United States
Department of
Agriculture

Forest
Service

July 2009

Monitoring and Evaluation Report

FY2008

Coconino National Forest

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Introduction and Forest Supervisor Certification

This report provides monitoring information for fiscal year 2008, 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 2008. 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.

Joe Stringer
Acting Forest Supervisor

7/30/09
Date

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Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
Developed Site Use	Determine recreation use and demand.	National Visitor Use Monitoring (NVUM) report from 2000 and 2005 and pending for 2010. Measure is National Forest Visits (NFVs). Annual reports from concessionaire receipts and activity reports for sites run by concesionaires (all sites except those on MRRD).	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.
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.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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.
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. Forest ORV driving plan will be replaced by MVUM in early 2010.
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 of crowding.	Ongoing – by project and by area consideration 5 year cycle for NVUM (2000, 2005, 2010 etc.)	Anecdotal evidence and area survey data suggest increased use in dispersed areas, but areas are generally still below capacity per NVUM.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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.
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	Annually – Compliance is ongoing through VMS application for all projects on the Forest. VQO acres are hard to	Forest VQO standards and guidelines are routinely met or mitigated through routine review of projects for VQO compliance.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
		by VQO	quantify and are not an accurate measure of VQO compliance.	

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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, RR Secret, Wet Beaver) exceed capacity in some areas. Anecdotal evidence suggests that wilderness use continued increasing in FY 2008.
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, RR 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 2008
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	Northern Goshawk ▪ 25 Post Fledgling Areas (PFAs) monitored; 6 occupied, 3 young ▪ 30,000 acres surveyed MIS songbirds and squirrels ▪ 58 songbird transects: 19 in Aspen habitats, 19 in Pinyon Juniper, 20 in Ponderosa Pine habitats ▪ 72 squirrel detections
Turkey Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually on 90% of affected projects	None completed this year.
Turkey Population Trend	Meet population goal	Arizona Game and Fish Department surveys/habitat capability modeling	Annually	Reviewed and discussed population data with Arizona Game and Fish Department (AZGFD) at the annual hunt recommendation meeting
Turkey Nesting Habitat	Maintain nesting habitat	On-the-ground evaluation	Annually and 5 year trend review	None completed this year.
Red Squirrel Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually on 90% of affected projects	None completed this year.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2008
Elk & Mule Deer Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually	None completed this year.
Elk & Mule Deer Population Trends and Distribution	Meet population goal	Arizona Game and Fish Department surveys/habitat capability model	Annually	Reviewed and discussed population data with AZGFD at the annual hunt recommendation meeting
Abert Squirrel Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually	MIS songbirds and squirrels ▪ 72 squirrel detections
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	MIS songbirds and squirrels ▪ 58 songbird transects: 19 in Aspen habitats, 19 in Pinyon Juniper, 20 in Ponderosa Pine habitats ▪ 72 squirrel detections
Plain (Juniper) Titmouse - Amount of Mature and Old-Growth, Pinyon-Juniper	Maintain habitat capability	Habitat capability model/habitat capability	Annually	MIS songbirds and squirrels ▪ 58 songbird transects: 19 in Aspen habitats, 19 in Pinyon Juniper, 20 in Ponderosa Pine habitats ▪ 72 squirrel detections

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2008
Plain (Juniper) Titmouse - Snag Densities and Sizes of Pinyon-Juniper	Maintain habitat capability	Compartment exams, snag inventories, and project reconnaissance/acres	Annually	MIS songbirds and squirrels ▪ 58 songbird transects: 19 in Aspen Habitats, 19 in Pinyon Juniper, 20 in Ponderosa Pine Habitats ▪ 72 squirrel detections
Antelope - Forage Availability	Maintain habitat capability	Production-Utilization surveys, habitat capability model/habitat capability	Annually and 9-13 years on each grazing allotment	Range Monitoring (from 2008 Range Monitoring Table): No production/utilization studies were completed; production plots were read on 3 allotments (43,000 acres). Over the past 5 years, production has been assessed on 23% of the Forest acres. 24 allotments inspected with 4 key areas on 2 allotments exceeding the utilization standards
Antelope - Population Trends	Meet population goal	Arizona Game and Fish Department surveys/ Numbers	Annually	Reviewed and discussed population data with Arizona Game and Fish Department at the annual hunt recommendation meeting
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	Since 2003, 17 seasonal and semipermanent wetlands have been fenced to reduce disturbance to nesting waterfowl and to protect and enhance nesting habitat.
Cinnamon Teal - Nesting Succes	Maintain habitat capability	Systematic field sampling, cooperative survey with Arizona Game and Fish Department/ Numbers	Every 5 years onselected wetlands	Northern Arizona Audobon conducted waterfowl surveys at: Hay Lake, Tremain Lake, Judy Tank, Long Lake, Soldier Lake, Soldier Anex, Lower Lake Mary and Marshal Lake.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2008
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	None completed this year.
Aquatic-Macro Invertebrates - Species Diversity and Biomass	Maintain aquatic habitat effectiveness	Systematic field sampling (modified surber sampling)	Every 5 years on selected streams	Extensive surveys were conducted by NAU in Fossil and Beaver Creeks.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2008
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 ▪ 39 Protected Activity Centers monitored: 22 confirmed occupied; 0 young Chiricahua Leopard Frogs ▪ All sites surveyed by AZGFD & U.S. Fish and Wildlife Service (USFWS) Southwestern Willow Flycatcher ▪ Two sites on the Red Rock District were surveyed San Francisco Peaks Groundsel ▪ Ten acres monitored by Rocky Mountain Research Station.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2008
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 ▪ 25 PFAs monitored; 6 occupied, 3 young ▪ 30,000 acres surveyed Sensitive Plants ▪ 2,000 acres of sensitive plant survey done concurrently with goshawk survey Narrow-headed Garter Snake ▪ Assisted U.S. Geological Survey (USGS) in monitoring population in Oak Creek Canyon Mexican Garter Snake ▪ Assisted USGS in monitoring population in Lower Oak Creek Lowland Leopard Frog ▪ Monitored frog sites in Fossil Creek
Diversity - Successional Stages of Major Vegetation Types	Meet Federal regulation (NFMA)	Compartment exams, field surveys, timber inventory, habitat diversity model/acres	Every 5 years	Acres of stand exams completed: ▪ 15,000 acres in ponderosa pine habitats
Habitat Improvements - Condition of Structural Improvements	Identify those structures which must be reconstructed	Inspections/ structure	50% of structures per	None completed this year.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2008
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.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
Permitted Use	Meet Federal regulation, check for term grazing permit and Plan compliance.	Annual Grazing Statistical Report/ Animal Unit Months (AUMs) Forest-wide	Annually	162,990 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	100,345 AUMs authorized for the grazing year. Over the last 5 years, the Forest have averaged 61% of the permitted numbers being authorized.
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 3 allotments (43,000 acres) Over the past 5 years, production has been assessed on 23% of the Forest acres. 24 allotments inspected with 4 key areas on 2 allotments exceeding the utilization standards

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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 4 allotments (164,000 acres). Over the past 5 years, condition and trend have been assessed on 25% of the Forest 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	601,237 acres on 28 allotments were administered to standard (35% of total acres). Over the last 5 years, all active allotments have been administered to standard at least twice. 24 out of 38 allotments inspected with 4 key areas on 2 allotments exceeding the utilization standards.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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. 6 miles of new fences constructed; 6 miles of fence and 1 mile of pipeline reconstructed; 1 water catchment removed
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	FY 2008
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).	N/A
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 force account work.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
Silvicultural Assumptions and Practices	Ensure that: -- Appropriate management is applied to Retention and Par- tial 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	FY 2008
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 Over-story 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	N/A
Acres of Intermediate Harvest	Meet Federal regulation, measure prescriptions and effects	TMIS, Staff review of 5% of treatment projects (at least 2 projects)	Annually	Informal reviews completed and surveillance plots conducted on DxD prescriptions.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
		/Acres		
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 – 18,097.58 MBF/36,104.79 CCF Sold – 10,588.71 MBF/21,166.92 CCF Harvested, for reporting purposes, are typically considered the same as sold.
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	No Green Firewood was made available. Several free use areas were identified in areas of slash piles from recent timber sales for personal use firewood. Commercial Firewood Sold (dead salvage volume) 405 cords - 202.27 MBF/318.59 CCF Personal Use Paid – 13,712 cords - 6,829.82 MBF/10,791.01 CCF Personal Free Use – 3,186 cords – 1,599.91 MBF/2,507.7 CCF

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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	N/A
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)	N/A

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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	Appendix B shows watershed prescriptions, accomplishments and identified BMP's by project, including hazardous fuel reduction, livestock grazing allotment plans and road relations outside riparian zones on all Districts. Prescribed burning and or mechanical thinning occurred on 10,001 acres. Best management practices were included in the prescription to retain adequate large woody debris, burn under proper moisture conditions and to protect soil organic 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 2008
	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 2008
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 road 132 and 132B were relacted 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.

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				A final stream gauge monitoring was performed on Sycamore Creek, to determine median monthly flows for procurement of instream flow water rights (see Appendix). 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 accomplish-ment 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. http://www.azdeq.gov/environ/water/assessment/assess.html 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

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				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 and Soldiers Annex and Lower Long Lake exceedences found in fish tissue. Water quality results by stream can be found on this link: http://www.azdeq.gov/environ/water/assessment/assess.html

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
Arterial/ Collector, Construction/ Reconstruction	Ensure compliance with identified needs for arterial/collector Reconstruction. Forest Issue related	Work accomplishment reports/ Miles	Annually	745 miles of roads were maintained. 9.9 miles of road reconstructed ("Improved" in 2008 Roads Accomplishment Report)
Purchaser Credit Roads	Ensure compliance with identified needs for P/C construction/reconstruction	Work accomplishment reports/ Miles	Annually	0

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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 2008, we did field checks for approximately three operations.
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 2008
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 sold 205 acres in three land sales under various authorities and disposed of 503 acres and gained 821 acres in one land exchange.
Occupancy Trespass	Minimize Forest trespass problems.	Field checks, landline location/ Cases resolved vs. new cases	Annually	Five cases were resolved. Seven new cases were identified.
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 and one-tenth mile of boundary was maintained in FY08.

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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	Conducted through Region 3 Aerial Survey
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.
Fuel Treatment Outputs	Ensure balanced fuel treatment outputs, emphasizing utilization.	Accomplishment reports/ Acres	Annually	16,235 wildland urban interface (WUI) acres treated. 4,840 Non-WUI acres treated.
Wildfire Acre PAR's	Ensure wildfire acres are within projected annual burned acres period and by	Reports/Acres	Annually	A Fires 198 B Fires 39 C Fires 3 D Fires 4 E Fires 1

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
	Fire Management Zone where acres are not specific to MA's.			F Fires 1 G Fires 0 Total Fires: 246 Total Acres Burned: 2,828
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.
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 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	Annually	Pre-season preparedness reviews are conducted and safety discussions held. After Action Reviews are held after each incident. 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.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
		process as needed		
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	This data is not reported at the Forest level due to reorganization of law enforcement within Forest Service.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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	Public contacts were made with respect to: • West Fork Oak Creek Restoration • Fuels Reduction Projects • Snowbowl • Site Sales • OHV use • Special Use Regulations • Grazing • Northern Arizona Land Exchange • Forest Plan Revision • Northern AZ Shooting Range • Wildland Fire Use • Lake Mary Day Use Fees • Fossil Creek • Red Rock Outfitters and Guides • Co-location of Peaks and Mormon Lake Ranger Districts • Travel Management Rule • National Scenic Area in Sedona
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.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2008
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	Projects were implemented consistent with Coconino County Plans.

Appendix A. Coconino National Forest 2008 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 (ADEQ) 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, 2007 – September 30, 2008), the Coconino National Forest has designed, implemented (using Best Management Practices), or cooporated 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 5th code watershed and Forest-wide. Project area maps and monitoring data can be found in District and the Supervisors office.

Summary of Water Quality Classification Forest-Wide.

Assessment Categories by Lake and Stream Reach Name:

Lakes:
In 2004 and 2006/2008, EPA retained listing of five forest lakes including Upper and Lower Lake Mary, Lower Long Lake, Soldiers Annex Lake and Soldiers Lake as impaired and Category 5 due to excessive mercury found in fish tissue.

In the ADEQ 2006/2008 Integrated 305 b report, Appendix B-13, Arizona ADEQ lists all but Soldiers Annex Lake in Category 2 and 3. Soldiers Annex Lake appears to be left out of ADEQ listings probably in error. However, EPA has all 5 lakes listed as impaired waters and formally on the 303 d list. These lakes will remain on Arizona's list of impaired waters until the U.S. Environmental Protection Agency (EPA) determines that they no longer are impaired.

Continued monitoring is planned and a Total Maximum Daily Load (TMDL) is being developed to plan for improvements in water quality. The Forest provided input on soil characteristics to the TMDL soil sampling team. The objective of the sampling is to determine natural background levels found in the soil and ascertain where the sources of mercury comes from (natural or human-caused).

Streams:
ADEQ produced a 2006/2008 Integrated 305 b Report. Compared to 2002/2004, ADEQ moved 49.8 miles of Oak Creek from the headwaters to Spring Creek, including Spring Creek into Category 5 (Impaired and ADEQ 303 d list) for exceedences in E. Coli standard and kept the 1 mile reach impaired adjacent to Slide Rock State Park. Conversations with ADEQ indicate leaky septic systems on Private lands adjacent to Spring Creek and Oak Creek and anutral contributions from wildlife as probable culprits.

In 2006/2008, EPA did not choose to formally list these streams as impaired.

About 78 total miles (24 Forest stream miles) and Stoneman Lake, are listed as Category 4. Category 4 "Not Attaining" waters on the Forest are only located in the Verde 4th HUC watersheds. They include the following; Stoneman Lake (nutrients and DO), Verde River (Oak

Creek – Beaver Creek) for turbidity, Verde River (Beaver Creek – HUC boundary near West Clear Creek) for turbidity, and Verde River (West Clear Creek – Fossil Creek) for turbidity. All these waters have approved TMDL's with recommendations that when implemented, should improve the water quality at which time, ADEQ will move them up to improved Categories. Category 4 waters will be placed on ADEQ Planning List for further study.

About 44 miles of Category 3 (Inconclusive) occur on the Forest including private lands. Category 3 "Inconclusive" waters are placed on the Planning List with additional monitoring planned. Categories 1 and 2 round out the rest of the waters on the Forest. Additional information is provided by reach in the individual watershed write-ups below.

Forest TMDL's:

The Forest has the following 4 approved TMDL's designed by ADEQ in response to past water quality impairements; Verde River for Turbidity, Stoneman Lake for dissolved oxygen, pH and nutrients, Oak Creek at Slide Rock for Pathogen (*E. coli*), and Oak Creek Basin including Munds Creek for Nitrogen and Phosphorus. The 5 Lakes with mercury exceedences in fish tissue are under TMDL development. These TMDL's strive to improve water quality through appropriate management activities by the Forest and State agencies.

1. **Oak Creek Basin and Munds Creek TMDL** for Total Phosphorus and Total Nitrogen.
2. **Fecal Coliform and *E. coli* – Oak Creek** (Slide Rock reach) **TMDL**.
3. **Verde River TMDL** for Turbidity.
4. **Stoneman Lake TMDL** for Dissolved Oxygen, pH, and Nutrients

All were previously approved by ADEQ with recommendations either implemented or being implemented. Projects listing actions affecting watershed conditions (including water quality) in Oak Creek, Beaver Creek and Fossil Creek – Lower Verde River 5th HUC watersheds are designed to meet recommendations in the related TMDL.

Outstanding Arizona Waters

Oak Creek including the West Fork of Oak Creek are the Forest's only "Outstanding Arizona Waters". Fossil Creek has recently been proposed and will soon be formally added as an Outstanding Arizona Water. These waters meet both of the following: 1) The surface water is of "exceptional recreational or ecological significance," or 2) threatened or endangered (T&E) species are known to be associated with the water body and maintenance and protection of existing water quality is essential to the maintenance of the threatened or endangered species or the surface water provides critical habitat.

Outstanding Arizona Waters are subject to Tier 3 Arizona anitdegradation policy. This rule states that a determination "whether there is any degradation of water quality in a surface water [will be made] on a pollutant by pollutant basis." The rule goes on to define allowable degradation to Tier 1, Tier 2, and Tier 3 waters. In Tier 3 waters "existing water quality shall be maintained and protected in surface water that is classified as a unique water and limited degradation of a unique water shall not be allowed. The Forest designated the Oak Creek watershed as a priority watershed and focused many water quality improvement projects here over the last 15 years. See annual Coconino National Forest Non-Point Source Water Quality Reports.

Since full flows to Fossil Creek have returned, recreation pressure has increased tremendously putting water quality at risk especially from possible exceedences in E. Coli and suspended sediment. This stream is and will continue to receive appropriate management and treatments to reduce negative effects to water quality and aquatic habitat.

Best Management Practice (BMP) Forest Service Handbook:

A draft National BMP Forest Service Handbook is out (DRAFT Best Management Practices Non-Point Source Management, USDA Forest Service, FSH 2509.25, May 2005) detailing BMPs and BMP monitoring. The handbook lists BMPs to consider and build upon with the IDT by activity and includes the objective, implementation, and monitoring forms.

Quantifiable Accomplishments by 5th Code Watersheds (10-digit HUC) Improvements to Water Quality, Riparian Area and Soil Condition:

Accomplishments for the following Forest projects are listed by 5th HUC watershed. These projects were designed to improve watershed condition (including soil, riparian and water quality condition) and include BMP's and meet select recommendations identified in TMDL's.

Projects and BMPs Implemented on Currently Impaired Waters

Oak Creek – (1506020205)

Portions of Oak Creek and Spring Creek were previously listed impaired for turbidity and currently listed for *E. coli*.

In the upper portion of the watershed, fuels reduction including mechanical thinning and prescribed burning was accomplished on approximately 5,900 acres. Implementation reduces the potential for wildfire that could result in significant erosion and sediment delivered to Oak Creek. Consequently, this portion of the watershed is protected from potential wildfire threats and increases nonpoint source pollution and degraded water quality that would likely occur following wildfire. The Coconino National Forest maintains project location maps.

Fuel treatments in this watershed would likely protect and improve water quality impairement from suspended sediment (turbidity) and have some limited benefit for reducing exceedences in *E. coli*. Reducing wildfire risk would minimize flooding terraces lined with septic systems along Oak Creek thereby reducing the risk of contamination into Oak Creek. It is generally believed private septic systems and natual wildlife excrements contribute to *E. coli* contamination along Oak Creek.

BMP's to Minimize Non-Point Source Pollution: Where tree thinning and harvesting occur, timber sale contracts include BMP's designating landings and skid trails and limiting operation to periods when the soils are not wet and sanitation and fuels storage requirements for on-site logging camps. Include use of prescriptions that minimize burn severity.

Vault toilets located adjacent to Oak Creek were routinely maintained and cleaned.

Walnut Creek – (1502001502)

Awarded Arizona Water Protection Fund grant to complete stream channel restoration on the Hoxworth Stream Channel Restoration project and relocated existing roads outside of riparian areas.

Hazardous fuels reduction including mechanical thinning and prescribed burning was accomplished in the Lake Mary project on about 700 acres designed to reduce the risk of stand replacing wildfire. The reduction of stand reducing fire potential in this watershed will reduce the potential sediment flows to both Upper and Lower Lake Mary, and the subsequent mercury pulse that might be tied to large sediment flushes to the system.

BMP's to Minimize Non-Point Source Pollution: Limiting operation to periods when the soils are not wet. Include use of prescriptions that minimize burn severity.

Projects and BMPs Implemented and Connected to Past Impaired Waters

Fossil Creek-Lower Verde River – 1506020302

Decommissioning activities began on the Irving power plant in 2008 and continue in 2009. Full flows were returned to Fossil Creek in 2005 and the dam was recently lowered by 14 feet to accommodate stream restoration. APS is largely responsible for implementation and followed the BMP's included in the Environmental Assessment. Forest dispersed recreation access along Fossil Creek was closed during decommissioning activites.

12 new information kiosks with educational messages were installed and Forest monitoring indicates that native fish populations are increasing.

Projects and BMPs Implemented but not Connected to Current or Past Impaired Waters

West Clear Creek 5th Code (1506020301)

Waters of this watershed flow into West Clear Creek and then into the Verde River.

Prescribed burning to reduce wildfire risk occurred within the Valley and IMAX Prescribed Burn project. Approximately 3,450 acres were burned in the project. The result is reduced watershed risk of stand-replacing wildfires that may have resulted in accelerated erosion and eventual sediment delivery into West Clear Creek.

BMP's to Minimize Non-Point Source Pollution: Include use of prescriptions that minimize burn severity and not lighting in designated filter strips

Field implementation of the Mogollon Rim Off-Road vehicle closure continued in cooperation with the Arizona Game and Fish Department. Previously, approximately 25 user created roads were signed as closed to off-road travel, as well implementation of total off-road driving

restrictions were enforced in the upper portion of the Tom's Creek, Clover Creek and Long Valley Draw 6th code watersheds.

Rio de Flag – (1502001501)

Hazardous fuels reduction including thinning and prescribed burning was accomplished on approximately 1,545 acres. Implementation of the project will reduce the risk of watershed disturbance associated with wildfire events in the watershed.

BMP's to Minimize Non-Point Source Pollution: Included in the Timber Sale contracts and include designated landings and skid trails, limiting operation to periods when the soils are not wet and sanitation and fuels storage requirements for on-site logging camps. Include use of prescriptions that minimize burn severity and not lighting in designated filter strips

Upper Clear Creek – (1502000803)

133 acres of montane meadow grassland restoration took place in the watershed that will decreases wildfire threat and improve soil conditions and productivity and improve the protective vegetative ground cover. Improved vegetative ground cover will reduce the potential for accelerated erosion and sediment delivery into East Clear Creek resulting in improved water quality.

About 100 acres including Potato Lake were improved by reconstructing a cattle exclosure and should improve soil conditions and functions.

BMP's to Minimize Non-Point Source Pollution: Included limiting operation to periods when the soils are not wet.

Hazardous fuels reduction including prescribed burning was accomplished on approximately 7945 acres. Implementation of the project will reduce the risk of watershed disturbance associated with wildfire events in the watershed.

BMP's to Minimize Non-Point Source Pollution: Include use of prescriptions that minimize burn severity and not lighting in designated filter strips.

With the assistance of volunteers form the Grand Canyon Wildlands Council, 5 road segments and approximately 1.3 miles of roads (300 volunteer hours) were obliterated in the watershed. The subsequent removal of vehicular traffic from these roads will diminish sediment production from these sites.

BMP's to Minimize Non-Point Source Pollution: All work was done by hand and eliminated the need for equipment related BMP's. Soil and water BMP's include designating camp location outside of riparian filter strips.

Field implementation of the Mogollon Rim Off-Road vehicle closure continues in cooperation with the Arizona Game and Fish Department in both Upper Clear Creek and West Clear Creek watersheds.

Sycamore Canyon – (1506020203)

This watershed drains into Sycamore Creek and then into the Verde River. In the upper portion of the watershed, fuels reduction is on-going in the A-1 Fuels Reduction Project (approximately 1500 acres of prescribed burning). Implementation of the project has reduced the risk of watershed disturbance associated with wildfire events in the watershed.

BMP's to Minimize Non-Point Source Pollution: Include use of prescriptions that minimize burn severity.

Forest-Wide Activities

Hazardous Fuel Reduction/Watershed Restoration/Wildfire Suppression Rehabilitation/Wildland Fire Use Fires:

Hazardous fuel reduction was accomplished on 12,709 acres. 10,001 acres were treated with prescribed fire and 2,709 acres were mechanically thinned and piled or chipped on both Wild Urban Interface areas and out. Best management practices (described above by watershed) 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.

There were about 157 lightning caused fires and 89 human caused fires that burned a total of 2,629 acres. Wildfire suppression rehabilitation occurred in disturbed areas. Native grass seed was seeded where appropriate to promote herbaceous ground cover and stabilize the soil on disturbed sites and drainage installed.

5 Wildland Fire Use Fires occurred on the Forest and burned 2347 acres. 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.

Range Improvements and Allotment Management Plans

Approximately 13,618 acres of rangeland were improved through a combination of hazardous fuel reduction and watershed improvements described above.

NEPA allotment management plan decisions were made on the following allotments in September, 2008; Casner Park/Kelly Seep, Cosnino and Maxwell Spring. These decisions will result in improved grazing strategies and improved soil and riparian and local water quality conditions in these allotments.

NEPA planning continued for the Pivot Rock/ Hackberry and Fossil Creek Range Allotments with a targeted decision in 2009. Initial planning on the Walker Basin and Buckhorn allotments began with proposed actions expected in March, 2009. These plans focus on improving soil, riparian and water quality conditions across the allotments by improving cattle rotations and reducing the utilization level from the current levels.

Invasive Weed Teatment:
Biological control for noxious weeds was accomplished on about 1,673 acres in several locations on the Forest but primarily on portions of the Verde River and Oak Creek watershed. Invasive species are highly competative with native vegetation, often resulting in significant reductions in ground cover and reduction of watershed function.

Other Forest-Wide Activities:

About 6 miles of Forest roads were obliterated or decommissioned.

Approximately 10.5 miles of stream habitat was restored in 2008.

The Forest finished instream flow water rights assessments and received permits to appropriate water and were granted instream flow water rights by ADWR for Wet Beaver Creek, West Clear Creek and Spring Creek. The Forest is presently awaiting ADWR approval of several other instream flow water right claims for in situ wildlife and fish use. These water rights should prevent future diversions or new uses that may not be compatible with riparian and aquatic biota function, and should maintain and help improve water quality.

Maintenance of Watershed Improvements Forest-Wide:

As mentioned above and in the Upper Clear Creek watershed a cattle exclosure was reconstructed around Potato Lake and should improve soil condition and function.

Monitoring Accomplishments Forest-Wide:

In cooperation with Arizona State Parks and the Friends of the Forest, water quality was again monitored in Oak and Spring Creeks and tested for pathogens.

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.

Soil Condition assessments were completed on several pastures within these allotments. Soil condition baseline monitoring occured on the Hackberry Allotment for use in the Hackberry/Pivot Rock range NEPA (Fossil Creek 5th Code Watershed). The assessments were a qualitative and quantitative look at the health of the soil and used to help determine range capability.

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.

All active range allotments were monitored for utilization.

The FS range crew and a contract Enterprise crew collected data at several dozen sites dispersed throughout the Walker Basin, Buckhorn, Apache Maid, and Beaver Creek allotments. They

collected frequency data using an enhanced quadrat method, and cover data according to a 10th acre cover plot protocol.

Water Quality Improvement Grants:

Oak Creek Targeted Watershed Improvement Plan (WIP).

ADEQ has selected the Oak Creek watershed for development of targeted plans because of the known pollutant impairments and anticipated community support:

Targeted Watershed Improvement Plans (WIPs) are needed to identify and prioritize water quality improvement projects critical to restore water quality. These plans are targeted at specific pollutants causing impairments within a targeted drainage area. The goal of plan implementation is to reduce pollutant loads from nonpoint sources causing surface waters to be listed as "impaired" or "not attaining," or causing ground water to not meet drinking water quality standards.

The objective of this grant is to focus future on-the-ground Water Quality Improvement Grants on priority projects identified in the plan, so that in the near future, impaired water will meet water quality standards.

- The Forest has provided technical expertise in Phase 1 (watershed assessment and prioritization) of this program partnering with the Oak Creek Task Force.

2007-2008 Oak Creek Canyon Water Quality Improvement Education Program (recommended for funding)

Pender Engineering **$53,490.00**
This non-Forest Service project initiates a Trailhead Ambassador program for high school students. Once trained, Trailhead Ambassadors will work weekends and holiday weekends, 35 weekends from March to October, to greet visitors in Oak Creek Canyon day-use and overnight-use areas, explaining to visitors the risks associated with fecal contamination, reminding visitors of the stream of the importance of proper disposal of trash and human and pet wastes, and directing visitors attention to locations of toilettes, trash receptacles, recycling receptacles and dog waste stations. This program will provide up to one high school credit towards graduation upon completion of 120 hours of volunteer service.

The grantee will also install and maintain eight Barco® Dog Waste Disposal Stations at trailheads to educate recreational users about the importance of preventing the pollution that results from human and pet wastes. This project is a collaboration with Oak Creek Canyon Task Force.

Arizona Water Protection Fund

An Arizona Water Protection Fund grant was awarded to complete stream channel restoration on the Hoxworth Stream Channel Restoration project (Upper Lake Mary 5th Code Watershed).

An Arizona Water Protection Fund grant for Fossil Creek was applied for by NAU partnering with the Coconino National Forest, the Friends of the Forest and others. The project focuses on restoring riparian habitat, and thereby reducing sediment and improving water quality through the permanent removal of high-use dispersed campsites located within the riparian zone. It also aims to provide education and monitoring to control future impairement of Fossil Creek water quality with implementation to be completed by 2013. NAU is seeking an additional Water Quality Improvement grant from ADEQ at this time.

Landscape Scale/Watershed Assessments/Forest Plan Revision/Travel Management:

No new landscape scale or watershed assessments were completed in 2008. The Upper Beaver Creek Watershed Fuels Reduction Project expects a Decision on the EA in 2009. The objective of this project is to reduce fuels and manage for forest health in the Upper Beaver Creek watershed.

Major emphasis was placed on Forest Plan revision and Travel Management Planning and continued in 2008. A Forest scale and 5th HUC assessment of soil, wetland and riparian conditions, water quality and quantity was completed in 2007 and updated in 2008 using existing information. This information was used to determine the ecological need for change on the Forest and specific management direction identifed in the new Forest Plan.

The Travel Management rule effectively closes off road vehicle travel and requires each Forest to designate suitable roads and trails by 2009. The Coconino National Forest identified roads and the use thereof that pose risk to water quality, riparian, wetland and montane meadow conditions. The proposed action was released in 2007 and alternatives developed along with analysis of affected environment and environmental consequences of the proposal and alternatives in 2008. The proposed action would close more than 1/3rd of inventoried roads many of which pose risk to the conditions mentioned above. Closing these roads and restricting cross-country travel may be one of the largest actions that benefit watershed and water quality conditions in the recent history of the Forest Service.

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 longterm supply management options. The Coconino is collaborating but not a current board member.

The Forest partnered with the Grand Road Grand Canyon Wildlands Council and completed road closures on 5 road segments in the Upper Clear Creek watershed for 1.3 miles and a total of approximately 300 volunteer hours.

Additionally crayfish removal and research at Dines Tank was done for 4 weeks and approximately 500 volunteer hours and Mudbug madness as the Forest partnered with the Grand Canyon Wildlands Council and Chandler Rod and Gun Club at East Clear Creek bridge (FR 95).

Please contact Rory Steinke, Coconino National Forest Watershed Program Manager at (928) 527-3451 if you have any questions regarding this report.