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Monitoring and Evaluation Report

FY2006 and FY2007

Coconino National Forest

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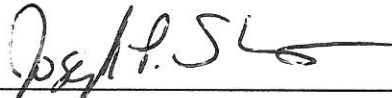
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Introduction and Forest Supervisor Certification

This report provides monitoring information for fiscal years 2006 and 2007, 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 years 2006 and 2007. 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.



NORA RASURE
Forest Supervisor

9/30/08

Date

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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 concessionaires (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.	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.
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.	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.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
Implementation of Recreation Opportunity Spectrum (ROS) Guidelines	Ensure the protection of existing ROS classes.	Review project work plans involving vegetative treatment, 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 are resulting in more primitive roads.	Increased state population and Forest visitations are impacting more primitive settings while road system deterioration are resulting in more primitive roads.
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.	Anecdotal evidence and area survey data suggest continued route proliferation due to unregulated OHV use. Forest ORV driving plan will be replaced by MVUM in late 2009.
Dispersed Area Use and Experience Levels	Determine recreation use and Demand.	Area and Project reviews. NVUM for dispersed area total use and for “satisfaction” 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.	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 2006	FY 2007
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	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.	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.	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.	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	Annually – Compliance is ongoing through VMS application for all projects on	Forest VQO standards and guidelines are routinely met or mitigated through routine review of projects for VQO compliance.	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 2006	FY 2007
		construction, or major development/Acres by VQO	the Forest. VQO acres are hard to quantify and are not an accurate measure of VQO compliance.		

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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	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
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.	Some wildernesses (Kachina Peaks, RR Secret, Wet Beaver) exceed WOS capacity in some areas.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2006	FY 2007
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	<u>Northern Goshawk</u> <ul style="list-style-type: none"> ◆ 22 Post-fledging family areas (PFA) monitored: 8 confirmed occupied, 7 confirmed young. ◆ 10,846 acres surveyed <u>MIS Songbirds and Squirrels</u> <ul style="list-style-type: none"> ◆ Transects were established and surveys completed in ponderosa pine (10 transects), pinyon juniper (9 transects) and aspen (5 transects) to determine presence/absence and long-term trends. 	<u>Northern Goshawk</u> <ul style="list-style-type: none"> ◆ 27 Post-fledging family areas (PFA) monitored: 10 confirmed occupied, 6 confirmed young.
Turkey Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually on 90% of affected projects	None completed this year.	None completed this year.
Turkey Population Trend	Meet population goal	Arizona Game and Fish Department surveys/habitat capability modeling	Annually	Reviewed and discussed Arizona Game and Fish Department's turkey population data at the March 2, 2006 annual hunt permit recommendations meeting.	Reviewed and discussed Arizona Game and Fish Department's turkey population data at the February 26, 2007 annual hunt permit recommendations meeting.
Turkey Nesting Habitat	Maintain nesting habitat	On-the-ground evaluation	Annually and 5 year trend review	None completed this year.	None completed this year.
Red Squirrel Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually on 90% of affected projects	<u>MIS Songbirds and Squirrels</u> <p>Transects were established and surveys completed in ponderosa pine (10 transects), pinyon juniper (9 transects) and aspen (5 transects) to determine presence/absence and long-term trends.</p>	None completed this year.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2006	FY 2007
Elk & Mule Deer Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually	None completed this year.	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 Arizona Game and Fish Department's elk and mule deer population data at the March 2, 2006 annual hunt permit recommendations meeting.	Reviewed and discussed Arizona Game and Fish Department's elk and mule deer population data at the February 26, 2007 annual hunt permit recommendations meeting.
Abert Squirrel Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually	<u>MIS Songbirds and Squirrels</u> ♦ Transects were established and surveys completed in ponderosa pine (10 transects), pinyon juniper (9 transects), and aspen (5 transects) to determine presence/absence and long-term trends.	None completed this year.
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	<u>MIS Songbirds and Squirrels</u> ♦ Transects were established and surveys completed in ponderosa pine (10 transects), pinyon juniper (9 transects) and aspen (5 transects) to determine presence/absence and long-term trends. ♦ Goshawk transects that incorporated MIS presence information on 10,846 acres in ponderosa pine (Peaks and Mormon Lake Districts)	None completed this year.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2006	FY 2007
Plain (Juniper) Titmouse - Amount of Mature and Old-Growth, Pinyon-Juniper	Maintain habitat capability	Habitat capability model/habitat capability	Annually	<u>MIS Songbirds and Squirrels</u> ♦ Transects were established and surveys completed in ponderosa pine (10 transects), pinyon juniper (9 transects) and aspen (5 transects) to determine presence/absence and long-term trends.	None completed this year.
Plain (Juniper) Titmouse - Snag Densities and Sizes of Pinyon-Juniper	Maintain habitat capability	Compartment exams, snag inventories, and project reconnaissance/acres	Annually	<u>MIS Songbirds and Squirrels</u> ♦ Transects were established and surveys completed in ponderosa pine (10 transects), pinyon juniper (9 transects) and aspen (5 transects) to determine presence/absence and long-term trends.	None completed this year.
Antelope - Forage Availability	Maintain habitat capability	Production-Utilization surveys, habitat capability model/habitat capability	Annually and 9-13 years on each grazing allotment	<u>Range Monitoring (from 2006 Range Monitoring Table)</u> ♦ Production studies completed on 2 allotments (120,677 acres) ♦ 12 allotments were inspected for utilization with all meeting allowable use standards.	<u>Range Monitoring (from 2007 Range Monitoring Table)</u> ♦ 8 allotments were inspected for utilization with all but 2 allotments (2 key areas) meeting allowable use standards.
Antelope - Population Trends	Meet population goal	Arizona Game and Fish Department surveys/ Numbers	Annually	Reviewed and discussed Arizona Game and Fish Department's antelope population data at the March 2, 2006 annual hunt permit recommendations meeting.	None completed this year.
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.	None completed this year.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2006	FY 2007
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	Waterfowl monitoring conducted by a volunteer at wetlands and lakes totally 2,000 acres on the Peaks and Mormon Lake Districts.	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	<u>Riparian Areas Monitoring (from the Watershed/Soil/Air 2006 report)</u> ◆ Approximately 120 Riparian Proper Functioning Condition (PFC) baseline condition assessments were completed. About 75% of Forest riparian streams now have recent PFC assessments and all identified wetlands. The purpose is to evaluate current conditions and establish a baseline for future change detection.	<u>Riparian Areas Monitoring (from the Watershed/Soil/Air 2007 report)</u> ◆ Riparian Proper Functioning Condition (PFC) assessments were re-read on 10 reaches within the Pivot Rock range Allotment (Upper Clear Creek 5 th code, East Clear Creek, Kehl, and Miller 6 th code watersheds, respectively). Conducted riparian photo monitoring at two locations on Oak Creek. Compared 2007 photos to previous years' photos to track extent of invasive weed establishment, riparian vegetation changes, and recreation impacts.
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.	None completed this year.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2006	FY 2007
<p>Threatened And Endangered Species - amount of Suitable Habitat and Population</p>	<p>Meet Federal regulation</p> <p>Meet recovery plan goals</p>	<p>Field surveys/ Acres</p> <p>Field surveys, U S Fish and Wildlife Service surveys/ Numbers</p>	<p>Annually</p> <p>Annually</p>	<p><u>Mexican spotted owl</u></p> <ul style="list-style-type: none"> ◆ 30 Protected Activity Centers monitored: 23 confirmed occupied; 10 confirmed young. ◆ 1,600 acres surveyed (Flagstaff Center). <p><u>Bald Eagle</u></p> <ul style="list-style-type: none"> ◆ 18 Mid-winter survey routes completed. 85 bald eagles were counted. ◆ 1 Bald Eagle Nestsite monitoring – Bald Eagle Nest Watchers Program. ◆ 2 Bald Eagle Breeding Area Closures <p><u>Southwestern Willow Flycatcher</u></p> <ul style="list-style-type: none"> ◆ 3 sites surveyed on the Red Rock Ranger District <p><u>Chiricahua Leopard Frog</u></p> <ul style="list-style-type: none"> ◆ 12 sites surveyed <p><u>San Francisco Peaks Groundsel</u></p> <ul style="list-style-type: none"> ◆ San Francisco Peaks Groundsel impacts study (partnership with NAU) 	<p><u>Mexican spotted owl</u></p> <ul style="list-style-type: none"> ◆ 18 Protected Activity Centers monitored: 12 confirmed occupied; 6 confirmed young. ◆ 10,875 acres surveyed (Flagstaff Center) <p><u>Bald Eagle</u></p> <ul style="list-style-type: none"> ◆ 18 Mid-winter survey routes completed. 58 bald eagles were counted. ◆ 1 Bald Eagle site monitoring – Bald Eagle Nest Watchers Program. ◆ 2 Bald Eagle Breeding Area Closures <p><u>Southwestern Willow Flycatcher</u></p> <ul style="list-style-type: none"> ◆ 3 sites surveyed on the Red Rock Ranger District <p><u>Chiricahua Leopard Frog</u></p> <ul style="list-style-type: none"> ◆ 5 sites surveyed

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2006	FY 2007
<p>Sensitive Species - Amount of Suitable Habitat and Population Trends</p>	<p>Manage at appropriate levels to prevent listing as threatened or endangered species</p>	<p>Field surveys/ Acres</p>	<p>5 years</p>	<p><u>Northern Goshawk</u></p> <ul style="list-style-type: none"> ◆ 22 Post-fledging family areas (PFA) monitored: 8 confirmed occupied; 7 confirmed young. <p><u>Rare Plants</u></p> <ul style="list-style-type: none"> ◆ Fern Mountain Botanical Area Monitoring. 5 acres monitored for Chiricahua dock and Bebb’s willow. ◆ Fry Fire Arizona Bugbane monitoring. ◆ Level 2 monitoring visit for Arizona bugbane to Upper West Fork. ◆ Level 2 monitoring study of “Bugbane” Canyon (with partners from The Arboretum at Flagstaff) ◆ Verde Valley sage - relocated and monitored transects originally established in 1995. <p><u>Narrow-headed Garter Snake</u></p> <ul style="list-style-type: none"> ◆ Assisted USGS in monitoring population in Oak Creek Canyon. <p><u>Lowland Leopard Frog</u></p> <ul style="list-style-type: none"> ◆ 11 Lowland Leopard Frog Sites Monitored in Fossil Creek 	<p><u>Northern Goshawk</u></p> <ul style="list-style-type: none"> ◆ 27 Post-fledging family areas (PFA) monitored: 10 confirmed occupied; 6 confirmed young. ◆ 10,846 acres surveyed (Flagstaff Center). <p><u>Rare Plants</u></p> <ul style="list-style-type: none"> ◆ Fern Mountain Botanical Area Monitoring. 5 acres monitored for Chiricahua dock and Bebb’s willow. ◆ Level 1 monitoring visit for Arizona bugbane at Maple Spring. <p><u>Narrow-headed Garter Snake</u></p> <ul style="list-style-type: none"> ◆ Assisted USGS in monitoring population in Oak Creek Canyon. <p><u>Mexican Garter Snake</u></p> <ul style="list-style-type: none"> ◆ Assisted USGS in Monitoring population in Lower Oak Creek. <p><u>Lowland Leopard Frog</u></p> <ul style="list-style-type: none"> ◆ 5 Lowland Leopard Frog Sites Monitored in Fossil Creek
<p>Diversity - Successional Stages of Major Vegetation Types</p>	<p>Meet Federal regulation (NFMA)</p>	<p>Compartment exams, field surveys, timber inventory, habitat diversity model/acres</p>	<p>Every 5 years</p>	<p>None completed this year.</p>	<p>None completed this year.</p>

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2006	FY 2007
Habitat Improvements - Condition of Structural Improvements	Identify those structures which must be reconstructed	Inspections/ structure	50% of structures per	<p>Maintained livestock exclosures around southwestern willow flycatcher, yellow-billed cuckoo, and common blackhawk habitat in Dry Beaver Creek, Tissaw on Verde.</p> <p>Juniper Treatment in Sycamore Basin for Chiricahua leopard frog</p> <p>Installation of Filtersoxx at Sycamore Basin and Buckskin Tanks to reduce sedimentation into Chiricahua leopard frog sites.</p>	None completed this year.
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.	None completed this year.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
Permitted Use	Meet Federal regulation, check for term grazing permit and Plan compliance.	Annual Grazing Statistical Report/ Animal Unit Months (AUMs) Forest-wide	Annually	153,251 AUMs permitted for grazing year.	153,251 AUMs permitted for 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	81,533 AUMs authorized for grazing year.	95,502 AUMs authorized for 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	Production studies completed on 2 allotments (120,677 acres). 12 allotments inspected.	No production studies were completed. 8 allotments inspected.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
Range Condition and Trend	Meet Federal regulation, identify changes in range condition and trend, recommend 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 2 allotments (120,677 acres).	Condition and trend studies conducted on portions of 2 allotments (120,677 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	15 allotments were monitored to standard (44% of active allotments). 12 allotments were inspected for utilization with all meeting allowable use standards.	7 allotments were monitored to standard (21% of active allotments). 8 allotments were inspected for utilization with all but 2 allotments (2 key areas) meeting allowable use standards.
Condition of Structural Improvements	Meet Federal regulation, and identify those structures	Range inspections, range analysis, permittee reports.	50% of range structures per decade <i>(national</i>	0 range structures inventoried or inspected.	8 range structures inventoried or inspected.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
	which must be reconstructed.		<i>requirement is now once every five years)</i>		
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.	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 rangeland.	Not applicable – There are no transitory rangeland.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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 & 5 th growing seasons) or as scheduled. Annual stand certification for natural regeneration stands (5 th & 10 th years).	N/A	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.	Compliance inspections done on all contracts, and silviculturist reviewed force account work.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
<p>Silvicultural Assumptions and Practices</p>	<p>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</p>	<p>Silvicultural prescriptions, EA's, project reviews</p>	<p>Annually</p>	<p>Silviculturist conducts formal review every 4 years and an informal review annually.</p>	<p>Silviculturist conducts formal review every 4 years and an informal review annually.</p>

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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	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	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	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	Regional timber sale review conducted. Informal review Surveillance plots completed on DxD prescriptions.	Informal reviews completed and surveillance plots conducted on DxD prescriptions.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
		/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	Annually	Information maintained in TIM and TSA databases. Harvest < allowable sale quantity (ASQ)	Information maintained in TIM and TSA databases. Harvest < ASQ
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	Information is contained in TIM database and Free Use Report	Information is contained in TIM database and Free Use Report

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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	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	N/A

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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	<p>10 Sites in Fossil Creek – Lower Verde River watershed monitored for management effectiveness. Of the 10 sites, 6 were satisfactory, 0 were unsatisfactory, and 10 were impaired.</p> <p>The watershed showed upward trend since the 2004 and 2005 monitoring signifying improved watershed condition through grazing rest in the Fossil Creek watershed.</p> <p>Following the Brins Wildfire in the Oak Creek 5th code watershed, soil and watershed condition was assessed to determine if emergency watershed conditions exist. This information serves as a baseline for future change detection.</p>	<p>Baseline soil condition assessments were completed on several pastures within the Hackberry allotment. The assessments were a qualitative and quantitative look at the health of the soils. The sites were located within the Fossil Creek – Lower Verde watershed.</p> <p>Burned Area Emergency Rehabilitation (BAER) assessments and emergency treatment implementation was conducted on the 460 acre Birdie Fire. The BAER team concluded that limited emergency watershed conditions exist requiring emergency treatments to mitigate anticipated accelerated erosion and non-point source pollution to Mormon Lake or a small portion of Oak Creek lying within fire perimeter.</p>

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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	<p>Appendix A shows watershed prescriptions and accomplishments for 2006.</p> <p>BMP implementation monitoring occurred on 200 acre meadow restoration projects in Rio de Flag and Upper Clear Creek 5th code watersheds.</p> <p>BMP implementation monitoring occurred on hazardous fuel reduction projects including the Kachina Project.</p> <p>BMP implementation and effectiveness monitoring occurred on watershed restoration of recreation impacted project sites including Big Park and West Fork of Oak Creek trails project.</p>	<p>Appendix B shows watershed prescriptions and accomplishments.</p> <p>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.</p> <p>Prescribed burning was accomplished on 500 acres in the Lake Mary project and approximately 2,000 acres in the Mint Project.</p> <p>Fuels reduction is on-going in the Woody Mountain Fuels Reduction, Kachina and A1 Project.</p>

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
	Monitor watershed condition in project areas.	Standard watershed condition transects (per Hydro Note 14)/Project	1 Project/ year Forest-wide	<p>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.</p> <p>Soil condition monitoring on the Fossil Creek allotment was conducted in several pastures.</p>	<p>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.</p> <p>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.</p> <p>Soil Condition monitoring on the Fossil Creek allotment was conducted in several pastures.</p>

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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	<p>Riparian Proper Functioning Condition (PFC) assessments were conducted in several riparian pastures where recent project decisions excluded them from grazing.</p> <p>Marshall Lake wetland implementation monitoring occurred to assure fence was correctly installed.</p> <p>Riparian livestock utilization monitoring occurred in other active grazing allotments including Oak, Spring, Fossil, West Clear, Walker, Wet and Dry Beaver Creeks.</p> <p>No other riparian improvement projects were implemented.</p>	<p>13.5 miles of roads were obliterated and 2 headcut drop structures and trail maintenance along the Arizona Trail in General Springs Canyon was completed. BMPs to minimize non-point source pollution were identified and implementation monitoring occurred, including designating camp locations outside of riparian filter strips.</p> <p>Riparian livestock utilization monitoring on Oak, Spring, Fossil, West Clear, Walker, Wet and Dry Beaver Creeks occurred.</p>
Riparian Areas	Monitor condition and trend of riparian areas photo points.	Standard watershed condition transects, ocular, estimates, photo points	5 percent annually	Approximately 120 Riparian Proper Functioning Condition (PFC) baseline condition assessments were completed. About 75% of Forest riparian streams now have recent PFC assessments and all identified wetlands. The purpose is to evaluate current conditions and	<p>Riparian Proper Functioning Condition (PFC) assessments were re-read on 10 reaches within the Pivot Rock range Allotment (Upper Clear Creek 5th code, East Clear Creek, Kehl and Miller 6th code watersheds, respectively).</p> <p>Riparian utilization was again</p>

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
				<p>establish a baseline for future change detection.</p> <p>Riparian utilization was monitored on District allotments where livestock have access to streams, at primarily water gaps, including Oak, Spring, Fossil, West Clear, Walker, Wet and Dry Beaver Creeks.</p> <p>Monthly stream flow monitoring (gauging) was finished on the following streams: Sheepshead Creek, Miller Canyon, Yeager, Barbershop, and East Clear Creek in the Little Colorado River watershed 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.</p>	<p>monitored on District allotments where livestock have access to streams, including Oak, Spring, Fossil, East Clear Creek, West Clear, Walker, Wet and Dry Beaver Creeks.</p> <p>Final stream gauge monitoring performed monthly 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.</p>

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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)	10 miles of Forest roads were decommissioned in the Upper Clear Creek Watershed and 2 miles in the San Francisco Watershed.	24 miles of Forest roads in various watersheds were decommissioned.
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	<p>Water quality was monitored for exceedences in <i>E. coli</i> pathogens at several sites along Oak and Spring Creeks by ADEQ and Friends of Forest per Forest Plan and State and Federal regulations. Results indicated water quality within standards (see ADEQ website below for summary results).</p> <p>http://www.azdeq.gov/environment/water/assessment/assess.html</p> <p>Several other Forest perennial streams were monitored by ADEQ about 4 times/year. Results indicated the Verde River as not attaining (category 4d with TMDL) and most other streams as inconclusive or attaining some or all uses.</p> <p>Lake water quality monitoring</p>	<p>Water quality was monitored for exceedences in <i>E. coli</i> pathogens at several sites along Oak and Spring Creeks by ADEQ and Friends of 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.</p> <p>http://www.azdeq.gov/environment/water/assessment/assess.html</p> <p>Several other Forest perennial streams were monitored by ADEQ about 4 times/year. Results indicated the Verde River as not attaining (category 4d with TMDL) and most other streams as inconclusive or attaining some or all uses.</p>

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
				<p>continued at Stoneman Lake (Beaver Creek Watershed), Upper and Lower Lake Mary, Soldiers Lake and Soldiers Annex and Lower Long Lake. Recent results indicate the latter 5 lakes are impaired (303d list) for exceedences found in fish tissue.</p>	<p>Lake water quality monitoring continued at Stoneman Lake (Beaver Creek Watershed), Upper and Lower Lake Mary, Soldiers Lake and Soldiers Annex and Lower Long Lake exceedences found in fish tissue.</p> <p>Water quality results by stream can be found on this link: http://www.azdeq.gov/environ/water/assessment/assess.html</p>

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
Arterial/Collector, Construction/Reconstruction	Ensure compliance with identified needs for arterial/collector Reconstruction. Forest Issue related	Work accomplishment reports/ Miles	Annually	400 miles of roads were maintained 3.0 miles were reconstructed or constructed.	600 miles of road were maintained No reconstruction or construction occurred.
Purchaser Credit Roads	Ensure compliance with identified needs for P/C construction/reconstruction	Work accomplishment reports/ Miles	Annually	0	0

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
Compliance with Terms of Minerals Operating Plans	Meet legislative mandate and Agency guidelines.	Field checks/ Plans	Annually	Currently we have a minimal amount of mining operations, and some do not operate in any given year. In 2006 we did field checks and evaluated plans for approximately four operations.	Currently we have a minimal amount of mining operations, and some do not operate in any given year. In 2007 we did field checks and evaluated plans for approximately four operations.
Non-patented Mining Claim Compliance	Minimize illegal mining Activity.	Field checks, BLM file checks	Annually	There is generally not an issue with illegal mining activity on the forest. We made field checks and, as needed, BLM file checks across the forest to identify if there were any illegal mining operations or any operations that needed to be put under a plan of operations. There is generally minimal mining activity across the forest.	There is generally not an issue with illegal mining activity on the forest. We made field checks and, as needed, BLM file checks across the forest to identify if there were any illegal mining operations or any operations that needed to be put under a plan of operations. There is generally minimal mining activity across the forest.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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	Sixty permits were administered to standard. Other permits were administered to a lesser standard. Budget reductions have reduced the amount of field inspections, but permits are still being processed in accordance with standards. The forest is using more collection agreements to cover the costs of doing this work. The amount of new permits is increasing as the communities within the forest grow and increase development. There are about 900 land use permits on the forest.	Eighty-two permits were administered to standard. Other permits were administered to a lesser standard. Budget reductions have reduced the amount of field inspections, but permits are still being processed in accordance with standards. The forest is using more collection agreements to cover the costs of doing this work. The amount of new permits is increasing as the communities within the forest grow and increase development. 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	Forest has been working with the forest land adjustment plan to meet funded land adjustment targets. Exchange work is being tied to projects where there is a collection agreement or legislative direction. One sale case was completed for 21 acres. The Forest gained 11 acres from a land exchange.	Forest has been working with the forest land adjustment plan to meet funded land adjustment targets. Exchange work is being tied to projects where there is a collection agreement or legislative direction. Three sale cases and one donation case were completed for a total of 10 acres. The Forest gained 265 acres from a land exchange.
Occupancy Trespass	Minimize Forest trespass problems.	Field checks, landline location/ Cases resolved vs. new cases	Annually	One case was resolved. Twelve new cases were added.	One case was resolved. Seventeen new cases were added.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
Landline Location	Maintain Forest boundary.	Landline location, MAR target/ Miles	Annually	Budget limitations have resulted in less work being done in this area. The increase in development on private inholdings and properties adjacent to National Forest land, however, has generated an increase in Forest trespass problems. No miles were completed or reported.	Budget limitations have resulted in less work being done in this area. The increase in development on private inholdings and properties adjacent to National Forest land has generated an increase in Forest trespass problems. Three miles were maintained in FY07.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
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 R O entomologists, compartment exam, project inspections and reviews/Acres, Forest-wide	Annually	R3 Aerial Survey	R3 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 Dept of Environmental Quality (ADEQ). Field monitoring is consistent with guidelines set in FSM 5100, Chp 5140 Fire Use	One violation per Arizona Dept of Environmental Quality (ADEQ) on D2 March 16, 2006. 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	8,082 WUI Acres treated. 15,170 Non-WUI Acres treated.	9,500 WUI Acres treated. 9,342 Non-WUI Acres treated.
Wildfire Acre PAR's	Ensure wildfire acres are within projected annual burned acres	Reports/Acres	Annually	A Fires 326 B Fires 78 C Fires 7 D Fires 1	A Fires 290 B Fires 69 C Fires 8 D Fires 0

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
	period and by Fire Management Zone where acres are not specific to MA's.			E Fires 2 F Fires 1 G Fires 0 Total Acres Burned: 6,677	E Fires 1 F Fires 0 G Fires 1 Total Acres Burned: 5,458
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 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	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	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

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2006	FY 2007
		reviews of selected fires Annual inspections, periodic re-views, and use of fire bud-get analysis process as needed		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. objectives.	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. objectives.
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.	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 2006	FY 2007
Citizen Participation Plans Public Affairs Standards	Measure responsiveness to potentially affected interests.	Citizen Participation Plan and Public Affairs Plan review/ Completed contacts and actions	Quarterly	Public contacts were made with respect to: <ul style="list-style-type: none"> • Fossil Creek Fish Restoration • West Fork Oak Creek Restoration • Fuels Reduction Projects • Snowbowl • Red Rock/Verde Valley Admin Site Sales • OHV use • Special Use Regulations • Grazing • Northern Arizona Land Exchange • Forest Plan Revision 	Public contacts were made with respect to: <ul style="list-style-type: none"> • 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
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.	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 2006	FY 2007
Effects of Management on Adjacent Lands on National Forest Goals and Objectives	Determine effects of management 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.	Projects were implemented consistent with Coconino County Plans.

Appendix A, 2006 Watershed Accomplishments, Prescriptions, BMP's, Riparian Area Monitoring and Improvement, Water Quality and Road Decommissioning Accomplishments

Coconino National Forest 2006 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, 2005 – September 30, 2006), the Coconino National Forest has designed, implemented (using Best Management Practices or BMPs), 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, burned area emergency rehabilitation assessment and rehabilitation of burned watersheds, wildfire watershed restoration and assisted in implementation of one ADEQ Water Quality Improvement Grant prescribed through a watershed assessment. The following is a summary of those activities listed by 5th code watershed and Forest-wide.

Summary of Water Quality Classification Forest-Wide.

Assessment Categories by Reach Name:

Currently, there are no 303(d) listed or ADEQ Category 5 stream reaches on the Coconino National Forest.

However, several Forest lakes were recently listed in 2004 due to excessive mercury found in fish tissue. Category 5 “Impaired” waters currently on the 303 d list include the following: Upper and Lower Lake Mary, Lower Long Lake, Soldiers Annex Lake, and Soldiers Lake. Continued monitoring is planned, and a Total Maximum Daily Load (TMDL) plan will be developed to improve water quality.

Category 4 “Not Attaining” waters on the Forest are only located in the Verde 4th hydrologic unit code (HUC) watersheds. They include the following; Oak Creek at Slide Rock State Park (for *E. coli*), Stoneman Lake (nutrients and dissolved oxygen), 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, are believed to improve the water quality at which time, ADEQ will change their categories.

Category 1 – 3 waters round out the rest of the waters on the Forest. Category 3 “Inconclusive” waters are placed on the planning list with additional monitoring planned. Additional information is provided by reach in the individual watershed write-ups below.

Forest TMDL's:

1. **Oak Creek Pathogen TMDL** for Total Phosphorus and Total Nitrogen in the Oak Creek Basin, (Including Munds Creek).
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
5. **Munds Creek TMDL** for Total Phosphorus and Total Nitrogen

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.

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

A draft of a soon to be released National BMP Forest Service Handbook (DRAFT Best Management Practices Non-Point Source Management, USDA Forest Service, FSH 2509.25, May 2005) details BMPs and BMP monitoring. The handbook lists activity-specific BMPs to consider and adapted by interdisciplinary teams and includes the objective, an explanation, and implementation of the BMP. Standard BMP monitoring forms are suggested and are included in the back of the handbook.

Quantifiable Accomplishments by 5th Code Watersheds (10-digit HUC)

Oak Creek – (1506020205)

The Oak Creek reach below Slide Rock to Dry Creek was delisted in 2004 for turbidity because the designated use changed from A&Wc (coldwater use) to A&Ww (warmwater use) below 5,000 feet and turbidity data would not exceed former A&Ww standard. It is placed on the Planning List and will be monitored.

Munds Creek, Spring Creek, most other reaches of Oak Creek are placed into Category 3 "Inconclusive" because of insufficient monitoring data and are on the Planning List with additional water quality monitoring planned by ADEQ.

Improvements to Water Quality, Riparian Areas, Upland Soil Condition and Roads and Trails:

Big Park Restoration Project restored 10 acres of rutted roads and disturbed soils caused from increased recreation use and vehicle access. Native grasses were seeded and off-road access points barricaded with large rocks. This will result in a reduction of sediment into adjacent Oak Creek and reduced turbidity.

Five acres of disturbed soils were restored (seeded and trails closed) from unpermitted outfitter guide vehicle access in various locations adjacent to Oak Creek in the Red Rock Ranger District. This will result in a reduction of sediment into adjacent Oak Creek and reduced turbidity.

1.5 miles of trails located directly adjacent to the West Fork of Oak Creek (part of the designated Unique Waters) were rehabilitated including closing and protecting social trails with local vegetative debris and rocks as a result of intense, recreational use. This will result in reduced soil erosion, sediment delivery and improved water quality to the West Fork and Oak Creek area

Survey and design of a potential stream channel stabilization project was performed for a highly unstable section of Oak Creek at Cave Springs Campground. This channel segment has substantially eroded from the 1993 and 2005 flood events resulting in significant bank erosion that adversely affects water quality and threatens the safety and integrity of the campground. Recommendations complete with design are now awaiting a funding mechanism to stabilize this portion of the failed Oak Creek streambank.

In the upper portion of the watershed, the Woody Mountain Fuels Reduction Project reached a decision in 2004 and fuels reduction is on-going on the Kachina Project. Implementation of both projects will reduce the risk of watershed disturbance associated with wildfire events in the watershed.

Fuels reduction planning for the Mountaineer area was completed. Implementation of fuels reduction will further protect Pumphouse Wash and reduce the watershed risk of stand-replacing wildfires that may result in accelerated erosion and sediment delivery into Pumphouse Wash and eventually Oak Creek.

Burned Area Emergency Rehabilitation Projects:

Burned Area Emergency Rehabilitation (BAER) assessments and emergency treatment implementation was conducted on the La Barranca Fire and the Brins Fire. The BAER team concluded that emergency watershed conditions exist requiring emergency treatments to mitigate anticipated accelerated erosion and non-point source pollution to Jacks Canyon (drains into Beaver Creek) and Oak Creek as well as risk to adjacent life and property.

The La Barranca Fire started on June 1, 2006 and burned about 836 acres of pinyon-juniper and chaparral adjacent to Jacks Canyon riparian area. Accelerated erosion posed a threat to water quality downstream as well as Jacks Canyon riparian area. Water quality downstream (Beaver Creek) was previously identified as impaired for turbidity but in the ADEQ 2004 report, has been moved to Category 3 – Planning List (Inconclusive) for lack of monitoring data. The riparian area could have undergone significant bank erosion and downcutting negatively affecting riparian vegetation and associated habitat without treatment.

Approximately 120 acres of high burn severity watershed were treated with a mixture of certified weed-free native, grass seed and straw mulch. Seedling response was quick and effective to control higher than normal runoff off associated with the bare soil.

The Brins Fire was man-caused and started on June 18, 2006 and burned about 4317 acres of chaparral and ponderosa pine adjacent to Oak Creek and Sedona. 11 acres of high burn severity watershed were treated with a mixture of certified weed-free native, grass seed and straw mulch. Seedling response was quick and effective to control higher than normal runoff associated with the bare soil. In addition, 3 wellhouses and vault toilets were wrapped with tarp and sandbags to protect any potential cross- contamination of nearby Oak Creek water or well sites.

Walnut Creek – (1502001502), Jacks Canyon – (1502000805) and Impaired Waters

Long, Soldiers, Soldiers Annex, Upper and Lower Lake Mary were added to the 2002 EPA 303 (d) impaired and (Category 5) for elevated levels of mercury detected in fish tissue and the fish advisory posted. A TMDL for mercury is planned and these lakes cannot be delisted until the TMDL is complete or monitoring data is sufficient to indicate that mercury in fish tissue is no longer a concern. Other water quality parameters are inconclusive and require more data. The extent of impairment and sources of loading has not been determined yet and may have natural and/or airborne sources. Continued, more sensitive monitoring is planned and the TMDL is scheduled for completion in 2007. Past lake monitoring did not sample for mercury in fish tissue and consequently, mercury concentrations may have been similar in the past as they are today. Therefore, a reasonable trend is either static or downward. The TMDL is highly complex and will create a strategic plan that recommends practices to reduce mercury in fish tissue or conclude mercury levels are natural and caused by management activities.

Using the results of this investigation, the agency will work with stakeholders to identify appropriate, affordable, and effective actions necessary to protect the Fish Consumption designated use and develop a plan to implement these actions.

The Lake Mary Meadows Restoration Project (Walnut Creek 5th HUC watershed) implemented 200 acres of grassland restoration by removing encroaching ponderosa pine. This will improve grassland and watershed condition and reduce the risk of damaging wildfires (and associated mercury lofting) and the risk of accelerated runoff and high amounts of sedimentation that may be responsible for carrying excessive mercury deposition into the lake. This project should help reduce possible mercury deposition, sedimentation into the lakes and improve riparian function, soil and watershed condition. Additional treatments are planned in 2007.

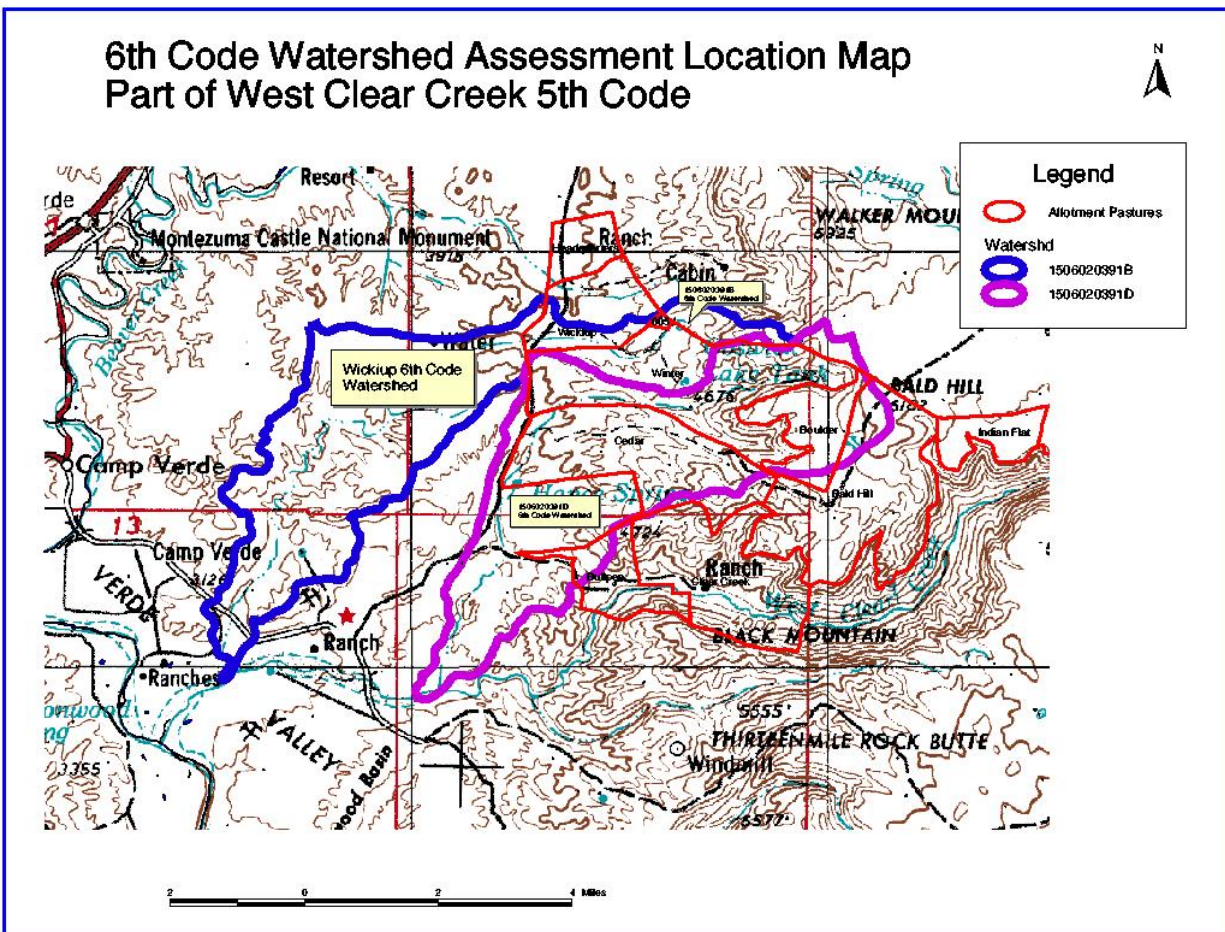
Biological control for noxious weeds (dalmation toadflax) was established in several locations within the watershed. This invasive species is highly competitive with native vegetation, often resulting in significant reductions in ground cover and reduction of watershed function.

West Clear Creek 5th Code 1506020301 (Wickiup 6th Code) Watershed

West Clear Creek is placed into Category 3 “Inconclusive” because of insufficient monitoring data and is on the Planning List with additional water quality monitoring planned by ADEQ.

The Coconino National Forest worked with the Contractor as technical advisors on the approved ADEQ 319H Grant West Clear Creek Tributary Watersheds. The objectives are to improve watershed conditions in tributaries to West Clear Creek and downstream water quality into the

Verde River. This 2-year phased project finished a watershed assessment in 2004 and designed and began implementation (see location map below) of on-site improvement projects in late summer, 2005. The project accomplished 100 acres of pinyon-juniper lop and scatter, herbicide control of mesquite and Wickiup Draw (upper tributaries of West Clear Creek) channel restoration.



According to the Contractor, ADEQ approved additional funding this year (2007) to complete more acres of lop and scatter that were not finished in 2006 and more gully control in Wickiup Draw.

The Forest is cooperating with necessary fuelwood and cross-country closure areas to protect treated lands that had recent fuelwood gathering (including some lop and scatter debris). The new fuelwood treatment map will not permit fuelwood gathering or cutting in treated areas.

Prescribed burning to reduce wildfire risk occurred within the Bald Mesa Urban Interface project.. Approximately 1,000 acres were burned and about 800 acres of thinning in the project. The result is reduced watershed risk of stand-replacing wildfires that may result in accelerated erosion and eventual sediment delivery into West Clear Creek.

Upper Clear Creek – (1502000803)

Constructed approximately 2.5 miles of fence to exclude cattle and associated non-point source pollution disturbance from East Clear Creek in the Mccarty Pasture of the Buck Springs Range Allotment. East Clear Creek (AZ15020008-009) is currently on the planning list due to low dissolved oxygen and missing core parameter (dissolved copper).

Constructed a raised culvert array and stabilized a road crossing to create a ponded wetland at Holder Cabin Draw at the headwaters of Yeager Canyon—a tributary to East Clear Creek (AZ15020008-009) that is currently on the planning list due to low dissolved oxygen and missing core parameter (dissolved copper). The result should improve waterflow and wetland function

Meadow restoration was accomplished on 200 acres in the Yaeger and Leonard Canyon 6th HUC watersheds as part of the East Clear Creek Watershed Health Project. Encroaching pinyon-juniper was removed lopped and scattered with the objective to improve soil and protective vegetative ground cover conditions and reduce accelerated runoff and non-point source pollution into adjacent tributaries to East Clear Creek.

Prescribed burning and thinning to reduce wildfire risk occurred within the Blue Ridge Urban Interface project and the Victorine Urban Inteface Project. Approximately 5,000 acres were burned in the projects.

Fossil Creek-Lower Verde River – 1506020302

Fossil Creek and Stehr Lake are placed into Category 3 “Inconclusive” because of insufficient monitoring data. The return of full flows in June, 2005 from the decommissioning of the dam and the recent Fossil Creek Planning Area and Watershed Assessment (highlights management opportunities) should improve watershed condition, riparian habitat and water quality. Native fish restoration was implemented in 2005 through native fish harvesting, water poisoning and a fish barrier installed in Fossil Creek.

Additional erosion control of 1 acre was accomplished in a highly eroded area (Fossil Creek Allotment) adjacent to two stocktanks providing critical habitat to the Chiricahuan leopard frog. Filtersox were installed on the contour, the area was seeded and livestock removed to provide site restoration opportunity.

Grazing was again deferred in several pastures of the Fossil Creek allotment to allow protective vegetative and soil conditions to recover and reduce non-point source pollution.

Beaver Creek – 1506020206

Stoneman Lake is classified as Category 4A with an approved TMDL for high pH and nutrients. It is now on the Planning List with more monitoring planned by ADEQ.

The Beaver Creek reach (Dry Beaver to Verde River) was delisted for turbidity in 2004 because the standard changed and moved to Category 4D on the Planning List and will be monitored.

Wet Beaver Creek is placed into Category 3 "Inconclusive" because of insufficient monitoring data and is on the Planning List with additional water quality monitoring planned by ADEQ.

Stoneman Lake TMDL: The recommendation to regulate water flow from the CCC ditch water to augment flow into and improve the DO, nutrients, and pH was not implemented in FY 2006 and is not being considered by the Forest at this time. Past conversations with ADEQ and Forest Hydrologists believe further monitoring is needed to determine appropriateness of water quality standard for "elastic" lakes. Based on conversations with Diana Marsh, ADEQ will complete a classification system for all of Arizona's lakes by the end of the year (drafts will be out soon). From this classification system, "endpoints" will be established that a lake should meet. These endpoints will be based on biomass and other measurements. This "revision of designated use criteria" will be used to establish whether standards are being met at Stoneman Lake in the future. ADEQ may have finalized this study by the date of this report. After studying the ADEQ Lakes study, any needed recommendations to improve Stoneman lake water quality will be considered.

Forest-Wide Activities

Wildfire Watershed Restoration:

Hazardous fuel reduction was accomplished on 24,605 acres. 21,684 acres were treated with prescribed fire and 2921 acres were mechanically thinned and piled or chipped on both Wild Urban Interface areas and out. Best management practices were included in the prescription to retain adequate large woody debris and to protect soil organic matter. The treatments will help to reduce the likelihood of adverse watershed effects from uncontrolled wildfire. Native grass seed was seeded where appropriate to promote herbaceous ground cover and stabilize the soil on disturbed sites.

A variety of watershed restoration treatments were proposed, funded and implemented through the National Fire Plan in 2006 on a few 5th code watersheds. The objectives include restoration of watershed conditions, improved vegetative composition, and ground cover to prevent accelerated erosion and decreased soil and site productivity. Most of the treatments implemented were invasive weed treatments described below.

Invasive weed treatment was accomplished on 2327 acres by herbicide (cut stump, backpack, hand spraying and roadside boom), manual (hand pulling, cutting, & digging), and biological control (grazing and insect release) of bull thistle, spotted knapweed, Dalmatian toadflax, yellow and Malta starthistle, Himalayan blackberry, leafy spurge, diffuse knapweed, cheatgrass, Arundo, tamarisk, and Saharan mustard at a variety of sites. This is the total number of weeds treated on the forest including projects accomplished by grants, volunteers, partnerships, fire rehabilitation and normal Forest funds.

10 miles of Forest roads were decommissioned in the Upper Clear Creek Watershed and 2 miles

in the San Francisco Watershed in FY 2006.

Wetland Protection

Roughly 7.75 miles of fencing was established around wetland areas on Anderson Mesa to protect wetland resources from livestock grazing.

Range Allotment Management Plans

NEPA decisions were issued for the Deep Lake, Walnut Canyon, and Angel range allotments. Soil and watershed monitoring was conducted on each allotment, and information was incorporated into the analysis process to refine grazing strategy to protect and improve soil and watershed resources.

In preparation of these documents, soil and watershed conditions were evaluated and recommendations were made to reduce the length of time livestock grazing should occur in some pastures. Treatment of juniper will be implemented on additional acreage (up to 50,000 acres) in the Anderson Springs, and Bar-T-Bar allotment.

Maintenance of Watershed Improvements Forest-Wide:

Over two miles of pole fencing was replaced around Marshall Lake wetland. This fencing protects a high value wetland area from vehicle and camping intrusion.

Maintenance of the Hoxworth Springs riparian area enclosure occurred in 2006

Monitoring Accomplishments Forest-Wide:

Approximately 120 Riparian Proper Functioning Condition (PFC) assessments were completed. About 75% of Forest riparian streams now have recent PFC assessments and all identified wetlands.

Riparian utilization was monitored on District allotments where livestock have access to streams, at primarily water gaps, including Oak, Spring, Fossil, West Clear, Walker, Wet and Dry Beaver Creeks.

All active range allotments were monitored for utilization. Vegetative canopy cover and frequency were monitored for identified wetlands on Anderson Mesa.

Soil Condition assessments were completed on several pastures within the Fossil Creek allotment. The assessments were a qualitative and quantitative look at the health of the soils. The sites were located within the Fossil Creek – Lower Verde watershed.

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.

Stream flow monitoring (gaging) was finished on the following streams, Sheepshead Creek, Sycamore Creek, Miller Canyon, Yeager, Barbershop, and East Clear Creek in the Little Colorado River watershed. The purpose of gaging the flow 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. All remaining assessments are being prepared for submittal to ADWR for processing and is pending ADWR processing. A perfected water right is expected.

Landscape Scale/Watershed Assessments:

Completed Environmental Assessment on the East Clear Creek Watershed Assessment—a 70,000 acre analysis area in the Upper Clear Creek (1502000803) watershed. The project authorizes prescribed burning on about 15,000 acres, thinning on about 10,000 acres, decommissioning of approximately 44 miles of roads, closing of approximately 47 miles of roads and stream channel restoration of approximately 10 miles of stream. Stream reaches that are identified in the ADEQ assessment program include East Clear Creek (AZ15020008-009) is currently on the planning list due to low dissolved oxygen and missing core parameter (dissolved copper) and Buck Springs Canyon (AZ15020008-557) that is on the planning list due to low amount of samples and turbidity, low pH, and missing core parameters.

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.

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

Innovative Processes:

Watershed Based Plan

A watershed restoration action strategy (Watershed Based Plan) was previously developed for the Oak Creek watershed targeting impaired waters in Oak Creek Canyon and now is in implementation. The plan was developed by the Oak Creek Canyon Task Force, a voluntary association of watershed communities, in cooperation with the Red Rock Ranger District.

Memorandum of Understanding # G747003001 was finalized in 2003 between City of Flagstaff, National Park Service and Coconino National Forest for Management of the Walnut Canyon Watershed including Upper and Lower Lakes Mary. The objective of the committee is to evaluate and fund watershed improvement research projects in the Walnut Creek 5th code watershed (1502001502) and work has been on-going.

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

Appendix B, 2007 Watershed Accomplishments, Prescriptions, BMP's, Riparian Area Monitoring and Improvement, Water Quality and Road Decommissioning Accomplishments

Coconino National Forest 2007 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, 2006 – September 30, 2007), 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, burned area emergency rehabilitation assessment and rehabilitation of burned watersheds and wildfire watershed restoration. The following is a summary of those activities listed by 5th hydrologic unit code (HUC) watershed and Forest-wide.

Summary of Water Quality Classification Forest-Wide.

Assessment Categories by Lake and Stream Reach Name:

Lakes:

Five forest lakes were listed in 2004 due to excessive mercury found in fish tissue. Category 5 “Impaired” waters currently on the 303(d) list include the following: Upper and Lower Lake Mary, Lower Long Lake, Soldiers Annex Lake and Soldiers Lake.

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 the sources of mercury (natural or human-caused).

Streams:

ADEQ recently produced a draft of proposed 2006 listings. It proposed to move 48.8 miles of Oak Creek from Headwaters to Spring Creek into Category 5 (Impaired) for exceedences in *E. coli* standard and kept the 1 mile reach impaired adjacent to Slide Rock State Park.. ADEQ also proposed listing miles of Spring Creek into Category 5 (Impaired). Conversations with ADEQ indicate leaky septic systems on Private lands adjacent to Spring Creek and Oak Creek as probable culprits. It is likely that EPA will officially list these reaches as Impaired and place them on 303(d) list in 2007.

About 24 Forest stream miles are listed as Category 4. Category 4 “Not Attaining” waters on the Forest are only located in the Verde 4th HUC watersheds and 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 change their categories. Category 4 waters will be placed on ADEQ Planning List for further study.

About 240 miles of Category 3 (Inconclusive) waters occur on the Forest. 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 impairments; Verde River for Turbidity, Stoneman Lake for DO, pH and nutrients, Oak Creek at Slide Rock for Pathogen (*E. coli*), and Oak Creek Basin including Munds Creek for Nitrogen and Phosphorus. The five 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.

Unique Waters (Outstanding National Resource Waters)

Oak Creek, including the West Fork of Oak Creek, are the Forest's only "Unique Waters." 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.

Unique Waters are subject to Tier 3 Arizona antidegradation 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 a 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.

Best Management Practices (BMP) Forest Service Handbook:

A draft National BMP Forest Service Handbook has been released (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 Areas, Upland Soil Condition and Roads and Trails:

Accomplishments for the following Forest projects (listed by 5th HUC watershed) 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.

Oak Creek – (1506020205)

Projects and BMPs Implemented on Currently and Past Impaired Waters:

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

In the upper portion of the watershed, fuels reduction is on-going in the Woody Mountain Fuels Reduction Project and the Kachina Project (approximately 2,000 acres). Implementation of both projects will reduce the potential for wildfire that could result in significant erosion and sediment delivery 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.

This project would likely protect and improve water quality impairment from suspended sediment (turbidity) and have limited benefit for improving exceedences in *E. coli*. Reducing wildfire risk would reduce the risk of flooding terraces lined with septic systems along Oak Creek, thereby, reducing the risk of contamination of Oak Creek. It is generally believed that private septic systems contribute to *E. coli* contamination along Oak Creek.

BMPs to Minimize Non-Point Source Pollution: These are included in the timber sale contracts and stipulate 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.

One hundred fifty acres of grassland restoration took place in Upper Pumphouse Wash that will decrease wildfire threat, 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 Oak Creek resulting in improved water quality.

BMPs to Minimize Non-Point Source Pollution: Limiting operation to periods when the soils are not wet.

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

Walnut Creek – (1502001502)

Projects and BMPs Implemented on Impaired Waters

Biological control for noxious weeds (dalmation toadflax) was continued in several locations within the watershed. This invasive species is highly competitive with native vegetation, often resulting in significant reductions in ground cover and reduction of watershed function.

Planning for fuels reduction was completed on the Elk Park project that is designed to reduce the risk of stand replacing wildfire. The decrease in stand reducing fire potential in this watershed will mitigate 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.

Approximately 5 miles of road obliteration was completed in the Campbell Mesa area above Walnut Creek that will minimize sediment delivery from these roads.

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

Prescribed burning was completed on approximately 500 acres in the Lake Mary project and approximately 2,000 acres in the Mint Project. The result is reduced watershed risk of stand-replacing wildfires that may result in accelerated erosion and eventual sediment delivery into Walnut Creek.

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

Burned Area Emergency Rehabilitation (BAER) assessments and emergency treatment implementation was conducted on the 460 acre Birdie Fire. The BAER team concluded that emergency watershed conditions exist requiring emergency treatments to mitigate anticipated accelerated erosion and non-point source pollution to Mormon Lake or a small portion of Oak Creek lying within fire perimeter. However, some watershed fire suppression rehabilitation occurred including the following: using chipped pine as mulch to protect bare soil in backburned areas, placing log erosion barriers along the the contour within high burn severity areas to mitigate potential accelerated erosion downslope and completing 4.5 miles of fire suppression line complete with waterbars.

Sycamore Canyon – (1506020203)

Projects and BMPs Implemented and Connected to Past Impaired Waters

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 600 acres of thinning and approximately 2,000 acres of prescribed burning). Implementation of

the project will reduce the risk of watershed disturbance associated with wildfire events in the watershed.

BMPs to Minimize Non-Point Source Pollution: BMPs were included in the timber sale contracts and stipulated 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.

Fossil Creek-Lower Verde River – 1506020302

Projects and Activities Implemented on Past Impaired Waters

Grazing was deferred in 2006-2007 on portions of the Fossil Creek allotment that did not have suitable soil and vegetation conditions. The NEPA planning for the Fossil Creek Range Allotment was begun with a target completion date in 2008. The initial planning is focused on improving soil, riparian and water quality conditions across the allotment by reducing the utilization level from the current levels.

West Clear Creek 5th Code (1506020301)

Projects and Activities Implemented and Connected to Past Impaired Waters

Waters of this watershed flow into West Clear Creek and then into the Verde River. The Coconino National Forest worked with the contractor and ranch permittee as technical advisors on the approved ADEQ 319H Grant West Clear Creek Tributary Watersheds. The objectives are to improve watershed conditions in tributaries to West Clear Creek and downstream water quality into the Verde River. This 2-year phased project finished a watershed assessment in 2004 and designed and began implementation of on-site improvement projects in late summer, 2005. The project accomplished 100 acres of pinyon-juniper lop and scatter, herbicide control of mesquite and Wickiup Draw (upper tributaries of West Clear Creek) channel restoration in 2006. According to the contractor, ADEQ approved additional funding this year (2007) to complete more acres of lop and scatter that were not finished in 2006 and more gully control in Wickiup Draw. Actual acres treated by contract in 2007 are unknown .

The Forest is cooperating with necessary fuelwood and cross-country closure areas to protect treated lands that had recent fuelwood gathering (including some lop and scatter debris). The new fuelwood treatment map will not permit fuelwood gathering or cutting in treated areas.

Prescribed burning to reduce wildfire risk occurred within the Bald Mesa Urban Interface project, the Valley Prescribed Burn project and the IMAX prescribed burn project. Approximately 6,000 acres were burned in the project. The result is reduced watershed risk of stand-replacing wildfires that may result in accelerated erosion and eventual sediment delivery into West Clear Creek.

BMPs 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 took place in cooperation with the Arizona game and Fish Department. Approximately 25 user created roads were signed as closed to off-road travel, as well implementation of a 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)

Projects Implemented but not Connected to Current or Past Impaired Waters

In the upper portion of the watershed, fuels reduction is on-going in the Ft Valley Fuels Reduction Project (approximately 300 acres). Implementation of the project will reduce the risk of watershed disturbance associated with wildfire events in the watershed.

BMPs to Minimize Non-Point Source Pollution: BMPs were included in the timber sale contracts that stipulate 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.

Approximately 5 miles of roads were decommissioned within the Ft Valley Fuels Reduction project that will minimize sediment production that previously occurred from the roads.

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

Upper Clear Creek – (1502000803)

Projects Implemented but not Connected to Current or Past Impaired Waters

With the assistance of volunteers from the Grand Canyon Wildlands Council, approximately 13.5 miles of roads were obliterated in the Yeager Canyon, Dane Canyon and Kehl Springs 6th code watersheds. The subsequent removal of vehicular traffic from these roads will diminish sediment production from these sites.

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

With the assistance of volunteers from the Volunteers for Outdoor Arizona, 2 headcut drop structures and trail maintenance along the Arizona Trail in General Springs Canyon was completed. For a review of the project, please see the following url:
http://www.voaz.org/HTML/projects_events/general_springs_canyon/project_report.htm

BMPs to Minimize Non-Point Source Pollution: Include designating camp location outside of riparian filter strips.

Prescribed burning and thinning to reduce wildfire risk occurred within the Blue Ridge Urban Interface project, East Clear Creek project and the Victorine Urban Inteface project. Approximately 6,000 acres were burned in the projects.

BMPs 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 took place in cooperation with the Arizona game and Fish Department. Approximately 15 user created roads were signed as closed to off-road travel, as well implemnetation of a total off-road driving restrictions were enforced in the upper portion of the East Clear Creek, Miller Canyon and Kehl Canyon 6th code watersheds.

Forest-Wide Activities

Wildfire Watershed Restoration:

Hazardous fuel reduction was accomplished on 23,226 acres. 16,711 acres were treated with prescribed fire and 6,515 acres were mechanically thinned and piled or chipped within and around both Wild Urban Interface areas. Best management practices (described above by watershed) were included in the prescription to retain adequate large woody debris, burn under proper moisture conditions, and protect soil organic matter. The treatments will help to reduce the likelihood of adverse watershed effects from uncontrolled wildfire. Native grass seed was seeded where appropriate to promote herbaceous ground cover and stabilize the soil on disturbed sites.

Restoration of eroded trails were proposed, funded and implemented (about 7 miles) through the National Fire Plan in 2007 on the Brins Fire within the Oak Creek 5th code watersheds. The objectives were to restore eroded trails, improve drainage and prevent accelerated erosion and sediment delivery into Oak Creek and maintain water quality.

A Burned Area Emergency Response (BAER) and assessment occurred on the Birdie Fire (mostly within the Walnut Creek 5th HUC watershed. The team gathered field data during the assessment and determined that emergency watershed conditions did not exist and therefore did not request emergency treatment funding.

Range Allotment Management Plans

The NEPA planning for the Fossil Creek Range Allotment and the Hackberry/Pivot Rock Range Allotment was begun with a targetd completion date in 2008. The initial planning is focused on improving soil, riparian and water quality conditions across the allotment by reducing the utilization level from the current levels.

Other Forest-Wide Activities:

23.5 miles of Forest roads were obliterated or decommissioned (detailed by watershed above).

Maintenance of Watershed Improvements Forest-Wide:

Maintenance of elk exclosures was completed at 5 sites in the Upper Clear Creek 5th code, and one site (Clover Springs-Verde Headwaters Riparian Restoration Project) in the West Clear Creek 5th code watershed.

Monitoring Accomplishments Forest-Wide:

Riparian Proper Functioning Condition (PFC) assessments were re-read on 10 reaches within the Pivot Rock range allotment (Upper Clear Creek 5th code, East Clear Creek, Kehl and Miller 6th code watersheds, respectively).

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. Vegetative canopy cover and frequency were monitored for identified wetlands on Anderson Mesa.

Soil Condition assessments were completed on several pastures within the Hackberry allotment. The assessments were a qualitative and quantitative look at the health of the soils. The sites were located within the Fossil Creek – Lower Verde watershed.

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.

The Forest finished stream gaging at Sycamore Creek and is presently awaiting ADWR approval of several instream flow water right claims for in situ wildlife and fish use.

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

No landscape scale or watershed assessments were completed in 2007. Major emphasis was placed on Forest Plan Revision and Travel Management Planning and continues in 2008. A Forest scale and 5th HUC assessment of soil, wetland and riparian conditions, water quality and quantity was completed in 2007 using existing information. This information will be used to determine the ecological need for change on the Forest and specific management direction identified 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 would close about one-third 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 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 (sampling began approximately 1 mile above Slide Rock to Page Springs for 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.

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.

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

