 with the new criteria added for all elements, the scores should be closer to passing.

Recommended Changes

1. In the Forest Plan there was an objective to create separate management plans for each scenic byway. However, after many years, the objectives in the Forest Plan itself have proven adequate for addressing scenic byways and trends do not necessitate creating additional management plans and/or special management focuses to protect the scenic byways. Therefore, this objective should be removed from future Forest Plans.

Climate Change and Other Stressors

Summary

Forest lands are experiencing increased threats from fire, insect and non-native plant invasions, disease, extreme weather, and drought. Scientists project increases in temperature and changes in rainfall patterns that can make these threats occur more often, with more intensity, and/or for longer durations.

Some of the areas that may require extra attention in monitoring include temperature, precipitation, forest health, non-native invasive species, and fire management as well as the effects on climate from carbon sequestration.

The climate change assessment for the Ozark-St. Francis National Forests can be found in the Broad-Scale Climate Change Monitoring Evaluation Report for the Southern Region (Borchers, 2020). This report can be accessed on this website: https://www.fs.usda.gov/main/osfnf/landmanagement/planning. The following includes some specifics from that report that are important to note locally.

Monitoring Questions and Indicators

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, cultural, and economic conditions and contributions provided by plan areas in the region?

What effect do management units in the region have on a changing climate?

Key Results

- In the short-term, the regional report found no need for change in individual national forests' plan direction, management activities, or monitoring arising from this evaluation. However, there is a potential for the following elements to become a concern.
- Projections suggest that future warming is expected, resulting in 25 to 70 more days above 90 degrees Fahrenheit and 11 to 32 fewer freezing days per year. Change in precipitation is less of a concern for the Southern Region as a significant decrease in precipitation is not expected.
- Amphibians such as salamanders may be most at risk, due to dependencies on moisture and cool temperatures that could be altered. The Ozark hellbender is one such amphibian seeing a rapid decline in population and may be particularly affected. Greater ambient temperatures may also be harmful to mammals such as the endangered Indiana bat.
- It will be increasingly important to emphasize conservation of riparian habitats as well as high elevation areas in order to provide refugia for species adjusting to changing climate conditions. Restoration activities should be planned to maintain and improve habitat connectivity in those areas that may become increasingly important as habitat islands.

- Projected increase in temperatures can allow invasive pests and plants to increase their spread. Invasive and aggressive plant and insect species may increasingly outcompete or negatively affect native species in the future. Winter freezes currently limit many forest pests, but higher temperatures will likely allow these species to increase. Destructive insects may be better able to take advantage of forests due to factors such as increased drought. Certain invasive plant species may increase dramatically as they are able to tolerate a wide range of harsh conditions, allowing them to rapidly move into new areas.
- Increased water temperature due to warming climate can potentially lead to an increase in toxic algal blooms in lakes as well as negatively affect cool-water stream communities.
- Extended periods of extreme high temperature and drought may lead to drier forest fuels which will burn more easily and contribute to larger and more frequent wildfires.
- Finally, forest management can play a key role in carbon sequestration. Recent declines in timber harvesting have slowed the rate of carbon accumulation in the product sector.

Recommended Changes

1. Future Forest Plan assessments and revisions need to address short and long term climate change effects to forest ecosystems and the need to manage tree densities through practices such as thinning and prescribed fire to maximize carbon sequestration and reduce the vulnerability of forest stands to water stress, insect and disease outbreaks, and fire.

Progress Toward Meeting Desired Conditions and Objectives

Summary

A key indicator of desired condition in the Forest Plan is the abundance and distribution of the various forest types. Several management objectives are tied to percentage of each type, age class distribution within type, and treatment acres for each. Monitoring allows managers to identify forest types that are under-represented across the landscape and areas where the pace and scale of treatment does not meet the desired goals.

Monitoring Questions and Indicators

At a landscape-level, is composition of major forest communities within desirable ranges of variability?

Are rare communities being maintained at desired composition, structure, and function and managed to provide for the species associated with each community type?

Are treatment activities such as regeneration cutting, thinning, and prescribed fire being utilized to increase forest diversity?

Key Results

- The percentage of each major forest community across the forests has remained stable and within Forest Plan objectives. However, the age distribution shows across most communities that the age distribution is trending up with more of the population at the >41-year old level and a reduction in young stands and early seral habitat.
- As represented by a decline in acreage, the Loblolly Pine Forest community type is progressing as intended by the Forest Plan. Since 2016, 500 acres of Loblolly Pine Forest have been converted to native vegetation types. Over the 14 years since the plan was revised in 2005, Loblolly Pine Forest has decreased by 26% (from 11,229 acres to 8,820 acres).
- Restoration treatments are being done in rare communities where feasible, including prescribed burning in montane oak forest, over 6,000 acres of restoration in native grasslands, restoration treatments in canebrakes, and over 3,500 acres of glade restoration using a combination of manual and mechanical treatments and prescribed burning. All other rare communities continue to be managed with the goal to protect those communities and their associated species.
- Forest Plan objectives commit to restoring and maintaining acres at an approximate pace of 20,000 acres per decade for both oak woodland and pine woodland. However, according to the following table approximately 5,000-6,000 acres has been treated over the last decade in these community types.

Acres treated/Improved in Select Management Areas, Ozark NF

Management Area	2007^	2015*	2019**	Total MA Acres 2019
3.A Pine Woodland	1,505	2,239	2,159	95,892
3.B Oak Woodland	726	2,354	2,524	152,690
3.C Mixed Forest	3,903	13,510	8,697	352,083
3.E High Quality Forest	5,842	3,275	4,094	213,906
3.I Riparian Corridor	15	114	12	11,135

^Two year cumulative 2006-2007/*Three-year cumulative acres 2013 to 2015/**Three-year cumulative acres 2017 to 2019/ Acres are a combination of both thinning and regeneration cuts.

- Looking at these accomplishments, it appears the Forests are not making big gains, but work is going on in other management areas with associated community types. When viewed by community type, the work being done forest wide is more apparent. With work that has occurred over the last three years there are more than 11,500 acres that have been restored with more acres planned. Much of this work has occurred in overstocked stands with dense understory which are not considered as healthy or productive as stands with open conditions. This work has created a significant increase in acres with an open stand condition. Prescribed burning is also being successfully used as a tool where appropriate meeting Forest Plan goals.
- Though the Forests have made progress increasing open canopy, early seral stage conditions are lacking within most management areas and more can be done to increase the number of acres in a regenerating condition. More regeneration is needed in order to develop more of an early seral stage across the Forests, helping to create more age diversity on the landscape.
- There was not enough information covering the bottomland and floodplain forest communities on the St. Francis Forest to recognize any trends. No active management has occurred in these areas recently, therefore, management activities would not be the driver of conditions. An analysis was just completed for the St Francis Forest and describes the management activities expected to occur in the near future. Those activities will be monitored in the next reporting cycle in accordance with the Forest Plan.

Recommended Changes

1. Overall, the management of the Forests is providing for the diverse set of communities that exist on the forests and are described in the Forest Plan. There has been an increase in levels of early successional habitat and woodland habitat while maintaining conditions for mature dry and mesic forests and areas of complex canopy. However, it is clear that efforts to create early successional habitat need to be increased to at least the levels committed to in the Forest Plan.

Effects of Management Systems on Productivity of the Land

Summary

Management activities can have a negative effect on the productivity of the Forests. The National Forest Management Act requires forest managers to, “Conserve soil and water resources and not allow significant or permanent impairment of the productivity of the land.” It is important to monitor for any signs of degradation for habitat and watershed conditions. Silviculture practices should be mindful of maintaining site productivity and timber production should be based on sustainable levels. Watershed conditions were covered in an earlier section of this monitoring report, so the focus in this section will be on soil and timber production.

Monitoring Questions and Indicators

Are timber targets based on sustainable levels?

Have management practices maintained or improved soil productivity?

Key Results

- The Forests have consistently met the yearly timber volume sold target, assigned by the Regional Office. The average volume sold annually over the last decade is 58.31 MMCF, which is 79.77% of the Forest Plan target of 73.1 MMCF. The Forests are able to maintain production around 60 MMCF per year even when accounting for budget and personnel shortages. Though there is some room to increase commercial harvest, many of the treatments that produce the open woodland conditions desired also involve removing smaller material. Therefore, it should be possible to increase treatment levels without impacting productivity.

Recommended Changes

1. The Forest Plan identifies sustainable treatment levels to reach desired conditions. These harvest levels are based on various considerations including site productivity, local demand for timber products, forest capacity, and ecological considerations. While these items were part of the analysis, the Forest Plan did not clearly articulate how targets are connected to these considerations. This makes it difficult to adjust targets to current conditions. In future Forest Plan revisions, it will be important to document the decision process affecting harvest levels and treatment acre targets so that they can be adjusted when appropriate.

2. No specific monitoring elements, ecological indicators, or objectives were established in the current Forest Plan with regard to productivity, though it is an important measure of forest conditions. In future planning efforts, it will be important to identify monitoring objectives tied to sustainable harvest levels for timber production and monitoring objectives to indicate any changes in soil productivity. It has not been common in the Region to monitor for soil productivity, but it is an element in NFMA so would be appropriate to add in the future.

Social, Economic, and Cultural Sustainability

Summary

Socio-economic conditions for the Ozark-St. Francis National Forests can be found in the Broad-Scale Socioeconomic Monitoring Evaluation Report for the Southern Region (Borchers, 2020). This report can be accessed on this website: https://www.fs.usda.gov/main/osfnf/landmanagement/planning. Changes occurring in social, cultural, and economic conditions are described in this report.

According to this report, national forests can contribute to the economic base of local communities by providing a sustained yield of high-quality wood products at a level consistent with sound economic principles, local market demands, and desired ecological conditions. They can also promote area economic well-being by using the forests' resources to generate revenues for local counties and to provide direct or indirect employment opportunities.

The Forest Plan also lists as a priority, to manage the forests' timber, recreational, and scenic resources in a manner that enables local communities to capitalize on the potential of these resources to contribute to economic well-being.

Changes in population size and growth, employment, and jobs and income may affect the ability of forests to maintain these objectives. Results from the Regional Monitoring Report will help to prioritize areas in need of management attention regarding social, economic, and cultural sustainability.

This section also includes Forest Plan objectives for heritage, conservation education, facilities, law enforcement, safety, minerals, lands, and special uses.

Monitoring Questions and Indicators

What changes are occurring in the social, cultural, and economic conditions in the area?

Is timber harvest enough to continue to support the social and economic needs of the surrounding communities?

Are Forest Plan objectives being met for heritage, conservation education, facilities, law enforcement, safety, minerals, and lands and special uses?

Key Results

- According to the Regional Report, growing populations and development may place greater demand on forest resources. Forest managers can expect to be tasked with maintaining the quality of visitors' experiences while providing forest products and cultural and recreational experiences to a greater number of people. Growing populations, specifically homes, near public lands also contribute to the costs of fighting wildland fires. As populations grow, conflicts between local

residents and forest visitors may increase. Increased population of residential areas surrounding the Forests also may increases the Region's need for infrastructure.

- In addition, a larger portion of the population may become employed in the recreation sector in the future and this along with employment in the timber sector is a continued pressure on the Forests to provide opportunities and resources to those depending on it for employment and commodities including use by the public. Continued attention should be given to population size and growth, employment, and jobs and income in the future planning cycle.
- The Forests have consistently met the yearly timber volume sold target, assigned by the Regional Office. The average volume sold annually over the last decade is 58.31 MMCF, which is 79.77% of the Forest Plan target of 73.1 MMCF. The Forests are able to maintain production around 60 MMCF per year even when accounting for budget and personnel shortages. It is unclear if these targets continue to match the demand for timber in local communities. Though there is some room to increase commercial harvest, many of the treatments that produce the open woodland conditions desired also involve removing smaller material. The Forests can work within appropriate channels to develop markets for small diameter wood products, both hardwood and pine.
- The Forests have consistently protected and managed its heritage resources to standard over the reporting period. The government-to-government programmatic agreement, which defines protocols with all local recognized tribes and organized groups of interested Native Americans, expired in FY2018. The Forests have worked with tribal partners since then to develop and implement a new one but is still in the developmental phase.
- The Forests have been successful in continuing to develop external partnerships and to provide more public involvement programs that foster the public's connection to the importance of heritage stewardship. The number of educational programs continues to show an increase.

Type of Public Engagement	2017	2018	2109
Volunteer Programs	1	7	8
Presentations	8	19	22

- Forest Plan objectives for facilities are being met. Specifically, the number of unneeded facilities has been significantly reduced over the reporting period.
- Forest Plan objectives are being met for law enforcement, safety, minerals, and lands and special uses.

Recommended Changes

1. The Forest Plan identifies sustainable treatment levels to reach desired conditions. These harvest levels are based on various considerations including site productivity, local demand for timber products, forest capacity, and ecological considerations. While these items were part of the analysis, the Forest Plan did not clearly articulate how targets are connected to these considerations. This makes it difficult to adjust targets to current conditions. In future Forest Plan revisions, it will be important to document the decision process affecting harvest levels and treatment acre targets so that they can be adjusted to local market conditions when appropriate.

Public Outreach

Information on the Forests' monitoring program can be found on the Monitoring and Evaluation web page. Links to this monitoring report as well as the Forests' previous monitoring reports are also available at this link.
https://www.fs.usda.gov/detail/osfnf/landmanagement/planning/?cid=stelprdb5212211

Information on the Forests' planning program is available on the Planning web page. A link to the 2005 Revised Land and Resource Management Plan (Forest Plan) is also available at this link.
https://www.fs.usda.gov/main/osfnf/landmanagement/planning

Information regarding the Ozark-St. Francis National Forests can be found on the Forests' home page.
https://www.fs.usda.gov/main/osfnf/home

Information regarding the publication of this monitoring report and other forest news can also be found on the News and Events web page.
https://www.fs.usda.gov/news/osfnf/news-events

Also on facebook @
https://www.facebook.com/ozarkstfrancis

Or on twitter @
https://twitter.com/ozarkstfrancis

In addition, members of the public can contact Janine Book, Environmental Coordinator, by email at janine.book@usda.gov for information regarding this report and other monitoring or planning information for the Forests.