

Proposed Administrative Changes to Land Management Plan for the Apache-Sitgreaves National Forests Monitoring Strategy

[This document is an excerpt from the 2015 Apache-Sitgreaves National Forests (ASNFs) Final Land Management Plan which has been edited to show proposed changes as described in the white paper *Transition of Monitoring Strategy to Comply with 2012 Planning Rule* companion document. Additions to the text of the plan are indicated here by **bold** text. Deletions are indicated by ~~strike-through text~~. For more information on these changes, please see the white paper.]

Chapter 5. Monitoring Strategy

Introduction

The purpose of monitoring and evaluation is to evaluate, document, and report how the land management plan is applied, how well it works, and if its purpose and direction remain appropriate. Monitoring determines actual conditions and compares them with desired conditions. Evaluation of monitoring results may identify that desired conditions are not met and propose alternative management strategies. Monitoring and evaluation also considers how land management activities on National Forest System lands affect nearby lands of other ownership and vice versa.

Adaptive management allows the use of alternative solutions to meet desired conditions. It includes defining measurable objectives, monitoring, learning and making changes, and recognizing the uncertainties of outcomes. This “Land Management Plan for the Apache-Sitgreaves National Forests” (the plan) is an integral part of the adaptive management cycle that includes management decisions and actions. Monitoring and evaluating the effects of plan implementation is critical to adaptive management.

The monitoring strategy outlines the general framework for achieving plan monitoring and includes the monitoring questions and select monitoring methods listed in the following section. Monitoring questions focus on key plan decisions where carrying out projects and activities are likely to cause a change over time. It does not address project level implementation monitoring nor is it intended for research purposes. The adaptive management cycle also includes an approach for responding to changing conditions or public desires and to new information, including research and scientific papers.

The forest supervisor evaluates the monitoring information displayed in the evaluation reports through a management review and determines if any changes are needed in management actions or the plan itself. In general, biennial evaluations of the monitoring information consider the following questions:

- What are the effects of resource management activities on the productivity of the land?
- To what degree are resource management activities maintaining or making progress toward the desired conditions and objectives identified in the plan? Are costs of implementing programs occurring as predicted?
- What modifications are needed to account for unanticipated changes in conditions?

The plan is revised at least every 15 years and the forest supervisor may amend the plan at any time. All of the monitoring and evaluation timeframes identified in this chapter begin from the date of the record of decision.

The monitoring and evaluation strategy (plan decisions) below is displayed in table 1. The information outside of this table is not a plan decision but is provided for background.

Monitoring Strategy

Table 12 presents the monitoring questions, monitoring methods, and the frequency of measurements needed to address monitoring requirements identified in the provisions of the 1982 Planning Rule¹, as well as other monitoring needed to help evaluate the plan and movement toward key desired conditions. In some cases, the monitoring questions and monitoring methods directly measure the accomplishment of desired conditions. In other cases, they measure objectives or guidelines associated with desired conditions.

This monitoring strategy provides guidance in determining monitoring requirements and accomplishments. Forest managers may need to prioritize what would be monitored in any given year and would schedule monitoring and evaluation through the annual budget process. Actual budget levels, funding emphasis, and emergence of new issues may affect accomplishment. Partnerships may be developed to accomplish monitoring and evaluation.

Table 1. Apache-Sitgreaves NFs land management plan monitoring questions, monitoring methods, and frequency of measurements

Monitoring Questions	Monitoring Method	Frequency of Measurement
Maintenance and Improvement of Ecosystem Health		
Are long-term soil health and productivity desired conditions being maintained or met?	Review a sample of soil-disturbing activities for compliance with best management practices (BMPs) by project and allotment operating instruction implementation.	Annually
How well are management activities contributing to desired conditions or maintaining watersheds in a healthy state and meeting Arizona water quality standards?	Review a sample of soil-disturbing activities for compliance with BMPs by project; allotment operating instruction implementation; Section 18 reviews of allotment National Environmental Policy Act (NEPA); burn area emergency response (BAER) assessments; and Arizona Department of Environmental Quality water quality data.	Every 5 years
How are management activities contributing to desired conditions or affecting riparian habitats, including wetlands, on the forests? Are riparian areas attaining and/or moving toward proper functioning condition? Are identified ecological indicators (e.g., aspen, riparian) present and fulfilling their ecological function?	Review a sample of ground-disturbing activities for compliance with BMPs by project; allotment operating instruction implementation; prescribed fire burn plan implementation; proper functioning data or other approved Forest Service methodologies; and Section 18 reviews of allotment NEPA. Monitor riparian habitats for changes in ground cover, species composition, bank stability, and water quality.	Every 5 years

¹ The transition provision, 36 CFR § 219.17(b)(3), of the 2012 Planning Rule (77 FR 21162-21276) allows use of the provisions of the planning rule, commonly called the 1982 Planning Rule, to amend or revise plans.

Monitoring Questions	Monitoring Method	Frequency of Measurement
Are management activities contributing to desired conditions or improving air quality across the forests in Class I (Mount Baldy Wilderness) and Class II airsheds?	Review interagency monitoring of protected visual environments' data.	Annually
Are habitats for threatened, endangered, sensitive, and other species for the forests being maintained or enhanced; meeting recovery objectives; moving toward desired conditions; and contributing to species viability?	Review implementation of biological opinion terms and conditions and aquatic habitat and population surveys using current approved methodologies. Review implementation and evaluate effectiveness of project mitigation measures affecting habitat.	Annually, on selected newly implemented and ongoing activities
Are PNVTs and habitat needs being provided for and contributing to desired conditions? What percent of grasslands have more than 10 percent of encroachment of woody species?	Review mid-scale vegetation assessment and percent change; stand exam data; post-prescribed fire monitoring plots; forest inventory analysis (FIA) plots; change in species composition and soil condition (range data); and acres of restored grassland.	Every 5 years
What is the effect of management upon habitat and population trends of management indicator species (Mexican spotted owl, northern goshawk, pronghorn antelope) across the forests?	Conduct project and nonproject area monitoring of Mexican spotted owl protected activity centers and northern goshawk post fledging areas in accordance to species' specific protocols. Obtain AZGFD monitoring data on pronghorn antelope populations. Interdisciplinary team review of annual management indicator species monitoring reports to determine trend.	Annually Annually Every 5 years
What is the status of American Pronghorn across the ASNFs?	Obtain AZGFD monitoring data on American pronghorn populations.	Annually
What is the effect of management upon habitat trends of ecological indicators (aspen, riparian) across the forests?	Conduct aspen/riparian monitoring in accordance with species' specific protocols in both treated and untreated areas and in burned (within large wildfire burns) and unburned areas. Interdisciplinary team review the annual aspen/riparian ecological indicator species monitoring reports to determine trend.	Annually Every 5 years

Monitoring Questions	Monitoring Method	Frequency of Measurement
<p>How are management activities affecting late successional forest structure in relation to desired conditions?</p> <p>What is the status of Mexican spotted owls as a focal species?</p> <p>What is the status of northern goshawks as a focal species?</p>	<p>Review amount and type of restoration treatments and the mid-scale vegetation assessment and percent change; FIA plots; post-prescribed fire monitoring plots; BAER assessments; and percent departure from desired condition by PNVT.</p> <p>Information on breeding Mexican spotted owl occupancy in areas where they are known to occur and surveys or inventory efforts where their occupancy status is unknown (or areas presumed to be abandoned) will allow us to make inferences regarding the overall status of this species across the ASNFs. Conduct project and non-project area monitoring of Mexican spotted owl protected activity centers in accordance with species-specific protocols.</p> <p>Information on breeding northern goshawk occupancy in areas where they are known to occur and surveys or inventory efforts where their occupancy status is unknown (or areas presumed to be abandoned) will allow us to make inferences regarding the overall status of this species across the ASNFs. Conduct project and non-project area monitoring of northern goshawk post-fledging areas in accordance with species-specific protocols.</p>	<p>Every 5 years</p> <p>Annually</p> <p>Annually</p>
<p>Are management activities moving vegetation communities and habitats closer to the desired condition identified at the appropriate scales as compared to baseline conditions?</p>	<p>Review mid-scale vegetation assessment/percent change in developmental structural states, range analyses (transect data, photo plots, inspections), Forest Inventory and Analysis, Common Stand Exams, production and utilization surveys; Section 18 reviews of allotment NEPA; BAER assessments; fuels inventory; acres of aspen dominated and codominated forested PNVTs; and percent departure from desired condition by PNVT.</p> <p>Review common data sources listed above for departure or PNVT changes not explained by mechanical treatment, wildfire, natural succession or other ground disturbing event, as compared to baseline mid-scale (2012).</p> <p>Review applicable indicators for all PNVTs: seral state diversity, ground cover, ecological status, patch size, disturbance regime (fire, insect, disease, flooding), coarse woody debris, snag density, fire regime condition class, riparian function assessment.</p>	<p>Every 5 years</p>
<p>Is long term water quality (temperature) being maintained in aquatic systems to meet State of Arizona water quality standards for designated uses?</p> <p>What temperature change is attributed to climate vs. mechanical/wildfire treatments?</p> <p>Are water temperature changes correlated with climate vulnerability predictions for ASNFs watersheds?</p>	<p>Analyze forest stream temperature network data in comparison to air temperature, streamflow monitoring and management. Compare trends in ADEQ monitoring data with forest monitoring data and CCVA predictions.</p>	<p>Every 5 years</p>

Monitoring Questions	Monitoring Method	Frequency of Measurement
<p>Are insect and disease populations within reference conditions? Are invasive plant species' populations changing substantially? Are their population levels compatible with achieving vegetation desired conditions and management approaches? Are changes and levels consistent with regional changes and levels? What is the relationship between these stressors and climate vulnerability predictions?</p>	<p>Review forest health surveys and report, stand exams, project inspections and reviews, and noxious weeds and nonnative invasive species surveys and treatment reports.</p> <p>Compare ASNFs to Southwest Region insect and disease population levels and trends to determine if change can be attributed to general decline in forest health in high vulnerability ERUs.</p>	<p>Annually, forestwide</p> <p>Every 5 years</p>
<p>Has ASNFs' CCVA assessment by ERU changed over the life of the Forest Plan? How do current climate patterns, over the life of the forest plan, compare to vulnerability predictions for the ASNFs?</p>	<p>Compare CCVA assessments over time to determine change in vulnerability by ERU, local unit and sub-watershed.</p>	<p>Every 5 years</p>
<p>Has timber suitability classification changed on any forests' lands?</p>	<p>Reapply timber suitability criteria and process.</p>	<p>Every 10 years</p>
<p>Are forest and woodland stands adequately restocked within 5 years of final harvest treatment or after fire-created regeneration openings? Are these restocked areas retaining species composition and density compared to baseline PNVT? Are stocking patterns correlated with climate vulnerability predictions?</p>	<p>Review annual reforestation needs report, stocking certifications, silvicultural prescriptions, timber/silviculture tracking database. Assess species composition and density in restocked areas relative to baseline PNVT range of variability. Differences may indicate change in climate conditions.</p>	<p>Every 5 years</p>
<p>How is harvest unit size affecting landscape patterns across the forests?</p>	<p>Review mid-scale vegetation assessment and percent change.</p>	<p>Every 5 years</p>
Managed Recreation		
<p>Do recreational opportunities respond to forest users' desires, needs, and expectations?</p>	<p>Review recreation use surveys and acres by recreation opportunity spectrum (ROS).</p>	<p>Every 5 years</p>
<p>How are recreational activities (including off-highway vehicle use) affecting the physical and biological resources of the forests?</p>	<p>Review law enforcement warnings and citations regarding resource damage; amount of soil surface cover on routes or areas closed to motor vehicle travel; acres of noxious weeds and invasive nonnative species treated in developed campgrounds and dispersed camping areas; and trail condition surveys.</p>	<p>Annually</p>
<p>How are projects and programs affecting scenic integrity?</p>	<p>Conduct management reviews.</p>	<p>Annually</p>

Monitoring Questions	Monitoring Method	Frequency of Measurement
Are the forests' infrastructure (e.g., recreation facilities, roads, trails) and their ability to facilitate administrative needs and attainment of desired conditions for administrative uses and recreational opportunities, including access, sustainable?	Estimate amount of deferred maintenance (recreation and transportation).	Every 5 years
Are eligible and suitable wild and scenic rivers being managed to protect and enhance the identified outstandingly remarkable values?	Conduct management reviews of projects and ongoing activities within river corridors.	Every 2 years
Are designated wilderness and the primitive area being managed to maintain the wilderness values and character?	Conduct management reviews of projects and ongoing activities within designated wilderness and the primitive area.	Every 2 years
Are recommended wilderness being managed to protect the wilderness values and character?	Conduct management reviews of projects and ongoing activities within recommended wilderness.	Every 2 years
Community-Forest Interaction		
How well are the forests interacting and planning in cooperation with communities?	Conduct management reviews and review number of tribal agreements and acres of community wildfire protection plan treated. Review number of grants, agreements, and volunteers and type of resource benefit.	Every 5 years
Do the forests provide interpretive opportunities that describe natural resources and the Forest Service mission?	Review number and type of interpretive programs conducted.	Every 5 years
Are outputs of goods and services being produced at a rate consistent with projections?	Review allowable sale quantity (ASQ) compared to actual sale quantity; number of firewood permits issued; number of cords of firewood sold; tons of biomass sold; number of Christmas tree permits sold; number of livestock permitted and actual use records; and number of forest products permits issued.	Every 5 years
Other		
Are there changes that have resulted in unforeseen issues requiring plan amendments?	Review the number of forest plan amendments and conduct a content analysis on those amendments.	Every 5 years
Are plan objectives being achieved?	Report completed accomplishments toward meeting plan objectives.	Annually
Are the standards and guidelines prescribed being incorporated in NEPA documents and implemented in projects and activities?	Review the number of forest plan amendments and NEPA decision documents that deviate from forest plan standards and guidelines. Conduct management reviews of selected projects and activities.	Annually

[Abbreviations Used]²

ADEQ—Arizona Department of Environmental Quality

ASNFs—Apache-Sitgreaves National Forests

ASQ—Allowable Sale Quantity

AZGFD—Arizona Game and Fish Department

BAER—Burn Area Emergency Response

BMP—Best Management Practice(s)

CCVA—Climate Change Vulnerability Analysis

ERU—Ecological Response Unit

FIA—Forest Inventory and Analysis

NEPA—National Environmental Policy Act

PNVT---Potential Natural Vegetation Type

ROS—Recreation Opportunity Spectrum

² This section is not a proposed addition to the ASNFs Final Land Management Plan Monitoring Strategy. The two abbreviations defined here which are not already included in the "Commonly Used Acronyms" on page ix of the plan (shown here in **bold**) will be added to that section as part of the administrative change.