Annual Monitoring Report

Gila National Forest Land Management Plan
FY 2015 and 2016

September 2017

Invasive plants are nonnative plant species that can grow and spread rapidly, thereby replacing native plant species. Invasive species monitoring is reported in BAER reports (appendices A, B, & C) and “Other Forest Monitoring” section page 57.

Invasive plant species on the forest starting top left and going clockwise: tree of heaven, bull thistle, salt cedar, spotted knapweed, cheatgrass.

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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. Information from this and previous monitoring reports will be considered during the Forest Plan revision process which is currently underway.

Adam Mendonca 9-12-2017

ADAM MENDONCA Date
Forest Supervisor

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Annual Monitoring Report
FY 2015 and FY 2016

Overview

This report summarizes monitoring results on the Gila National Forest for the fiscal years (FY) 2015 and 2016. 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 2017 work activities is provided as part of this report.

Monitoring and Trend Evaluation

Monitoring and trend evaluations are analyzed for the following 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 area 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 2015. 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 two charts depict potential sources and areas of fine particulate matter emissions on the Best and Worst 20% visibility days in the western United States and Mexico. Windblown dust is the largest contributor in New Mexico.

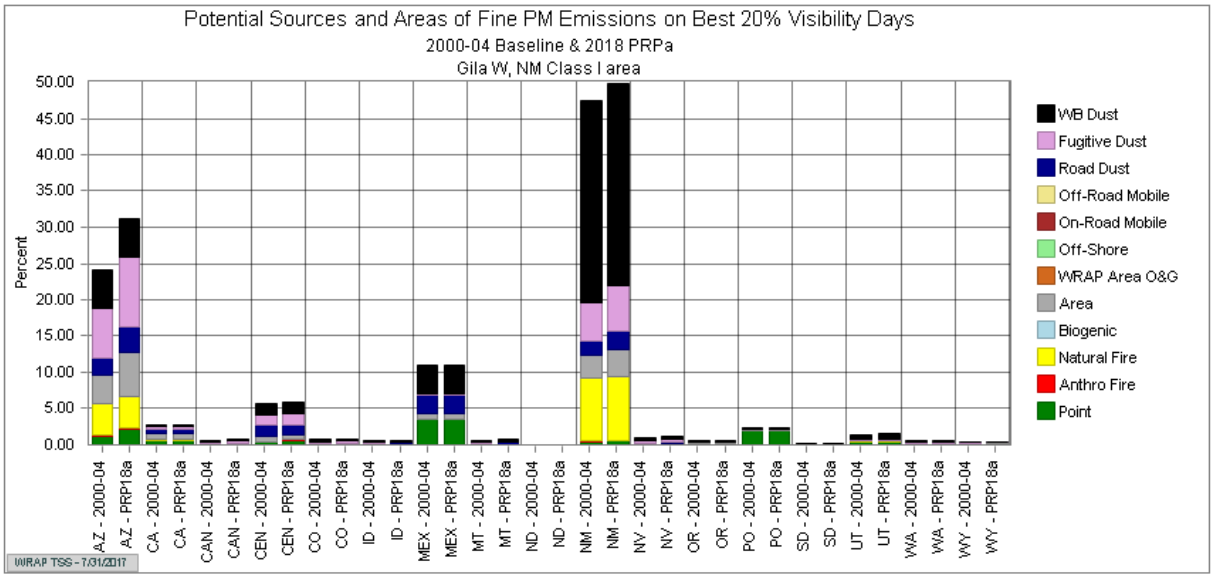


Chart 1. Potential sources of fine particulate matter 2.5 on Best 20% visibility days in the west.

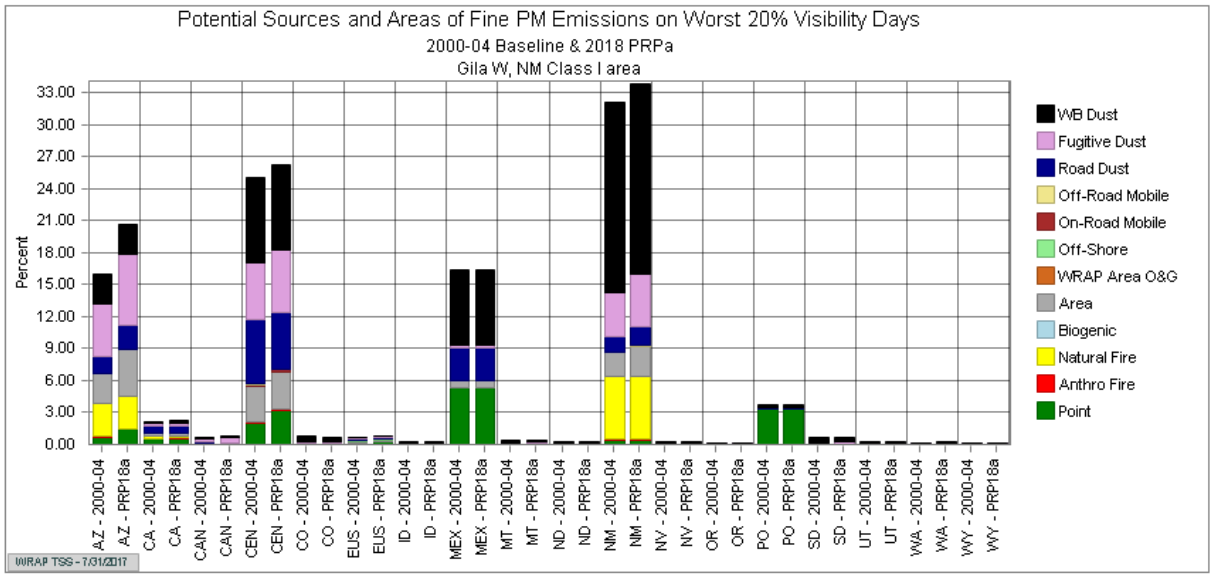


Chart 2. Potential sources of fine particulate matter 2.5 on Worst 20% visibility days in the west.

Haze Monitoring

The regional Haze Rule sets a 60 year timeline for states to improve visibility within mandatory federal Class I areas from Baseline (2000-04) levels to Natural Conditions by 2064. States are required to show that Reasonable Progress is expected to be made toward this goal over the course of intermediary planning periods. Reasonable Progress is defined by the EPA both in terms of what can be measured and projected using current scientific understanding, and, when reviewing controls for existing facilities, specific compliance-related statutory factors. The following charts summarize the data collected for the Gila Wilderness Class I area. The following charts provide haze budgets (annual and monthly) using aerosol composition analysis. These charts cover the recent range of years from 2011 – 2015. (http://vista.cira.colostate.edu/TSS/Results/HazePlanning.aspx)

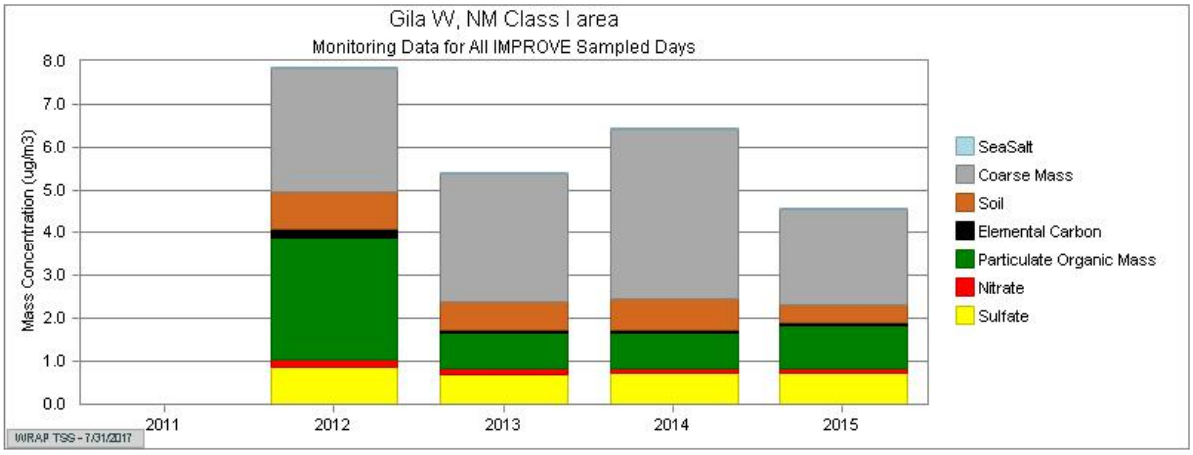


Chart 3. Annual Mass Concentration for all IMPROVE Sampled Days (2012-2015)

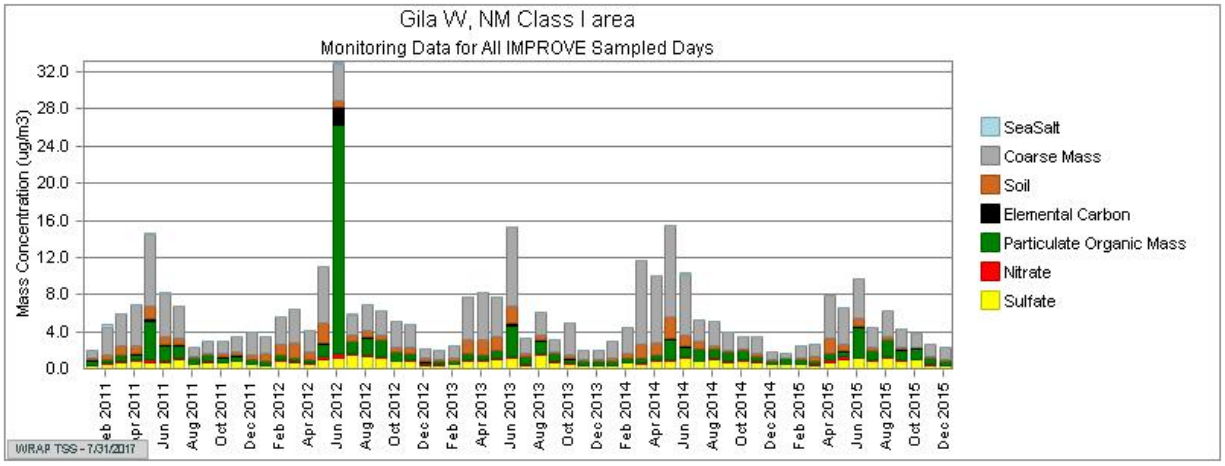


Chart 4. Monthly Mass Concentration for all IMPROVE Sampled Days (2012-2015)

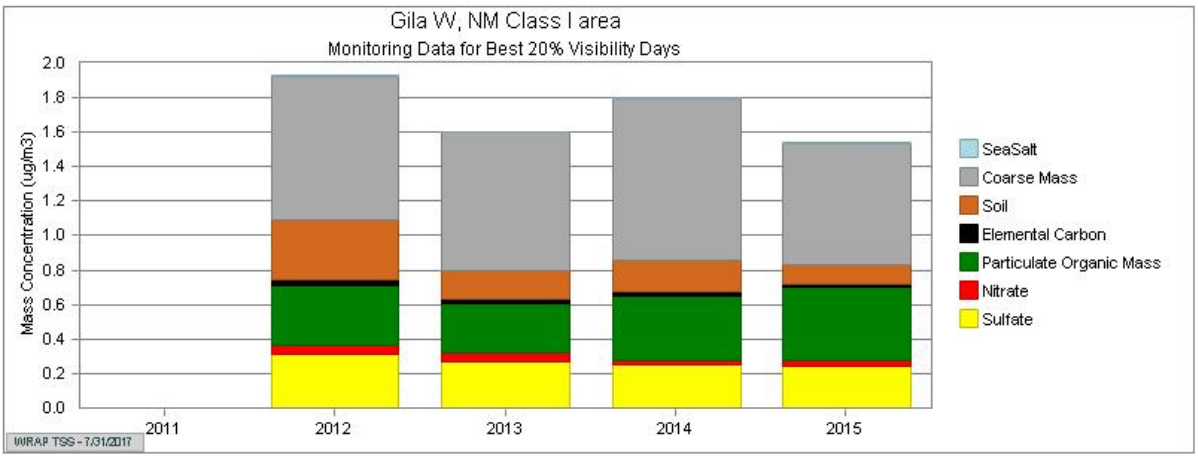


Chart 5. Annual Mass Concentration – Monitoring Data for Best 20% Visibility Days

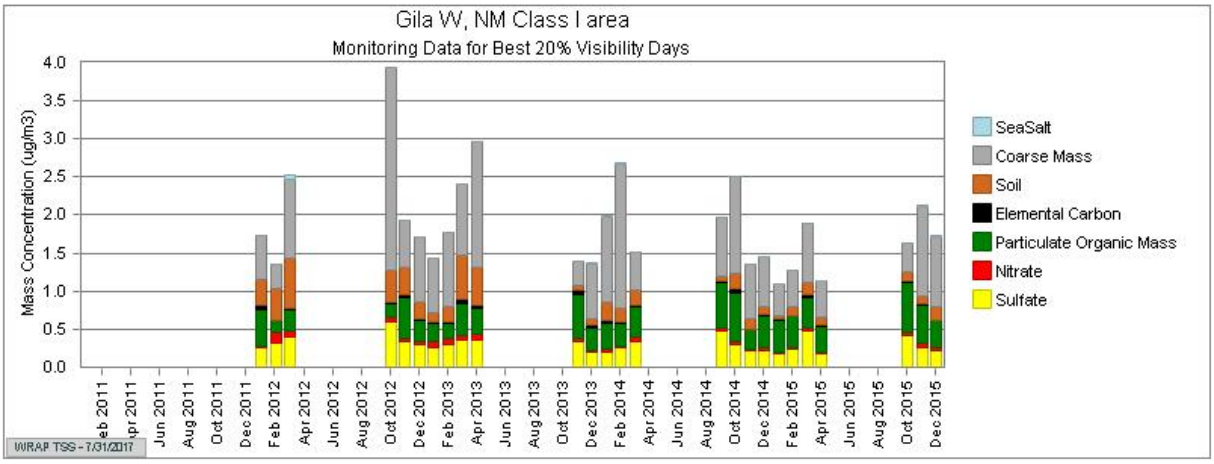


Chart 6. Monthly Mass Concentration – Monitoring Data for Best 20% Visibility Days

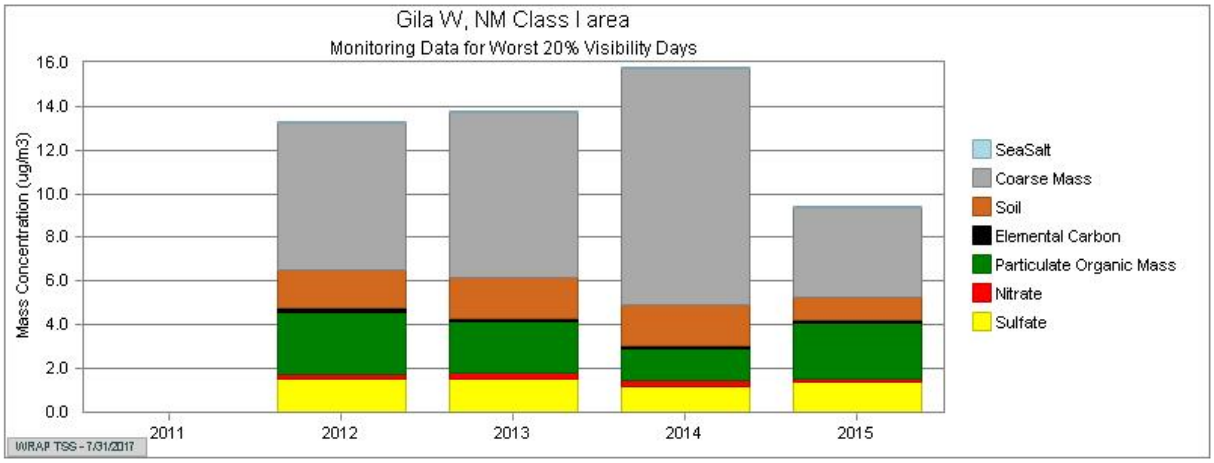


Chart 7. Annual Mass Concentration – Monitoring Data for Worst 20% Visibility Days

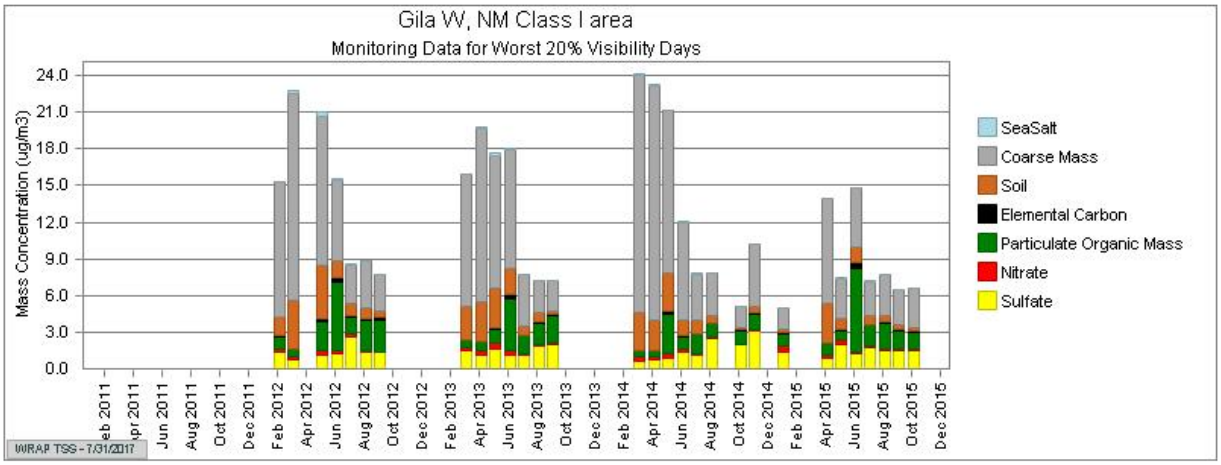


Chart 8. Monthly Mass Concentration – Monitoring Data for Worst 20% Visibility Days

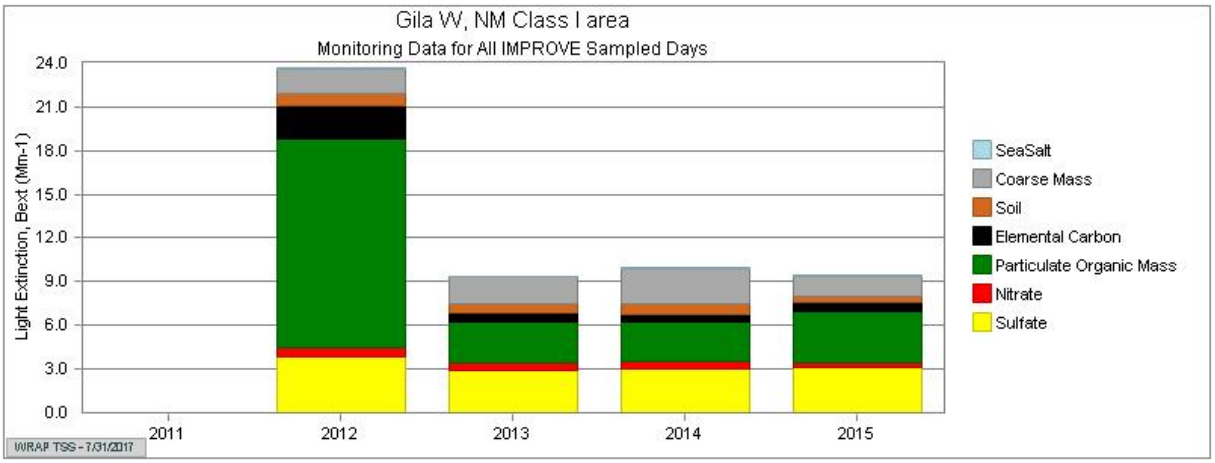


Chart 9. Annual Light Extinction – Monitoring Data for all IMPROVE sampled days

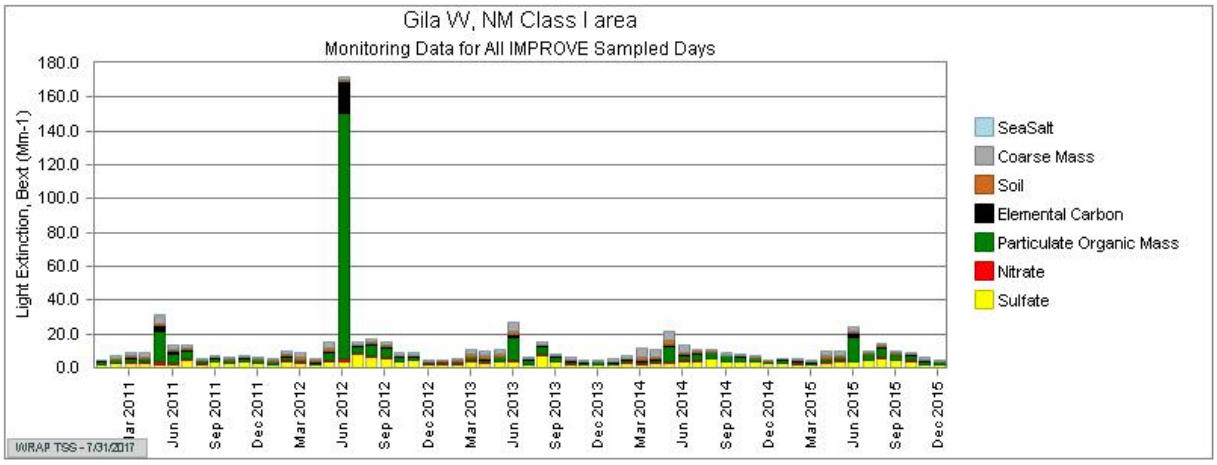


Chart 10. Monthly Light Extinction – Monitoring Data for all IMPROVE sampled days

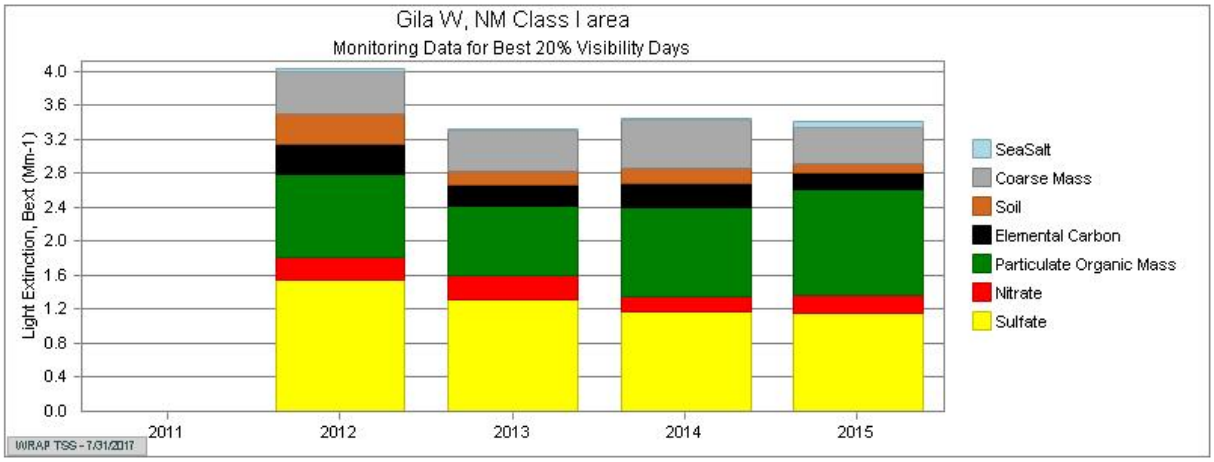


Chart 11. Annual Light Extinction – Monitoring Data for Best 20% Visibility Days

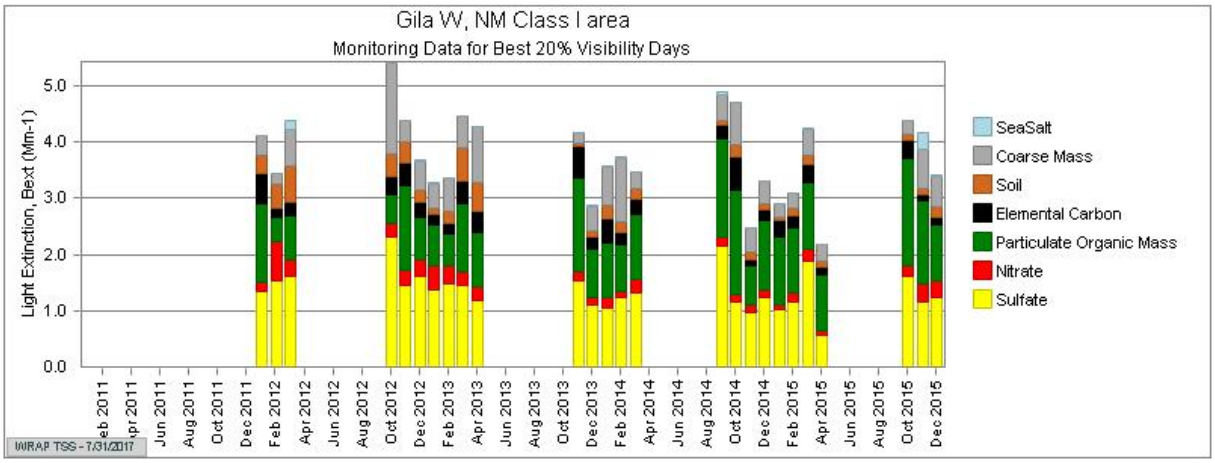


Chart 12. Monthly Light Extinction – Monitoring Data for Best 20% Visibility Days

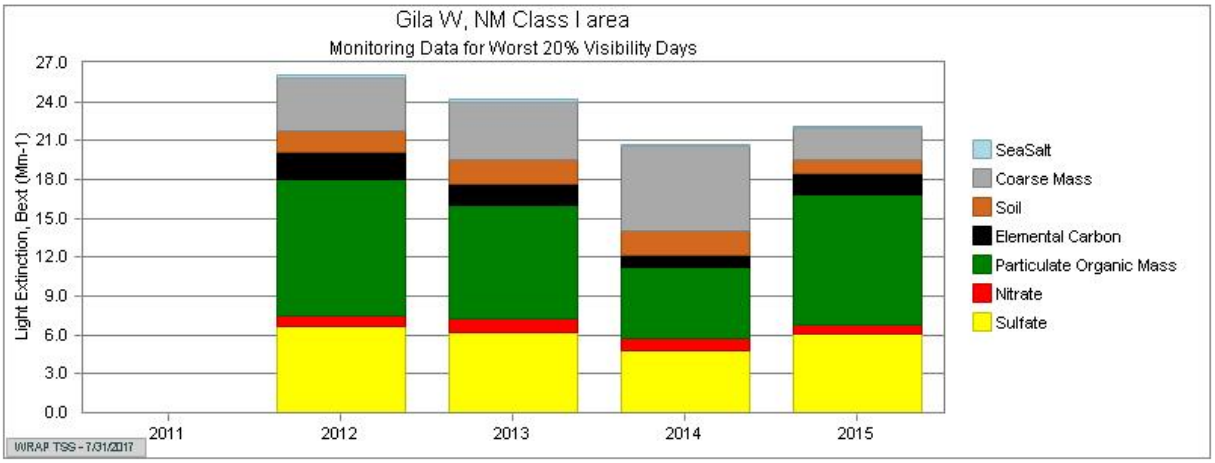


Chart 13. Annual Light Extinction – Monitoring Data for Worst 20% Visibility Days

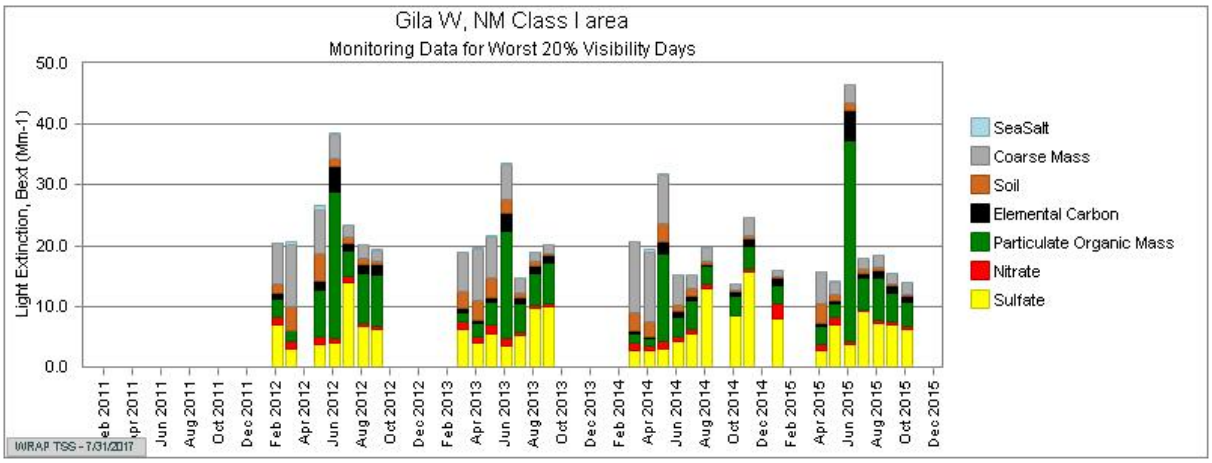


Chart 14. Monthly Light Extinction – Monitoring Data for Worst 20% Visibility Days

The following charts display Visibility Status and Trends Following the Regional Haze Rule Metrics (through 2015) in deciviews.

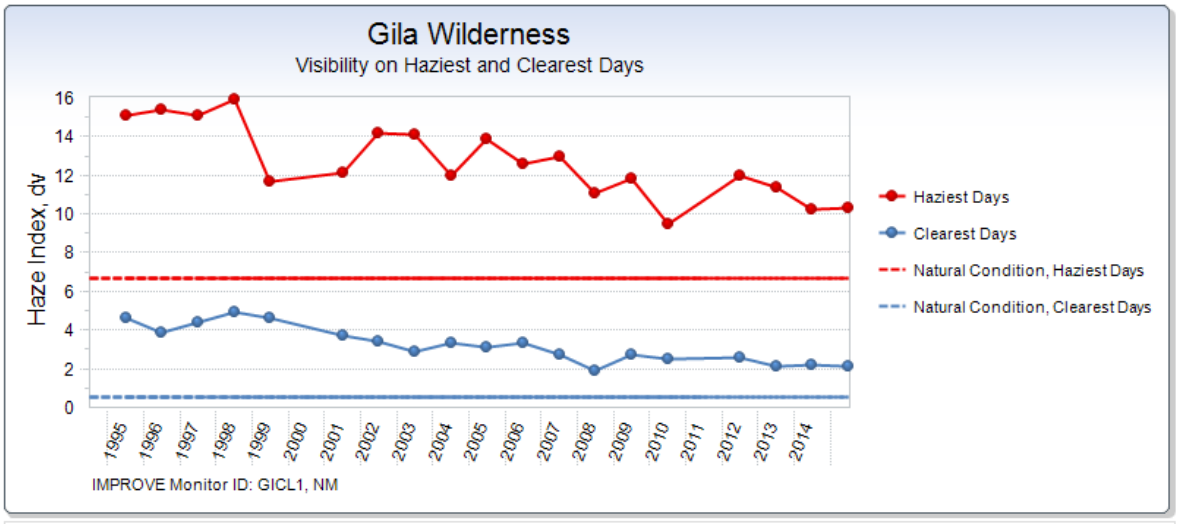


Chart 15. Visibility on Haziest and Clearest Days within the Gila Wilderness

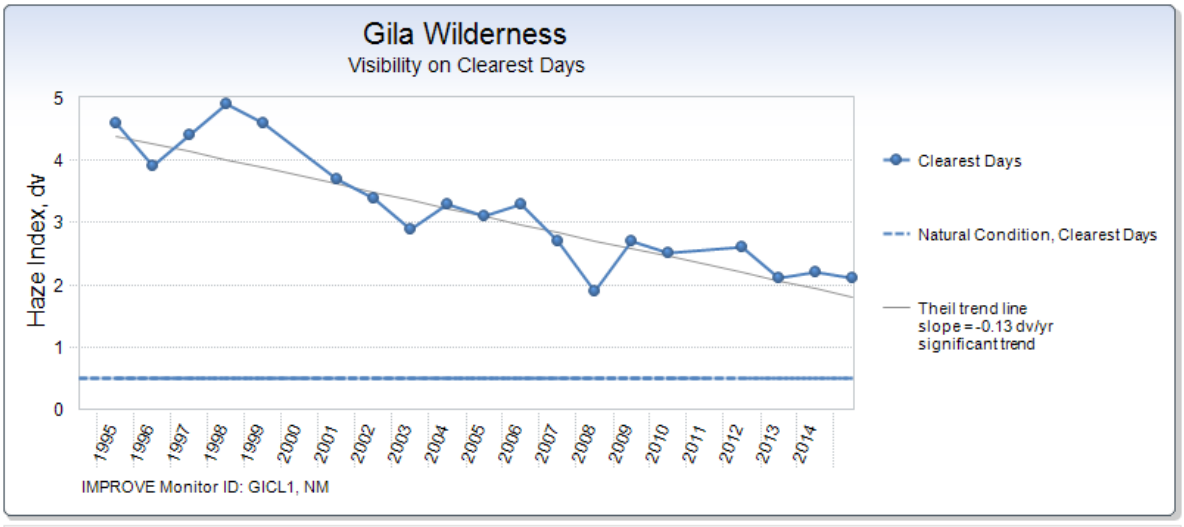


Chart 16. Visibility on Clearest Days within the Gila Wilderness

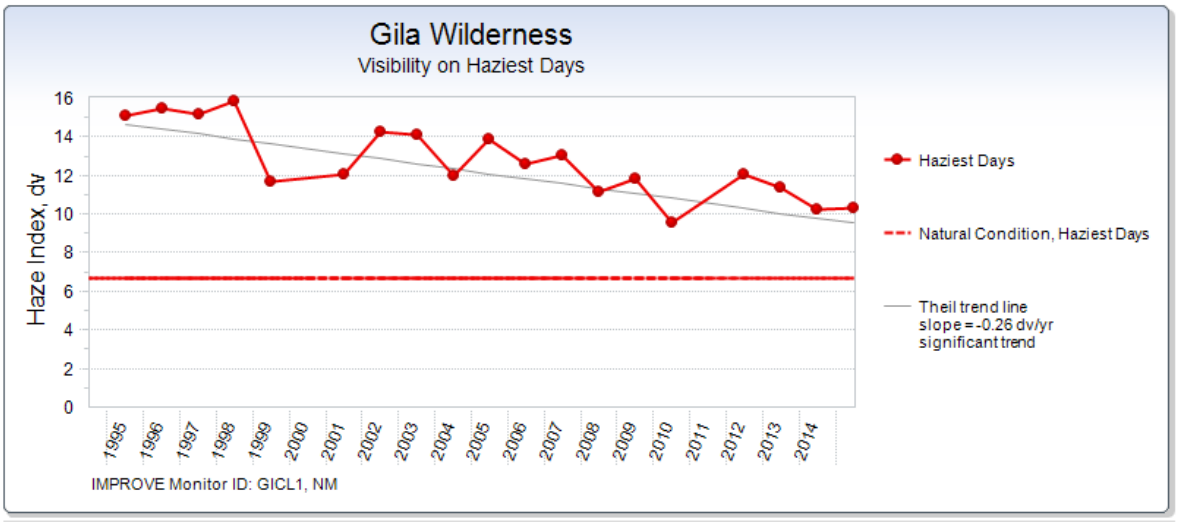
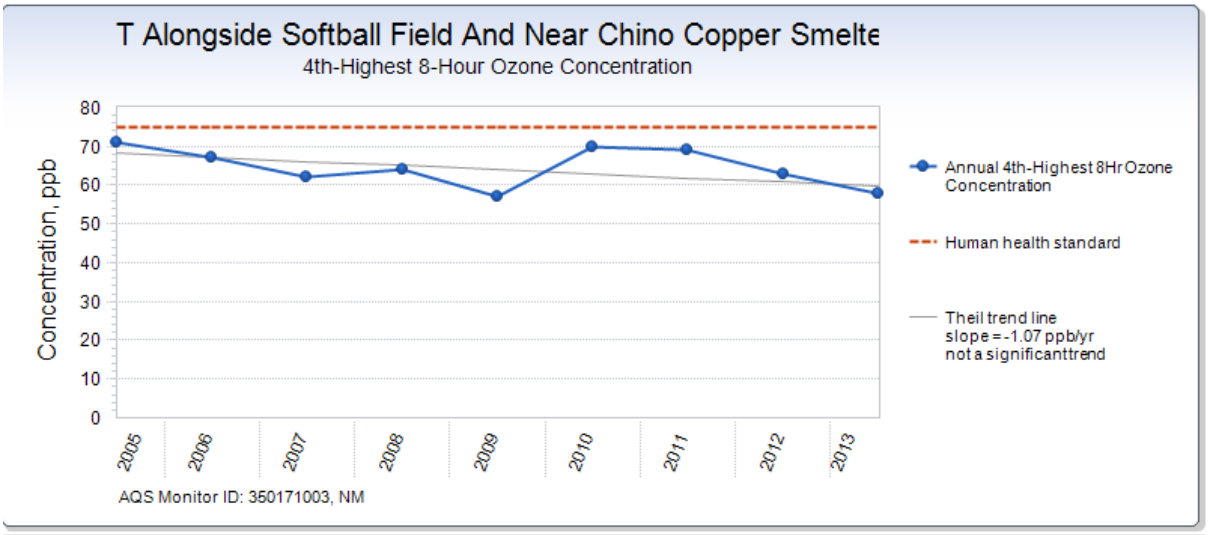


Chart 17. Visibility on Haziest Days within the Gila Wilderness

Ozone Trends

The Gila NF does not have any ozone monitoring sites, however, there is a nearby monitoring site close to the Chino Copper Smelter, which is located just south of the Forest near Silver City. The two following charts display monitoring data through 2014.



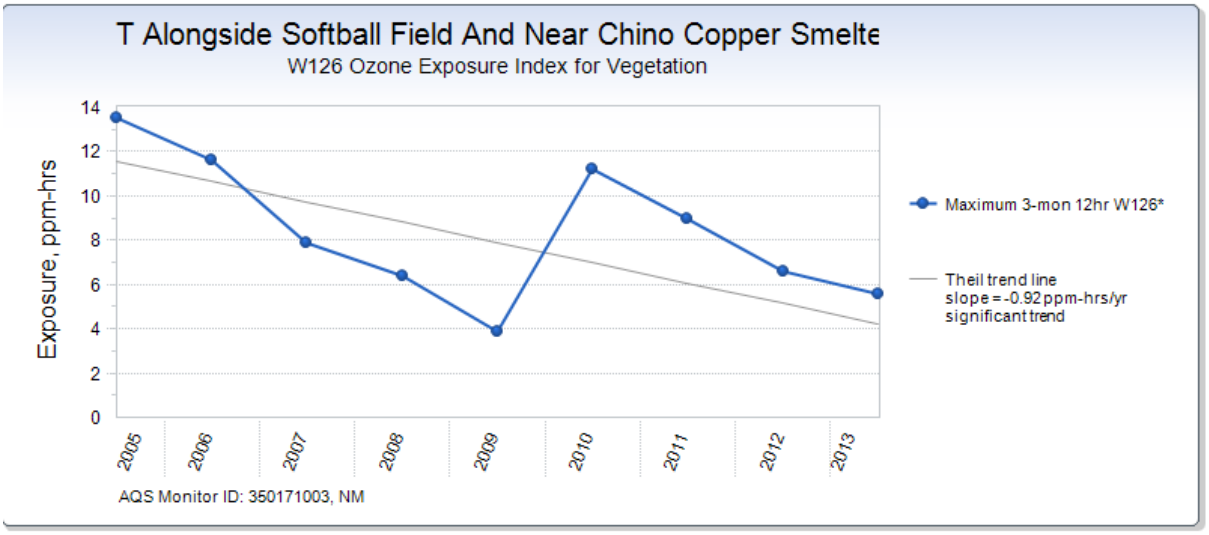


Chart 18 and 19. Ozone information near Chino Copper Smelter

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 2014. 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.

Lichen bio-monitoring was conducted in FY2013 and FY2014. Lichenologists from University of Utah revisited 4 of the 7 original lichen air quality sites in the Gila Wilderness Area in FY2013. 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. A report was prepared in September 2014 which, overall, indicated that pollutant element loads have generally improved at the four review sites. However concentrations of some pollutant elements continue to be elevated at some sites. Nitrogen concentrations are of particular concern.

In FY2014, several additional lichen bio-monitoring sites were established in the Gila Wilderness, Aldo Leopold Wilderness and Blue Wilderness. Monitoring of these sites will occur in outyears, however none occurred in FY15 or FY16.

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 FY2010-2016 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 or 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.

In FY2014, approximately 353 cultural resource sites were assessed, visited, monitored and/or inspected in conjunction with other resource activities and Section 110 activities. These included 126 sites monitored, inspected, visited, protected or stabilized during Section 110 and related activities, 38 newly recorded sites, and 189 sites inspected during Section 106 activities sufficient to make determinations of eligibility for the National Register of Historic Places.

In FY2015, approximately 402 cultural resource sites were assessed, visited, monitored, and/or inspected in conjunction with other resource activities and Section 110 activities. These included 56 sites monitored, inspected, visited, protected or stabilized during Section 110 and related activities, 182 newly recorded sites, and 114 sites inspected during Section 106 activities sufficient to make (new) determinations of eligibility for the National Register of Historic Places.

In FY2016, approximately 381 cultural resource sites were assessed, visited, monitored and/or inspected in conjunction with other resource activities and Section 110 activities. These included 87 sites that were monitored, inspected, visited, protected or stabilized during Section 110 and related activities, 105 newly recorded sites, and 121 sites inspected during 106 activities sufficient to make (new) 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 and FY2014, the number of sites addressed in these ways decreased (FY2013 was only 31%

of the FY2012 high; FY2014 was 39% of FY2012; FY2015 was 44% of FY2012; FY2016 was 42% of FY2012). In short, numbers of sites addressed in a given year is fairly consistent with FY2012 representing an outlier.

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%). Sites addressed under Section 110 increased again in FY2014 to their highest level during the monitoring period (to 420% the number addressed in FY2010 and 182% of the previous FY2011 record). In FY2015 these numbers again decreased but remain at levels comparable to those in FY2011 & FY2012. FY2016 had the second highest number of sites addressed under Section 110 activities (69% of the FY2014 high). 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 FY2015 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. In FY2014 addressing concerns associated with Priority Heritage Assets was again prioritized and efforts were made to address a backlog of necessary monitoring. In FY2015 two academic excavations were undertaken on the Forest (through agreements), the first such undertakings in years; these count towards targets and represent less easily quantified but important Section 110 undertakings. In FY2016 two academic excavations were again undertaken on the Forest.

National calculations of Heritage Targets formally shifted from monitoring changes at Priority Heritage Assets (PHAs), towards a more comprehensive calculation based on Heritage Program Managed to Standard (HPMtS) in 2012. A “passing” program (or “heritage program managed to standard”) must achieve a numeric score of 46/70 (or better). The calculation is based on seven indicators, each worth a total of 10 points (maximum). Indicators evaluate the presence/absence of a Heritage Program Plan, amount of field survey under NHPA Section 110, number of eligibility evaluations of legacy resources or nominations of resources, percentage of complete up-to-date condition assessments at PHAs, number of stewardship activities, opportunities for public study and/or outreach projects, and volunteer hours. Since this measurement was introduced, the Gila NF has always achieved a “heritage program managed to standard.” Numeric scores have varied over the years with scores of 55 in 2012, 54 in 2013, 54 in 2014, 65 in 2015, and 63 in 2016. An indicator (goal) that has proved challenging is having up-to-date condition assessments at our approximately 200 PHAs (meaning condition assessments collected within the 5 years prior to reporting dates). The sheer number of resources and the availability of staff to visit sites is a challenge.

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-FY2016, 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 consultation and implementation.

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 44, covering approximately 535 acres of new survey within project acres encompassing 805 acres. In FY2014 there were 59 heritage projects and reports, with new survey of 8543 acres within 8842 project acres. The drop in project acres in FY2013 and FY2014 reflects a short-term shift in project types (i.e., fewer large landscape analysis associated with Range Rescission, Travel Management, and fire); the drop in total new survey acres reflects the declining budget, resulting in a reduction in seasonal hiring and the amount of contract survey. In FY2015 70 projects were reported; these cover approximately 15,611 acres of new survey within project areas encompassing 105,462 acres. In FY2016 76 projects were reported; these cover approximately 10,688 acres of new survey within project areas encompassing 32,002 acres; many projects during this time period consisted of site revisits within previously inventoried areas for management purposes.

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 planned heritage workforce is seven. There were additional seasonal hires between FY2010-2011 and two positions were vacant for much of FY2013. One position was vacant through most of FY 2015 and half of FY2016. Even when (nearly) full staffed, 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 (NRM 2.0).

5. New Forest Plan may need to reflect accomplishments related to electronic information & database management including Heritage NRM, 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 receiving maintenance.

The following method is no longer in use: 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 portion of the transportation system that is maintained for use by passenger cars (operational maintenance level 3 through 5 roads) is verified every 5 years.

At the end of FY 2015, the following mileages from the Infra database were: Level 1 – 1,407 miles, Level 2 - 3,261 miles, Level 3 – 247 miles, Level 4 – 125 miles, Level 5 – 24 miles. At the end of FY 2016, Infra mileages were: Level 1 – 1,380 miles, Level 2 - 3,237 miles, Level 3 – 244 miles, Level 4 – 125 miles, and Level 5 – 24 miles.

The mileage between fiscal years varies and does not match the changes to the road system resulting from decommissioning, re-routes, or other jurisdictional or administrative changes during the year. Majority of the differences are the results of the continuous review and clean-up of both the Infra database and GIS spatial layer.

For FY 2016, of the 3,630 miles that comprise the open road system under Forest Service jurisdiction, 393 miles are maintained for passenger car while the remaining 3,237 miles

are maintained for high clearance vehicles. Any changes in the status of roads are recorded in the Travel Routes module of Infra.

The forest decommissioned 6.9 miles of system roads in FY16. No roads have been decommissioned during the previous 10 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): Constructed/reconstructed miles are reported at the end of each fiscal year. Trends show less construction/reconstruction projects are being completed. In 2015, no road construction or reconstruction activity occurred. In 2016, 0.82 miles of roads were reconstructed. No new roads have been constructed over the last 5 years. Road reconstruction over the past 5 year time period averages approximately 0.2 miles on an annual basis.

Road management records on miles of travel-ways closed: The Infra database is used to track the status of each road within the Forest, with one of the categories being closed roads. The current inventory shows that 1,380 miles of roads are classified as closed.

Road maintenance records for roads maintained: Road maintenance accomplishments are reported at the end of each fiscal year through Work Plan. In FY 2015, 300 miles of roads received maintenance (8% of open system roads) and 402 miles were maintained in FY 2016 (11% of 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 that exceed 25% of planned level. Review every 3 years: The number of miles of passenger car roads within each maintenance level category (operational maintenance 3 through 5) is verified every 5 years through real property verification. Trends show that decreasing budgets have resulted in fewer miles of roads receiving maintenance. As a result, the amount of deferred maintenance is subject to increase over time.

Fire Management

Fire Management 1: Fire suppression effectiveness

Monitoring Intent:

Follow Federal regulations and measure prescriptions and effects.

Monitoring Method/Unit of Measure:

a) Periodic inspections and review to determine if the fire management organization is effective in controlling fire losses within prescription.
b) The use of the fire budget analysis process to determine fire management efficiency.
c) Fire review of select projects.

Measuring Frequency:

Annual inspections, periodic reviews, and fire budget analysis as needed.

Percent Accuracy/Precision:

+/-10%; +/-10%

Variability that would indicate Re-evaluation:

Fire management organization is not insuring compliance with standards and guidelines applied to 90% of the wildfires. To be reviewed every 3 years.

Monitoring and Trend Evaluation:

Annual and periodic reviews of the fire management organization were conducted from FY2004 through FY2016, to determine the effectiveness in meeting fire suppression needs on the Forest. A comprehensive unit review in the form of Forest and District Readiness Inspections was conducted in May of 2015, and May of 2016.

The Fire Qualifications Review Committee on Forest provided oversight for the qualifications and training of 380 people in 2015, and 365 people in 2016. Training is conducted each year to ensure crew safety and effectiveness in managing wildland fire. All Incident Qualification Card Certified wildland firefighters, both seasonal and permanent, undergo basic firefighter training S130 /190, I100, and IS700. All red carded personnel attend fire refresher training each year. Additional training is taken as required for different position and skill needs. A complete review of all red card files for all employees was completed in 2007 and a modified audit process is performed yearly to ensure accuracy and currency of all of our personnel. The Incident Qualifications and Certification System (IQCS) is the record keeping system in use by the Agency. It is a tool to assist fire managers in validating employee's qualifications. IQCS records also help identify training needs and position shortages.

The National Fire Management Analysis System (NFMAS) is the budgeting process currently used to address needs in the fire management organization. A new tool is under development called the Wildland Fire Investment Planning System (WFIPS).

The acres burned during the 2015 fire season on the Gila National Forest was well below average due to influence of an El Niño weather pattern that proved to be the strongest on record. This resulted, generally, in weekly pulses of moisture through the Gila region that served to mitigate fire activity for the Gila/Las Cruces Zone. During the 2015 fire season, the Forest had a total of 92 fires totaling 7,816 acres. Of the total, 81 were lightning caused fires, totaling 7770 acres. Additionally, there were 11 human caused fires, totaling 46 acres.

The 2016 fire season was mitigated by a weakening El Niño weather pattern. Weather and atmospheric conditions were, generally, not conducive to large fire growth. During the 2016 fire season, the Forest had a total of 130 fires, totaling 36,049 acres. 113 of those fires were lightning caused, totaling 36,033 acres. 17 of the total fires were human caused, resulting in 15 acres burned.

Gila NF fire managers continue to allow fire to perform its natural role on the landscape to the greatest extent possible, coordinating with all other resource areas (wildlife, soils, air quality, watershed and range). As the process of fire is allowed to be an integral part of the ecosystem the structure of the Gila NF will continue to improve.

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 2015 the Forest treated 7,385 acres through the use of prescribed fire and mechanical manipulation/removal. 1,200 acres of treatments occurred in the Wildland Urban Interface (WUI). The remaining 6,185 acres occurred in areas where thinning occurred. Of the 5,640 acres treated using prescribed fire; approximately 875 acres were cutting units from timber sales and commercial fuelwood sales offered in 2010 through 2014.

In 2016 the Gila National Forest treated 15,237 acres using prescribed fire and mechanical manipulation/removal. 850 acres of WUI were treated in Catron and Grant County. 11,583

acres were treated using prescribed fire and the remaining 2,804 acres were treated through thinning projects and timber sales.

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:

This activity was primarily accomplished via prescribed burning, fire use fires and mechanical treatment.

In FY2015 treatments occurred on the Black Range, Quemado, Reserve, and the Silver City Ranger Districts using a variety of funding sources. The projects completed in 2015 on the Gila National Forest for annual range activities included approximately; **3,750** acres

of mechanical thinning and tree pulling; approximately **3,500** acres of prescribed burning for wildlife habitat improvement (which in turn is a benefit to rangeland understory forage production); and **7,642** acres of managed fire.

In FY2016 treatments occurred on the Black Range, Quemado, Reserve, and the Silver City Ranger Districts using a variety of funding sources. The projects completed in 2016 on the Gila National Forest for annual range activities included approximately; **6,500** acres of mechanical thinning and tree pulling; approximately **10,000** acres of prescribed burning for wildlife habitat improvement (which in turn is a benefit to rangeland understory forage production); and **3,000** acres of managed fire. The mechanical thinning, tree pulling and Rx burned included partnerships with New Mexico Game & Fish and New Mexico State Forestry.

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 2003-2016 brush control and seeding (control of rabbit brush and snakeweed) has declined significantly. There were no acres of rabbit brush or snakeweed treated via mechanical methods on the Gila in 2015 or 2016. This activity (rabbit brush and snakeweed control) is not expected to significantly increase in the future unless special projects with associated funding are approved and implemented.

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 and the 2013 Silver Fire had devastating effects on many riparian and aquatic ecosystems located in areas within and below high severity burn. Riparian systems also experienced 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 FY2015 and 2016.

Survey data for annual monitoring points as well as trip reports from additions stream sites, are available by request and from Forest Service archived files.

2015 Monitoring Activities

Location	District	Activity	Description	Trend
Hail Canyon, Cameron Creek, Stephens Creek, Twin Sisters Creek, Dry Blue Creek, Tierra Blanca Spring, Beaver Creek South Fork Allotment	Reserve, Silver City; Black Range	Proper Functioning Condition survey and ocular evaluations	Assessment completed on all riparian areas and springs related to South Fork Allotment decision; Cameron Creek Rx; and post Silver Fire burn impacts.	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.
Escudilla East Project Area (Stone Creek, Dry Blue Creek, San Francisco River, Trout Creek)	Quemado	Proper Functioning Condition survey and ocular evaluations	Assessment completed on many riparian areas and springs in the Luna planning area within the area of Escudilla Landscape Area adjacent to Luna, New Mexico.	Trend varied among reaches from upward to static to downward. These trends were based on site specific factors. In particular, downward trends were noted below areas that burned in the 2011 Wallow Fire in Arizona and New Mexico. Recommendations were made to improve trend with management actions where possible.

2015 Monitoring Activities (cont.)

Location	District	Activity	Description	Trend
Gila & San Francisco Rivers and major tributaries, Mimbres River, Big Dry Creek, Black Canyon, West Fork Gila, McKenna Creek, Upper Langstroth, Sheepcorral Canyon, Little Creek, Iron Creek, Willow Creek, South Fork Whitewater, Turkey Creek, Miller Springs, Sycamore Canyon	Wilderness Silver City, Glenwood, Quemado, Reserve	Fish survey	15 annual monitoring points and 14 additional streams sites were surveyed for fish species and population status were completed in cooperation with NM Game and Fish Dept. and US Fish and Wildlife Service. Habitat monitoring was included at annual sites. Surveys were focused on T & E, proposed, candidate, and SSC. Many high elevation streams still experiencing post-fire effects of 2011, 2012, and 2013.	No trend analysis completed. Noted trend for Gila trout is still downward after the fires in 2011, 2012, and 2013; Langstroth Creek was fishless. Gila chub found throughout Turkey Creek, but the population is trending down from previous years. Chihuahua chub was collected at annual sites, but in low numbers and is trending downward Trend for other T&E aquatic species (i.e. LM and SD) is considered downward due to fires of 2011, 2012, and 2013. Native non T&E, (i.e. Rio Grande Sucker) species trend is also considered downward.

2016 Monitoring Activities

Location	District	Activity	Description	Trend
Dry Creek, Holt Gulch, Potholes and Sacaton Allotments; Tularosa wetlands; Vigil Spring; Snow Canyon, Schoolhouse Canyon; West Fork Gila River; Cold Springs Creek; Gold Gulch	Glenwood; Reserve, Wilderness, Silver City	Proper Functioning Condition survey and ocular evaluations	Assessment completed on all riparian areas and springs related to upcoming allotment decisions in 2018-2019, 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.

Location	District	Activity	Description	Trend
Escudilla East Project Area (Adair Canyon)	Quemado	Ocular evaluations	Assessment completed on Adair Spring and Canyon riparian area within the Luna Restoration Planning area. A NEPA decision is expected in 2017.	This reach was brought to the Forest's attention by a member of the public that the adjacent road was causing degradation. Subsequent inspection confirmed this concern and recommendation were made to the IDT to decommission road and conduct riparian restoration. Trend is currently static, but at risk for downward trend if impacts continue.
Gila & San Francisco Rivers and major tributaries, Mimbres River and Tributaries including Cold Springs, Fogarty, Allie Canyon, East Canyon, Noonday Canyon, Gallinas Canyon, and Moreno Springs. Black Canyon, Main Diamond, Whitewater Creek, Mineral Creek, South Fork Mineral Creek, Rocky Canyon, Meadow Creek, Trout Creek, McKenna Creek, Sacaton Creek, Little Dry, Little Whitewater.	Wilderness Silver City, Glenwood, Quemado, Reserve	Fish survey	15 annual monitoring points and 20 additional streams sites were surveyed for fish species and population status were completed in cooperation with NM Game and Fish Dept. & US Fish and Wildlife Service. Habitat monitoring was included at annual sites. Surveys were focused on T&E, proposed, candidate, and SSC. A largescale basin-wide survey effort was conducted on the Mimbres River. Several potential Gila trout streams were surveyed for suitability. Many high elevation streams still experiencing post-fire effects of 2011, 2012, and 2013, although some streams are showing signs of slow recovery.	No trend analysis completed. Noted trend for Gila trout is stable to slightly upward following repatriations in Upper Langstroth, Mineral Creek, and Willow Creeks since the fires in 2011, 2012, and 2013; Chihuahua chub was collected at annual sites, and in the Mimbres 4 miles upstream of the farthest previous collection, and the species is stable or trending slightly upward due to reintroductions since the 2013 Silver Fire. Trend for other T&E (SD & LM) aquatic species is also stabilizing in many areas since the 2011, 2012, and 2013. Native non T&E species, such as Rio Grande sucker is increasing since the 2013 Silver Fire.

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 at the project level 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 sixth code 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 were classified as “Functioning Properly”, 81 were classified as “Functioning at Risk”, and 1 was 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. In 2015, a review and reclassification was completed for all 180 watersheds. 82 watersheds were updated in depth. Trend was down overall due to post fire effects since 2011, related to the 2011 Wallow Fire, 2012 Whitewater Baldy Complex, 2013 Silver Fire, and 2014 Signal Fire. The following table describes changes in overall condition in the five-year period.

Changes:

Classification	2010	2015
Functioning Properly	98	74
Functioning at Risk	81	94
Impaired	1	12

The following information describes the process used during the 2015 reassessment of Watershed Condition Classification:

Prework

- In GIS, the Forest used 2014 Monitoring Trends in Burn Severity (MTBS) data and generated a table indicating watersheds that had seen wildfire since 2011 with % burn severity acres. This table was sent to the interdisciplinary (ID) team prior to meeting for review in relationship to their specialty. Example:

Watershed/Burn Severity	6th Code Severity Acres	6th Code Severity %
130301010301 South Percha Creek	**8,309.56**	**34.21%**
High	1,138.54	4.69%
Moderate	3,098.18	12.75%
Low	2,586.89	10.65%
Unchanged	1,470.58	6.05%
Increased Greenness	15.37	0.06%

- In GIS: Recalculated miles of impaired waterbodies in watershed using latest 2014-2016 State 303(d) listing

- In GIS: Recalculated Fire Regime Condition Class (FRCC) for Forest (this was completed as part of our Forest Plan Revision assessment)

- District range staffs reviewed 2011 notes to see if changes had occurred from either new data due to range NEPA analysis or changed condition following wildfire.

- Forest silviculturalist updated Forest Cover after reviewing updated midscale existing veg information, Burned Area Reflectance Classifications (BARC) burn severity and 2014 aerial photography.

- Reviewed newly listed aquatic species since 2011 to see if there were changes to the aquatic habitat or biota attributes.

Process

- The Forest identified 62 watersheds that had seen wildfire since 2011, including Wallow, Whitewater Baldy, Silver and Signal Fires.

- Assembled ID team consisting of silviculturalist, soil scientist, fishery biologist, timber specialist, range specialist, note taker; visited with roads engineer

- When no change was noted in a watershed, the Forest rolled over the watershed to 2015 and documented under Year Details that the update was due to Forest Plan Revision

- If there was a change condition class due to an event in the watershed, the team went through each of the indicators and attributes.

- Looked initially at burn severity tables to see what percent of high and moderate was in the watershed. Evaluated Fire Regime or Wildfire Indicator first. Used Wildfire Effects

instead of FRCC if there was a high percentage of burn in watershed, especially high/moderate burn severity. NOTE: The Forest's recalculation of FRCC actually moved this indicator in the wrong direction for burned watersheds, by showing an improved FRCC due to loss of trees.

- The team then reviewed the list of remaining indicators based on how much burn had occurred in the watershed. If very little burn occurred, the indicators remained the same. Only exceptions to this were when a slightly burned watershed was downstream of a highly impacted watershed. In these cases, there were changes made to water quality, water quantity, aquatic habitat, aquatic biota and riparian.
- Double checked the watershed to make sure no changes to water quality from 303d listing, range updates, FRCC change (not fire related), etc. Made changes accordingly
- Continued this process through all 180 watersheds.

Comments

- No changes were made to insects and disease attributes
- If fire occurred upstream, address changes to water quality, water quantity, riparian and aquatics
- Recalculated weighted averages for riparian and aquatics on watersheds where this was done in 2011. There were only a couple of watersheds that this step resulted in a change to either an indicator or an overall rating.
- Updated 82 watersheds in depth that had a major disturbance since their original assessment. The remaining watersheds were rolled over with "no change" comment to all attributes.

The following tables indicate watershed condition monitoring that has occurred in FY2015 and FY2016 for Forest-wide projects.

2015: 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
South Fork, Mackey Allotments	Black Range	Watershed condition monitoring	Monitoring done for allotment analysis on South Fork Allotment to determine management action needed to protect resources; Mackey Allotment reviewed to assess restoration needs	Overall stable to upward with isolated areas of static and/or downward trend
Luna Restoration Project	Quemado	Soil condition monitoring	Monitoring done for project analysis to determine management action needed to protect resources	Overall stable to upward except in a few localized areas.
2013 Silver Fire	Wilderness, Silver City, Black Range	Assessment of Post Fire BAER treatments of the Silver Fire (Appendix A)	Monitoring mulching and seeding treatments as well as effects from the fire on soil and watershed condition	2nd year results continue to indicate that success of seeding and or seeding/mulching implementation was good with exception of a few localized areas with unfavorable site condition or poor precipitation following treatment. Monitoring results indicated that both seeded and

Location	District	Activity	Description	Trend
				seeded/mulched areas overall resulted in more vegetative canopy cover and basal area than unseeded and unmulched plots. The areas treated also experienced considerable less erosion than the areas not treated (Appendix A)
2014 Signal Fire	Silver City	Assessment of Post Fire BAER treatments of the Signal Fire (Appendix B)	Monitoring of seeding vs. non-seeding on paired plots to evaluate post fire erosion rates on the seeded vs. non-treated plots. In addition the effects from the fire on soil and watershed condition.	2nd year assessment indicates that seeding was successful in most areas with favorable soil conditions in the treated areas. Monitoring results indicate considerably less soil loss and more vegetative ground cover in seeded plots vs. unseeded plots. (Appendix B)

2016: 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
Dry Creek, Holt Gulch, Potholes, Sacaton Allotments	Glenwood	Watershed condition monitoring	Monitoring done for allotment analysis to determine management action needed to protect resources	Overall stable to upward with small isolated areas of static and/or downward trend
2013 Silver Fire	Wilderness, Silver City, Black Range	Assessment of Post Fire BAER treatments of the Silver Fire (Appendix C)	Monitoring seeding/mulching and seeding treatments as well as effects from the fire on soil and watershed condition. Treatments effects on natural recovery	Final conclusion is that there was good success in BAER seeding and seeding/mulching of 2013 Silver Fire. Monitoring results indicate that both seeded and seeded/mulched area overall resulted in more vegetative canopy cover and basal area than unseeded and unmulched plots. Treated areas have better watershed condition than those areas not treated. Treatments did not have an effect on natural recovery of the burned area.

Location	District	Activity	Description	Trend
2014 Signal Fire	Silver City	Assessment of Post Fire BAER treatments of the Signal Fire (Appendix B)	Monitoring of seeding vs. non-seeding on paired plots, as well as effects from the fire on soil and watershed condition	Initial assessment; early monitoring indicates that seeding was successful in most areas with favorable soil conditions. Preliminary monitoring results indicate less soil loss and more vegetative ground cover in seeded plots vs. unseeded plots.

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.

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.

2015 Soil and Watershed Monitoring

Location	District	Activity	Description	Trend
Luna Restoration Project	Quemado	BMP monitoring on erosion control structures	Watershed personnel evaluate erosion control structures constructed in 1980s to determine need for maintenance. Maintenance needs are documented and will be evaluated in the Luna Restoration Project EIS.	District reviews indicate that most structures are in need of maintenance, with need for establishment of additional structures.
Luna Restoration Project	Quemado	Monitoring of impacts to soil and water resources from ATV routes desired by Luna Riders	Watershed personnel evaluate ATV routes desired to be left open by public as to effects to water quality.	Most roads desired by public were not negatively impacting water quality. Recommendations were made to IDT as to which roads were acceptable and which ones were recommended for decommissioning.
Percha Creek	Black Range	Monitoring of Percha Creek to determine need for stream stabilization structures	Watershed personnel and NMED evaluate post-fire impacts to Percha Creek to determine revegetation needs and stream stabilization opportunities	Percha Creek still trying to stabilize following 2013 Silver Fire. Recommendations made to NMED as to possible treatments to implement with grant dollars secured by Sierra Soil and Water Conservation District.

2016 Soil and Watershed Monitoring

Location	District	Activity	Description	Trend
Unnamed tributary to NF Mimbres River	Wilderness	BMP monitoring road drainage implementation	Watershed personnel evaluate leadout ditch reconstruction and piloting of channel to divert water back into culvert on NM 35	District review indicated that due to amount of ground disturbance that site should be seeded with native seed mix. Site was reseeded prior to summer monsoons.
West Fork Gila River	Wilderness	BMP monitoring of recent bank stabilization project conducted by Central Federal Lands	Army Corps, NMED, and Forest personnel evaluate negative impacts as a result of bank stabilization project.	Project was in need of further mitigation. Forest worked with Army Corps to develop plan and local Forest personnel assisted contractors in planting over 1800 willow cuttings. Further monitoring indicates that revegetation efforts are moderately successful.
Royal John Mine – Cold Spring Creek	Silver City	Monitoring of past 319 project to mitigate lead-laden tailings and current issue with lead-laden mine spoils	District and watershed personnel evaluate mining reclamation site at Royal John Mine. Contractors and RO currently developing reclamation plan.	Tailings are currently uncovered by runoff events and actively eroding into Cold Springs Creek. Lead concentrations are very high and pose health concern.
Catwalk Trail Reconstruction	Glenwood	Monitoring of water quality during reconstruction of 0.5 miles of Catwalk Trail	Watershed personnel sample water quality (turbidity) at 3 locations from January – May during reconstruction	Water Quality impacts were localized and short-lived while equipment was in channel and water was being diverted. Water quality returned to pre-construction levels almost immediately. (See Appendix D)
Deep Creek and Cedar Break PJ Pushes	Glenwood	Ocular monitoring of ground disturbance from recent PJ push projects	Watershed, forestry and District personnel evaluate post-project soil impacts from recent PJ pushes	Soil disturbance was extremely high on Deep Creek site and moderately high on Cedar Breaks site. Recommend to District Ranger that other methods of PJ control be considered as a solution to dense PJ stands.

In FY2015 and FY2016, the Regional Office assigned a target of twelve 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. The following tables provide the results generated by the National BMP Program Interim Database for FY15 and FY16. Further details on the National BMP Program can be found at https://www.fs.fed.us/biology/watershed/BMP.html.

National BMP Monitoring Results

FY2015

Site	Evaluation Type	Date	Implementation	Effectiveness	Composite
Monitoring Activity: Water Use D Active Construction of Diversions and Conveyances					
Gold Gulch Well	Both Implementation and Effectiveness	07/31/2015	No BMPs	Not	No Plan
Monitoring Activity: Water Use B Operation and Maintenance of Spring-Source Facilities					
Tierra Blanca Unnamed Spring 1	Both Implementation and Effectiveness	08/04/2015	No BMPs	Not	No Plan
Monitoring Activity: Rec D – Motorized or Non Motorized Trail Operation and Maintenance					
Mineral Creek Trail 201	Both Implementation and Effectiveness	09/28/2015	No BMPs	Effective	No Plan
Monitoring Activity: Min D – Reclamation of Mineral Operations					
Mineral Creek Mine Shaft Closures	Both Implementation and Effectiveness	09/28/2015	Mostly	Effective	Excellent
Monitoring Activity: Fire A – Use of Prescribed Fire					
Sheep Basin Burn Block 6	Both Implementation and Effectiveness	09/14/2015	Not	Effective	Good
Monitoring Activity: Chem A – Use of Chemicals Near Waterbodies					
Beaver Creek Bull Thistle Treatment	Both Implementation and Effectiveness	09/11/2015	Not	Marginal	Poor
Monitoring Activity: Fire A – Active Construction of Non-Corridor Facilities or Non-Recreational Special Uses					
Lake Roberts Fishing Pier	Both Implementation and Effectiveness	08/04/2015	No BMPs	Mostly	No Plan

FY2016

Site	Evaluation Type	Date	Implementation	Effectiveness	Composite
Monitoring Activity: AqEco A – Active Construction of Aquatic Ecosystem Improvements					
Willow Creek Fish Barrier	Implementation	07/27/16	Marginal		
Schoolhouse Canyon Culvert Stabilization	Both Implementation and Effectiveness	07/27/16	Fully	Mostly	Good
Monitoring Activity: AqEco B- Completed Aquatic Ecosystem Improvements					
Vigil Canyon WRAP	Both Implementation and Effectiveness	08/03/16	Fully	Effective	Excellent
Monitoring Activity: Rec C – Completed Construction or Rerouting of Motorized or Non-Motorized Trails					
Catwalk National Recreation Trail 207	Both Implementation and Effectiveness	8/03/16	Fully	Effective	Excellent
Monitoring Activity: Road B – Completed Road or Waterbody Crossing Construction or Reconstruction					
NM 15	Both Implementation and Effectiveness	7/28/16	Marginal	Mostly	Fair

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 forest emphasis is to create groups and openings in ponderosa pine stands that focuses on restoration of pine stands and improving forest health. These treatments also reduce the risk of crown fire. This treatment type focuses on all age classes however it treats more of the younger age classes and understory. 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 2015 and 2016 acres include all timber sales under contract, WUI treatment and Collaborative Forest Restoration Program treatment acres.

Year	Acres of Intermediate and Removal Harvest Units
2012	2,049
2013	2,181
2014	1,789
2015	3,485
2016	2,879

The 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. All sales offered in 2015 and 2016 received bids. Funding and targets assigned by the Regional Office remain at levels where the Gila NF can prepare and offer one timber sale per fiscal year. The capability of local markets and demand from local mills will be much higher than expected target based on current markets.

5 Year Plan for Timber Volume Offered (ccf), 2017 – 2021 Year	Volume Offered (ccf)
2017	15,000
*2018	15,000
*2019	15,000
*2020	15,000
*2021	15,000
Sum 5 Years	**75,000**

*Based upon target and funding trends from Regional Office

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 increased regional markets and the ability for the mill in Reserve, NM to process smaller diameter timber and partnerships with the state of New Mexico New Mexico Environmental Department and New Mexico Game and Fish). The following table lists the acres of timber stand improvement areas.

Timber Stand Improvement Areas

Year	Acres
2011	1,027
2012	1,041
2013	1,200
2014	1,025
2015	2,425
2016	2,337

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
2011	5,451	6,813
2012	5,253	6,566
2013	5,652	7,065
2014	5,585	6,981
2015	5,708	7,135
2016	6,603	7,004

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.

In 2014 monitoring on the Forest occurred in 48 PACS. Mexican spotted owls were located nesting or roosting within the boundary of 32 of these PACS. Pairs were documented in 14 and reproduction confirmed in 6 of these PACs. Rocky Mountain Bird Observatory (RMBO), under contract with the Southwestern Regional Office, inventoried sites across the Forest during 2014 in a multi-year effort to determine population estimates. RMBO surveyed 77 sites across the Forest and MSO were detected at 37 of these sites. Twenty-six of the sites had pairs present and although RMBO was not attempting to determine reproductive status, 6 pairs were determined to have reproduced. This survey effort will continue during 2015 and new PACS will be delineated for those areas with confirmed owl pairs.

During 2015 the Gila National Forest Informally Monitored 65 Mexican Spotted Owl PACs. Pairs were detected in Twenty-Seven PACs (42%), young owls were detected in five of these PACs and nests in an additional two PACs. Single owls were detected in Fourteen (22%) of these PACs. Inventory for Rocky Mountain Bird Observatory's ongoing occupancy model was conducted at 46 previously identified sites, thirty-three of the sites had pairs detected and single owls were detected at six sites.

During 2016 the Forest informally monitored 57 Mexican Spotted Owls PACs. Pairs were detected in twelve (21%) of the PACs, single owls in sixteen (28%), and no response from owls was detected in the remaining PACs. Forty previously inventoried sites were inventoried for the ongoing occupancy modeling, pairs were detected at 36 of these sites and single owls at the remaining 3 sites.

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. The Ft. West Ditch site surveys detected 11 adult individuals made up of 5 pairs and 1 single occupying 6 territories. No SWWF were detected at the Gila River Bird Area. The WS Dam site was occupied.

During 2014 three recently occupied sites, WS Dam, Gila River Bird Area, and Ft. West Ditch were surveyed for SWWF. The Ft. West Ditch site surveys detected 9 individuals, made up of 4 pairs and occupying 5 territories. The Gila River Bird Area surveys detected 3 adult flycatchers, consisting of 1 pair and 2 territories.

During 2015 monitoring estimated that 12 individuals, made up of 6 pairs and occupying 6 territories were located on the Fort West Ditch site in the upper Cliff-Gila Valley. These findings represent an increase of 3 adults, 2 pairs, and 1 territory when compared to 2014 flycatcher data. One adult territorial flycatcher was detected in the Gila Bird Area during the 2014 breeding season (Table A 3 and Figure C 10). These estimates represent a decrease of 2 adults, 1 pair and 1 territory when compared to 2014 estimations.

During 2016 monitoring efforts detected 22 individuals, made up of 11 pairs and occupying 11 territories located on the Fort West Ditch site in the upper Cliff-Gila Valley. These findings represent an increase of 9 adults, 5 pairs, and 4 territories when compared to 2015 flycatcher data. For the first time since 1997, survey teams detected no adult territorial flycatchers in the Gila Bird Area during the 2016 breeding season. These estimates reveal a decrease of 1 adult, 0 pairs, and 1 territory when compared to 2015 estimations.

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. 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.

During 2014 fifteen sites that were recently (last 10 years) occupied were surveyed to determine the current status of Chiricahua leopard frogs. These sites include natural habitats in streams and man-made habitats at dirt stock tanks. Chiricahua leopard frogs were detected at nine of these sites. Chytrid fungus continues to impact Chiricahua leopard frog populations across the Forest. The Forest is working cooperatively with numerous partners to propagate, raise, and place CLF in suitable habitats across the Forest. During 2014 approximately 4,300 CLF tadpoles were released at four sites on the Forest.

During 2015 Chiricahua leopard frog surveys were completed at 14 sites. CLF were detected at 4 of these sites. Seven of the sites are recently repatriated populations. However, no CLF were detected at Whiskey Creek, Kerr Canyon Tank, Cullum Tank, and Long Mesa Tank, all previously occupied. CLF population number trends on the Forest remain static as some populations disappear and others are established by stocking of CLF produced at refugia operated by the Forest and partner Ladder Ranch.

During 2016 CLF population trend on the Forest remained static. The Glenwood district continued to assist with monitoring of the CLF population within Saliz Creek. This population was surveyed over a four day period with over 40 adult CLF captured and numerous tadpoles observed. In the past two years this population had been augmented each year, but after the 2016 survey due to the stable if not increasing numbers of CLF, further augmentation did not take place in 2016.

The Reserve district monitored six sites in 2016. Two tanks, Cullum and Long Mesa Tank – no Chiricahua Leopard frogs were found. At four sites, CLF were present. Cienega Tank had a small number of CLF present, North Fork Negrito also had CLFs in small numbers, Sheep Basin Tank had a large number of CLF present, and Tularosa Hell's Hole had CLF present. Cienega Tank, Sheep Basin Tank and Hell's Hole all had tadpoles released this year and the last two years.

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.

2014 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 Rive r during 2013 and 2014. Populations continue to be reduced due to the effects of large fires during 2011 and 2012. New Mexico Department of Game and Fish attempted to reintroduce spikedace to the San Francisco River during 2009 with the stocking of approximately 300 individuals, this effort was supplemented with approximately 2,500 fish in 2011. During 2014 surveys were conducted along a short reach of stream where the fish were released to determine the current status of the reintroduction effort. These surveys failed to detect spikedace and further survey efforts are needed both up and downstream of the reintroduction site.

During 2015 monitoring for spikedace and loach minnow was conducted at five long-term sites at Tularosa River, San Francisco River, West, Middle, and East Forks Gila River. Loach minnow were detected at all but Tularosa River and East Fork Gila River sites. Loach minnow were detected in the Tularosa River at another site. Spikedace were detected at the West and Middle Fork Gila River sites. Habitat at West and Middle Forks Gila River is improving since the 2012 Whitewater-Baldy Fire. Population trends for both species is up in the Gila River Forks and static in other areas. Spikedace were stocked in Little Creek during 2015.

During 2016 monitoring for spikedace and loach minnow was conducted at six long-term sites at Tularosa River, San Francisco River, West, Middle, and East Forks Gila River, and Main Stem Gila River at the Gila River Bird Area. Loach minnow were detected at all but Tularosa River and East Fork Gila River sites. The number of loach minnow detected at the Middle Fork Gila River site is the largest number detected in the last decade. Loach minnow were detected in the Tularosa River at another site. Spikedace were detected at the West and Middle Fork Gila River sites but not at the Gila River Bird Area Site which in the past has supported large numbers of spikedace.

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.

The current (2014) population trend for Gila trout is down due to effects from recent wildfires. During 2014 surveys were conducted on several Gila trout streams to determine current population status. There are a total of 17 recently occupied Gila trout streams on the Forest. Large fires during 2012 and 2013 impacted several streams and eliminated populations. Survey efforts during 2014 determined that seven of these recently occupied streams are currently not occupied. Several of the currently unoccupied streams are scheduled for stocking during 2015 and several new streams have been identified for recovery of Gila trout. In 2014 Gila trout were present in Main Diamond Creek, Sheep Corral, Black Canyon, Little Creek, Upper White Creek, South Diamond Creek, Mogollon Creek, McKenna Creek, Big Dry, and Iron Creek.

During 2015-2016, the Gila National Forest inventoried and assessed 7 streams that had been identified by the Gila Trout Recovery Team and the Gila Trout Recovery Plan (2003) as having potential to serve as recovery streams for Gila trout in collaboration with USFWS and NMGDF. This included Little Dry, Little Whitewater, Trout Creek, Sacaton, Meadow Creek, Mineral Creek, South Fork Whitewater and Whitewater Creek. Suitable habitat was present in Sacaton, Whitewater, SF Whitewater, Little Dry, and Mineral Creeks. Trout Creek and Little Whitewater had limited reaches of marginal habitat. The streams were surveyed using a backpack electrofisher and environmental DNA (eDNA) for presence/absence. Gila trout were not collected or detected in any of the streams inventoried. Hybrid rainbow trout were collected in Trout Creek. Native fishes (*C. insignis, P. clarkii, R. osculus, A. chrysogaster*) were collected from lower Mineral and lower Whitewater creeks. No fish were collected from Sacaton, Little Dry, Meadow Creek, Little Whitewater, or South Fork Whitewater, and eDNA did not detect fish in any of these streams (Meadow Creek is pending).

During 2015 occupied streams included Diamond Creek, South Diamond Creek, Black Canyon, Sheep Corral Canyon, Langstroth Canyon, White Creek, McKenna Creek, Little Creek, Big Dry Creek, and Iron Creek.

Occupied streams during 2016 include Diamond Creek, South Diamond Creek, Black Canyon, Sheep Corral Canyon, Langstroth Canyon, White Creek, McKenna Creek, Little Creek, Big Dry Creek, Willow Creek, Little Turkey Creek, Mineral Creek, and Iron Creek. Population trends (miles occupied) have increased since 2012 and the loss of many populations due to the Whitewater-Baldy Fire.

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.

During 2014 the Mule Creek population of Gila chub that was initially established in 2012 was supplemented with the stocking of an additional 103 Gila chub from Harden Cineiga Creek in Arizona. Turkey Creek was surveyed in the area of the upstream distributional limit of Gila chub and chubs were determined to be common there as well as in Sycamore Canyon, a tributary to Turkey Creek. Monitoring in Mule Creek is scheduled for 2015.

No monitoring was conducted in 2015 and 2016 for Gila chub. The USFWS, based on recent genetic data, has made a decision to combine Gila, Headwater, and roundtail chub into the same species. Gila chub is no longer accepted as a species.

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. During 2014 the Quemado Lake nest was once again active and the pair fledged 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.

During 2015 as many as 21 individual cuckoos were detected in the Gila River Bird Area and 3 individuals at the Ft. West Ditch site.

During 2016 as many as 20 individual cuckoos were detected in the Gila River Bird Area and 5 individuals at the Ft. West Ditch site.

Based on 20 years of weekly avian data collected from mid-May 1996 through August 2016 from the Gila River Bird Area indicate that there has been an significant, positive change in yellow-billed cuckoo and Bell's Vireo populations at this location. The available information indicates that the trend for these species is upward.

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. Local populations on the Glenwood Ranger District and Wilderness Ranger District may be increasing based upon anecdotal observations.

Mule deer and Beaver

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, Silver, and Signal fires will likely benefit early to mid-seral stage species such as the mule deer. The trend for mule deer during 2015-2016 is static at best. Mule deer numbers are still low compared to historical information.

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.

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.

During 2014 monitoring at permanent sites on the San Francisco, Tularosa, and Gila rivers, Negrito Creek, Willow Creek, Gilita Creek, and Black Canyon indicate that all fish species were dramatically impacted by post fire runoff from the Whitewater-Baldy and Silver fires. Recruitment is occurring in the Gila, San Francisco, and Tularosa rivers. However, small tributary populations do not show indications of recruitment and both species may have been extirpated from Black Canyon. Continued monitoring is needed to determine the status of both species.

During 2015 and 2016 monitoring at permanent sites on the San Francisco, Tularosa, West, Middle, and East forks Gila River and main stem Gila River indicate that all fish species were dramatically impacted by post fire runoff from the Whitewater-Baldy and Silver fires. Recruitment is occurring in the Gila, San Francisco, and Tularosa rivers. Long term trends at these sites indicate decreased to static populations.

Other Forest Monitoring

Invasive Plant Surveys

The Forest has a very limited amount of noxious weeds present on the landscape. There have been limited occurrences of a few species, and rapid detection has led to very little spread. However, over the last five years, the Gila has experienced several hundred thousand acres of wildfire. Some of the high and moderately burned acres were subject to seeding and mulching. Although the seed and mulch were “certified weed-free” it has been a priority for the Forest to monitor these seeded and mulched areas to confirm absence of “imported” noxious weeds. The BAER monitoring reports for the Silver and Signal fires (Appendices A, B, and C) include survey information related to the monitoring objective of if invasive species were introduced during seeding and mulching activities.

Early detection and prevention are key to the monitoring effort across the forest to limit the spread of the species that are currently found and the establishment of new populations. The Forest has prioritized inventory of areas with recent disturbances, including those seeded and mulched, and common high use areas. Other areas being surveyed are those with reported sightings of a noxious weed. All survey data has been entered into the TESP-IS NRM database.

During the 2016 field season the following areas were surveyed:

Campgrounds

All campgrounds were surveyed. One of the objectives is to detect plants whose seeds can be transported through dirt or mud attached to the undercarriage of vehicles such as spotted knapweed, spurge, etc. The following sites were identified as areas of concern:

- Kingston Campground is at risk due to its border with private land. The private land on the western border of the campground harbors a large population of Tree of Heaven (AIAL) which is starting to spread into the campground itself. Siberian Elm (ULPU) trees are located here as well in the same area as the Tree of Heaven.
- Bighorn Campground also has a number of Siberian Elm (ULPU) trees and a small population of Tree of Heaven (AIAL). Many of the large shade trees at this campground are Siberian Elm. Removal of such trees, however, may negatively effective campground usage.
- Many of the large shade trees at Upper End Campground near Lake Roberts are Siberian Elm (ULPU). Removal of such trees, however, may negatively effective campground usage. HWY 35 also harbors large populations of Siberian Elm in the vicinity of Lake Roberts on forest and private lands. Siberian Elm can be found on the shores of Lake Roberts as well, though not in large numbers.
- Cottonwood Campground has a very small population of Spotted Knapweed (CESTM) which was manually removed this season, but should be monitored closely in the future.
- Upper Gallinas Campground has a very small population of Bull Thistle (CIVU) which could easily be manually removed and Lower Gallinas Campground has a small population of Tree of Heaven (AIAL) moving down the hill from a roadside population.

District Surveys

Surveys were completed within each district. Many surveys resulted in no findings. For specific invasive plant findings, refer to the data sheets and associated survey maps. The following species and areas of detection are recommended for treatment to remove or reduce spread:

Cirsium vulgare (Bull Thistle)

- Deep Creek Allotment, Glenwood RD
- Beaver Creek, Black Range RD
- Quemado Lake, Quemado RD

Ulmus pumila (Siberian Elm)

- Fort Bayard Admin. Site/Fort Bayard/Vicinity of Dragonfly Trailhead, Silver City RD
- Lake Roberts, roadsides and campgrounds in vicinity, Wilderness RD
- San Francisco River, vicinity of Gila Hot Springs/Big Dry Creek, Glenwood RD
- Sapillo Creek at confluence of Gila River, Wilderness RD

Ailanthus altissima (Tree of Heaven)

- Fort Bayard Admin. Site/Fort Bayard/Vicinity of Dragonfly Trailhead/Twin Sisters drainage, Silver City RD
- Kingston Campground, Black Range RD

Bromus tectorum (Cheatgrass)

- Middle Fork Trail 157, Wilderness RD
- Sandy Pt. Trailhead parking lot and former staging area, Glenwood RD

Elaeagnus angustifolia (Russian Olive)

- Fort Bayard Admin. Site/Fort Bayard/Vicinity of Dragonfly Trailhead, Silver City RD

Tamarix sp. (Tamarisk)

- Gila River, Bird Area, Silver City RD
- San Francisco River, vicinity of Gila Hot Springs/Big Dry Creek, Glenwood RD

Alhagi maurorum (Camelthorn)

- H-V Reservoir, Quemado RD

Action Plan for 2017

The Action Plan for 2017 identifies which monitoring items and monitoring activities are planned to be reported in fiscal year 2017 monitoring report.

Monitoring Item	Monitoring Activity	Description of Monitoring Activity	2015 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
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	No
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 [2]
Timber 3	Timber stand improvement	Stocking levels	Yes

Monitoring Item	Monitoring Activity	Description of Monitoring Activity	2015 Monitoring Item
Timber 4	Saw timber	Allowable sale quantity	Yes [3]
Timber 5	Fuel wood	Sustained yield	Yes
Timber 6	Restocking regeneration Harvests	Restoration standards (5 years and 80%)	No [4]
Timber 7	Harvest area size	Opening size limits	No [5]
Timber 8	Timber Land Classification	Suitable for sustained yield production	No [6]
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. The Gila is currently not doing regeneration cuts.
3. The ASQ is outdated in the plan and will be revisited during Plan Revision.
4. The Gila is currently not doing regeneration cuts.
5. The Gila NF is not clear cutting openings since the Goshawk guidelines have been implemented.
6. The Gila NF will re-evaluate classification of suitable timber lands in Plan Revision.

Preparers

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Facilities	Rex Null	Civil Engineer
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Fire 2	Gabriel Partido	Forest Timber Program Manager
Range	Teresa Smergut	Forest Range Management Specialist
Riparian	Carolyn Koury	Forest Hydrologist
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	Jerry Monzingo	Forest Biologist
Soils/Water	Carolyn Koury	Forest Hydrologist
	Mike Natharius	Forest Soil Scientist
Timber	Gabriel Partido	Forest Timber Program Manager
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