United States
Department of
Agriculture

Forest
Service

May 2010

Monitoring and Evaluation Report

FY2009

Coconino National Forest

Introduction and Forest Supervisor Certification

This report provides monitoring information for fiscal year 2009, as required by the Coconino National Forest's amended 1987 Land and Resource Management Plan (Forest Plan). The intent of the monitoring and evaluation report is to inform the decision maker and the public of progress toward achieving the goals, objectives, and standards and guidelines.

The information provided in this report follows Table 14 in Chapter 5: Monitoring Schedule of the Forest Plan. Monitoring items that have changed or are no longer relevant are noted where they apply.

I have reviewed the Coconino National Forest's annual Monitoring and Evaluation Report for fiscal year 2009. This Monitoring and Evaluation Report meets regulatory requirements for completing an annual report. Amendments or revisions to the Forest Plan are not likely to be made as a result of this report. Instead, information from this report will be used in the Coconino National Forest Plan revision process currently underway.

/s/ M. Earl Stewart 9 June 2010

M. Earl Stewart

Forest Supervisor

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
Developed Site Use	Determine recreation use and demand.	National Visitor Use Monitoring (NVUM) reports from 2000 and 2005. Measure is National Forest Visits (NFVs). Annual reports from concessionaire receipts and activity reports for sites run by concesionaires (all sites except those on Mogollon Rim RD.	NVUM is conducted in 5 year increments. Next NVUM scheduled for 2010. Concessionaire reporting is annual.	NVUM showed a 72% increase in total NFVs between 2000 and 2005. All indications are that the trend will continue. Result is that most developed sites are at or near capacity. Recreation site concessionaires report slight increases in developed site occupation from 2007 levels. For day use developed sites, there were more visits in 2005 (compared to 2000) with similar duration of stays. Overnight use developed sites had fewer visits but nearly twice the duration of stay in 2005 compared to 2000.
Developed Site Condition	Prevent damage and deterioration. Meet health and safety requirements	Condition site surveys (CSSs) are recorded in INFRA database.	5 year cycle. Each site can go no longer than 5 years without a CSS. All sites are current.	Ongoing upgrade of recreation sites has decreased damage and deterioration for many Forest recreation sites, but some sites have inherent Deferred Maintenance issues that need attention. The Forest has completed the Recreation Facility Analysis that identifies deferred management needs and identifies strategies and priorities for achieving deferred management at developed sites. Implementation of deferred management strategy has begun with Capital Investment Program projects at Bootlegger and Pine Flat campgrounds in Oak Creek Canyon.

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Implementation of Recreation Opportunity Spectrum (ROS) Guidelines	Ensure the protection of existing ROS classes.	Review project work plans involving vegetative treat-ment, road/trail construction, or major development/Acres by ROS class.	Ongoing – by project and by area consideration	Increased state population and Forest visitations are impacting more primitive settings while road system deterioration is resulting in more primitive roads. Anecdotal evidence suggests a slight increase in general forest area use over 2007 levels; therefore there is slightly more deterioration of recreation setting characteristics such as relative wildness and opportunities for solitude and risk away from the sights and sounds of others. Eventual implementation of the Travel Management Rule is expected to result in enhancement of the more primitive setting attributes with restrictions on motorized access.
Off-Road Driving Compliance and Damage	Prevent unacceptable damage to resources and meet provisions of Forest Off-road Driving implementation plan.	Area and Project reviews.	Ongoing – by project and by area consideration	Anecdotal evidence and area survey data suggest continued route proliferation due to unregulated off-highway vehicle (OHV) use. The Motor Vehicle Use Map (MVUM) will replace Forest Off Road Vehicle guidelines in the existing Forest Plan when the Travel Management Rule is implemented.
Dispersed Area Use and Experience Levels	Determine recreation use and Demand.	Area and Project reviews. NVUM for dispersed area total use and for "satisfication" of user and evidence	Ongoing – by project and by area consideration 5 year cycle for NVUM (2000,	Anecdotal evidence and area survey data suggest increased use in dispersed areas, but areas are generally still below capacity per NVUM. The 2005 NVUM suggests that general forest area visits tripled between 2000 and 2005 (1,108, 507 vs. 3,323,051) while the duration of stay was about 1/3

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
		of crowding.	2005, 2010 etc.)	(18.7 hours in 2000 vs. 6.2 hours in 2005).
Dispersed Area Condition	Prevent unacceptable resource Damage.	Area and Project reviews	Ongoing – by project and by area consideration	Anecdotal evidence and area survey data suggest continued dispersed area degradation due to increases in visitors and in motorized cross country travel.
Cultural Resource Compliance Project	Meet Federal regulation; ensure project compliance with guidelines.	Approved cultural resource clearance for each ground-disturbing activity.	Annually	Clearance reports for activities undertaken this FY are complete.
Cultural Resource Property Protection	Protect significant Properties.	Patrol areas in conjunction with other duties/ Site condition	Annually	Increases in visitation have resulted in increased damage to cultural sites. We have responded with increased protection for key sites and with increased prosecution of criminal cases.
Trail Condition	Determine effectiveness of Forest Trails Program.	TRACS / INFRA Miles to standard	Sample 20% Annually –	Trails surveyed generally meet trail handbook standards.

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Visual Quality Objective (VQO) Compliance	Ensure Forest standards and guidelines for visual management are met.	Review project work plans and conduct project reviews - involving vegetative treatment, road/trail construction, or major development/Acres by VQO	Annually – Compliance is ongoing through VMS application for all projects on the Forest. VQO acres are hard to quantify and are not an accurate measure of VQO compliance.	Forest VQO standards and guidelines are outdated. The Forest is in the process of converting from the present Visual Management System (VMS) to the Scenery Management System (SMS). The conversion will include a re-assessment of scenic objectives to reflect changes in use patterns, increased visibility of Coconino NF landscapes, and increased concern for scenic quality by visitors.

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Wilderness Use	Determine wilderness use and demand	National Visitor Use Monitoring (NVUM) report from 2000 and 2005 and pending for 2010. Measure is National Forest Visits (NFVs).	NVUM is conducted in 5 year increments. Next NVUM scheduled for 2010.	NVUM showed a 72% increase in total NFVs (wilderness and non-wilderness) between 2000 and 2005. Wilderness use increased at same level. All indications are that the trend will continue. Some wildernesses (Kachina Peaks, Red Rocks -Secret, Wet Beaver) exceed capacity in some areas. Anecdotal evidence suggests that wilderness use continued increasing in FY 2009.
Wilderness Condition	Minimize resource damage and changes of wilderness opportunity spectrum (WOS) classes, particularly primitive end	Professional observation and in areas where there are more serious problems we are doing some limits of acceptable change (LAC) monitoring.	Annually	Some wildernesses (Kachina Peaks, Red Rocks- Secret, Wet Beaver) exceed WOS capacity in some areas. This has resulted in increased need for trail and site work in these areas that has generally been accomplished. Wilderness condition is generally good but has declined some in the more popular areas.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2009
Goshawk, Pygmy Nuthatch, And Spotted Owl - Amount of Mature and Old-Growth Habitat	Applied management achieves desired stand characteristics for old-growth and indicator species do not significantly decrease. Maintain habitat capability.	Old-growth inventory, compartment exams and habitat capability modeling/Acres. Habitat capability model/ Percent habitat capability	Annually	A Cost-Share Agreement with Rocky Mountain Bird Observatory (RMBO) has been established to detect changes in Management Indicator Species (MIS) songbirds and in squirrels. Survey transects are located in ponderosa pine, pinyon-juniper and aspen vegetation types. ▪ Surveys along 57 forest-wide transects detected 6,282 birds representing 130 species. Final report is in progress however two years of data are insufficient to detect trends. ▪ The Peaks/Mormon Lake RD conducted 11,116 acres of presence and absence surveys for MIS. Two adult and 1 juvenile goshawks were located. Pygmy nuthatches were detected at 18 points. Northern Goshawk 27, 925 acres were surveyed on the Peaks/Mormon Lake RD and Mogollon Rim Ranger Districts. No new goshawks were detected. There are 47 Post Fledling Areas (PFAs) on the Forest. 9 PFAs were monitored to protocol. 1 was occupied with 1 young, the remainder were determined to be unoccupied. 3 additional PFA were monitored but not to full protocol. There were no responses at these sites. Mexican Spotted Owl (MSO) There are 188 Protected Activity Centers (PACs) on the Forest. Fourteen percent (27) of the PACs were monitored. Results: Thirteen of the PACs were occupied and 5 total young were detected. Habitat was evaluated for all projects that contained MSO habitat. There were no responses at the remaining PACs. Old Growth

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2009
				• Existing and potential old growth is evaluated at the project level to provide habitat for MIS and other species. • There are about 46,942 acres of developing old growth and 16,771 acres of existing old growth on the Forest[1].
Turkey Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually on 90% of affected projects	Turkey habitat was evaluated for all projects that contained habitat. Habitat capability is addressed during project planning through consideration of tree clumps and groups, forbs and grasses, slashpiles for nesting, and conditions of springs.
Turkey Population Trend	Meet population goal	Arizona Game and Fish Department surveys/habitat capability modeling	Annually	Wild turkey populations have been in a general decline in Arizona since 1969 (http://www.azgfd.gov/pdfs/h_f/HuntAZ2009.pdf) . The Forest reviewed and discussed population data with AZGFD at the annual hunt recommendation meeting. Turkeys were detected during surveys conducted by Rocky Mountain Biological Observatory (RMBO) (see above). They may be present in sufficient numbers but detection is difficult because of their secretive behavior.
Turkey Nesting Habitat	Maintain nesting habitat	On-the-ground evaluation	Annually and 5 year trend review	See capability above

[1] Based on the RMRIS:r2ris_site_option OPT2. RMRIS is the current corporate data repository. These are acres that have been designated in NEPA decisions and documented in RMRIS by districts. There are many areas on the Forest, such as wilderness and areas with steep slopes, that have not been analyzed in NEPA and, therefore, do not have old growth areas designated and some recent projects have not yet been entered into the database.

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Red Squirrel Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually on 90% of affected projects	Red squirrels were surveyed as part of the Rocky Mountain Bird Observatory (RMBO) Cost-Share project. Final report is in progress.
Elk & Mule Deer Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually	Habitat capability is addressed at the project level where habitat improvements for mule deer (grasslands, aspen, and shrubs) are addressed and incorporated into project implementation where appropriate. Effects of projects on elk and deer habitat were addressed through MIS analysis.
Elk & Mule Deer Population Trends and Distribution	Meet population goal	Arizona Game and Fish Department surveys/habitat capability model	Annually	According to AZ Game and Fish Department, mule deer numbers have been cyclic, responding mainly to climatic events. Drought conditions in recent years have resulted in low fawn survival. The ratio of fawns per 100 does is a rough surrogate for the reproductive success of mule deer. On the Forest, these ratios appear to have remained static or slightly declined*. The ratio of calves per 100 cows is a rough surrogate for the reproductive success of elk. On the Forest, these ratios range between 25 and 51. The western portion had higher reproductive success compared to the other portions of the Forest*. Peaks/Mormon Lake RD: 11,116 acres were inventoried and the presence of elk was documented at 11 points; presence of mule deer was documented at 9 points. *(http://www.azgfd.gov/pdfs/h_f/HuntAZ2009.pdf).
Abert Squirrel Habitat	Maintain habitat capability	Habitat capability model/habitat	Annually	According to the Arizona Game and Fish Department, most squirrel mortality is during the late winter, and when snow

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Capability		capability		covers the ground for 80 or more days, mortality exceeds the squirrels modest recruitment rate because the squirrel relies on the availability of underground fungi*. Habitat capability is addressed at the project level where habitat improvements for Abert squirrel (groups and clumps of ponderosa pine) are addressed and incorporated into project implementation where appropriate. Effects of projects on Abert squirrel habitat were addressed through MIS analysis. Abert squirrels were surveyed as part of the RMBO Cost-Share project (see above). Final report is in progress. Peaks/Mormon Lake RD: 31 points documented the presence of Abert squirrels or squirrel nests. *http://azgfd.gov/pdfs/h_f/HuntAZ2009.pdf
Hairy Woodpecker, Pygmy Nuthatch & Yellow-bellied Sapsucker - Snag Densities, Sizes, and Species (Existing and Future)	Maintain habitat capability	Compartment exams, snag inventories, project reconnaissance and habitat capability modeling/acres	Annually	A Cost-Share Agreement with Rocky Mountain Bird Observatory (RMBO) has been established to detect changes in Management Indicator Species (MIS) songbirds and in squirrels. Survey transects are located in ponderosa pine, pinyon-juniper and aspen vegetation types. ▪ Surveys along 57 forest-wide transects detected 6,282 birds representing 130 species. Hairy woodpeckers were detected 36 times, pygmy nuthatch 226, and Red-naped sapsuckers were not detected. Final report is in progress however two years of data are insufficient to detect trends. Survey results so far suggest that the number of pygmy nuthatches detected in aspen are sufficient

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				to produce good estimates of densities. There should be sufficient numbers of hairy woodpeckers detected over the next few years to estimate their density in each surveyed habitat. Peaks/Mormon Lake RD conducted 11,116 acres of presence and absence surveys for MIS. Pygmy nuthatches were detected at 18 points and hairy woodpeckers at 5 points. Mogollon Rim RD • 2 riparian breeding bird surveys were conducted as part of a statewide program. In one plot, 2 pygmy nuthatches, 1 hairy woodpecker, 1 red-naped sapsucker and 1 red-naped sapsucker nest with young were detected. • Snag size, density, and species were recorded within 204 microhabitat plots. Report is in progress. • 1 North American Breeding Bird Survey at Happy Jack and 1 district-level breeding bird survey was completed.
Plain (Juniper) Titmouse - Amount of Mature and Old-Growth, Pinyon-Juniper	Maintain habitat capability	Habitat capability model/habitat capability	Annually	Juniper titmouse were detected at 110 points during the RMBO surveys. Data can be post-stratified by habitat. Final report is in progress. Survey results so far suggest that the number of juniper titmouse detected in pinyon juniper woodland are sufficient to produce good estimates of densities.

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Plain (Juniper) Titmouse - Snag Densities and Sizes of Pinyon-Juniper	Maintain habitat capability	Compartment exams, snag inventories, and project reconnaissance/acres	Annually	Peaks/Mormon Lake Ranger District conducted 11,116 acres of presence and absence surveys for MIS. Snags were tallied at each point.
Antelope - Forage Availability	Maintain habitat capability	Production-Utilization surveys, habitat capability model/habitat capability	Annually and 9-13 years on each grazing allotment	Significant effort by various partners and the Forest continued focus on improvement of pronghorn habitat on Anderson Mesa. Activities included: fence repair, installation of wildlife jumps to reduce future maintenance, completion of a 45 acre exclosure fence at a wetland, and 500 acres broadcast burn on the mesa.
Antelope - Population Trends	Meet population goal	Arizona Game and Fish Department surveys/ Numbers	Annually	Annual surveys were done by the Arizona Game and Fish Department. The ratio of fawns per 100 does is a rough surrogate for the reproductive success of pronghorn. On the Forest, these ratios have declined*. Reviewed and discussed population data with AGFD at the annual hunt recommendation meeting. Peaks/Mormon Lake RD: 11,116 presence/absence surveys for MIS. Pronghorn were detected at 2 points. *http://azgfd.gov/pdfs/h_f/HuntAZ2009.pdf
Cinnamon Teal - Amount of Suitable Nesting Habitat	Maintain habitat capability	Field surveys (height density method) or score cards/acres	Every 5 years on selected wetlands	None completed this year.

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Cinnamon Teal - Nesting Success	Maintain habitat capability	Systematic field sampling, cooperative survey with Arizona Game and Fish Department/ Numbers	Every 5 years on selected wetlands	None completed this year.
Riparian Areas, Lincoln's Sparrow, Lucy's Warbler, & Yellow-Breasted Chat - Habitat Condition	Maintain habitat capability	Habitat capability modeling and systematic field sampling using riparian scorecard/ analyses/acres	5% of stream miles annually	Riparian habitat for MIS was evaluated for all projects that contained habitat.
Aquatic-Macro Invertebrates - Species Diversity and Biomass	Maintain aquatic habitat effectiveness	Systematic field sampling (modified surber sampling)	Every 5 years on selected streams	None completed this year.
Threatened And Endangered Species - amount of Suitable Habitat and Population	Meet Federal regulation Meet recovery plan goals	Field surveys/ Acres Field surveys, U S Fish and Wildlife Service surveys/ Numbers	Annually Annually	Mexican spotted owl ▪ 29 Protected Activity Centers monitored: 13 confirmed occupied; 5 young. ▪ Peaks/Mormon Lake Ranger District: Microhabitat monitoring was completed at 7 post-treatment plots and 123 pre-treatment plots. Chiricahua Leopard Frogs (CLF)

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2009
				▪ Surveys for CLF by FS biologists were conducted in 2009 at 3 sites on the Red Rock Ranger District in accordance with the standardized protocol. On the Mogollon Rim Ranger District where historic range for Chircahua leopard frogs overlaps with northern leopard frogs, 124 sites were surveyed for leopard frogs. No Chiricahua leopard frogs were found. Southwestern Willow Flycatcher (SWWF) ▪ Three sites with potential flycatcher habitat were surveyed to protocol by FS biologists (Dry Beaver Creek at Stagestop, Sheepshead Canyon, Verde/West Clear Creek confluence). No SWWFs were detected. Bald Eagle • The 7 bald eagle nests on the Forest were monitored. Of these, 1 bald eagle fledged; 4 nests failed with the nestling in one nest disappeared, and the nestling in another nest injured and taken to rehabilitation. The other two nests were occupied but productivity was not determined. • The annual Bald Eagle Midwinter survey was completed. 29 eagles were detected along 18 routes. Gila Topminnow, Spikedace, Loach Minnow • Fossil Creek was monitored by AGFD. It appears as if 2009 stocking of Gila topminnow was successful. Based on captures, it appears that the species may be establishing in Fossil Creek. No spikedace were captured in 2009 and it is unclear whether spikedace are persisting, reproducing, or establishing. Five loach minnows were observed in 2009. Although they have

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2009
				persisted, there is no evidence yet of reproduction by this species. Little Colorado Spinedace • Streams surveyed were: East Clear Creek, West Leonard Canyon, Bear Canyon, Dane Canyon, Miller Canyon, Yeager Canyon, Kehl Canyon, and Dines Tank (in Leonard Creek). Spinedace were found in West Leonard, Dane, Bear, Yeager, and Dines Tank. San Francisco Peaks Groundsel • The Forest is working with Rocky Mountain Research Station to monitor *Packera franciscana*. 6 permanent transects visited and data were collected. 36,000 plants were examined. 6% of the plants were flowering or fruiting compared to 9% in 2008. An additional 163 sampling points were established. A report is pending. Arizona Cliffrose • 6 transects were monitored for *Purshia subintegra*. Tips of the plants have died back in response to a prolonged drought in the area. Repeat photos have indicated that recreation use, particularly horseback riding and mountain biking, has increased over time. Localized erosion and crushing of individual plants has resulted.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2009
Sensitive Species - Amount of Suitable Habitat and Population Trends	Manage at appropriate levels to prevent listing as threatened or endangered species	Field surveys/ Acres	5 years	Northern Goshawk ▪ Flag Center: 7 PFAs monitored; 1 occupied; 1 young ▪ Flag Ctr: 11,116 acres presence/absence surveys for goshawks. Two adult and 1 juvenile goshawks were located. Lowland Leopard Frog ▪ Monitored frogs in Fossil Creek Sensitive Plants • 2,000 acres of surveys for *Astragalus rusbyi* were conducted. Numerous unrecorded groups were located. • An agreement was established between the Forest and the Arboretum at Flagstaff to update a management plan in the Verde Valley for an area with a number of sensitive species. Completion is scheduled for 2010. • Two *Actaea arizonica* sites were monitored. Populations appear static. • The Forest and The Nature Conservancy monitored exclosures established for Bebb's willow and *Rumex orthoneurus.* In one set of exclosures, the purpose is to monitor establishment and growth of Bebb's willow. Coincidentally, *Rumex* is germinating successfully only in the exclosure and it is also being monitored. The purpose of the second set of exclosures is to evaluate techniques for transplanting and possible re-introduction in the future. This is within an active grazing allotment that has not been grazed in recent years.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2009
Diversity - Successional Stages of Major Vegetation Types	Meet Federal regulation (NFMA)	Compartment exams, field surveys, timber inventory, habitat diversity model/acres	Every 5 years	Not completed this year.
Habitat Improvements - Condition of Structural Improvements	Identify those structures which must be reconstructed	Inspections/ structure	50% of structures per	The Fossil Creek fish barrier was inspected by biologists. It is functioning as designed. Wildlife trick tanks on the Mogollon Rim Ranger District were inspected and maintenance and reconstruction needs were identified.
Stream temperature of cold water fisheries	Monitor current conditions and effects of management practices on stream temperature to assure compliance with State water quality standards and tolerance levels for cold water fish	Maximum temperature thermometers	All perennial cold water streams in the first decade. Five projects annually	None completed this year.

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Permitted Use	Meet Federal regulation, check for term grazing permit and Plan compliance.	Annual Grazing Statistical Report/ Animal Unit Months (AUMs) Forest-wide	Annually	152,760 AUMs permitted for the grazing year.
Actual Use	Check compliance with term grazing permit, Allotment Management Plan (AMP), and Forest Plan.	Grazing actual use record, permittee reports, and actual range counts/ AUM's Forest-wide	Annually	107,459 AUMs authorized for the grazing year.
Capacity	Meet Federal regulation, determine sustained livestock stocking levels.	Production and utilization surveys, range inspections/ AUMs Forest-wide	50% of Forest acres per decade	No production/utilization studies were completed; production plots were read on 5 allotments (93,700 acres) 29 allotments inspected with 14 sites (key areas and other areas) on 11 allotments exceeding the utilization standards. This includes readings post grazing season or post growing season. If grazing intensity was recorded post grazing, the mid-point of the range was used to determine whether the standard was met.

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Range Condition and Trend	Meet Federal regulation, identify changes in range condition and trend, recom-mend changes in management, and determine shifts away from grass aspect due to overstory.	Range analysis, transect data, photo plots, inspection records/ Acres	50% of Forest acres per decade	Condition and trend studies conducted on portions of 5 allotments (132,000 acres).
Allotment Management Plan (AMP) Status	Meet Federal regulation, determine if permittee is compliance, and if AMP reflects current needs of resource.	Actual use, permitted use, in capacity records, range analysis, production and utilization studies, and allotment inspections/ Plan	Yearly to once every 10 years per allotment	813,056 acres on 32 allotments were administered to standard (51% of total acres within allotments). 29 allotments inspected with 14 sites (key areas and other areas) on 11 allotments exceeding the utilization standards. This includes readings that occurred after the grazing season or after the growing season. If grazing intensity was recorded post grazing, the mid-point of the range was used to determine whether the standard was met.
Condition of Structural Improvements	Meet Federal regulation, and identify those structures which must be reconstructed.	Range inspections, range analysis, permittee reports.	50% of range structures per decade (*national requirement is now once every five years)*	No existing range structures inventoried or inspected. 100% of the improvements have been inspected in the last 5 years. New construction - 6.8 miles fence, 2 weather stations, 500 yards sucker rod fence to protect frog habitat Reconstruction/replacement - 3 water troughs, 1 trick tank, Removal - 8 miles of barbed wire fence.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
Condition of Nonstructural Improvements	Meet Federal regulation, and identify those vegetative improvements that require retreatment.	Range inspections, range analysis, production and utilization surveys, and permittee reports/ Acre	50% of treated acres per decade	Not applicable – There are no non-structural range improvements to monitor.
Forage Condition in Transitory Range	Determine and monitor added capacity created behind timber and firewood cuts.	Range inspections, pre-sale review, compartment exams/ Acre	5-10 years on 50% of transitory acres	Not applicable – There are no transitory rangelands.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	2009
Practices and Assumptions	Ensure that: -Regeneration is obtained within 5 years after final harvest cut and scheduled planting is accomplished or prior to final harvest cut when natural regeneration is planned**.**	Annual Reforestation/TSI Needs Report, plantation survival surveys, stand certification, silvicultural prescriptions, post-sale administrative review, Timber Management Information System (TMIS), Stand Data Base/Acres	Annually (plantation survival surveys are 1st, 3rd & 5th growing seasons) or as scheduled. Annual stand certification for natural regeneration stands (5th & 10th years).	Not applicable
Timber Stand Improvement Acres and Assumptions	Ensure that: -- Scheduled TSI projects are accomplished Reduce insect and disease risk.	Silvicultural prescriptions, accomplishment reports, certified projects, Reforestation/TSI Needs Report, Stand Data Base/ Acres	Annually	Compliance inspections done on all contracts, and silviculturist reviewed work done by the Forest Service.

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Silvicultural Assumptions and Practices	Ensure that: -- Appropriate management is applied to Retention and Partial Retention zones and riparian areas, -- Rotation age and CMAI assumptions are correct, -- Silvicultural prescriptions follow management area standards, -- Silvicultural prescriptions precede vegetative treatments, -- Silvicultural prescriptions are practical and achieve desired results	Silvicultural prescriptions, EA's, project reviews	Annually	Silviculturist conducts formal review every 4 years and an informal review annually.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	2009
Timber Assumptions: Volume, Productivity, Condition Class, Acres Harvested	Ensure that: -- Board foot/cubic foot ratios are correct, -- Volume/acre yield is correct, -- Condition class assignments are correct, -- Schedule of acres harvested is correct	Sale review, EAs, cruise summaries, TMIS, compartment exams, stand data base Use the same conversion ratios as used in Plan calculations/ As appropriate	Annually	Reviewed all Forest Supervisor authority timber sales. Used standard USFS timber cruising software programs
Size of Openings	Ensure that: -- Openings comply with size limits and are periodically evaluated for appropriateness	EA's, presale and administrative reviews, and post-sale reviews/ Project area	Annually	No openings > 4 acres
Acres of Overstory and Final Removal Harvest	Meet Federal regulation, measure prescriptions and effects	TMIS, Staff review of 5% of treatment projects (at least 2 projects) /Acres	Annually	Not applicable
Acres of Intermediate Harvest	Meet Federal regulation, measure prescriptions and effects	TMIS, Staff review of 5% of treatment projects (at least 2 projects) /Acres	Annually	Informal reviews completed and surveillance plots conducted on Designation by Description prescriptions.

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Board Feet of Net Sawtimber Offered, sold, and harvested	Meet Federal regulation, measure output, assure timber offered or available for offer meets, but does not exceed, the allowable sale quantity.	PAMARS (annual reporting system), programmed harvest reports/ MBF (PTSAR [annual reporting system from TIM] MBF/CCF)	Annually	Offered – 0 MBF/0 CCF.* Sold - 0 MBF/0 CCF Harvested – for reporting purposes, are typically considered the same as sold. (For 2009, we did have some **harvest** activity from contracts offered and awarded (sold) in previous fiscal years. Volumes for those are - 6,967ccf sawtimber [3,205 mbf] and 617ccf non-sawtimber [394 mbf]. These amounts did not exceed the allowable sale quantity. *Due to an economic recession, phone calls were made to all active, local, potential bidders at least every other month to determine interest in bidding on timber projects. All potential bidders contacted said they would not bid. This helped determine not to offer any sales. For fiscal year 2010 we will go back to our previous program of work and offer similar volumes/acres.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	2009
Cords of Firewood Available	Ensure that: -- Green firewood is made available, -- Potential firewood from timber sales and road building is made reasonably available to the general public before slash disposal	Review annual total of firewood sale reports, firewood advertised but not sold, and free use/Cords	Annually	Several free use areas were identified on all Districts in areas of slash piles from recent timber sales, recent non-commercial thinning areas and areas of recent bug kill trees for personal use firewood. Commercial firewood sold (dead salvage volume) 520 cords – 409 ccf/205mbf. Personal Use Paid – 15,356 cords – 19,512ccf/9,756 mbf Personal Free Use – 3,239 cords – 4,116ccf/2,058mbf No green firewood was made available because there was insufficient capacity on the Forest to establish and administer these areas.
Yield Projections	Ensure that: Yield projections are correct	Establish GSL studies in cooperation with RMFRES/ Permanent plots in regenerated stands/ MBF/acre and/ or trees/acre	First decade	Not applicable

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Re-evaluation of Unsuitable Timber Lands	Evaluate the accuracy of suitable timberlands classification, periodically reexamine lands identified as not suitable for timber production to determine if they have become suited and could be returned to timber production	Review new or updated soil survey data, compartment exam, project plans, timber planning process/ Acre	Cover entire Forest in 1st decade (1/10 of Forest annually)	Not applicable

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Watershed Condition of Forest Lands	Meet Federal regulation, ensure that Forest watersheds in satisfactory condition by 2020, assure productivity of the land is maintained.	Standard Watershed Condition Inventory according to R-3 Hydrology Note 14. Photo points, ocular estimates to determine trends/acres.	10% annually	Baseline soil condition assessments were completed on several pastures within the Walker Basin and Buckhorn range allotments ranging from ponderosa pine to desert lifezones. The assessments were a qualitative and quantitative look at the health of the soils serving as an indication of watershed condition. The sites were located within the West Clear Creek and Beaver Creek 5th Code watersheds. Soil condition was impaired and unsatisfactory.
Watershed/ Soils Prescriptions	Monitor projects to determine 1) compliance with recommendations and suitability of recommendations and Best Management Practices (BMPs), and 2) to ensure water quality standards are met.	Review soil disturbing projects for compliance with Best Management Practices and water quality standards.	Minimum of 1 project per District per year	Best management practices were included in the prescriptions for prescribed burning and/or mechanical thinning to retain adequate large woody debris, burn under proper moisture conditions and to protect soil organic material. Follow-up watershed effectiveness monitoring occurred on the Brins Wildfire in the Oak Creek 5th code watershed. Results indicate rapid recovery of shrub canopy cover, but slow vegetative ground cover recovery except in a few areas adjacent to Encinosa and Manzanita recreation areas.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
	Monitor watershed condition in project areas.	Standard watershed condition transects (per Hydro Note 14)/Project	1 Project/ year Forest-wide	Best Management Practices (BMPs) to minimize non-point source pollution were identified and implementation monitoring occurred in all fuel reduction projects. BMPs were included in the Timber Sale contracts for designated landings and skid trails that limited operation to periods when the soils are not wet and specified sanitation and fuels storage requirements for on-site logging camps. BMP effectiveness monitoring occurred in riparian pastures and measured livestock utilization on several District allotments where livestock have access to streams including Oak, Spring, Fossil, West Clear, Walker, Wet and Dry Beaver Creeks. Vegetation frequency and ground cover monitoring occurred on several dozen sites dispersed throughout the Walker Basin, Buckhorn, Apache Maid, and Beaver Creek allotments using enhanced quadrat method. . All active range allotments were monitored for utilization.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
Riparian Improvement Projects	Resolve Issues at Forest level and meet Federal regulation; review riparian improvement projects for changes in ground cover, species composition, bank stability, stream flow and water quality changes, effectiveness of and compliance with recommendations	Standard watershed condition transects, ocular, estimates and professional judgment/ Project	1 Project/ year Forest-wide	Forest roads 132 and 132B were relocated outside of riparian areas in Hoxworth Springs and adequate drainage installed. A cattle exclosure was reconstructed around Potato Lake and should improve riparian and soil condition and function. .
Riparian Areas	Monitor condition and trend of riparian areas photo points.	Standard watershed condition transects, ocular, estimates, photo points	5 percent annually	Riparian Proper Functioning Condition (PFC) assessments were read on 6 stream reaches within the Walker Basin and Buckhorn Allotments (West Clear Creek, Beaver Creek and Upper Clear Creek 5th code watersheds. Riparian utilization was monitored on District allotments where livestock have access to streams, at primarily water gaps, including Oak, Spring, Fossil, East Clear Creek, West Clear, Walker, Wet and Dry Beaver Creeks.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
				A final stream gauge monitoring was performed on Sycamore Creek, to determine median monthly flows for procurement of instream flow water rights. The purpose of gauging the flow and procurement of water right is to collect sufficient data to acquire in-situ instream flow water rights for recreation, fisheries and wildlife use resulting in riparian area, water quality and quantity protection.
Road Obliteration	Ensure compliance with Standards and Guidelines concerning road densities Forest Issue related.	Work accomplishment reports/ Miles	Annually (Report in years 3, 6, 9)	6 miles of roads were obliterated forest-wide. BMPs to minimize non-point source pollution were identifed and implementation monitoring occurred, including designating camp locations outside of riparian filter strips.
Water Quality	Ensure compliance with Standards and Guidelines, State and Federal Water Quality Standards.	Fecal coliform sampling at sites designated for full body contact	3 Sites Annually	Water quality was monitored for exceedences in *E. coli* pathogens at several sites along Oak and Spring Creeks by the Arizona Department of Environmental Quality (ADEQ) and Friends of the Forest per Forest Plan and State and Federal regulations. Results indicated water quality exceeded standards (see ADEQ website below); and consequently, both Spring Creek and Oak Creek were listed impaired for pathogens. This is due to a combination of unsanitary habits of swimmers on weekends and leaky septic systems on adjacent non-FS lands. Several other Forest perennial streams were monitored by ADEQ at about 4 times/year in the monitoring cycle. Results indicated the Verde River as not attaining (category 4d with Total Maximum Daily Load or TMDL) and most other streams as inconclusive or attaining some or all uses. Lake water quality monitoring continued at Upper and Lower Lake Mary, Soldiers Lake, Soldiers Annex, and Lower Long Lake.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
				Exceedences found in fish tissue (mercury). Water quality results by stream can be found on this link: http://www.azdeq.gov/environ/water/assessment/assess.html
ROADS				
Arterial/ Collector, Construction/ Reconstruction	Ensure compliance with identified needs for arterial/collector Reconstruction. Forest Issue related	Work accomplishment reports/ Miles	Annually	827 miles of roads were maintained. 6.0 miles of road reconstructed or improved
Purchaser Credit Roads	Ensure compliance with identified needs for construction and reconstruction of purchaser credit roads	Work accomplishment reports/ Miles	Annually	0
MINERALS				
Compliance with Terms of Minerals Operating Plans	Meet legislative mandate and Agency guidelines.	Field checks/ Plans	Annually	We have a minimal amount of mining operations, and some do not operate in any given year. In 2009, operations were field checked.
Non-patented Mining Claim Compliance	Minimize illegal mining activity.	Field checks, BLM file checks	Annually	There is not usually an issue with illegal mining activity on the Forest due to relatively minimal mineralization of the area. With minimal mining activity we make only field checks as needed and review BLM records as necessary, or when we become aware of any operations that may need to be put under a plan of operations.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
Special Use Permits	Process and administer special use permits in accordance with established guidelines.	Land Uses Report (LUR), field inspections/ Permits Permits are tracked and processed through SUDS.	Annually	136 permits were administered to standard. Other permits were administered to a lesser standard. Reduced budgets and personnel have limited the amount of field inspections and general administration. The forest is initiating collection agreements to cover the cost of this work. Demand for permits is increasing as communities within the Forest continue to grow and expand. There are over 900 land use permits on the forest.
Land Purchase, Acquisition, and Exchange	Consolidate Forest lands and meet public needs.	Forest Land Adjustment Plan, MAR target/ Cases	Annually	The forest continues to carry out land adjustments under direction in the Forest Plan. Land exchanges are done when there is legislative direction or where there is substantial funding from a collection agreement. The Forest purchased 74 acres in one land purchase using Land and Water Conservation funds and disposed of 0.5 acre in one sale.
Occupancy Trespass	Minimize Forest trespass problems.	Field checks, landline location/ Cases resolved vs. new cases	Annually	Two cases were resolved.
Landline Location	Maintain Forest boundary.	Landline location, MAR target/ Miles	Annually	Limited budgets have reduced the landline work being done. Development of private in holdings and adjacent private property has increased and is resulting in new trespass. One mile of boundary was maintained in FY09.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
Growth Reduction and Mortality Caused by Insect and Disease Infestations	Ensure endemic and introduced infestations do not become epidemic Reduce adverse effects of dwarf mistletoe.	Integrated Pest Management aerial observation by regional entomologists, compartment exam, project inspections and reviews/Acres, Forest-wide	Annually	Aerial surveys are conducted to monitor forest health conditions over large areas. Forests are monitored for dying trees (from bark beetles, drought, and other factors), various types of defoliation, and abiotic impacts such as from storms and weather factors. The 2008 report was published in July 2009 (http://www.fs.fed.us/r3/publications/documents/fidc2008.pdf). Maps are available at: http://www.fs.fed.us/r3/resources/health/fid_surveys.shtml Forest highlights include: Acres ponderosa pine needle cast, likely fungal caused: 8,000 Acres of bark beetle incidence: 2,310 Acres of aspen damage: 6,670 Acres defoliation by drought: 130
Air Quality	Ensure prescribed fire does not cause violations of State and Federal air quality standards in sensitive areas.	Project reports, field monitoring	Annually	No violations per Arizona Department of Environmental Quality (ADEQ). Field monitoring is consistent with guidelines set in FSM 5100, Chp 5140: Fire Use. Daily Rx requests are submitted for approval from ADEQ
Fuel Treatment Outputs	Ensure balanced fuel treatment outputs, emphasizing utilization.	Accomplishment reports/ Acres	Annually	12,925 wildland urban interface (WUI) acres treated. 8,095 Non-WUI acres treated. 21, 020 Total Acres Treated

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
Wildfire Acre PAR's	Ensure wildfire acres are within projected annual burned acres period and by Fire Management Zone where acres are not specific to MA's.	Reports/Acres	Annually	A Fires 219 (Class A - one-fourth acre or less) B Fires 75 (Class B - more than one-fourth acre, but less than 10) C Fires 9 (Class C - 10 acres or more, but less than 100 acres) D Fires 2 (Class D - 100 acres or more, but less than 300 acres) E Fires 2 (Class E - 300 acres or more, but less than 1,000 ac) F Fires 10 (Class F - 1,000 acres or more, but less than 5,000 ac) G Fires 0 (Class G - 5,000 acres or more) Total Fires: 317 (159 Human caused, 158 Lightening) Total Acres Burned: 26,084 A total of 22,495 Wildland Fire Acres were managed for multiple resource benefits in 2009
Cost of Suppression, Protection, Organization, and Net Value Change	Keep fire management program cost effective.	Dollars	Annually	Suppression costs were minimized as much as possible to meet objectives in maintaining resource effectiveness and safety guidelines during suppression activities. Suppression costs are tracked through the use of wildfire suppression funds and a summary of total suppression costs for 2009 is not currently available. Pre-suppression costs have remained flat or have increased slightly.
Fire Suppression Effectiveness	Meet Federal regulation and measure prescriptions and effects.	Periodic inspections and reviews to determine if fire management organization is effective in controlling fire	Annually	Pre-season planning and budgetary allocations are coordinated to provide effective and efficient fire suppression response to wildland fires based on historical data and projected fire danger ratings through the use of hazard analysis procedures Pre-season preparedness reviews are conducted and safety discussions held. After Action Reviews are held after each incident.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
		losses within prescription; the use of the fire budget analysis process to determine fire management efficiency; and reviews of selected fires Annual inspections, periodic re-views, and use of fire bud-get analysis process as needed		Informal reviews are conducted periodically during the fiscal year to assess needs to the fire organization. Budget allocations for the Forest are discussed with Regional Office Fire Management to evaluate requirements for funding levels. Mid-year reviews are conducted to project funding needs and/or potential savings in the Preparedness Budget through the end of the FY. Spring and Fall fire leadership meetings are conducted to confirm fire program needs to meet operational objectives for fire suppression.
Law Enforcement Person Hours	Improve law enforcement Forest Issue related	Professional evaluation of trend based on a review of case loads, solution rates and public complaints Based on: protection of cultural resources, Off-road Driving damage, firewood theft, dollar cost of vandalism and trends in user protection. Update monthly using LEIMARS	Annually	Law enforcement officers on the Forest respond to Washington Office and Regional priorities in addition to Forest issues. The demand for law enforcement exceeds Forest capacity. 2009 statistics include: Fines collected: $94,623 Damage to Government property and resources: $17,140 Public contacts: 6,816 Incident reports: 1,164 Violations issued: 1,127 Warnings issued: 312 Public and other assists: 84 Arrests: 33 Cannabis plots eradicated: 9

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
Citizen Participation Plans Public Affairs Standards	Measure responsiveness to potentially affected interests.	Citizen Participation Plans and Public Affairs Plan review/ Completed contacts and actions	Quarterly	Based on quarterly SOPA reports from October 2008-September 2009, public contacts were made with respect to: • Travel Management Rule • Transmission line permits/wind energy • Range allotments • Special Use Permits (roads, improvements, access) • Land exchange • Recreation projects (climbing, trails) • Administration site sale • Recreation Residence Permits • Fuels reduction and forest health projects • Forest restoration projects • Aspen restoration • Burned area restoration • Wildlife protection and habitat improvement • Mineral exploration • Christmas tree area • Water storage tanks • Outfitter guide permits • Youth camp • Fossil Creek Area recreation management • Snotel sites • Houston Draw Aquatic Organism Passage • West Fork of Oak Creek Aquatic Restoration • Abandoned mine remediation • Pit permit • Forest plan revision – wilderness evaluation

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2009
Verification of Unit Cost Used in Plan Compared to On-the-Ground Cost	Acquire accurate cost data.	Actual costs from a representative sample of projects and programs including both force account and contract. Discount to 1982 dollars for comparison to Plan costs/Dollars	Annually	Due to a change in budgeting process, this can no longer track in the same manner.
Effects of Management on Adjacent Lands on National Forest Goals and Objectives	Determine effects of manage ment of other ownership on Forest Plan.	Reports from appropriate resource monitoring items, review of other Agency plans, new issues	Every 5 years	None this year

Coconino National Forest 2009 Non-Point Source Water Quality Report

This Water Quality Report is in response to the Clean Water Act Non-Point Source program Agreement with the Arizona Department of Environmental Quality and covers those activities contributing to the control of non–point source pollution affecting water quality on the Coconino National Forest. During the past fiscal year (October 1, 2008 – September 30, 2009), the Coconino National Forest has designed, implemented (using Best Management Practices), or cooperated in a variety of activities intended to improve and protect soil and water resources and water quality on and off of the Forest. The Forest was also active in soil, vegetation, riparian and water resource monitoring and in watershed related assessments and partnerships.

The following is a summary of those activities listed by District or Forest-wide. Project area maps and monitoring data can be found in District and the Supervisors office.

Recreation Management
Improving or removing selected areas for recreation use helps reduce non-point source pollution. BMPs are used in constructing or removing recreation sites to reduce the potential for sediment to enter streams and lakes from these sites. Toilets are planned and installed to reduce bacterial contamination from heavily used recreational areas and are placed using standard state regulation for setback distances from waterbodies.

Red Rock Ranger District:

A new toilet was installed at the 179 scenic pullout North of Courthouse Butte, this project was put in place in cooperation with ADOT.

The Cathedral Rock Trailhead was paved to address erosion problems and nonpoint source pollution concerns into Oak Creek.

12 port-o-pots were installed within the Fossil Creek Area to reduce pathogen contamination of Fossil Creek and help fish and the macroinvertebrates by improving water quality.

Livestock Grazing Allotments

On the Mogollon Rim and Red Rock Ranger Districts, livestock numbers were reduced to an average of 55-60% of permitted numbers due to declined vegetative and soil conditions.

New Environmental Assessments (EAs) were completed and Decisions signed off on the following range allotments;

Red Rock Ranger District

1) Signed Decision Notice Fossil Creek Allotment reduced allowable use from 50 to 35% and soil condition objectives identified. BMP's included in the NEPA are designed to minimize sediment production on-site.
2) Completed environmental assessment on Hackberry - Pivot Rock allotment reducing allowable use and establishing soil condition objectives similar to Fossil Creek.

3) Developed Proposed Actions on Walker Basin and Buckhorn allotments and recommended grazing deferrals in pastures with high amounts of unsatisfactory soil and proposed reduction of allowable use from about 50% to 30 – 40%.

Peaks and Mormon Lake Ranger Districts

1) Developed Proposed Action on the Peaks allotment and proposed reduction of allowable use.

Resource Protection Measures and BMP's:

The Forest Plan establishes standards and guidelines to follow or adjust in the grazing plan on all allotments. Conservative use in uplands is 30-40% and aims to move soil towards satisfactory condition.

Resource Protection Measures mirror Best Management Practices and are included in each new EA. Soil condition objectives were established for Fossil Creek, Hackberry-Pivot Rock, Walker Basin and Buckhorn allotments. These objectives are set to improve or move soil condition toward satisfactory functioning soil conditions and improve water quality.

Grazing Resource Protection Measures and BMPs include the following.

- Allotments are grazed establishing limits for timing, frequency, and duration of grazing including drought. These factors may be adjusted based on conservative use guidelines for uplands and riparian areas, as well as long term effectiveness monitoring.
- Grazing will be managed at an intensity that will improve vegetative ground cover (plant litter and basal area).
- Pastures with high amounts of unsatisfactory soils connected to impaired waters will be deferred or rested until soil condition objectives are met (increase in vegetative ground cover to protect against accelerated soil erosion).
- Use salt to improve livestock distributions and more than ¼ mile from water.

Select recommended use guidelines for riparian areas used include the following

- Leave at least 10 cm of residual stubble height of hydrophilic vegetation.
- Assure adequate vegetative filter strips between stream courses and disturbed areas based on soil and erosion hazard.
- Install alternate drinking sources and use herding or fencing to reduce sediment and animal waste delivery to streams.
- Maintain at least 80% streambank in stable condition.
- Maintain 80 % emergent herbaceous vegetation in wetlands.
- Locate roads out of riparian areas and wetlands.

Fuels and Timber Management and BMP's (Forest-Wide Activities)

Hazardous Fuel Reduction/Wildland Fire Use Fires:

2009 Hazardous fuel reduction was accomplished on about 27,300 acres. About 21,600 acres were treated with prescribed fire including initial, maintenance or pile burning and about 5700 acres were mechanically thinned and piled or chipped on both Wild Urban Interface

areas and out. Best management practices (described below) were included in the prescription to retain adequate large woody debris, burn under proper moisture conditions and to protect soil organic matter. The treatments are beginning to restore watershed function and have reduced the likelihood of adverse watershed effects from uncontrolled wildfire.

13 Wildland Fire Use (Resource Benefit) Fires occurred on the Forest and burned 22,495 acres. Most occurred (about 16,700 acres) on the Mogollon Rim Ranger District. These low burn severity fires were allowed to burn (consistent with Forest and Fire Plan direction) since the effects were predicted to be beneficial to the soil and thinned out overstocked forests. Subsequent burn severity mapping proved these fires met resource objectives where less than about 10% burned in the high burn severity class.

RRRD:
70 acres were thinned in upper Oak Creek Canyon near the Cave Springs Campground to reduce risk to watershed and water quality from stand replacing fires that could result in high burn severity and accelerated erosion, sediment delivery, nonpoint source pollution and adverse effects to water quality.

Mogollon Rim, Peaks and Mormon Lake Ranger Districts
Fuels management projects all contain BMP's that are specific to the project-specific NEPA. The exception to this are the managed fires where soil and water objectives are stated within the Wildland Fire Decision Support System (WFDSS) document for each managed fire. General project specific BMP's are designed to reduce non-point source pollution from silvicultural activities and include filter strip designation, limiting equipment use in filter strips, and limiting burn severity through prescription controls. BMP's included in the NEPA are designed to minimize sediment production on-site.

Specific BMP's include the following:

Harvest Activities

24.11 - Use of Terrestrial Ecosystem Survey Timber Harvest Limitation Rating

1. Objective. To identify severe and moderate erosion hazard areas and other soil limitations in order to adjust treatment measures to prevent downstream water quality degradation.

24.13 - Limiting the Operating Period of Timber Sale Activities

1. Objective. To ensure that the Purchaser conducts operations, including but not limited to erosion control work, road maintenance, and log landing drainage in a timely manner, within the time period specified in the Timber Sale Contract.

The CT6.3 "Plan of Operation" provision is required in all Timber Sale Contracts. This provision states that the Purchaser must submit a general plan of operation which will set forth planned periods for and methods of road construction, timber harvesting, completion of slash disposal, erosion control work, and other contractual requirements. Forest Service written approval of the Plan of Operation is a prerequisite to the commencement of the Purchaser's operation. Provision BT6.6 can be used to suspend operations because of wet or saturated soils in order to protect soil and water resources.

24.18 - Tractor Skidding Location and Design

1. Objective. To minimize erosion and sedimentation by designing skidding patterns to best fit the terrain. Proper skid pattern management involves such things as locating skid trails to avoid stream courses and restriction of skidders to designated trails. The Sale Administrator locates the skid trails with the timber Purchaser or by agreeing to the Purchaser's proposed locations prior to construction

24.2 - Log Landing Location

1. Objective. To locate landings so creation of unsatisfactory watershed conditions which lead to water quality degradation is avoided.

24.21 - Erosion Prevention and Control Measures During Timber Sale Operations

1. Objective. To ensure that the Purchaser's operations shall be conducted reasonably to minimize soil erosion.

Equipment shall not be operated when soil conditions are such that accelerated soil erosion will result. The kinds and intensity of control work required of the Purchaser shall be adjusted to soil and weather conditions and the need for controlling runoff. Erosion control work shall be kept current immediately preceding expected seasonal periods of precipitation or runoff.

24.3 - Slash Treatment in Sensitive Areas

1. Objective. To comply with Federal and state water quality standards by protecting sensitive areas from degradation which would result from using mechanized equipment for slash disposal.

Protected streamcourses will be designated on the sale area map. Disturbance from mechanical equipment will be minimal within 50’ on either side of the protected streamcourse.

41.3 - Obliteration of Roads

1. Objective. To reduce sediment generated from unneeded roads, roads that run in streambeds, and roads that are located in streamside management zones by closing them to vehicle use and restoring them to productivity.

Roads that are no longer necessary for public access or management purposes need to be obliterated. Roads that are allowed to exist without proper maintenance are subject to continued, uncorrected damage and can become chronic sediment sources.

Prescribed Burning

On areas to be prescribed burned, fire prescriptions should be designed to minimize soil temperatures over the entire area. High intensity and burn severity fire should occur on 10% or less of the entire area. Fire prescriptions should be designed so that soil and fuel moisture temperatures are such that fire intensity is minimized and soil health and productivity are maintained.

On areas to be prescribed burned, retain 5-10 tons/acre of course woody debris in ponderosa pine and 10-15 tons/acre of course woody debris in mixed conifer be left on-site

after the prescribed burns to maintain long-term soil productivity on areas to be burned outside of the buffers around private land in.

On areas to be prescribed burned, establish filter strips averaging 1 chain (66 feet) buffer on each side of riparian streamcourses and an average of ½ chain (33 feet) buffer on each side of non-riparian streamcourses to filter sediments that will occur from the burn. Do not ignite fuels within this buffer area. Some creep may occur into the buffer, but an average of width by stream type will be maintained.

National Fire Plan (NFP) Projects and Burned Area Emergency Response

NFP Projects: Eleven NFP projects were implemented ranging from erosion control on the 2006 Brins Fire to invasive weed control on several other fires. The purpose of NFP projects is to accomplish critical rehabilitation and restoration work on lands damaged by fire or fire-related impacts and should restore watershed function and reduce nonpoint source pollution. Approximately 588 acres were restored under the NFP.

Burned Area Emergency Response: Two fires located on the Peaks Ranger District were assessed in 2009. Only the 3545 acre Taylor Fire was treated to reduce threats to life and unacceptable resource damage. About 5 miles of hazardous trees were felled and where possible, laid on the contour to reduce accelerated erosion in high burn severity areas. About one mile of road drainage was improved to facilitate proper water drainage and emergency signage was posted to alert hunters and users of possible flooding, fallen rocks and trees.

Highways and Legacy Roads and Trails Projects

1) Nine Legacy Roads and Trails Projects were implemented. These projects are designed to improve road and trail drainage, riparian area and aquatic function and reduce nonpoint source pollution to connected waters. In addition, about 38 miles of roads were either relocated outside of riparian areas or drainages or closed. Pavement of bridge approaches occurred on Forest Road 95 and 96 designed to limit sediment delivery to East Clear Creek and Barbershop Canyons in the Upper Clear Creek watershed, Mogollon Rim Ranger District and at Beaver Creek on the Red Rock Ranger District.

Wildlife, Fisheries Riparian and Aquatics Projects:

Red Rock Ranger District:

T bar Tank #2 Restoration Project:
T Bar Tank No. 2 is an important Northern leopard frog breeding site and serves as a source population for the Apache Maid/Stoneman Lake Area. The tank's spillway was eroding and causing a headcut that is threatened to dewater the important water source. The Forest Service and Arizona Game and Fish Department repaired the spillway and eroded gully downstream.

Chiricahua Leopard Frog Wedge Fencing

Wedge Fencing was installed at 5 stock tanks to protect and improves approximately 0.5 acres of pond and 640 acres of adjacent upland habitat.

Riparian Exclosures:
The riparian exclosure on Dry Beaver Creek @ Stagestop was repaired. 14 riparian exclosures were inventoried for fence maintenance needs.

Mormon Lake Ranger District:

- Stream Channel Restoration
    1) Stream channel restoration was implemented on approximately 2,000 feet (20 affected watershed acres) in the Hoxworth Springs drainage (Upper Lake Mary watershed) on the Mormon Lake Ranger District. Section 401 and 404 permits applied for and received prior to construction. BMP's in place include silt fence downstream of channel activities, revegetation, hydromulch, erosion blanket and 8-foot fence to remove grazing pressure from all ungulates and designed to limit on-site sediment production.

Stream Assessments
Riparian Proper Function Condition Assessments were made on three riparian areas on the Red Rock Ranger District.

RRRD:
22 riparian areas were visited and photo points were retaken at 11 site. These photos will be used to assess where restoration should be emphasized in our riparian areas.

Friends of the Forest Water Quality Monitoring:
Weekly samples are taken year round at six different sites on Oak Creek in high use recreational areas and these samples are tested for E coli.

Mogollon Rim Ranger District:
East Clear Creek Spring Monitoring Assessment. In cooperation with Dr Larry Stevens of the Grand Canyon Wildlands Council, approximately 60 springs were inventoried looking at water chemistry, macroinvertebrates, habitat and plant assemblages. Final report has not been completed and data is not currently available for distribution but will be available to ADEQ upon receipt.

Travel Management
Actions in travel management are designed to limit sediments from roads that are poorly located. The activities below result in reduction of nonpoint source pollution.

Mogollon Rim and RRRD:

Physical road closure/obliteration was achieved on over 30 miles of road (listed above under Legacy Roads and Trails Projects). About 10 miles of physical road closure/obliteration in the Oak Creek Watershed on the Mormon Lake Ranger District. The Oak Creek watershed is a

unique water and an impaired water. Of these miles, approximately 4 miles in the Upper Clear Creek watershed were closed by volunteers by a partnership with the Grand Canyon Wildlands Council.

Travel Management Planning continues on the Forest. The Draft EIS is scheduled to be released in fall of 2009 and proposes to restrict cross-country travel and designate suitable roads for travel that should result in reduced nonpoint source pollution to connected waters downstream.

Forest Plan Revision
Planning continued in 2009 and and Ecosystem Sustainability Report finalized. The Need for Change report will be finalized in 2010.

NPS Grants and Partnerships:

ADEQ Water Quality Improvement Grant - 11-00609

Middle Fossil Creek Water Quality Improvement Grant

This project is aimed towards improving water quality by paying for placement of temporary porta johns in highly used recreational sites as well as funding research with NAU that looks at fecal contamination. This year we had 10 porta johns placed in the Middle reaches of Fossil Creek.

Arizona Water Protection Fund Grant - 09-162WPF

Middle Fossil Creek Riparian Habitat Protection and Restoration

This project restores riparian habitat, reduce sediment and improve water quality in Middle Fossil Creek through permanent removal of high use dispersed campsites, ripping and reseeding of access roads located within the riparian zone and redesignation of these features. Work is on-going.

ADEQ/EPA Target Watershed Grant with Oak Creek Watershed Council:

The Arizona Department of Environmental Quality has awarded a $311,603 grant to the Oak Creek Canyon Task Force to reduce the level of E. coli bacteria in the Oak Creek Watershed. Phase one of this two phase grant this year focuses on developing a watershed improvement plan and the watershed improvement council which will help the cleanup projects to be implemented the following year.

Other Partnerships:

A partnership with the Arizona State Parks and Friends of the Forest to monitor water quality at 5 locations on Oak and Spring Creeks was maintained and supported. Samples were taken weekly during the peak recreation season, from May to October, to sample for E-Coli for full body contact – swimming in Oak Creek. Sampling was conducted along Oak Creek (we sampled from approximately 1 mile above Slide Rock to Page Springs, about 26 stream miles).

A partnership with the Oak Creek Task Force, a community based watershed organization, was maintained and supported. The 2002 Watershed Based Plan for Oak Creek Canyon developed with the Task Force is being implemented.

The Forest is an active member of the Colorado Water Advisory Council. The Council was formed to ensure an adequate long-term supply of water is available to meet current and future reasonable needs, while preserving the health of the environment.

The Forest is an active member of the Walnut Creek Watershed Technical Advisory Committee also. This committee was formed to study methods of improving favorable conditions of water flow and riparian condition in Walnut Creek and to maintain or improve water quality conditions in the domestic water supply Lake Mary watershed. Rory Steinke, Coconino National Forest Watershed Program Manager, served as Chairperson.

Partnership continued with the Diablo Trust on Anderson Mesa range allotments and livestock grazing strategies in multiple 5th codes, Little Colorado River watershed.

The Verde River Basin Partnership was formed in 2005 in response to Federal legislation stemming from the Northern Arizona Land Exchange. The objectives include development of a Verde River water supply and demand analysis including groundwater and surface water and long-term supply management options. The Coconino is collaborating but not a current board member. No meetings were scheduled in 2009 to our knowledge.

Mogollon Rim Ranger District:

The Grand Canyon Wildlands Council is involved in road closures, inventory of springs, removal of non-native crayfish and noxious weed treatments within the Upper Clear Creek watershed on the Mogollon Rim Ranger District. A summary of the road closure work using volunteers can be viewed at the following website:

http://www.partnershipresourcecenter.org/roads/documents/MogollonRimRoadClosures.pdf

Presidents Initiative:

The Oak Creek watershed and portions of the Sedona Red Rock Area was selected as part of the President's Initiative where $21 million dollars may be spent to improve maintenance deferred recreation areas. Projects should be linked to improvement of water quality, urgent health and safety needs and/or restoration of ecosystem or cultural resources with special emphasis on sacred site protection.

The Forest is currently identifying potential projects to submit under the initiative and would plan projects in the first year and implement in the second. Treatment implementation should result in reduced nonpoint source pollution into Oak, West Fork of Oak Creek and Spring Creeks, and improved water quality.