Annual Monitoring Report

Gila National Forest Land Management Plan
FY 2013

August 2014

*The **Carcass Basin Petroglyph Site** over looks Carcass Basin near Glenwood, New Mexico. This site is a prehistoric petroglyph site that consists of two panels located on a thin rhyolite lens sandwiched between two layers of ash tuff. The formation is unique for petroglyph sites in the area because it is placed on a horizontal surface (table-like) rather than on a vertical surface.*

The site represents a series of petroglyph panels that is common in the Mogollon region during the Early Pithouse to Late Pueblo periods (AD 200-1450).

Forest Supervisor Certification

I certify that the Gila National Forest Plan as amended is sufficient to guide management of the Forest over the next year. A need for change analysis conducted as part of this monitoring report will be considered during the Forest Plan revision process scheduled to begin in FY2015.

Kelly Russell 8-14-14

KELLY RUSSELL Date
Forest Supervisor

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Annual Monitoring Report

FY 2013

Overview

This report summarizes monitoring results on the Gila National Forest for the fiscal year 2013. Recommendations are provided to improve effectiveness of the current monitoring plan as outlined in the Gila National Forest Land Management Plan (Forest Plan). A monitoring action plan for 2014 work activities is provided as part of this report.

1. Monitoring and Trend Evaluation

Monitoring and trend evaluations are analyzed for the following 9 resources:

- Air
- Cultural Resources
- Facilities
- Fire Management
- Range
- Riparian / Aquatic
- Soil and Water
- Timber
- Wildlife

The number of monitoring activities, monitoring frequencies, accuracy, and precision standards vary for each of the items listed above. Individual monitoring activities are selected annually based on the annual plan of work and, as described in the Gila National Forest Plan, not all monitoring items are applicable each year. Annual work plan activities are based on the Agency's and the public's priorities, concerns and interests. Some monitoring methods have become obsolete and will be updated during the next Forest Plan revision to reflect information that is relevant to reflect present standards.

Air

Air 1: Visibility in Class I Wilderness Areas

Monitoring Intent:

Obtain baseline condition of visibility and determine if any visibility degradation is occurring in Class I areas.

Monitoring Method/Unit of Measure:

The Forest Plan states that monitoring will occur through the use of an automated camera system and additional particulate sampling. Color slides are to be analyzed for standard visual range by micro densitometer. This method, however, is no longer used due to availability of new technology that has been adopted by Region 3. The Gila National Forest became a participant in the Interagency Monitoring of Protected Visual Environments (IMPROVE) particulate monitoring network in 1994. The IMPROVE protocol aerosol monitoring program is designed to collect quantitative information on the composition and concentration of fine (PM2.5) aerosol particles that reduce visibility. These data correlate visibility with aerosol concentrations and compositions. The IMPROVE monitoring protocol collects fine and coarse particles from the air in sizes ranging from 0 – 10 mm. These particles are then analyzed for elemental composition, acidic gases (nitrate, sulfate, and chlorine), organic and elemental carbon, and Particulate Matter 10 mass loading. Optical extinction is also collected at the site through the use of a nephelometer, which measures light scattered by aerosols and gasses in a sampled air volume.

Measuring Frequency:

The Forest Plan states that pictures will be taken 3 times daily, with particulate data collected on opportunity basis. This frequency is no longer valid in the IMPROVE monitoring protocol. IMPROVE is programmed to collect two twenty-four one-hour samples per week, on Wednesdays and Saturdays from midnight to midnight. The filter cassettes are changed weekly by on-site personnel and shipped to University of California at Davis for processing and analysis.

Percent Accuracy/Precision:

The Forest Plan states that these values will be +10%; +10%. These values are not consistent with IMPROVE monitoring values. The following table shows the relative precision of key measured variables, calculated by taking the ratio of mean precision divided by mean concentration:

Range	Key Measured Variables
4%-6%	PM2.5, PM10, S, Si, K, Ca, Fe, Cu, Zn, SO4=, NO3-, SO2
6%-15%	H, Na, Ti, Se, As, Br, Sr, Pb, O4, E1
>15%	V, Mn, O1, O2, O3, OP, E2, E3

Re-evaluation:

The Forest Plan states that re-evaluation needs to occur when form, line texture, and color of characteristic landscape is not clearly distinguishable from middle ground. These criteria do not pertain to IMPROVE monitoring protocol. The IMPROVE data are evaluated by the University of California at Davis. A determination is made if a problem is indicated. Correspondence between the University and the Forest Service occurs to determine if there is equipment error, or if a valid air quality problem is occurring.

Monitoring and Trend Evaluation

In 2002, the Gila Wilderness Class I air shed was formally certified for visibility impairment greater than ten percent (10%) above natural background. This certification was based, in part, on collected monitoring data at the Forest's site near the Gila Cliff Dwellings, adjacent to the wilderness area. In the past decade, climate and resource conditions have led to a high risk and occurrence of extreme wildland fire behavior across the Southwest. Smoke from these occurrences has contributed, at times, to degradation of visibility in the Wilderness. The Forest has continued to be an advocate of managing wildland fire to achieve multiple resource benefits. This type of active fire management may contribute to smoke lingering for a longer period of time in Wilderness. In urban areas south of the Forest (Deming, Lordsburg), energy facilities have maintained their emission outputs in recent years. Over the past several years, trends for visibility have likely been static from October through February, with more days of decreased visibility possibly occurring during spring winds (dust) and summer fire season (smoke).

The Gila National Forest continues to maintain and monitor air quality at the IMPROVE site. Data is summarized on http://vista.cira.colostate.edu/improve/ through 2010. Data is also available on http://views.cira.colostate.edu/web/ in VIEWS 2.0 (Visibility Information Exchange Web System). VIEWS is an online system of tools and resources designed to provide easy access to air quality data. Its original goal of providing data and results related to visibility impairment in Class I Areas has since been expanded to include climate change, health effects, emissions control strategies, and general environmental impacts. VIEWS integrates data from ground-based monitoring stations, air quality models, emissions inventories, and satellites into a unified system of tools and resources.

The following three charts provide an aerosol composition analysis. These are based on the 2012 timeline (most recent data) showing daily extinction by aerosol species with pie charts of best and worst 20% average by species.

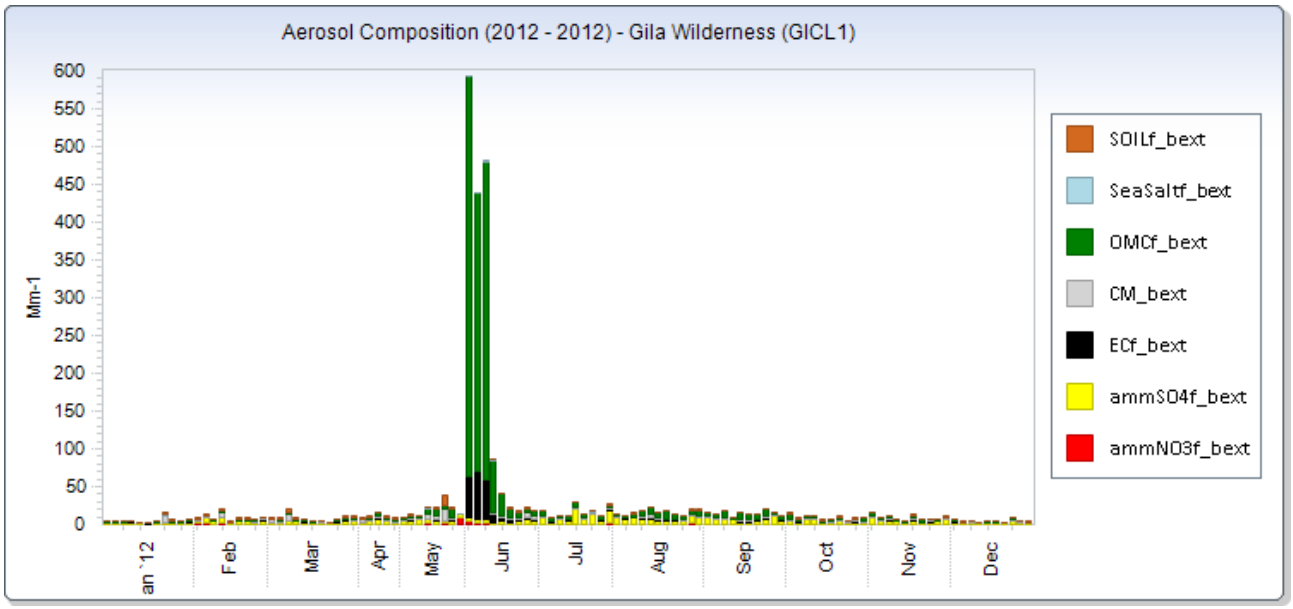

Chart 1. Aerosol Composition

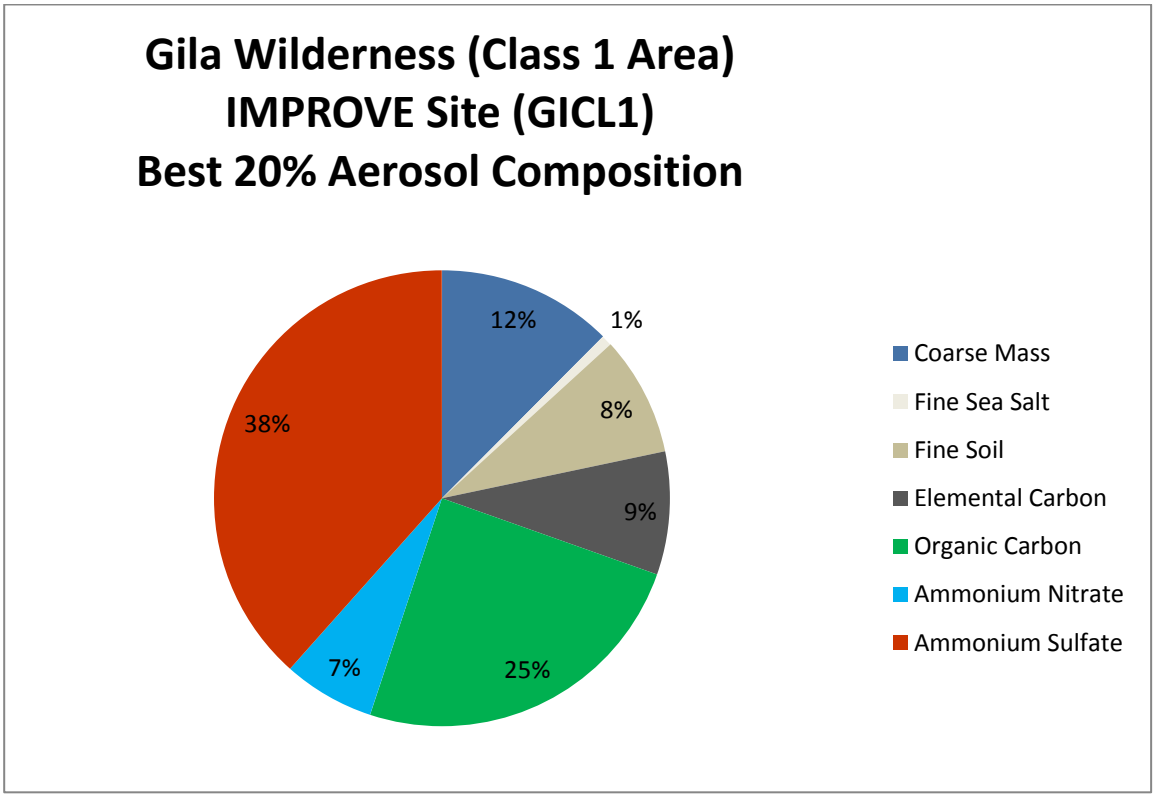

Chart 2. Aerosol Composition, Best 20% Average by Species

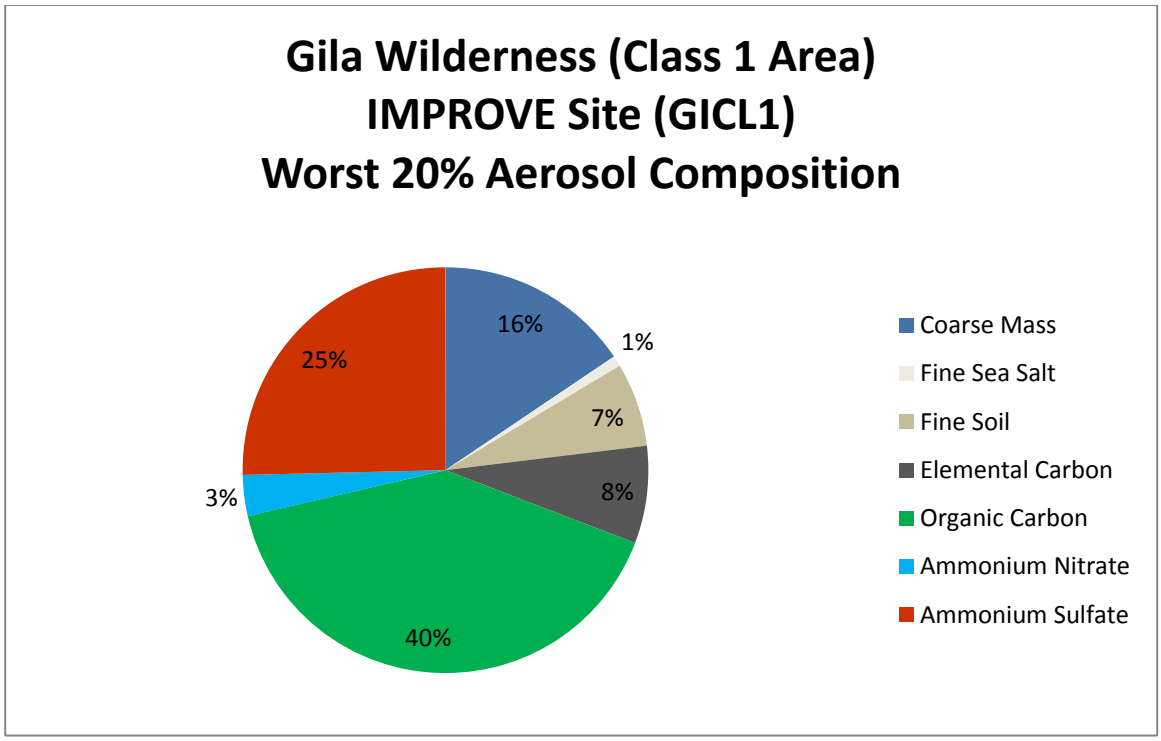

Chart 3. Aerosol Composition, Worst 20% Average by Species

The National Atmospheric Deposition Program maintained a monitoring site at the Gila Cliff Dwellings National Monument (Site NM01) for many years. This site was in operation from July 29, 1985 to 2012, however was taken out of operation due to funding constraints. The Forest Service is currently investigating opportunities to reinitiate operation of the site through cost-sharing measures.

Figure 1. NM01 Atmospheric Deposition Sampling Site - Inactive.

The Forest purchased two e-samplers in 2008 and a third unit in 2013. These are nephelometers that estimate particulate matter by measuring visibility. The e-samplers are used at various sites throughout the year to monitor smoke effects from fire activities, including wildland and prescribed burns. The data is uploaded by satellite to the Interagency Real Time Smoke Monitoring website which is found at http://www.satguard.com/usfs/realtime.asp. This data is available as real time and historic data is also available back to 2008.The three unit identifiers are USFS 1035, USFS 1036, and USFS 1054. Primary use of USFS 1035 and USFS 1036 occurred during the 2013 Silver Fire, which burned from May to July.

Lichen bio-monitoring was conducted in FY2013, with lichenologists from University of Utah revisiting 4 of the 7 original lichen air quality sites in the Gila Wilderness Area. The following reference sites were visited – Black Canyon Trail; Railroad Canyon Trail; along USFS Trail No. 151 (accessed from the Gila Cliff Dwellings NM); and along Rain Creek Trail.

Cultural Resources

Cultural Resources 1: Protection of Significant Cultural Properties

Monitoring Intent:

Compliance with law and executive order; assure resource protection.

Monitoring Method/Unit of Measure:

Aerial and ground inspection in conjunction with other resource activities

Measuring Frequency:

Annual

Percent Accuracy/Precision:

No variance allowed.

Monitoring and Trend Evaluation

The Forest meets the intent of this item with 100% accuracy by complying with laws and executive orders related to assuring cultural resource protection and consideration for all projects in the Forest's program of work.

All significant cultural resources encountered each year during cultural resource compliance activities (i.e. Sec. 106 of the National Historic Preservation Act) are assessed, inspected, inventoried and/or monitored. In addition, a program of site preservation and protection under Sec. 110 provides inventory and monitoring of additional significant cultural sites and Priority Heritage Assets every year. These include both previously recorded and newly identified cultural resource sites.

Site "protection" under the NHPA means that the federal agency (Gila National Forest) takes into account the effects of its actions (i.e. ground-disturbing projects) on significant cultural resources. On the Gila NF, this takes the form of avoiding and/or minimizing project effects to significant or unevaluated archeological and historic sites through project design, mitigating effects through a variety of data recovery techniques, or following protocols and treatments provided in the Forest Service Programmatic Agreement with the New Mexico State Historic Preservation Officer.

Activities carried out during FY2010-2013 include cultural resource sites monitored, inspected, protected and/or stabilized during Section 110 and related actions, newly recorded sites, sites addressed during project activities, determinations of eligibility to the National Register of Historic Places, public education, outreach, volunteer projects, partnerships, and Section 106 project surveys and compliance. The Forest maintains an active Site Steward program monitoring the condition of significant cultural resources.

It is currently difficult to obtain consistent annual figures for heritage program accomplishments from Forest Service heritage databases (INFRA and CRAIS). It is not feasible to compile and confirm these figures by hand from hard copy records. Therefore, the following figures are estimates.

In FY2010, approximately 600 cultural resource sites were assessed, visited, monitored and/or inspected in conjunction with other resource activities and Sec.110 activities.

These include 30 sites monitored, inspected, protected, or stabilized during Sec. 110 and related activities, 129 newly recorded sites, and 218 sites inspected during Sec. 106 project activities sufficient to make determinations of eligibility for the National Register of Historic Places.

In FY2011, approximately 567 cultural resource sites were assessed, visited, monitored and/or inspected in conjunction with other resource activities and Sec.110 activities. These include 69 sites monitored, inspected, visited, protected, or stabilized during Sec. 110 and related activities, 258 newly recorded sites, and 226 sites inspected during Sec. 106 project activities sufficient to make determinations of eligibility for the National Register of Historic Places.

In FY2012, approximately 909 cultural resource sites were assessed, visited, monitored and/or inspected in conjunction with other resource activities and Sec.110 activities. These include 58 sites monitored, inspected, visited, protected, or stabilized during Sec. 110 and related activities, 142 newly recorded sites, and 384 sites inspected during Sec. 106 project activities sufficient to make determinations of eligibility for the National Register of Historic Places.

In FY2013, approximately 284 cultural resource sites were assessed, visited, monitored and/or inspected in conjunction with other resource activities and Section 110 activities. These included 38 sites monitored, inspected, visited, protected of stabilized during Section 110 and related activities, 125 newly recorded sites, and 200 sites inspected during Section 106 activities sufficient to make determinations of eligibility for the National Register of Historic Places.

The current trend for numbers of cultural sites inventoried, assessed, and monitored in this category is heavily influenced by cultural compliance related to the Travel Management Rule, with FY2012 a substantial increase over FY2010 (34%) and FY2011 (38%), respectively. With Travel Management Projects nearing completion in FY2013, the number of sites addressed in these ways decreased to the lowest level during the monitoring period (only 31% of the number addressed in FY2012).

Sites addressed under Section 110 increased (57%) from FY10 to FY11, then decreased by slightly (-16%) from FY2011 to FY2012; from FY2012 to FY2013 these numbers again decreased (-34%). The increase seen from FY2010 to 2011 is most likely due to Heritage Resource Targets for those years. These targets were based solely on Priority Heritage Assets. This target changed from FY2011-2012. Targets are still based on Section 110 of the NHPA, but allow for more activities to be counted toward the target. Changes within the reported numbers between FY2010 and FY2013 are a reflection of changing targets and work priorities. In FY2013 staffing within the Gila Heritage Program temporarily fell; as a result, proactive Heritage Resource Targets (i.e., Section 110 projects) were deprioritized in favor of meeting NHPA Section106 regulatory requirements.

Unauthorized and illegal activities under the Archaeological Resources Protection Act of 1979, Antiquities Act of 1906, and others, are an ongoing occurrence at a number of archeological sites. These activities continue to be an issue for the Gila heritage program and law enforcement, and are subject to investigation. Evidence of past looting and vandalism at archeological and historic sites on the Gila is widespread, partially due to a tradition of such activities in the area for more than a century. During FY10, one ARPA case was successfully concluded against individuals who removed prehistoric artifacts

from the Forest. There appears to be no change in the frequency of this activity Forest-wide.

During FY2010-FY2013, inadvertent discoveries of prehistoric NAGPRA materials on Forest-administered lands continued to occur rarely. Tribal consultation and handling these materials was carried out according to NAGPRA regulations at 43 CFR Part 10.

In upcoming years, trends in heritage accomplishments may be influenced by (1) increasing demands related to managing complex electronic heritage INFRA and GIS databases including legacy data, (2) evolving definition of how to meet the Heritage Resources target for a well-rounded "Heritage Program Managed to Standard", (3) Forest Plan revision, (4) accountability required under Federal Financial Accounting Standards for Heritage Assets, including upward reporting, and (5) ongoing Travel Management Rule compliance including completion of cultural resource portions of the Final EIS and decision.

Cultural Resources 2: Cultural Resource Compliance

Monitoring Intent:

Meet Federal regulation; ensure project compliance with guidelines.

Monitoring Method/Unit of Measure:

Approved cultural resource clearance for each ground disturbing activity project

Measuring Frequency:

Before every ground disturbing activity

Percent Accuracy/Precision:

No variance allowed.

Monitoring and Trend Evaluation:

This accomplishment meets the intent of this item with 100% accuracy by following federal regulations and Forest Service direction to obtain cultural resource "clearance", concurrence, and compliance for all known ground-disturbing projects.

The Gila National Forest completes a cultural resource compliance report for each ground-disturbing project in accordance with the 36 CFR 800 regulations of the National Historic Preservation Act, or the Forest Service Region 3 Programmatic Agreement with the New Mexico State Historic Preservation Officer (which offers an approved alternate process that complies with federal regulations). Appropriate, legally mandated concurrence is obtained from New Mexico SHPO for each of these reports.

Per 36 CFR 800, compliance is completed prior to each ground disturbing activity. The only exception is emergencies such as wildfire when compliance is initiated during the event and completed shortly thereafter. Under the Programmatic Agreement, if there are no cultural resources in the project area, or no cultural resources will be affected, the project is given approval to proceed, and the compliance report is completed and sent to SHPO within 30 days.

For the database reasons cited above in "Cultural Resources 1", the number of acres of intensive inventory and number of cultural resource compliance reports for ground

disturbing projects can only be estimated. These projects included both in-house Forest-initiated activities, and externally-initiated special uses.

FY2010 reports and projects number approximately 83, covering approximately 19,348 acres of new survey within project areas encompassing 84,005 acres. FY2011 reports number approximately 63, covering approximately 23,738 acres of new survey within project areas encompassing 107,507 acres. FY2012 reports number approximately 79, covering approximately 21,581 acres of new survey within project areas encompassing 328,963 acres. FY2013 reports number approximately 73, covering approximately 24,994 acres of new survey within project acres encompassing 122,642 acres. FY2010-2013 acres surveyed are fairly consistent.

There is an emphasis on large, landscape level projects, including fuels reduction, ecosystem management, and grazing allotment permit renewal projects for which literature searches and sample surveys are undertaken for cultural resource compliance. Other types of ground-disturbing projects requiring 100% heritage survey include engineering/ facilities, recreation, timber, watershed, wildlife, minerals, and special uses.

The current heritage workforce is seven. There were additional seasonal hires between FY2010-2011 and two positions were vacant for much of FY2013. Even at full staffing, Heritage continues to be spread thin in meeting the demands of project workload.

Recommendations:

1. Add Tribal Consultation under the National Historic Preservation Act as a new monitoring activity during Forest Plan revision.

2. Remove “clearance” term from monitoring method/unit of measure #2. Instead, should be Sec. 106 compliance & SHPO concurrence.

3. There are two cultural resource compliance elements: compliance with regulations and compliance with laws and policies. These are basically the same elements. To reduce confusion, it is recommended to display compliance elements as Sec. 106 compliance and Sec. 110 activities.

4. New Forest Plan may need to reflect increased accountability of Heritage Program under Statement of Federal Financial Accounting Standards 29 for Heritage Assets and Land Stewardship, and it’s Implementation Guide. Specific monitoring standards should be able to be (easily) drawn from the database of record (INFRA).

5. New Forest Plan may need to reflect accomplishments related to electronic information & database management including Heritage Infra, evolving definitions of Heritage Program target and ways to meet it, monitoring cycle of Priority Heritage Assets, mandatory upward reporting, resolving data discrepancies, and GIS layers. All of these create a trend that perhaps should be captured in annual I&M reports, but definitely should be captured in the next Forest Plan.

6. New Forest Plan should discuss the potential effects of global warming to heritage resources; changing conditions can pose a threat to these fragile irreplaceable resources.

Facilities

Facilities 1: Forest transportation system

Monitoring Intent:

Assure adequate road system to meet goals and objectives of Forest Plan.

Monitoring Method/Unit of Measure:

National Forest Transportation Inventory System miles constructed and reconstructed. Road management records on miles of travel ways closed. Road maintenance records for roads maintained to standard. Traffic use and distribution data will be collected on 5% of the Forest system from:

1) State of New Mexico Highway Department;
2) Forest Service traffic counters and surveillance methods.

Measuring Frequency:

Annual

Percent Accuracy/Precision:

+/-15%; +/-15%

Variability that would indicate Re-evaluation:

Change in average size of the system and in average miles not maintained to standard that exceed 25% of planned level. Review every 3 years.

Monitoring and Trend Evaluation:

Amount and distribution of use of the Forest transportation system and the total miles in the system: The transportation system inventory is verified every year in September.

At the end of FY 2013, the following mileages from the INFRA database were: Level 1 - 524 miles, Level 2 - 4,231 miles, Level 3 – 252 miles, Level 4 – 125 miles, Level 5 – 25 miles. Of the total 5,157 miles that comprise the transportation system, 369 miles are considered to be arterial and collector roads, while the majority of the remaining 4,788 miles are classified as high clearance vehicle roads. Any changes in the disposition of roads are recorded in the Travel Routes module of INFRA. The forest has not obliterated (decommissioned) any roads over the last 5 years as compared with 15 obliterated (decommissioned) miles during the previous 4 years.

Assure adequate road system to meet goals and objectives of Forest Plan: On an annual basis, the engineering staff meets with each District Ranger to determine construction, reconstruction and maintenance needs for the coming fiscal year. Upon completion of District meetings, an overall Forest priority schedule is developed for project implementation.

National Forest Transportation Inventory System (miles constructed and reconstructed): At the end of each fiscal year, a report is generated listing the amount of roads that have been constructed/reconstructed over the past 12 months. Trends show less construction/reconstruction projects are being completed. In 2013, no road construction or reconstruction activity occurred. No new roads have been

constructed over the last 5 years. Road reconstruction over the past 5 year time period averages approximately 0.1 miles on an annual basis.

Road management records on miles of travel-ways closed: The INFRA database is used to track the disposition of each road within the Forest, with one of the categories being closed roads. The current inventory shows that 524 miles of roads are classified as closed.

Road maintenance records for roads maintained to standard: Road maintenance accomplishments are reported at the end of each fiscal year through Work Plan. In FY 2013, 207 miles of roads received maintenance. This represents 4% of the open system roads. The majority of these miles are not fully maintained, i.e., correcting all deficiencies to ensure the road and all its appurtenances are functioning properly. Trends indicate that no substantial change in the percentage of roads maintained will occur in the near future.

Recommendations:

1. Traffic counting is no longer utilized as a monitoring measure on the Forest. Recommend removal of this measuring method during Forest Plan revision.

Change in average size of the system and in average miles not maintained to standard that exceed 25% of planned level. Review every 3 years: The number of miles of roads within each maintenance level category is verified each September. Trends show that decreasing budgets are causing the number of miles of roads maintained to standard to decrease. As a result, the amount of deferred maintenance is subject to increase over time.

Fire Management

Fire Management 2: Project generated fuel treatment

Monitoring Intent:

Meet Federal regulations, measure prescriptions and effects. Assure that fuel treatment following the various timber activities is meeting fire protection and insect and disease control objectives.

Monitoring Method/Unit of Measure:

Annual fuel treatment report. Data is generated from field personnel who monitor and/or direct fuel treatment by Forest Service crews, logging companies, contractors, etc.

Measuring Frequency:

Annual

Percent Accuracy/Precision:

+/-10%; +/-10%

Variability that would indicate Re-evaluation:

Less than 80% of the fuels are not being treated within 2 years of generation.

Monitoring and Trend Evaluation:

Activity Generated Fuel Treatment*:* In 2013 the Forest treated 3,036 acres through the use of prescribed fire and mechanical manipulation/removal. 1000 acres of treatments occurred in the Wildland Urban Interface (WUI). The remaining 2036 acres occurred in areas where thinning occurred. Of the 3,036 acres treated using prescribed fire; approximately 475 acres were cutting units from timber sales and commercial fuelwood sales offered in 2010 and 2011. An increase in demand for saw logs and other forest products has resulted in an increase of activity generated fuels averaging approximately 2,000 acres per year beginning in 2011. Fuel wood (Commercial and Non-Commercial) acres are also increasing however treatments will vary as the Forest's Travel Management Rule is implemented. Some areas may take longer than two years to be treated or slash may remain to promote grass / herbaceous cover.

The Forest continues to incorporate activity generated fuels treatments with larger landscape burns when and where it is appropriate. Ongoing planning efforts are incorporating larger landscape scale treatments that include burning, thinning and harvesting or combinations of treatments to improve and restore watershed functionality and allow fire to resume its' natural role in the environment.

In general, there is support for fire to assume its natural role. Smoke is an issue when it settles into a community area. However, this has been the exception, rather than the rule. The Forest works with the New Mexico Air Quality Bureau and registers burn activities as required by the New Mexico Smoke Management Program. The Forest also informs potentially affected communities in advance of prescribed burns.

Recommendations:

It is recommended that the fuel monitoring item (Fire 2) include both activity and natural fuels. This would include fire use acres, which is the result of fire treatments associated with prescribed burns and fires managed for resource benefits.

Range

Range 1: Over story modification in woodland type

Monitoring Intent:

Meet Federal regulation; measure prescription and effects. Assure increase forage production in analysis areas where over story modification is scheduled.

Monitoring Method/Unit of Measure

Review of annual work accomplishment reports / acres.

Measuring Frequency:

Annual

Percent Accuracy / Precision:

+/-10%; +/-20%

Variability that would indicate Re-evaluation:

The acres of overstory modification completed for the evaluation period (ending at the 7th year) should be within 10% of projection level.

Monitoring and Trend Evaluation:

For the period 2003-2013, over-story modification has continued at the pace of approximately 3,000 acres per year. This activity was primarily accomplished via prescribed burning, fire use fires and mechanical treatment.

In FY2013 treatments occurred on the Black Range, Quemado, Glenwood, Wilderness, and the Silver City Ranger Districts using a variety of funding sources. The projects completed in 2013 included approximately 884 acres of mechanical thinning and tree pulling and approximately 2,221 acres of burning.

It is expected that in the future mechanical treatment will average about 500 acres per year and prescribed fire treatment will average about 3,000 acres per year.

It is projected that these activities will continue at the rate of approximately 3,500 acres per year.

Range 2: Brush conversion and reseeding

Monitoring Intent:

Meet Federal regulation; measure prescription and effects. Assure increased forage production.

Monitoring Method / Units of Measure

Review of annual work accomplishment reports / acres.

Measuring Frequency:

Annual. **Percent Accuracy/Precision:**

+/-10%; +/-20%

Variability that would indicate Re-evaluation:

The acres of brush conversion and reseeding completed for the evaluation period (ending the 5th and 9th year) should be within 25% of projection.

Monitoring and Trend Evaluation:

For the period 2003-2013, brush control and seeding (control of rabbit brush and snakeweed) has declined significantly. No acres of rabbit brush or snakeweed were treated via mechanical methods on the Gila in 2013. In the future it is expected that treatments of this nature will decline however will be implemented as funding allows. This activity (rabbit brush and snakeweed control) is not expected to significantly increase in the future.

Riparian/Aquatic

Riparian 1: Riparian/aquatic condition

Monitoring Intent:

Ensure improvement of riparian condition

Monitoring Method/Unit of Measure:

The Forest Plan states the following methodology*: Establish baseline data on existing riparian condition during the first decade. Establish 20 aquatic sample stations and complete aquatic/fisheries habitat, evaluation. Sample each station during May, June, and July every 5 years in conjunction with Emlen and riparian condition transects. Establish 20 Emlen survey transects on lower Gila and San Francisco Rivers under 5500 ft. elevation. Establish 15 additional transects in riparian communities above 5500 ft. elevation. Transects will be read during May, June, and July every fifth year, with low elevation transects being read in years 6 and 1 and high elevation transects being read in years 7 and 2. Re-evaluate if sufficient progress is not being made to meet Regional Riparian Condition Goals found in Forest wide Standards and Guidelines.* Methods used for aquatic monitoring currently include specific protocol developed for each stream, depending upon species and macro habitats present and relative size of stream. Monitoring includes efforts to characterize species and habitat associations, species populations and community dynamics, species interactions, and changes in species status and distributions. Riparian

condition transect methods used in the last 10 years include Riparian Area Survey and Evaluation System surveys and Proper Functioning Condition surveys.

Measuring Frequency:

The Forest Plan states that this will occur every five years. Aquatic habitat monitoring is currently done annually on 15 stations; most occurring during October to avoid reproductive periods of T&E species. Riparian condition transects are recommended for rereading every 10 years, or during project analysis, whichever comes first.

Percent Accuracy/Precision:

±15%; ±15%.

Variability that would indicate Re-evaluation:

Sufficient progress is not being made to meet Regional Riparian Condition Goals found in Forest wide Standards and Guidelines

Monitoring and Trend Evaluation:

The Forest has continued its evaluation of riparian/aquatic conditions across the Forest. In the past several years fire management activities have affected aquatic habitats. Some effects have been localized; others have been far-ranging. Monitoring efforts to identify the scope of these effects have not been completed, however known effects have included the loss of T&E species populations, severely depleted populations after fire occurrence, and habitat modification. Where fire has occurred at low to moderate intensities within watersheds, results have included reduced fuel loading, increased ground cover, reduced fire danger, and nutrient recycling, all of which lead to potential aquatic habitat improvement.

The Forest has continued its management of excluding permitted livestock through fencing on the Gila and San Francisco Rivers and major tributaries. These exclusions protect riparian condition and aquatic habitat. Riparian condition across the Forest indicates an upward trend due to more restrictive, site-specific management requirements. Some localized areas of poor condition occur, in particular those areas affected by fire, drought, roads, and heavy use by ungulates. The 2012 Whitewater Baldy Complex fire had devastating effects on many riparian and aquatic ecosystems located in areas within and below high severity burn. Riparian systems also experience negative effects where unauthorized use by livestock occurs. The Forest amended the 1986 Forest Plan to address inconsistencies in scheduled activities associated with the riparian standards and guidelines in 2005 (See Forest Plan Amendment #10).

The following tables list monitoring activities that have occurred in 2013:

2013 Monitoring Activities

Location	District	Activity	Description	Trend
V+T allotment; Noonday/Gallinas allotment	Black Range; Silver City	Proper Functioning Condition survey and ocular evaluations	Assessment completed on all riparian areas and springs related to 2013 allotment decisions, and assorted project work.	Trend varied among reaches from upward to static to downward. These trends were based on site specific factors. Recommendations were made to improve trend with management actions where possible.
Gila & San Francisco Rivers and major tributaries, Dry Blue Creek, Mimbres River	Wilderness Silver City, Glenwood, Quemado, Reserve	Fish survey	15 annual monitoring points for fish species and populations. Completed in cooperation with NM Game and Fish Dept. and US Fish and Wildlife Service. Some habitat monitoring included in some points. Many high elevation streams experiencing scouring and down cutting due to fires of 2011, 2012, and 2013. Sediment and ash deposition occurred in larger systems.	No trend analysis completed. Noted trend for Gila trout is downward after the fires in 2011, 2012, and 2013; Chihuahua chub was found 11 miles upstream of known occupied habitat on Forest in 2008 and the population was extirpated during 2012 due to stream drying; trend for other T&E aquatic species is considered downward due to fires of 2011, 2012, and 2013. Native non T&E species trend considered downward.
Quemado Lake	Quemado	Water Quality sampling	Water quality sampling on lake for monitoring of Solar Bees (water circulators)	No trend analysis completed.

Soil and Water

Soil and Water 1: Watershed condition of forest lands

Monitoring Intent:

Increase acres of watershed in satisfactory condition.

Monitoring Method/Unit of Measure:

Standard watershed condition transects (Hydro. Note 14), ocular estimates, evaluation of treated acres, range management plans implemented, professional judgment/ satisfactory or unsatisfactory acres, and field validation of cluster and pace transects

Measuring Frequency:

10% annually

Percent Accuracy/Precision:

±80% / ±80%;

Variability that would indicate Re-evaluation:

Re-evaluation if improvement acres show a 5% decrease in ground cover in transition zones or less, or 10% decrease in ground cover in ponderosa pine zones or greater.

Monitoring and Trend Evaluation:

Watershed condition monitoring is primarily conducted during allotment analysis to determine what management action, if any, may be required to maintain satisfactory conditions or move unsatisfactory conditions to satisfactory. Allotment analyses are currently being done according to congressionally mandated 1995 Rescission Schedule. In 2011, 180 watersheds were assessed for condition classification as the Gila National Forest manages more than 1% of the lands within the watershed. Of these 180 watersheds, 98 are classified as “Functioning Properly,” 81 are classified as “Functioning at Risk”, and 1 is classified as “Impaired Function.” The long time period required to reverse soil loss makes it difficult to move unsatisfactory watershed condition to satisfactory condition very quickly. The following tables indicate watershed condition monitoring that has occurred in FY2013.

2013: Watershed Condition

Location	District	Activity	Description	Trend
Forest wide	All	Monitoring of livestock grazing allotments for permit compliance	Utilization levels monitored to ensure that overuse not occurring that would precipitate the loss of herbaceous ground cover.	No trend analysis completed
Noonday/Gallinas and V+T Allotments	Silver City, Black Range	Watershed condition monitoring	Monitoring done for allotment analysis to determine management action needed to protect resources	Overall stable to upward with isolated areas of static and/or downward trend on some allotments.
Gila Wilderness	Wilderness	2013– 29,000 acres of Terrestrial Ecological Unit Inventory in the Middle Mesa quad, plus site collection Forestwide in previously mapped areas.	Ongoing forest wide survey by New Mexico TES crew	Initial assessment, no trend noted
2012 Whitewater Baldy Fire	Reserve, Glenwood, Wilderness, Silver City	Assessment of Post Fire BAER treatments of the Whitewater Baldy Fire	Monitoring mulching and seeding treatments as well as effects from the fire on soil and watershed condition	No trend analysis completed. Results indicated that success of mulching implementation was moderate. Seeding success was highly variable, with recommendations for reseeding in areas that faired poorly.

Soil and Water 2: Watershed and Soils Prescriptions

Monitoring Intent:

Meet State and Federal regulations. Monitor projects to determine compliance with project recommendations and to determine the suitability of recommendations (Best Management Practices). Assure improvement of watershed conditions.

Monitoring Method/Unit of Measure:

The Forest Plan states that the following items will be monitored:
Review timber sales for following measures: 1) drainage structure density, construction, and function 2) road relocations and obliterations 3) stream course and channel protection.

The Forest currently has very limited activities involving the removal of timber.

All project activities involving ground disturbance are designed to utilized Best Management Practices as set forth in the Watershed Specialist Report and 404/401 Permit(s) if required. Projects are reviewed on a site-specific basis to see if Best Management Practices are sufficient or if additional measures are required to protect water and soil resources. In FY2013, the Regional Office assigned a target of two Best Management Practices monitored under the new National Best Management Practices for Water Quality of National Forest System Lands. The Gila completed this monitoring on the practices of the following projects, which were then entered into the National BMP Program Interim Database:

1- Wallow Wildfire Area Site Prep for Restoration – Veg A Ground Based Skidding and Harvesting.
2- Forest Road 150 Heavy Road Maintenance - Road C Road and Waterbody Crossing Operation and Maintenance.

National BMP Monitoring Results

Site	Evaluation Type	Date	Implementation	Effectiveness	Composite
Monitoring Activity: Road C Road and/or Waterbody Crossing Maintenance and Operations					
FR 150	Both Implementation and Effectiveness	08/21/2013	Fully	Moderate	Good
Monitoring Activity: Veg A Ground Based Skidding and Harvesting					
Wallow	Both Implementation and Effectiveness	08/22/2013	Not	Not	Poor

Measuring Frequency:

The Forest Plan states that this will occur by sale/district/year. The Forest currently measures by project/district/year.

Percent Accuracy/Precision:

Not applicable

Variability that would indicate Re-evaluation:

a) 10% failure of drainage structures within 1 year of installation b) 20% of road closures being used within 3 years; c) 10% of road obliteration/relocation being closed within 3 years; d) 5% of drainages being damaged to the point that flows are concentrated and channel instability initiated.

Monitoring and Trend Evaluation:

The Forest uses Region 3 Soil and Water Conservation Practices during implementation of all ground disturbing projects. For all projects requiring certification under the Clean Water Act, a 404/401 permit is obtained from the US Army Corps of Engineers and New Mexico Environment Department. If additional best management practices are required under these permits, these are followed. Projects related to restoring fire adapted ecosystems, including prescribed burning and woodland thinning are currently the priority work on the Forest. Little monitoring has been done to determine the effects of prescribed burning on watershed conditions.

2013 Soil and Watershed Monitoring

Location	District	Activity	Description	Trend
TEP Tower replacement project	Quemado	BMP monitoring on implementation of ground disturbing projects	Watershed personnel evaluate BMPs during implementation to determine effectiveness. Recommendations for additional mitigation may occur if monitoring indicates the need.	Needs work – photo documentation by District indicated the need for further erosion control measures following runoff events.
Glenwood Allotments	Glenwood	Drought monitoring district wide	Watershed and range personnel evaluated site conditions across Glenwood Ranger District allotments in June to determine how drought was impacting watershed and range conditions	No trend determination was made but watershed conditions were noted as “far from optimum”

Location	District	Activity	Description	Trend
Gap I pile sites	Quemado	Monitoring of pile sites from Gap I timber sale	Watershed and District personnel visited several pile sites on Gap I to see if revegetation was occurring or whether there was a need for mitigation	Trend indicated that large piled and burn sites had little to no recovery of vegetation. A monitoring plan was subsequently developed for incorporation into future pile and burn sites associated with vegetation treatments.

Timber

Timber 1: Intermediate and removal harvest

Monitoring Intent:

Meet Federal regulations and measure prescriptions and effects. To achieve a more balanced age class distribution appropriate growing stock levels, appropriate rotations, and provide wildlife habitat needs. Acres of intermediate harvest and removal harvest are evaluated based on treatment prescriptions and effects of implementation of prescription treatments. The desired outcome of the treatment prescriptions is improvement in age class distribution for the appropriate growing stock levels, appropriate rotations, and meeting wildlife habitat needs.

Monitoring Method/Unit of Measure:

Timber Management information system (FSH 2409.21e): staff field reviews of 5% of treatment projects/Acres.

Measuring Frequency:

Annual

Percent Accuracy/Precision:

± 10%; ± 20%

Variability that would initiate re-evaluation:

Planned treatment varies 35% from schedule at 5 year intervals.

Monitoring and Trend Evaluation:

This item has traditionally been tied to specific silvicultural prescriptions for seed tree harvest and clear cuts. The description has been expanded more recently to include other general types of silvicultural prescriptions including free thinning where trees from all age classes are removed.

From 2004 through 2009, commercial timber sale treatments were designed to thin trees from below over story trees. The treatment prescriptions focused on smaller diameter trees and the younger age classes. Current treatment prescriptions for understory thinning do not fit the definition of intermediate and removal harvests as defined in the forest plan. The original definition of intermediate and removal harvests did not take into consideration natural fuels reduction. The current emphasis in understory treatments focuses on forest restoration and reducing the risk of crown fire by creating more open conditions within forested stands focusing on age classes with the highest number of trees; this primarily smaller diameter classes.

Wildland Urban Interface (WUI) treatment prescriptions meet the original Forest Plan definition of intermediate and removal harvests where fuel breaks were implemented.

The following table lists acres of intermediate and removal harvest for commercial sales and WUI fuel break treatments by year treated during the monitoring period. The 2009 acres include all timber sales, WUI treatment and Collaborative Forest Restoration Program treatment acres.

Year	Acres of Intermediate and Removal Harvest Units
2008	487
2009	2,017
2010	1,519
2011	1,963
2012	2,049
2013	2,181

The upgrade of a mill in Reserve, NM has caused an increase in demand for material to be utilized as saw timber. This mill is able to process and make products from material down to 6 inches DBH with a 5 inch top. The amount of acres the Gila NF could treat mechanically could increase if the demand for timber was the actual target. The 5 year schedule is updated on an annual basis and is expected to stay relatively flat due to declines in budget. The capability of local markets and demand from local mills will be much higher than expected target.

5 Year Plan for Timber Volume Offered (ccf), 2014 – 2021 Year	Volume Offered (ccf)
2014	10,492
2015	10,582
2016	10,000
2017	11,000
2018	11,000
*2019	11,000
*Includes estimate from FY 14 Update	
Sum	64,074

Timber 3: Timber Stand Improvement

Monitoring Intent:

To meet Federal regulation, assure control of stocking levels for accelerated growth. Forested areas are evaluated to ensure that timber growth meets Federal regulations and that recently established timber stands are meeting the desired rate of growth.

Monitoring Method/Unit of Measure:

Timber Management Information System (FSH 2409.21e) and examination procedures in compartment examination and prescription handbook/acres.

Measuring Frequency:

Annual

Percent Accuracy/Precision:

+ 10%; +20%

Variability that would indicate Re-evaluation:

Cumulative deviation for 5 years falls 20 percent below planned program.

Monitoring and Trend Evaluation:

This item is a Federal Regulation to ensure control of stocking levels for accelerated growth. This is a specific item that is tracked in the National Forest Vegetation and Watershed Management (NFVW) and National Forest Timber Management (NFTM) Timber Stand Improvement budget items. An increase in acres treated over the past two years is due to markets in place (Catron County Citizens Group Mill in Reserve and Gila Woodnet in Silver City) to process smaller diameter timber. The use of tools such as; grants, agreements, contracts, and updated utilization standards in the past two years has improved our ability to treat more acres compared to traditional timber sale contracts that would not sell due to long haul distances. The following table lists the acres of timber stand improvement areas.

Timber Stand Improvement Areas

Year	Acres
2008	1,740
2009	1,537
2010	1,510
2011	1,027
2012	1,041
2013	1,200

Timber 5: Fuel wood

Monitoring Intent:

This item is in accordance with Federal Regulation that states green wood sales will continue on a sustain yield basis. Residue from commercial timber sales will be available for firewood.

Monitoring and Trend Evaluation:

Due to the minimal amount of commercial timber sales sold on the Gila NF, districts have ensured fuel wood was available by preparing designated green fuel wood areas. The Gila NF also allows the gathering of dead fuel wood district wide in areas that are not designated Wilderness and limits the gathering of fuel wood in designated Roadless areas. This item is now reported in PAMARS (MAR) and timber data bases in CCF and is reported with volume offered and volume sold. The following table lists the net volume offered in CCF and cords. The number of cords is derived by dividing the CCF by .8 in accordance with the Conversion Factor form FSH 2400 page 8 of the Gila National Forest Supplement. The increased cost of fuel and electricity has resulted in an increased demand for fuel wood.

Cords of Fuel wood Made Available

Year	CCF	Cords
2008	5,350	6,687
2009	5,753	7,191
2010	5,432	6,790
2011	5,451	6813
2012	5,253	6,566
2013	5,652	7,065

Recommendations:

The regional priorities, role of timber and regional market conditions have changed from when the Gila NF Forest Plan was first implemented. The current Gila NF priority is to restore and maintain ecosystems that are adapted to fire. Traditional timber markets that purchased forest products from the Gila NF have closed and since 2002 new smaller markets have begun to emerge. The way timber is awarded has also changed as we no longer use only timber sale contracts. To ensure accurate monitoring of activities now and in the future, we must modify existing items and monitor new items previously not considered. Given current priorities and conditions on the forest the following is recommended for future timber monitoring:

Timber 1: Acres of Intermediate and Removal Harvest

Recommend item be changed to acres treated with commercial component. Currently only certain types of prescriptions fall under the existing definition. The suggested change would ensure all prescription and harvest activities that are awarded with some type of contract would be monitored.

Timber 4: Board Feet of Net Saw timber Offered

Recommend changing units from board feet (bf) to agency standard of hundred cubic feet (CCF) and changing saw timber to volume to reflect changing market conditions within our region.

Recommend adding category of volume awarded to track what is accomplished on the ground. During the monitoring period timber was offered but not awarded.

Timber 5: Cords of Fuel wood Made Available

Recommend this item be incorporated into the new volume offered and volume awarded categories as it is tracked in MARS and TIMS. Volume of fuel wood could be determined by the type of contract awarded (i.e. 2400-4 versus 2400-6).

Timber 8: Review of Timber Land Classification

Add new monitoring item that shows where restoration of fire adapted ecosystems is occurring and incorporate the work and maintenance of each project as fire regime condition class (FRCC) changes in project areas. Report change in FRCC by vegetation type and type of treatment (mechanical and burning).

Wildlife

Wildlife 1 and 2:

The Forest Plan places priority on monitoring wildlife population and habitat trends of management indicator species, State and Federally listed plants, animals, and sensitive species. High priority will be placed on gathering data where management actions are likely to result in habitat changes.

Monitoring Intent:

Evaluate trends and meet Federal and State regulations. Assure that wildlife habitat will be maintained or increased and that sensitive species will be protected.

Evaluate relationships of effects of forest management activities to habitat changes and MIS populations.

Monitoring and Trend Evaluation:

Federally and State Listed Species

Mexican spotted owl

Monitoring Method: Single season monitoring

Trend: New Mexico's Gila Region provides an important stronghold for the Mexican spotted owl (*Strix occidentalis lucida*). Studies on and adjacent to the Gila National Forest indicate that owls are both relatively abundant and well distributed in this Region at present. Despite their abundance and widespread distribution studies between 1990 and 2005 suggest that some local owl populations may be declining, and the overall population trend is unknown. Uncertainty regarding population trend warrants the need for continued monitoring (Ganey et al. 2006).

Catastrophic (uncharacteristic) fire is the major threat identified in the Mexican spotted owl recovery plan. On the Gila high intensity fire has caused negative impacts to Mexican spotted owl habitat. In an attempt to use naturally-occurring wildland fire management to reduce fuel levels, the Gila allows natural fire starts to burn if climatic conditions are favorable to reduce fuels without subjecting large areas to unwanted impacts. Wildland fire management has had mixed effects to the Mexican spotted owl and its habitat. Beneficial effects occur where fire intensity and severity reduces fuels but maintains important habitat characteristics, negative impacts occur where fire severity and intensity is high and those important habitat characteristics are lost or severely impacted. Management of fire has allowed for the long term improvement of some Mexican spotted owl habitat on the forest, while at the same time many acres of habitat have been lost due to wildland fire. Where fuels have been reduced, the reduced risk of catastrophic fire has improved the quality of the existing habitat. Available data suggest that Mexican spotted owls are fairly resilient to wildfires that impact portions of their management areas, at least in the short term.

Since the last reporting period the Travel management proposed action has been consulted on with USFWS and was determined to adversely affect the Mexican Spotted owl. Take of the species was determined to occur due to motorized vehicle use on the Forest.

Wildfires during previous years have impacted the owl and its habitat across extensive areas of the forest. During 2011 the Wallow Fire burned approximately 16,000 acres on the Forest and 4 PACS were within the fire perimeter in NM. During 2012 the Whitewater Baldy Fire impacted 297,000 + or – acres on the Forest and 101 PACs were within the fire perimeter. During 2013 the Silver Fire, along the Black Range crest, burned approximately 150,000 acres and impacted 17 MSO PACs, with 5 PACs having the majority of their area burned at moderate to high severities. Many of the PACs within the Whitewater-Baldy fire have had managed fire within their boundaries, some several times within the last 10 years, and fire behavior moderated once it reached these areas. However, fifteen PACs that had not experienced recent fire had greater than 50% of their area that burned with moderate to high fire severities. Three of these fifteen PACs had greater than 80% of their area impacted by moderate to high severity fire. It is unknown at this time if owls are still utilizing unburned and low intensity burn areas adjacent to or within these PACs.

In 2011 monitoring on the Forest occurred in 29 PACs. Mexican Spotted Owls were located nesting or roosting within the boundary of 22 of these PACs. Pairs were documented in 10 of these PACs. Reproduction was confirmed at 3 of these PACS. Two new PACs were identified with pairs of owls present.

In 2012 monitoring on the Forest occurred in 60 PACs. Mexican Spotted Owls were located nesting or roosting within the boundary of 35 PACs. Pairs were documented in 22 and reproduction confirmed in 11 of these PACs. Four new PACs were identified with reproduction confirmed in each.

In 2013 monitoring on the Forest occurred in 32 PACS. Mexican spotted owls were located nesting or roosting within the boundary of 10 PACS. Pairs were documented in 8 and reproduction confirmed in 1 of these packs. Two new PACs were delineated.

2014 monitoring efforts should concentrate on areas impacted by these recent, large fires.

Southwestern willow flycatcher

Monitoring Method: Single season monitoring

Trend: Habitat conditions on the Forest for the Southwestern willow flycatcher are improving. Suitable and potential Southwestern willow flycatcher habitat on the Gila has been excluded from management activities that have the potential to impact these riparian areas.

In 2011 and 2012 monitoring on the Forest for this species occurred along the Gila River in the Gila Bird Area, the Fort West Ditch area, and at the WS Dam site on the San Francisco River. Nesting birds continue to be documented in both areas along the Gila River. However, no nesting was documented at the WS dam site. The number of breeding pairs increased at the Ft. West Site during 2011 but decreased back to 2010 numbers during 2012. The number of breeding pairs decreased at the Gila Bird Area site during 2011 but returned to 2010 numbers during 2012.

Since the last reporting period no projects have been designed within or adjacent to occupied SWWF habitat that would adversely affect this species or its habitat.

Reports of SWWF nesting along the San Francisco River are scant according to the New Mexico Department of Game and Fish. Until the 2007 nesting season the Gila had no documented records of SWWF nesting along the San Francisco River. This population was being monitored by the New Mexico Department up until 2008. However the Department has not monitored this site regularly so the Forest initiated monitoring during 2011. The site was occupied during the 2011 breeding season but no SWWF were detected during 2012.

During 2013 three recently occupied sites, WS Dam, Gila River Bird Area, and Ft. West Ditch were surveyed for SWWF. Southwest willow flycatchers were detected at each of the sites.

Chiricahua leopard frog

Monitoring Method: Single season monitoring

Trend: Most of the suitable and potential habitat for the Chiricahua leopard frog on the Gila has been excluded from management activities that have the potential to directly impact this species habitat; therefore, habitat conditions for this species are improving. Annual species monitoring by the Forest, New Mexico Department of Game and Fish and U.S. Fish and Wildlife service indicates that the population on the Forest continues to decline. The continued decline is not related to Forest management activities. The decline is a result of competition with non-native species and disease. Disease and nonnative species transport by motorized uses, livestock, wildlife, and other management activities is a concern for the remaining populations on the Forest.

During 2011, 44 sites including six previously occupied sites were monitored. CLF were determined to be present at two previously occupied sites and no new populations were detected. During 2012, 154 sites including seven previously occupied sites were monitored for CLF and three sites were determined to be occupied. Chiricahua leopard frog tadpoles (600) were stocked into an existing, unoccupied stock tank during 2012 and one new population was discovered on the Forest during 2012. The Forest has two steel rim tanks that are currently being utilized as refugia for the species, with two additional tanks available when needed. The Forest also has a refugium, constructed during 2011, on the Reserve Ranger District.

Since the last reporting period the Travel Management proposed action was consulted on with USFWS and determined to adversely affect this species. USFWS provided a Biological Opinion with Reasonable and Prudent Measures and Terms and Conditions to minimize impacts to Chiricahua leopard frog. Take of the species was determined to occur due to motorized vehicle use on the Forest. During 2013, 33 sites were surveyed, of these sites, 85 percent (n=28) of the surveys were completed at man-made stock tanks or wells (with an overflow dirt tank or steel rim). The remaining 15 percent (n=5) of surveys were at natural sites: springs, seeps, wetlands, creeks, rivers. Four sites surveyed had Chiricahua leopard frogs present.

Loach minnow and Spikedace

Monitoring Method: Single season monitoring

Trend: Management activities that have the potential to directly impact both these species habitat, including livestock grazing and off road vehicle use (in some areas), have been excluded from some areas with occupied and potential habitat. This has allowed for the improvement of habitat conditions for these species in those areas. Management activities on the slopes upstream of these species habitat, like wildland fire use, have contributed some sediment and ash to streams that have occupied and potential habitat. Habitat conditions for the loach minnow and spikedace that have the potential to be impacted by forest management activities are improving on the Gila National Forest. The main threat to these species and other native fishes continues to be nonnative fishes that prey upon and/or compete with them. Sediment from wildfires, roads, trails, livestock grazing, and other management activities remains a concern for the species. Improvements and management decisions that affect these activities have had positive effects to stream habitat in some areas.

Surveys and monitoring were conducted by Gila NF and in cooperation with NMDGF. Annual monitoring of warm water fishes at 8 permanent sites in the Gila and San Francisco River drainages was accomplished during October of 2011 and 2012 in cooperation with NMDGF. The Gila NF funded D. Miller of Western NM University to monitor two sites within the Gila River Bird Area, one site on the San Francisco River, and one site near the confluence of the East and West forks Gila River during this period of time. Annual species monitoring on the Gila National Forest indicates that the loach minnow are continue to be present at most historical sites during 2011 and 2012. However, spikedace continue to be absent from many historically occupied areas. Loach minnow population numbers are stable in the San Francisco River and the Tularosa River. The Forest has been working with the NM Department of Game and Fish to re-introduce spikedace to the San Francisco River where they were extirpated during the early 1950s.

Since the last reporting period the Travel Management proposed action was consulted on with USFWS and determined to adversely affect these species. USFWS provided a Biological Opinion with Reasonable and Prudent Measures and Terms and Conditions to minimize impacts to these species. Take of these species was determined to occur due to motorized vehicle use on the Forest.

During 2011 the Wallow Fire burned within the Blue River Drainage and impacts from fire runoff was evident in the Dry Blue. Prior to 2010 loach minnow had been detected in the lower reach of Dry Blue during annual monitoring efforts. Post fire monitoring during 2011 failed to detect any loach minnow. Monitoring will be conducted during 2013 to determine the status of the species in the Dry Blue.

During 2012 the Whitewater-Baldy Fire burned 297,000 + or- acres in watersheds that drain into occupied loach minnow and spikedace habitat in the Gila and San Francisco River basins. Post fire evacuation/salvage of these two species occurred at one site on the San Francisco River and at several sites near the East, Middle, and West forks Gila River. All salvaged fish were transported to Dexter Natl. Fish Hatchery where they will remain until habitat conditions improve. Post fire monitoring during Oct. 2012 indicated that both species were still present at the Forks sites but no fish of any species was detected at the San Francisco River site.

2013 monitoring at permanent and other sites indicates that loach minnow and spikedace populations remain present in the Gila River, San Francisco River, and Tularosa River. Populations of both species have been declining since the early 1990's. Populations are further reduced as a result of post fire runoff and no loach minnow were detected at the San Francisco site in 2013. However, loach minnow were detected at other sites in the San Francisco River. 2014 monitoring will be important to document recruitment in the reduced populations.

Gila trout

Monitoring Method: Single season monitoring

Trend: Habitat conditions have recently declined due to several large wildland fires that have severely impacted stream systems. Post fire runoff has impacted populations as well as habitat. Drought during 2011 and 2012 has impacted populations in lower elevation streams such as Black Canyon and McKnight Creek. Monitoring during 2011 and 2012 indicated that most Gila trout populations were stable at that time. Supplemental stocking in lower elevation streams temporarily offset any decrease due to drought conditions.

The Whitewater Baldy Fire during 2012 impacted seven Gila trout streams in the Gila Wilderness. Fish from Whiskey Creek, Langstroth Canyon, and Spruce Creek were evacuated and are being held at the Mora National Fish Hatchery. Some Spruce Creek fish were transported to Arizona and stocked into Ash Creek to establish a new population. Some fish from Langstroth Creek were trans-located to McKenna Creek to establish a new population there. Monitoring of these streams during 2013 determined if the populations were, at most, lost, or at least, severely impacted.

Since the last reporting period the Travel Management proposed action was consulted on with USFWS and determined to adversely affect the Gila trout in Black Canyon. The USFWS provided Reasonable and Prudent measures along with Terms and Conditions to minimize impacts to this population and other populations of Gila trout.

During 2013 Gila trout populations in McKnight Creek, Black Canyon, White Creek, W. Fork Gila River, Whiskey Creek, Langstroth Canyon, and Mogollon Creek were monitored. All populations, with the exception of Mogollon Creek, were extirpated as a result of post fire runoff from the Whitewater-Baldy and Silver fires. Population trends for Gila trout are declining on the Forest. Once habitat in streams that have been impacted by these events begins to improve and Gila trout are reestablished in them the trend will improve.

Gila Chub

Monitoring Method: Single season monitoring

Trend: During 2011 the Miller Fire burned within the Turkey Creek drainage and due to possible runoff affects during the monsoon season Gila Chub were evacuated and held at the Dexter National Fish Hatchery. The population at Turkey Creek was determined to be stable with multiple age classes represented during the evacuation effort. During 2012 habitat conditions were assessed in Turkey Creek and determined to be capable of supporting Gila chub and the evacuated fish were returned during April. Gila Chub were determined to still occupy Turkey Creek prior to returning the evacuated fish. During summer 2012 the Whitewater Baldy Fire burned into the Turkey Creek drainage and fish were again evacuated. These fish were returned to the stream during fall 2012 when it was determined that habitat conditions had not been impacted by fire runoff.

During 2012 the Forest, in cooperation with NM Department of Game and Fish established a new population of Gila Chub in Mule Creek. Mule Creek is a tributary of the San Francisco River and believed to be historically occupied by the species. Gila Chub were obtained from a population in Harden Cienega Creek which is located downstream of Mule Creek.

During 2013 Gila chub populations in Mule Creek and Turkey Creek were monitored to determine current status of the populations. The Turkey Creek population was healthy with numerous individuals and age classes present. However, the population has been impacted by recent large fires. Gila chub were detected in Mule Creek in low numbers and no reproduction or recruitment was noted.

Monitoring and Trend Evaluation:

Management Indicator and Region 3 Sensitive Species

Species: Hairy Woodpecker, Plain Titmouse, Common Black-Hawk, Abert's Towhee, Arizona Bell's Vireo, Gila Woodpecker, Bald Eagle, Yellow Billed Cuckoo, goshawk, and Mearn's quail.

Monitoring Method: Single Season Monitoring, and Point-counting (consists of establishing transects of points regularly distributed through the habitat to be monitored. The Forest has transects that are monitored on a weekly, seasonal and others on an annual basis).

Trend: The hairy woodpecker is an indicator of high seral stage ponderosa pine and mixed conifer because the older age classes within these vegetation types provide snags and an abundance of insects. Across the Gila National Forest, the acreage of high seral condition, ponderosa pine and mixed conifer has decreased since the Forest Plan was developed. This change has occurred primarily due to natural fire events. These events have been a benefit to the Hairy woodpecker, because they have increased the snag densities on the Forest. The Forest Plan projected a downward trend in this species habitat. Monitoring along the Breeding Bird Survey routes on the Forest have shown a small decline in the detection of this species. Monitoring in the Gila Bird Area over the last few years has documented a non-statistical increase. Monitoring in the Burro Mountains over the last several years has continued to

document that this species is common. Population trends for this species are estimated to be stable.

Plain titmouse habitat conditions on the Gila have remained stable. The Plan projected an upward trend in this species habitat. Monitoring along the Breeding Bird Survey routes on the Forest have shown no apparent trend, long-term population trends for the titmouse appear to be stable to slightly decreasing at the Forest level. Limiting factors for the Plain Titmouse include cavities in snags and hollow trees. With the large amount of woodland vegetation type on the Gila National Forest, cavities are expected to be abundant for this species.

Common black hawk habitat conditions on the Gila National Forest have improved. Suitable and potential habitat on the Forest has been excluded from management activities that have the potential to impact these riparian areas. The Forest Plan predicted an upward trend in habitat conditions for this species. Forest monitoring in the Gila Bird Area and single season observations suggests that the trend for this species is stable.

Abert's Towhee habitat conditions on the Gila National Forest appear to have improved. Suitable and potential habitat on the Forest has been excluded from management activities that have the potential to impact these riparian areas. A study on and adjacent to the Forest documents that this species continues to be documented in areas of historical occurrence. Forest monitoring in the Gila Bird Area has not been able to document an apparent trend.

Bell's Vireo habitat conditions on the Gila National Forest have improved. Suitable and potential habitat on the Forest is primarily excluded from management activities that have the potential to impact these riparian areas. Forest monitoring in the Gila Bird Area has documented a significant increase in average detection for this species. Available data suggest that on the Forest the apparent trend for this species is up.

Gila Woodpecker habitat conditions on the Forest have improved. Suitable and potential habitat on the Gila is primarily excluded from management activities that have the potential to impact these riparian areas. Forest monitoring in the Gila Bird Area in most years documents the occurrence of the species, but no significant change has been detected. Available data suggest that on the Forest the apparent trend for this species is stable.

Bald Eagle habitat conditions on the Forest have improved. Suitable and potential riparian habitat is primarily excluded from management activities that have the potential to impact habitat conditions for this species. Monitoring in the Gila Bird Area and across the Forest indicates that this species commonly occurs on the Forest during the winter. The available information indicates that the trend for the Bald Eagle is stable. During 2012 a pair of Bald Eagles attempted to nest at Quemado Lake. This nesting attempt was unsuccessful. During 2013 the eagles again nested at Quemado Lake and were successful in fledging young.

Yellow-Billed Cuckoo habitat conditions on the Forest have improved. Suitable and potential riparian habitat is primarily excluded from management activities that have the potential to impact habitat conditions for this species. Monitoring in the Gila Bird Area and areas that have nesting Southwestern Willow Flycatchers document that this

species commonly occurs on the Forest. The available information indicates that the trend for this species is stable.

The Gila National Forest Land and Resource Management Plan Amendment #10 for Management Indicator Species (MIS) amended the MIS list for the Gila National Forest. This amendment added the northern goshawk to the Forest MIS list. Northern goshawks (*Accipiter gentilis)* were selected to represent species using ponderosa pine habitat. This species primarily uses late-seral ponderosa pine habitat. Late-seral mixed conifer habitat is also important to this species. A total of 55 northern goshawk sites have been identified on the Gila, some of these nesting areas were first documented in the 1970's and monitoring on the Forest started in the 1980's. A review of this information suggests that goshawk populations on the Forest are stable.

The Mearn's Quail is an indicator of moderate- to high-seral stage woodland, and high-seral stage grassland. Mearns' Quail are uncommon, breeding residents of the Gila National Forest. Comprehensive censusing for Mearns' Quail has not occurred on the Forest, however, over the past five years the species has been observed in various locations where they were previously unknown. More numerous and larger coveys of Mearns' Quail have been seen on Glenwood, Quemado, Wilderness and Silver City Ranger Districts (Jerry Monzingo, Wilderness District Wildlife Biologist, pers. comm.; Russell Ward, Range and Wildlife Assistant Staff, Gila National Forest, pers. comm., Pat Morrison, Quemado Wildlife Biologist, pers. comm.). Mearns' Quail populations on the Forest are declining to stable currently due to ongoing drought conditions.

Mule deer, Beaver, and Big Horn Sheep

Monitoring Method: Single season monitoring, NMDGF Deer Counts

Trend: Mule deer habitat conditions in the seral stages of the vegetative types that this species was chosen for have remained stable. The plan predicted an upward trend in habitat conditions for this species. This predicted trend increase was tied to vegetative treatments that have not occurred. Monitoring on the Forest has shown a decrease in the overall deer numbers on the Forest. This decrease is more a result of weather and hunting pressures than forest management activities. The Whitewater Baldy fire will likely benefit early to mid seral stage species such as the mule deer.

Beaver habitat conditions on the Gila National Forest have improved as riparian habitats have improved. The Forest Plan predicted an upward trend in habitat conditions for this species. Population levels on the Gila appear to be stable.

Two herds of big horn sheep occur on the Forest, the Turkey Creek and San Francisco River herds. Monitoring by the New Mexico Game and Fish indicates that both populations continue to decline.

Desert sucker, and Sonora sucker

Monitoring Method: Single season monitoring – Surveys and monitoring were conducted by Gila NF and in cooperation with NMDGF. Annual monitoring of warm water fishes at 8 permanent sites in the Gila and San Francisco River drainages was accomplished during October of 2011 and 2012 in cooperation with NMDGF. In addition, the Forest funded D. Miller of Western NM University to monitor two sites within the Gila River Bird Area, one site on the San Francisco River, and one site near the confluence of the East and West forks Gila River during this period of time.

Trend: Annual monitoring on the Forest shows considerable year-to-year variation in desert and Sonora sucker densities; however no long-term positive or negative trend can be discerned. Population levels for these species appear to be stable. However, one area that has seen a decrease in populations of these two species is the East Fork Gila River. This decrease is likely a result of predation and competition by and with nonnative fishes including small mouth bass and flathead catfish.

It is unknown at this time what impact runoff from the Whitewater Baldy fire has or will continue to have on these species. It is likely that short term population decreases will be experienced. Monitoring during 2013 will be utilized to determine population trends in streams impacted by the fire.

During 2013 monitoring at permanent sites on the San Francisco, Tularosa, and Gila rivers indicate that all fish species were dramatically impacted by post fire runoff from the Whitewater-Baldy fire. All populations downstream of the fire showed marked decreases in number of individuals, especially younger age class individuals. Reduced recruitment into the population may occur in future years.

Action Plan for 2014

The Action Plan for 2014 identifies which monitoring items and monitoring activities will be reported on fiscal year 2014 monitoring report.

Monitoring Item	Monitoring Activity	Description of Monitoring Activity	2013 Monitoring Item
Air 1	Class I wilderness	Visibility baseline and current	Yes
Cost 1	Units costs	Ability to implement Forest Plan	No [1]
Cost 2	Annual budget	Ability to implement Forest Plan	No [1]
Cost 3	Program budget	Ability to implement Forest Plan	No [1]
Cultural 1	Protection of significant cultural resource properties	Resource protection	Yes
Cultural 2	Compliance	Project clearance	Yes
Facilities	Transportation system amount and distribution	Forest Plan goals and objectives	Yes
Fire 1	Fire suppression	Prescriptions and effects	Yes
Fire 2	Fuel treatment (activity fuels) need uncharacteristic levels/FRCC	Prescriptions and effects	Yes
Lands 1	Rights-of-way acquired	Prescriptions and effects	Yes
Protection 1	Law enforcement	Effectiveness and cooperative agreements	Yes
Range 1	Woodland over story	Forage production	Yes
Range 2	Brush conversion and reseeding	Forage production	Yes
Range 3	Range development	Range use and capacity	No
Range 4	Permitted use	Balance use with capacity	No
Range 5	Grazing Capacity	Projected levels	No [2]
Recreation 1	Dispersed recreation (ROS settings)	Demand and capacity	Yes
Recreation 2	Developed sites (public and private)	Output	Yes
Recreation 3	Visual quality	Prescriptions and effects	Yes
Riparian and Aquatic	Riparian and aquatic condition	Improve condition	Yes
Soil and Water 1	Watershed condition	Increase in satisfactory condition (acres)	Yes
Soil and Water 2	Prescriptions	Compliance with State and federal regulations	Yes
Timber 1	Intermediate and removal harvest	Prescriptions and effects	Yes
Timber 2	Regeneration harvest	Prescriptions and effects	No [3]
Timber 3	Timber stand improvement	Stocking levels	Yes
Timber 4	Saw timber	Allowable sale quantity	Yes [4]

Monitoring Item	Monitoring Activity	Description of Monitoring Activity	2013 Monitoring Item
Timber 5	Fuel wood	Sustained yield	Yes
Timber 6	Restocking regeneration Harvests	Restoration standards (5 years and 80%)	No [5]
Timber 7	Harvest area size	Opening size limits	No [6]
Timber 8	Timber Land Classification	Suitable for sustained yield production	No [7]
Wilderness 1	Wilderness or recreation opportunity spectrum class	Prescriptions and effects. Ensure demand does not exceed capacity	Yes
Wilderness 2	Trails	Construction, reconstruction and maintenance	Yes
Wildlife 1 & 2	Threatened and endangered species, management indicator species and sensitive species	Population and habitat trends	Yes

1. Measuring progress toward achieving the goals, objectives and standards of the Forest plan using unit costs is a difficult measure and not always an effective tool. Fund code and accomplishment definitions have changed extensively over the life of the plan and fund codes have been added, deleted and/or combined during this period.
2. This is based on no clear guidance on how to determine capacity for our Range NEPA.
3. The Gila is currently not doing regeneration cuts.
4. The ASQ is outdated in the plan and will be revisited during Plan Revision.
5. The Gila is currently not doing regeneration cuts.
6. The Gila NF is not clear cutting openings since the Goshawk guidelines have been implemented.
7. The Gila NF will re-evaluate classification of suitable timber lands in Plan Revision.

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