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Department of
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Forest
Service

July 2010

Monitoring and Evaluation Report

FY2010

Coconino National Forest

Introduction and Forest Supervisor Certification

This report provides monitoring information for fiscal year 2010, as required by the Coconino National Forest's amended 1987 Land and Resource Management Plan (Forest Plan). The intent of the monitoring and evaluation report is to inform the decision maker and the public of progress toward achieving the goals, objectives, and standards and guidelines.

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

I have reviewed the Coconino National Forest's annual Monitoring and Evaluation Report for fiscal year 2010. 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.

M. Earl Stewart

Forest Supervisor

29 July 2011

Date

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
RECREATION				
Developed Site Use	Determine recreation use and demand.	National Visitor Use Monitoring (NVUM) reports. Measure is National Forest Visits (NFVs). Annual reports from concessionaire receipts and activity reports for sites run by concesionaires (all sites except those on Mogollon Rim RD).	NVUM is conducted in 5 year increments. 2010 NVUM report has not yet been formally released. Concessionaire reporting is annual.	NVUM showed a 72% increase in total NFVs between 2000 and 2005. Preliminary indications from the 2010 survey are that the trend has slowed some, with a decrease in NFV's. Result is still that most developed sites are at or near capacity many weekdays as well as weekends on RRRD and FRD. MRRD are often at capacity on weekends and holidays. Recreation site concessionaires report slight increases in developed site occupation from 2007 levels. For day use developed sites, there were more visits in 2005 (compared to 2000) with similar duration of stays. Overnight use developed sites had fewer visits but nearly twice the duration of stay in 2005 compared to 2000.
Developed Site Condition	Prevent damage and deterioration. Meet health and safety requirements	Condition site surveys (CSSs) are recorded in INFRA database.	5 year cycle. Each site can go no longer than 5 years without a CSS. All sites are current.	Ongoing upgrade of recreation sites has decreased damage and deterioration for many Forest recreation sites, but some sites have inherent Deferred Maintenance issues that need attention. The Forest has completed the Recreation Facility Analysis that identifies deferred management needs and identifies strategies and priorities for achieving deferred management at developed sites. Implementation of deferred management strategy has begun with Capital Investment Program projects at Bootlegger and Pine

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				Flat campgrounds in Oak Creek Canyon.
Implementation of Recreation Opportunity Spectrum (ROS) Guidelines	Ensure the protection of existing ROS classes.	Review project work plans involving vegetative treat-ment, road/trail construction, or major development/Acres by ROS class.	Ongoing – by project and by area consideration	Increased state population and Forest visitations are impacting more primitive settings while road system deterioration is resulting in more primitive roads. Anecdotal evidence suggests a slight increase in general forest area use over 2007 levels; therefore there is slightly more deterioration of recreation setting characteristics such as relative wildness and opportunities for solitude and risk away from the sights and sounds of others. Eventual implementation of the Travel Management Rule is expected to result in enhancement of the more primitive setting attributes with restrictions on motorized access.
Off-Road Driving Compliance and Damage	Prevent unacceptable damage to resources and meet provisions of Forest Off-road Driving implementation plan.	Area and Project reviews.	Ongoing – by project and by area consideration	Anecdotal evidence and area survey data suggest continued route proliferation due to unregulated off-highway vehicle (OHV) use. The Motor Vehicle Use Map (MVUM) will replace Forest Off Road Vehicle guidelines in the existing Forest Plan when the Travel Management Rule is implemented.

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Dispersed Area Use and Experience Levels	Determine recreation use and Demand.	Area and Project reviews. NVUM for dispersed area total use and for "satisfication" of user and evidence of crowding.	Ongoing – by project and by area consideration 5 year cycle for NVUM (2000, 2005, 2010 etc.)	Anecdotal evidence and area survey data suggest increased use in dispersed areas, but areas are generally still below capacity per NVUM. The 2005 NVUM suggests that general forest area visits tripled between 2000 and 2005 (1,108, 507 vs. 3,323,051) while the duration of stay was about 1/3 (18.7 hours in 2000 vs. 6.2 hours in 2005). Identify areas that are at or approaching capacity on regular basis.
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.
Trail Condition	Determine effectiveness of Forest Trails Program.	TRACS / INFRA Miles to standard	Sample 20% Annually –	Trails maintenance and reconstruction lags behind condition survey results. Districts are working to complete Trail Management Objectives and update trails databases.
Visual Quality Objective (VQO) Compliance	Ensure Forest standards and guidelines for visual management are met.	Review project work plans and conduct project reviews - involving vegetative treatment, road/trail construction, or	Annually – Compliance is ongoing through VMS application for all projects on the Forest. VQO acres are hard to	Forest VQO standards and guidelines are outdated. The Forest is in the process of converting from the present Visual Management System (VMS) to the Scenery Management System (SMS). The conversion will include a re-assessment of scenic objectives to reflect changes in use patterns, increased visibility of Coconino NF landscapes, and increased concern for scenic quality by visitors.

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		major development/Acres by VQO	quantify and are not an accurate measure of VQO compliance.	

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Wilderness Use	Determine wilderness use and demand	National Visitor Use Monitoring (NVUM) report from 2000 and 2005 and pending for 2010. Measure is National Forest Visits (NFVs).	NVUM is conducted in 5 year increments. Next NVUM scheduled for 2010.	NVUM showed a 72% increase in total NFVs (wilderness and non-wilderness) between 2000 and 2005. Wilderness use increased at same level. All indications are that the trend will continue. Some wildernesses (Kachina Peaks, Red Rocks -Secret, Wet Beaver) exceed capacity in some areas. Anecdotal evidence suggests that wilderness use continued increasing in FY 2008.
Wilderness Condition	Minimize resource damage and changes of wilderness opportunity spectrum (WOS) classes, particularly primitive end	Professional observation and in areas where there are more serious problems we are doing some limits of acceptable change (LAC) monitoring.	Annually	Some wildernesses (Kachina Peaks, Red Rocks- Secret, Wet Beaver) exceed WOS capacity in some areas. This has resulted in increased need for trail and site work in these areas that has generally been accomplished. Wilderness condition is generally good but has declined some in the more popular areas.
CULTURAL RESOURCES				
Cultural Resource Compliance Project	Meet Federal regulation; ensure project compliance with guidelines.	Approved cultural resource clearance for each ground-disturbing activity.	Annually	Approximately 105 projects received clearance in FY 2010

Cultural Resource Property Protection	Protect significant Properties.	Patrol areas in conjunction with other duties/ Site condition	Annually	Approximately 200 sites are enrolled in the site monitoring program of the Arizona Site Stewards Program and receive periodic inspection by them. In addition, sites in the Winona Village National Historic Landmark and Ridge Ruin National Register District receive periodic inspection by volunteers in the Arizona Archaelological Society. Forest archaeologists inspected 40 sites and monitored 27 sites for project/post-project impacts. No major site vandalism was found in 2010; only several incidents of minor rock art vandalism.
WILDLIFE				

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2010
WILDLIFE				
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	Forestwide bird monitoring continued under a Cost-Share agreement with the Rocky Mountain Bird Observatory. Forty-nine transects (grids) were completed in habitats forest-wide. Vegetation data was collected at the beginning of each transect. Density estimate for pygmy nuthatch was 23 per square kilometer (8.9 per square mile). No northern goshawks or Mexican spotted owls were detected. The Flagstaff Ranger District (RD) conducted 15,655 acres of presence and absence surveys for MIS. No goshawks were located. Pygmy nuthatches were detected at 4 points. **Northern Goshawk** There are 47 Post Fledling Areas (PFAs) on the Forest. Eight PFAs were monitored: 4 PFAs were monitored to protocol, all were determined to be unoccupied; 4 additional PFAs were monitored but not to full protocol. There were no responses at these sites. **Mexican Spotted Owl (MSO)** There are 188 Protected Activity Centers (PACs) on the Forest. Nine percent (16) of the PACs were monitored. Results: ten of the PACs were occupied and no young were detected. Habitat was evaluated for all projects that contained MSO habitat. There were no responses at the remaining PACs. **Old Growth**

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				• Existing and potential old growth is evaluated at the project level to provide habitat for MIS and other species. • There are approximately 73,011 acres of developing old growth and 18,891 acres of existing old growth on the Forest.
Turkey Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually on 90% of affected projects	Turkey habitat was evaluated for all projects that contained habitat. Habitat capability is addressed during project planning through consideration of tree clumps and groups, forbs and grasses, slashpiles for nesting, and conditions of springs.
Turkey Population Trend	Meet population goal	Arizona Game and Fish Department surveys/habitat capability modeling	Annually	Wild turkey populations have been in a general decline in the Arizona since 1969 (http://www.azgfd.gov/pdfs/h_f/HuntAZ2011.pdf) . The Forest reviewed and discussed population data with AZGFD at the annual hunt recommendation meeting. The Flagstaff RD conducted presence and absence surveys for MIS. Turkeys were detected at 6 points.
Turkey Nesting Habitat	Maintain nesting habitat	On-the-ground evaluation	Annually and 5 year trend review	See capability above
Red Squirrel Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually on 90% of affected projects	Red squirrels were monitored as part of the Rocky Mountain Bird Observatory Cost-Share Project and were detected only on one transect.

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Elk & Mule Deer Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually	Habitat capability is addressed at the project level where habitat improvements for mule deer (grasslands, aspen, and shrubs) are addressed and incorporated into project implementation where appropriate. Effects of projects on elk and deer habitat were addressed through MIS analysis.
Elk & Mule Deer Population Trends and Distribution	Meet population goal	Arizona Game and Fish Department surveys/habitat capability model	Annually	According to AZ Game and Fish Department (AGFD), mule deer numbers have been cyclic, responding mainly to climatic events. Drought conditions in recent years have resulted in low fawn survival. The ratio of fawns per 100 does is a rough surrogate for the reproductive success of mule deer. On the Forest, these ratios have been variable from year to year, and overall, seem to be relatively static*. The ratio of calves per 100 cows is a rough surrogate for the reproductive success of elk. On the Forest, elk populations continue to do well. From 2006-2010, calf:cow ratios have ranged from 22-65 in Game Management Units on the Forest*. Reviewed and discussed population data with the AGFD at the annual hunt recommendation meeting. **Flagstaff RD**: 15,655 acres were inventoried and the presence of elk was documented at 150 points; presence of mule deer was documented at 105 points. *(http://www.azgfd.gov/pdfs/h_f/HuntAZ2011.pdf).

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Abert Squirrel Habitat Capability	Maintain habitat capability	Habitat capability model/habitat capability	Annually	Habitat capability is addressed at the project level where habitat improvements for Abert squirrel (groups and clumps of ponderosa pine) are addressed and incorporated into project implementation where appropriate. Effects of projects on Abert squirrel habitat were addressed through MIS analysis. Abert's squirrels were monitored as part of the rocky Mountain Bird Observatory Cost-Share project, and were detected on only 1 transect. **Flagstaff RD**: 21 points documented the presence of Abert squirrels or squirrel nests.
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	Forestwide bird monitoring continued under a Cost-Share agreement with the Rocky Mountain Bird Observatory. Forty-nine transects (grids) were completed in habitats forest-wide. Vegetation data was collected at the beginning of each transect. Density estimates per square kilometer were 23 (8.9 per square mile) for pygmy nuthatch and 5.01 (1.9 per square mile) for hairy woodpecker. No red-naped sapsuckers were detected this year. **Flagstaff RD** • The FRD conducted 15,655 acres of presence and absence surveys for MIS. Pygmy nuthatches were detected at 4 points and hairy woodpeckers at 1 point.

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				• Ten acres of aspen were treated by felling trees in a jackstraw fashion to improve success of young aspen sprouts and developing habitat for yellow-bellied sapsucker. Twelve monitoring plots were established to measure and evaluate health, mortality and regeneration of aspen clones. • 42 of the 44 aspen fences were checked or monitored. Of those, 26 had repairs done maintaining developing habitat for yellow-bellied sapsuckers. **Mogollon Rim RD** • One riparian breeding bird survey was conducted in East Clear Creek as part of a statewide program. There were no pygmy nuthatches, hairy woodpeckers, or red-naped sapsuckers detected. • Snag size, density, and species were recorded within 201 microhabitat plots. Report is in progress. • 1 North American Breeding Bird Survey at Happy Jack was completed.
Plain (Juniper) Titmouse - Amount of Mature and Old-Growth, Pinyon-Juniper	Maintain habitat capability	Habitat capability model/habitat capability	Annually	Forestwide bird monitoring continued under a Cost-Share agreement with the Rocky Mountain Bird Observatory. Forty-nine transects (grids) were completed in habitats forest-wide. Vegetation data was collected at the beginning of each transect. Density estimates per square kilometer were 12.6 (4.9 per square mile) for the juniper titmouse.

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Plain (Juniper) Titmouse - Snag Densities and Sizes of Pinyon-Juniper	Maintain habitat capability	Compartment exams, snag inventories, and project reconnaissance/acres	Annually	The FRD conducted 15,655 acres of presence and absence surveys for MIS. Snags were tallied at each point.
Antelope - Forage Availability	Maintain habitat capability	Production-Utilization surveys, habitat capability model/habitat capability	Annually and 9-13 years on each grazing allotment	Significant effort by various partners and the Forest continued focus on improvement of pronghorn habitat on Anderson Mesa. Activities included: thinning juniper and pine from grasslands and installation of an educational sign at Indian Lake. Phase III of the Slate Mountain Pronghorn Restoration project restored 145 acres of grassland habitat by thinning juniper and pine trees from grasslands. **Flagstaff RD**: 15,655 presence/absence surveys for MIS. Pronghorn were not detected. **Red Rock RD:** The Friends of the Forest (FOF) wranglers spent 308 hours inventorying fence lines in the Gyberg/Wheatfield and Duff Flat areas for compliance with pronghorn specifications. The results of their monitoring indicated over 12 miles of fence needs modification by either replacing barbed wire or raising smooth wire. In June, a YCC crew modified a half mile of fence along the boundary fence between DK and Greasy West pastures. The bottom wire was barbed and too low;

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				crews removed the wire, replaced it with smooth wire, and raised it to 18".
Antelope - Population Trends	Meet population goal	Arizona Game and Fish Department surveys/ Numbers	Annually	Annual surveys were done by the Arizona Game and Fish Department. The ratio of fawns per 100 does is a rough surrogate for the reproductive success of pronghorn. On the Forest, pronghorn populations continue struggle. From 2006-2010, fawn:doe ratios have ranged from 0-80 in Game Management Units on the Forest*. Reviewed and discussed population data with the AGFD at the annual hunt recommendation meeting. *http://azgfd.gov/pdfs/h_f/HuntAZ2011.pdf
Cinnamon Teal - Amount of Suitable Nesting Habitat	Maintain habitat capability	Field surveys (height density method) or score cards/acres	Every 5 years on selected wetlands	None completed this year.
Cinnamon Teal - Nesting Success	Maintain habitat capability	Systematic field sampling, cooperative survey with Arizona Game and Fish Department/ Numbers	Every 5 years on selected wetlands	None completed this year.

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Riparian Areas, Lincoln's Sparrow, Lucy's Warbler, & Yellow-Breasted Chat - Habitat Condition	Maintain habitat capability	Habitat capability modeling and systematic field sampling using riparian scorecard/ analyses/acres	5% of stream miles annually	Riparian habitat for MIS was evaluated for all projects that contained habitat. The Red Rock District repaired riparian exclosures at Cottonwood/Mesquite Spring, Upper Walker Creek, and Lower Spring Creek. As part of statewide Arizona Game and Fish Department riparian surveys, three surveys were conducted on the Coconino NF (2 in Red Rock RD and 1 on the Mogollon Rim RD): • **Mogollon Rim RD:** One plot was completed in East Clear Creek. • **Red Rock RD:** The first of two Arizona Bird Conservation Initiative (ABCI) surveys at the Fossil Springs plot was conducted on May 25, 2010, with the second being conducted on June 15, 2010. Highlights of species detected include zone-tailed hawk, common black hawk, and nesting tree sparrows. MIS detected at Fossil site include yellow-breasted chat and Lucy's warbler. Sensitive birds include common black hawk. Forms were completed and sent to AZ Game and Fish.

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Aquatic-Macro Invertebrates - Species Diversity and Biomass	Maintain aquatic habitat effectiveness	Systematic field sampling (modified surber sampling)	Every 5 years on selected streams	None completed this year.
Threatened And Endangered Species - amount of Suitable Habitat and Population	Meet Federal regulation Meet recovery plan goals	Field surveys/ Acres Field surveys, U S Fish and Wildlife Service surveys/ Numbers	Annually Annually	**Mexican spotted owl** There are 188 Protected Activity Centers (PACs) on the Forest. Nine percent (16) of the PACs were monitored. Results: Ten of the PACs were occupied and no young were detected. Habitat was evaluated for all projects that contained MSO habitat. There were no responses at the remaining PACs. **Flagstaff RD:** ▪ Microhabitat monitoring was completed at 49 pre-treatment plots. ▪ 8 Protected Activity Centers monitored: 6 confirmed occupied **Mogollon Rim RD:** ▪ 8 PACs monitored, 4 confirmed occupied, 0 young (Occupied PACs- Clover, Clear Cr., Rattlesnake, Roundup; Unoccupied –Bald Mesa, Valley, Gash Mtn, Weir.) Aztec PAC was informally monitored with no response and General Springs was informally monitored with a male responding 2 times. ▪ 4 projects were inventoried: Clints Well Forest Restoration, East Clear Creek TS, East Miller area, and Quien Sabe Draw , for a total of more than 23,000 acres. ▪ Following up after the Weir Fire in 2009, two

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				wildlife technicians from Mogollon Rim RD surveyed the Rattlesnake PAC on June 28. Each technician heard a male MSO and one heard a female MSO. During the follow-up survey on June 29 the female took and cached two mice. In between each mouse, the female let out a four note hoot, but the male didn't respond. These observations suggest pair occupancy but not nesting. **Chiricahua Leopard Frogs (CLF)** **Mogollon Rim RD:** ▪ On the Mogollon Rim Ranger District where historic range for Chircahua leopard frogs overlaps with northern leopard frogs, 95 water sources were surveyed for leopard frogs. No new Chiricahua leopard frog locations were found. **Red Rock RD:** • On April 30, USFWS, AGFD, FS, visited Walt's tank to discuss sedimentation from inherently unstable soils on the slopes in the watershed above the tank. Various ideas were discussed and it was determined to start with rehabbing the closed portion of the road in to the tank, installing erosion control socks on west slope and by road entrance, installing one rock high check dams in upland rills on west side and in the drainages leading to tank. Additional ideas included: cutting, lopping and scattering juniper along the contour; terracing slopes; spreading sediment below the dam into the uplands either by hand or

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				by spiderhoe, compact and seed; • On August 17, 2011, 100 frogs (65 female, 34 male, and 1 unknown sex) were released at Walt's tank. These frogs were one year old (from date hatched) at the time of release. The frogs are a Buckskin Hills/Gentry cross from the Bubbling Ponds Fish Hatchery. • Buckskin tank was deepened in May by AGFD contractor. Water had to be drained from the tank before work could begin; during the draining, approximately 70 salamanders were sucked through the pump. According to anecdotal evidence, Buckskin tank had not been deepened since the 1950's. **Southwestern Willow Flycatcher (SWWF)** No SWWF sites were surveyed. **Bald Eagle** ***Wintering*:** Forestwide, the annual Bald Eagle Midwinter Survey was completed. 35 bald eagles, 3 golden eagles, and 2 unidentified eagles were counted on the 17 routes completed. ***Nesting*:** Bald eagles attempted to nest at the Lower Lake Mary breeding area, but the nest failed. **On the Red Rock Ranger District:** ***Wintering:*** One adult bald eagle and 2 golden eagles were detected on the Beaver Creek bald eagle winter route. In addition, approximately 80 geese and 50 ravens were detected. No eagles were detected on the Clear Creek bald eagle winter route, but four red-tailed hawks

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				were observed. ***Nesting:*** Both the Ladder and Towers bald eagle closures were implemented in 2010. Bald eagle nest watchers were first placed at Towers, but after the nest failed during incubation, the nest watchers were relocated to Ladders breeding area. The Ladders nest failed after 2 nestlings disappeared. The Tapco breeding area was unoccupied in 2010. The Oak Creek breeding area successfully fledged one young. The Beaver breeding area fledged two young. The Coldwater pair had one nestling which was not successfully reared. **Gila Topminnow, Spikedace, Loach Minnow** • Fossil Creek was monitored by AGFD for fish. • Fossil Creek was monitored by USFS for stream habitat. **Little Colorado Spinedace** • Streams surveyed by AGFD were: East Clear Creek, Bear Canyon, Dane Canyon, Yeager Canyon, and Dines Tank (in Leonard Creek). Spinedace were found in Dane, Bear, Yeager Canyons, and Dines Tank. **Arizona cliffrose**Historic locations and current data for Arizona cliffrose in and around the Verde Valley Botanical Area were entered into the NRIS TESP/Invasives database. The Cottonwood population has been surveyed and documented as part of a Coconino NF STEP's graduate work. He surveyed and collected data on individual plan locations within the Botanical

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				Area on his own time as part of his Master's work but entered the data as part of his Forest Service duties. **Red Rock RD:** **Listed Fish:** Wildlife technicians assisted Red Rock RD Fisheries Biologist in conducting fish habitat monitoring in Fossil Creek on several occasions. **Purshia** photo monitoring of Lime Kiln Trail was conducted on May 13, 2010 and was finished on June 10, 2010. Photo and monitoring notes were turned over to the Forest botanists.
Sensitive Species - Amount of Suitable Habitat and Population Trends	Manage at appropriate levels to prevent listing as threatened or endangered species	Field surveys/ Acres	5 years	**Northern Goshawk** There are 47 Post Fledling Areas (PFAs) on the Forest. Eight PFAs were monitored: 4 PFAs were monitored to protocol, all were determined to be unoccupied; 4 additional PFAs were monitored but not to full protocol. There were no responses at these sites. **Flagstaff RD:** ▪ 5 PFAs monitored; 0 occupied; 0 young ▪ 15,655 acres presence/absence surveys for goshawks. No goshawks were located. **Mogollon Rim RD:** ▪ 1 PFA formally monitored (Lake PFS) and no occupancy was determined. Two others were informally monitored with historic nest checks (44 PFA and Virgin PFA) and no goshawk presence was detected. There were no goshawk inventories done this year, and no new no goshawk territories found.

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				Lowland Leopard Frog **Red Rock RD:** • Numerous sites within the range of lowland leopard frogs were surveyed on the district. Lowlands were detected at 4 sites (all in Fossil Creek), other herp species were detected at 11 sites (see Misc. Herp Sighting table below), and no herpetofauna were detected at 12 sites. Of the sites with no detections, 4 were dry tanks. • Lowland leopard frog numbers in Fossil above and just below the Fossil Springs Dam were much reduced from previous years. This was due to several factors. The Fossil Springs dam was lowered the fall/winter of 2008. As a result the channel downcut to the new elevation and was in an unstable state. Combined with this, severe flooding during the 2009/2010 winter moved much sediment and rock downstream which scoured the channel. • Surveys in 2010 detected record low numbers of frogs both above and below the dam, even down below the sunfish barrier. Surveys below the large waterfall, resulted in the detection of the most frogs to date in this section. • It is recommended that surveys be conducted in 2011 from the Springs downstream to below the sunfish barrier in order to monitor recovery from 2009/2010 floods. Second priority would be to survey around Irving to determine if further downstream colonization is occurring.

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				Northern Leopard Frog 28 potential/historic sites were surveyed. Of the 16 surveyed on behalf of the Weir Fire, 11 had northern leopard frogs presen. Three new sites had frogs present. • Following up on two frog habitat protection projects, forest biologists posted habitat protection signs at T Bar Tank #2 and Butch Tank. • District biologists received several reports of dispersing frogs in uplands not near any water. September 1, FOF volunteers observed northern leopard frogs in the uplands, well away from water, in the vicinity of Lake Tank, Hunting Tank and Bill Back Spring. The Mogollon Rim wildlife crew observed a juvenile northern leopard frog up on Lake Mountain (454107/3849772) away from water. These observations of dispersing frogs, combined with possible threats from the Weir wildfire instigated further surveys of area drainages and tanks. • **Northern Leopard Frog Surveys Associated with Weir Fire - Areas Surveyed** 22 sites and associated drainages were surveyed in order to determine possible effects of the Weir WUF (wild-land use fire) on northern leopard frog populations and dispersal. Although the fire was expected to be continued as a managed fire, it was called off prematurely due to increased dryness and limited resources (via increased fire reports and danger). The following sites were

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				surveyed in the area: Cluster Tank, Elk Tank, Elk Tank (drainage), Fain Spring, Frank Tank, Frank's Tank, Full Tank, Gash Mountain Tank, Gash Tank, Grady's Tank, Joe's Hunt Tank, Lee Butte Tank, Lee Spring, Little Daisy Tank, Tank 127/9472, Tank 665, Tank 9464J, Tank 9464T, Potato Tanks, Round-Up Park Tank, Saddle Tank, and Salt Lick Tank. ***Results*** Of the 22 sites surveyed on behalf of the Weir Fire, 11 had northern leopard frogs present. 7 new sites (Elk Tank (drainage), Joe's Hunt Tank, Lee Butte Tank, Salt Lick Tank, Tank 665, Tank 9464J, and Tank 9464T) that had no records of being surveyed in the past actually had northern leopard frogs present. **Sensitive Plants** • An agreement was established between the Forest and the Arboretum at Flagstaff to update a management plan in the Verde Valley for an area with a number of sensitive species. Completion is scheduled for 2012. • Three Arizona bugbane (*Actaea arizonica)* sites were monitored. The plant populations appear static. However, there was signeficant overstory mortality at one site , mainly in the Douglas fir trees, due to drought and insects. The Arizona bugbane plants are relying on shade produced by the terrain of the site (cliffs) and decidous trees such as New Mexico locust and red-osier

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				dogwood. • The Forest and The Nature Conservancy monitored exclosures established for Bebb's willow and *Rumex orthoneurus.* In one set of exclosures, the purpose is to monitor establishment and growth of Bebb's willow. Coincidentally, *Rumex* is germinating successfully only in the exclosure and it is also being monitored. The purpose of the second set of exclosures is to evaluate techniques for transplanting and possible re-introduction in the future. This is within an active grazing allotment that has not been grazed in recent years. • Data were collected on 4 of 6 permanaent monitoring plots for Flagstaff pennyroyal (*Hedeoma diffusum*). Results varied by site. At one location, plants have been completely absent from the plot for the past two visits. The plot is on a remote site and has been impacted by dispersed camping and a recnt wildfire. Plant numbers decreased on two plots since the last visit in 2005 but increased on a fourth plot. • The Flagstaff District conducted surveys for *Astragalus rusbyi* at 596 points over 15,655 acres. No *Astragalus rusbyi* was located. **Rare Invertebrates:** **Red Rock RD:** • Fossil springsnails were detected on June 14, 2010, in the perennial channel of Fossil Creek

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				where one spring bubbles up in the actual channel. The springsnails were present in the channel downstream for a hundred feet or so. Up to this point it was thought that springsnails only occur in the springs that originate in the uplands adjacent to the creek and not in the creek itself. • As part of decommissioning activities, APS dewatered all flow from their spring water source (before the first switchback) in a hose and down along the road. As a result, the riparian area where springsnails are present was dewatered from June 28, 2010 through part of June 30, 2010. FS recreation folks informed APS of the presence of springsnails so APS returned flows to channel the afternoon of June 30. This site needs future monitoring to determine the effects dewatering had on the springsnails. NAU has the baseline data monitoring results for this site. **Mexican Garter Snake** A Forest Service volunteer assisted Valerie Boyarski (AGFD) and Erika Nowak (NAU) in the monitoring of Mexican garter snakes at Bubbling Ponds Hatchery. This is a telemetry study to determine habitat and hibernation preferences. **Narrow-headed Garter Snake** Red Rock Ranger District wildlife technicians and NAU personnel monitored Narrow-headed garter snake in Oak Creek Canyon. Wildlife technicians from the Flagstaff

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2010
				Ranger District assisted. **Bats:** On the Coconino National Forest, numerous sites were mist netted to determine species composition. At known and suspected roost sites, emergence counts were conducted (using infrared binoculars and infrared videography). In addition various roosts were inspected for the presence of bats. **Forest Survey Summary** (5 Roost inspections, 9 Exit Counts, 20 sites mist netted) • 18 total species (10 Myotis - oc, ve, th, yu, ca, ci, vo, ev, au, oc; 8 non myotis - Anpa, Laci, Epfu, Coto, Pahe, Idph, Labl, Tabr; of which 3 are sensitive (Coto, Labl, Idph) *Summarized in the table below are the sites surveyed on the Forest by Ranger District.* **Red Rock RD Summary** (5 Roost inspections plus one add'l mapped, 7 Exit Counts, 11 sites mist netted) • On the Red Rock RD a total of 12 roosts were inspected (Beasley Flat Caveates, cliff dwellings in Fossil Creek, and caves in West Clear Creek and Sycamore Canyon) plus one additional roost was mapped in Fossil, 7 exit counts were conducted at known roosts, and 11 sites mist netted). A total of 11 species of bats (Myoc, Myve, Anpa, Myth, Myyu, Laci, Epfu, Myca, Coto, Pahe, Labl) were mist netted on the Red Rock Ranger District; 2 of which (Coto, Labl) are

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2010
				sensitive species. In addition, a dead bat from Palatki was identified as a Mexican free-tail bat on 10/25. **Mogollon Rim RD Summary** (0 Roost inspections, 1 Exit Count, 6 sites mist netted with a total of 64 individuals captured of 12 different species, one of which is a sensitive species, IDPH). • Species are Myotis- ci, ev, th, da, au, vo yu; and EPFU, TABR, ANPA, LACI and IDPH. Six sites/(bldgs to be demolished) were monitored with a combination of internal inspection, audio recordings, and video cameras. Not all the data has been analyzed yet, but multiple bats were detected in the vicinities in almost all cases. **Flagstaff RD Summary** (0 Roost inspections, 1 Exit Counts, 3 sites mist netted). **Peregrine Falcon** A possible peregrine nest was reported in West Clear Creek Wilderness in 2009. On July 4, 2010 a wildlife technician was hiking along West Clear Creek and heard peregrine vocalizations to the northwest of 442518/3822324 (NAD 83). On July 7, 2010, wildlife technicians searched 1 or 2 miles northeast of the vocalization location site for peregrines in West Clear Creek near the main ruins where a pair was suspected to be nesting. At the end of the survey period they detected a golden eagle that was pursued and harassed by an adult peregrine until the golden eagle flew downstream and out

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2010
				of site. The peregrine flew away from them to the west and then northwest up the wash along the #17 trail until it was obscured by the ridge to their west. A recreation technician observed a possible peregrine nest on Cathedral. The location on the technician's map is consistent with the most recently occupied nest for the Cathedral pair. A pair of peregrines was observed on the south facing cliffs due north of Cow Pies trailhead pullout on Schnebly Hill road on Aug 4 and 5 (434295/3859626 observation point). Two adult and two fledged peregrine young flying were observed vocalizing (for about 15 minutes) north of Bell rock and NW of Courthouse Butte on July 29. It is unknown whether this family group is from the Cathedral site or if they are a from a new nest site on the east side of Hwy 179. **ABCI Riparian Bird Plots** **Red Rock RD:** The first of two Arizona Bird Conservation Initiative (ABCI) surveys at the Fossil Springs plot was conducted on May 25, 2010, with the second being conducted on June 15, 2010. Highlights of species detected include zone-tailed hawk, common black hawk, and nesting tree sparrows. MIS detected at Fossil site include yellow-breasted chat and Lucy's warbler. Sensitive birds include common black hawk. Forms were completed and sent to

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2010
				AZ Game and Fish. **Mogollon Rim RD:** One ABCI plot was completed on the MRRD in East Clear Creek. **Sensitive Fish** Areas Sampled by AGFD: • East Clear Creek Watershed: sensitive species found included bluehead sucker and LCR sucker. • West Clear Creek: sensitive species found included longfin dace, desert sucker, and roundtail chub (candidate species). • West Fork Oak Creek: sensitive species found included desert sucker. Wet Beaver Creek: no sensitive species were found.
Diversity - Successional Stages of Major Vegetation Types	Meet Federal regulation (NFMA)	Compartment exams, field surveys, timber inventory, habitat diversity model/acres	Every 5 years	Not completed in 2010. *Note*: This monitoring will be conducted in 2011, as part of the Forest Plan Revision effort.
Habitat Improvements - Condition of Structural Improvements	Identify those structures which must be reconstructed	Inspections/ structure	50% of structures per	**On the Mogollon Rim RD:** • A CE was completed for maintenance and reconstruction of 5 wildlife drinkers on the MRRD.

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2010
				• Five exclosures around aspen and maple draws were maintained. There were two new exclosures: new aspen exclosure of 2 acres (Little Draw) and new riparian restoration exclosure of 3 acres (Houston Draw). • Research exclosures around maple draws studied by Montana University were maintained as well. **On the Red Rock RD:** • The Fossil Creek fish barrier was inspected by biologists from USGS and Marsh and Associates, LLC. The barrier was in need of repair after winter flooding in Fossil Creek. It is unknown at this time if non-native fish were able to invade Fossil Creek through the damaged barrier. • The repaired riparian exclosures at Cottonwood/Mesquite Spring, Upper Walker Creek, and Lower Spring Creek. • The Friends of the Forest (FOF) wranglers spent 308 hours inventorying fence lines in the Gyberg/Wheatfield and Duff Flat areas for compliance with pronghorn specifications. The results of their monitoring indicated over 12 miles of fence needs modification by either replacing barbed wire or raising smooth wire. • In June, a half mile of fence along the boundary fence between DK and Greasy West pastures was modified. The bottom wire was barbed and too low; crews removed the wire, replaced it

Items Monitored	Intent	Monitoring Method/ Unit of Measure	Frequency	FY 2010
				with smooth, and raised it to 18".
Habitat Improvements Non-structural	Improve habitat for native plants and animals			Noxious weed control on 295 acres in various locations on the forest improved habitat for native plants and animals by removing non-native weed competition and improving native community resiliency for all species including TES plants and animals.
Stream temperature of cold water fisheries	Monitor current conditions and effects of management practices on stream temperature to assure compliance with State water quality standards and tolerance levels for cold water fish	Maximum temperature thermometers	All perennial cold water streams in the first decade. Five projects annually	None completed this year.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Permitted Use	Meet Federal regulation, check for term grazing permit and Plan compliance.	Annual Grazing Statistical Report/ Animal Unit Months (AUMs) Forest-wide	Annually	111,575 AUMs permitted for the grazing year. • Flagstaff RD: 49,200 • Mogollon Rim RD: 20,794 • Red Rock RD: 41,581
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	79,016 AUMs authorized for the grazing year. • Flagstaff RD: 40,399 • Mogollon Rim RD: 14,293 • Red Rock RD: 24,324
Capacity	Meet Federal regulation, determine sustained livestock stocking levels.	Production and utilization surveys, range inspections/ AUMs Forest-wide	50% of Forest acres per decade	No production/utilization studies were completed; production plots were read on 5 allotments (93,700 acres) 29 allotments inspected with 14 sites (key areas and other areas) on 11 allotments exceeding the utilization standards. This includes readings post grazing season or post growing season. If grazing intensity was recorded post grazing, the mid-point of the range was used to determine whether the standard was met.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Range Condition and Trend	Meet Federal regulation, identify changes in range condition and trend, recom-mend changes in management, and determine shifts away from grass aspect due to overstory.	Range analysis, transect data, photo plots, inspection records/ Acres	50% of Forest acres per decade	Condition and trend studies conducted on portions of 5 allotments (132,000 acres).
Allotment Management Plan (AMP) Status	Meet Federal regulation, determine if permittee is compliance, and if AMP reflects current needs of resource.	Actual use, permitted use, in capacity records, range analysis, production and utilization studies, and allotment inspections/ Plan	Yearly to once every 10 years per allotment	813,056 acres on 32 allotments were administered to standard (51% of total acres within allotments). 29 allotments inspected with 14 sites (key areas and other areas) on 11 allotments exceeding the utilization standards. This includes readings that occurred after the grazing season or after the growing season. If grazing intensity was recorded post grazing, the mid-point of the range was used to determine whether the standard was met.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Condition of Structural Improvements	Meet Federal regulation, and identify those structures which must be reconstructed.	Range inspections, range analysis, permittee reports.	50% of range structures per decade (*national requirement is now once every five years)*	No existing range structures inventoried or inspected. 100% of the improvements have been inspected in the last 5 years.
Condition of Nonstructural Improvements	Meet Federal regulation, and identify those vegetative improvements that require retreatment.	Range inspections, range analysis, production and utilization surveys, and permittee reports/ Acre	50% of treated acres per decade	Not applicable – There are no non-structural range improvements to monitor.
Forage Condition in Transitory Range	Determine and monitor added capacity created behind timber and firewood cuts.	Range inspections, pre-sale review, compartment exams/ Acre	5-10 years on 50% of transitory acres	Not applicable – There are no transitory rangelands.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	2010
Practices and Assumptions	Ensure that: -Regeneration is obtained within 5 years after final harvest cut and scheduled planting is accomplished or prior to final harvest cut when natural regeneration is planned**.**	Annual Reforestation/TSI Needs Report, plantation survival surveys, stand certification, silvicultural prescriptions, post-sale administrative review, Timber Management Information System (TMIS), Stand Data Base/Acres	Annually (plantation survival surveys are 1st, 3rd & 5th growing seasons) or as scheduled. Annual stand certification for natural regeneration stands (5th & 10th years).	Not applicable
Timber Stand Improvement Acres and Assumptions	Ensure that: -- Scheduled TSI projects are accomplished Reduce insect and disease risk.	Silvicultural prescriptions, accomplishment reports, certified projects, Reforestation/TSI Needs Report, Stand Data Base/ Acres	Annually	Compliance inspections done on all contracts, and silviculturist reviewed work done by the Forest Service.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	2010
Silvicultural Assumptions and Practices	Ensure that: -- Appropriate management is applied to Retention and Partial Retention zones and riparian areas, -- Rotation age and CMAI assumptions are correct, -- Silvicultural prescriptions follow management area standards, -- Silvicultural prescriptions precede vegetative treatments, -- Silvicultural prescriptions are practical and achieve desired results	Silvicultural prescriptions, EA's, project reviews	Annually	Silviculturist conducts formal review every 4 years and an informal review annually.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	2010
Timber Assumptions: Volume, Produc-tivity, Condition Class, Acres Harvested	Ensure that: -- Board foot/cubic foot ratios are correct, -- Volume/acre yield is correct, -- Condition class assignments are correct, -- Schedule of acres harvested is correct	Sale review, EAs, cruise summaries, TMIS, compartment exams, stand data base Use the same conversion ratios as used in Plan calculations/ As appropriate	Annually	Reviewed all Forest Supervisor authority timber sales. Used standard USFS timber cruising software programs
Size of Openings	Ensure that: -- Openings comply with size limits and are periodically evaluated for appropriateness	EA's, presale and administrative reviews, and post-sale reviews/ Project area	Annually	No openings > 4 acres
Acres of Over-story and Final Removal Harvest	Meet Federal regulation, measure prescriptions and effects	TMIS, Staff review of 5% of treatment projects (at least 2 projects) /Acres	Annually	Not applicable
Acres of Intermediate Harvest	Meet Federal regulation, measure	TMIS, Staff review of 5% of treatment	Annually	Informal reviews completed and surveillance plots conducted on Designation by Description prescriptions.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	2010
	prescriptions and effects	projects (at least 2 projects) /Acres		
Board Feet of Net Sawtimber Offered, sold, and harvested	Meet Federal regulation, measure output, assure timber offered or available for offer meets, but does not exceed, the allowable sale quantity.	PAMARS (annual reporting system), programmed harvest reports/ MBF (PTSAR [annual reporting system from TIM] MBF/CCF)	Annually	Offered – 18,688MBF/39,950 CCF.* Sold - 7,196MBF/15,246 CCF These amounts did not exceed the allowable sale quantity.
Cords of Firewood Available	Ensure that: -- Green firewood is made available, -- Potential firewood from timber sales and road building is made reasonably available to the general public before slash disposal	Review annual total of firewood sale reports, firewood advertised but not sold, and free use/Cords	Annually	Several free use areas were identified on all Districts using slash piles from recent timber sales and recent non-commercial thinning areas for personal use firewood. Commercial firewood sold (dead salvage volume) 501 cords – 394 ccf/251mbf. Personal Use Paid – 16,338 cords – 12,858ccf/8,203 mbf Personal Free Use – 3,361 cords – 2,645ccf/1,688mbf No green firewood was made available because there was insufficient capacity on the Forest to establish and administer these areas.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	2010
Yield Projections	Ensure that: Yield projections are correct	Establish GSL studies in cooperation with RMFRES/ Permanent plots in regenerated stands/ MBF/acre and/ or trees/acre	First decade	Not applicable
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)	This process was completed as part of Forest Plan Revision over fiscal year 2010.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Watershed Condition of Forest Lands	Meet Federal regulation, ensure that Forest watersheds in satisfactory condition by 2020, assure productivity of the land is maintained.	Watershed Condition Framework for 6th HUC watershed conditions evaluating 12 indicators. Standard Watershed Condition Inventory according to R-3 Hydrology Note 14 for soil condition. Photo points, ocular estimates to determine trends/acres.	Step A for 6th HUC assessments 10% annually for soil condition	Baseline watershed condition assessments (step A) were completed on all 101 6th HUC watershed following the Watershed Condition Framework (WCF) process. The assessments were a qualitative and quantitative look at watershed condition and evaluated 12 resource indicators serving as an indication of watershed condition. The information was input into a web-based application called WCATT. The majority of 6th HUC watersheds (65%) are in Functional at Risk condition followed by Properly Functioning (21%) and Impaired Function (14%). No soil condition assessments completed.
Watershed/ Soils Prescriptions	Monitor projects to determine 1) compliance with recommendations and suitability of recommendations and Best Management Practices (BMPs), and 2) to ensure water quality standards are met.	Review soil disturbing projects for compliance with Best Management Practices and water quality standards.	Minimum of 1 project per District per year	Best management practices were included in the prescriptions for prescribed burning and/or mechanical thinning to retain adequate large woody debris, burn under proper moisture conditions and to protect soil organic material. Burned Area Emergency Rehabilitation (BAER) implementation and effectiveness monitoring occurred on the Schultz Wildfire in the Rio de Flag 5th code watershed. Results indicate slow recovery of herbaceous ground cover over most of areas requiring additional mulch treatments that were implemented 3 times.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
	Monitor watershed condition in project areas.	Standard watershed condition transects (per Hydro Note 14)/Project	1 Project/ year Forest-wide	Best Management Practices (BMPs) to minimize non-point source pollution were identified and implementation monitoring occurred in all fuel reduction projects. Implementation monitoring occurred for each project including on the Red Rock ranger District, Mogollon Rim RD and Flagstaff RD. BMPs were included in the Timber Sale contracts for designated landings and skid trails that limited operation to periods when the soils are not wet and specified sanitation and fuels storage requirements for on-site logging camps. BMP effectiveness monitoring occurred in riparian pastures and measured livestock utilization on all 3 District allotments where livestock have access to streams including Oak, Spring, Fossil, West Clear, Walker, Wet and Dry Beaver Creeks. Vegetation frequency and ground cover monitoring occurred on several dozen sites dispersed throughout the Walker Basin, Buckhorn, Apache Maid, and Windmill allotments using enhanced quadrant method. **Please see separate attachment labeled** Coconino National Forest 2010 Non-Point Source Water Quality Report For more details on soil and water accomplishments and monitoring.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
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	A riparian exclosure on Horselake Tank was implemented and monitored protecting the riparian area and improving riparian function on the Flagstaff Ranger District. **Flagstaff RD:** • Stream Channel Restoration implemented and monitored. 1) Additional stream channel restoration was implemented on the Hoxworth Springs drainage (Upper Lake Mary watershed) on the Flagstaff Ranger District. Section 401 and 404 permits applied for and received prior to construction. BMP's in place include silt fence downstream of channel activities, revegetation, hydromulch, erosion blanket and 8-foot fence to remove grazing pressure from all ungulates and designed to limit on-site sediment production. 2) 60 springs were inventoried. **Mogollon Rim RD:** Houston Draw meadow restoration occurred on about 10 acres in the Mogollon Rim Ranger District. **Red Rock RD:** Repair riparian exclosure fences at Cottonwood/Mesquite Springs, upper Walker Creek exclosure, and Lower Spring Creek exclosure. Various riparian fences were monitored to determine condition; fences needing repairs include: Oak Creek @ Deer Pass, Jack's, Verde @ Tissaw, Verde @ Oak Creek, Holly Spring, Upper Spring Creek, and West Clear

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
				Creek.
Riparian Areas	Monitor condition and trend of riparian areas photo points.	Standard watershed condition transects, Proper Functioning Condition assessments, ocular, estimates, photo points, stream gaging	5 percent annually	Riparian Proper Function Condition Assessments were made on three riparian areas on the Red Rock Ranger District including Upper and Lower Sycamore Canyon and Mud Tank Draw. 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. The new stream gauge received necessary maintenance and continued monitoring was performed on Sycamore Creek, to determine median monthly flows for procurement of instream flow water rights. The purpose of gauging the flow and procurement of water right is to collect sufficient data to acquire in-situ instream flow water rights for recreation, fisheries and wildlife use resulting in riparian area, water quality and quantity protection.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
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)	4.5 miles of roads were obliterated and 12 acres of riparian habitat were restored by removing roads and trails in riparian area forest-wide. BMPs to minimize non-point source pollution were identifed and implementation monitoring occurred, including designating camp locations outside of riparian filter strips.
Water Quality	Ensure compliance with Standards and Guidelines, State and Federal Water Quality Standards.	Fecal coliform sampling at sites designated for full body contact	3 Sites Annually	Water quality was monitored for exceedences in *E. coli* pathogens at several sites along Oak and Spring Creeks by the Arizona Department of Environmental Quality (ADEQ) and Friends of the Forest per Forest Plan and State and Federal regulations. Results indicated water quality exceeded standards on busy days at Slide Rock(see ADEQ website below); and consequently, both Spring Creek and Oak Creek ermain listed impaired for pathogens. This is due to a combination of unsanitary habits of swimmers on weekends and leaky septic systems on adjacent non-FS lands. Other Forest perennial streams were not in the 3 year cycle and therefore not monitored by ADEQ. Lake water quality monitoring discontinued at Upper and Lower Lake Mary, Soldiers Lake, Soldiers Annex, and Lower Long Lake but will resume in next 3 year cycle. Water quality results by stream can be found on this link: http://www.azdeq.gov/environ/ water/assessment/assess.html

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
ROADS				
Arterial/ Collector, Construction/ Reconstruction	Ensure compliance with identified needs for arterial/collector Reconstruction. Forest Issue related	Work accomplishment reports/ Miles	Annually	In FY 2010: 656.5 miles of roads were maintained on the Forest. • 442.1 miles of passenger car system roads were maintained. 37.3 miles of road were reconstructed or improved on the Forest. • 14.3 miles of passenger car system roads were improved.
Purchaser Credit Roads	Ensure compliance with identified needs for construction and reconstruction of purchaser credit roads	Work accomplishment reports/ Miles	Annually	None on the Forest.
MINERALS				
Compliance with Terms of Minerals Operating Plans	Meet legislative mandate and Agency guidelines.	Field checks/ Plans	Annually	The forest has only a few mineral operations. We administered 2 plan of operations in 2010, including field checks of the closure of White Vulcan Mine and monitoring the patent process of the Verde Gypsum Plant. The forest issued 123 personal use mineral permits in existing pits and monitors the pit locations for overall compliance.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Non-patented Mining Claim Compliance	Minimize illegal mining activity.	Field checks, BLM file checks	Annually	There is little mineral activity on the forest. Potential operations were reviewed during routine lands cases and when mineral activities are observied. There is little evidence of much mineral actiity due to the limited mineralization for locatable minerals on the forest.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
LANDS				
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	310 permits were administered to standard. Other permits were administered to a lesser standard and moving toward the standard. Limited budgets reduce the ability to do inspections except when there is a need or opportunity associated with other projects or reissuance. The forest is implementing cost recovery for almost all permit actions. Demand for permits, especially communications and energy facilities are increasing. There are almost 1000 special use permits on the forest including recreation and land uses.
Land Purchase, Acquisition, and Exchange	Consolidate Forest lands and meet public needs.	Forest Land Adjustment Plan, MAR target/ Cases	Annually	The forest continues to work on land adjustment cases under direction in the Forest Plan. Land exchanges have typically been done when there is legislative direction or where there is outside funding from a collection agreement. The Forest transferred 156 acres to the National Park Service. Purchase cases for Fossil Creek and Shield Ranch were initiated but purchase funds were not available. The City of Flagstaff land sale under the Northern Arizona Land Exchange legislation was processed to a purchase option. The City was unable to complete in FY2010 due to lack of funding.
Occupancy Trespass	Minimize Forest trespass problems.	Field checks, landline location/ Cases resolved vs. new cases	Annually	One case was resolved. The forest continues to work with landowners and political entities on resolution of encroachment cases in Munds Park. Action is taken on simple and immediate trespass issues however larger scale projects are not resolved.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Landline Location	Maintain Forest boundary.	Landline location, MAR target/ Miles	Annually	Limited budgets have reduced the landline work being done. Development of private in holdings and adjacent private property has increased and is resulting in new trespass. 1.6 miles of boundary was maintained in FY10.
FIRE / FUELS				

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Growth Reduction and Mortality Caused by Insect and Disease Infestations	Ensure endemic and introduced infestations do not become epidemic Reduce adverse effects of dwarf mistletoe.	Integrated Pest Management aerial observation by regional entomologists, compartment exam, project inspections and reviews/Acres, Forest-wide	Annually	Aerial surveys are conducted to monitor forest health conditions over large areas. Forests are monitored for dying trees (from bark beetles, drought, and other factors), various types of defoliation, and abiotic impacts such as from storms and weather factors. The 2009 report was published in August 2010 (http://www.fs.fed.us/r3/publications/documents/fidc2009.pdf) Maps are available at: http://www.fs.fed.us/r3/resources/health/fid_surveys.shtml Forest highlights suggest that most instances of insect and disease have declined since last year and include: Acres ponderosa pine needle cast, likely fungal caused: 2,810 Acres of bark beetle incidence: 540 Acres of aspen damage: 2,250 Acres defoliation by drought: 1,540
Air Quality	Ensure prescribed fire does not cause violations of State and Federal air quality standards in sensitive areas.	Project reports, field monitoring	Annually	No violations per Arizona Department of Environmental Quality (ADEQ). Field monitoring is consistent with guidelines set in FSM 5100, Chp 5140: Fire Use. Daily Rx requests are submitted for approval from ADEQ

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Fuel Treatment Outputs	Ensure balanced fuel treatment outputs, emphasizing utilization.	Accomplishment reports/ Acres	Annually	12,997 wildland urban interface (WUI) acres treated. 5,690 Non-WUI acres treated. 18,687 Total Acres Treated
Wildfire Acre PAR's	Ensure wildfire acres are within projected annual burned acres period and by Fire Management Zone where acres are not specific to MA's.	Reports/Acres	Annually	A Fires 219 (Class A - one-fourth acre or less) B Fires 75 (Class B - more than one-fourth acre, but less than 10) C Fires 9 (Class C - 10 acres or more, but less than 100 acres) D Fires 2 (Class D - 100 acres or more, but less than 300 acres) E Fires 2 (Class E - 300 acres or more, but less than 1,000 ac) F Fires 10 (Class F - 1,000 acres or more, but less than 5,000 ac) G Fires 0 (Class G - 5,000 acres or more) Total Fires: 236 (114 Human caused, 122 Lightening) Total Acres Burned: 23,526.60 A total of 7,400 Wildland Fire Acres were managed for multiple resource benefits in 2010.
Cost of Suppression, Protection, Organization, and Net Value	Keep fire management program cost effective.	Dollars	Annually	Suppression costs were minimized as much as possible to meet objectives in maintaining resource effectiveness and safety guidelines during suppression activities. Suppression costs are tracked through the use of wildfire suppression funds and a summary of total suppression costs for

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Change				2010 is not currently available. Pre-suppression costs have remained flat or have decreased slightly due to lower budget levels in 2010.
Fire Suppression Effectiveness	Meet Federal regulation and measure prescriptions and effects.	Periodic inspections and reviews to determine if fire management organization is effective in controlling fire losses within prescription; the use of the fire budget analysis process to determine fire management efficiency; and reviews of selected fires Annual inspections, periodic re-views, and use of fire bud-get analysis process	Annually	Pre-season planning and budgetary allocations are coordinated to provide effective and efficient fire suppression response to wildland fires based on historical data and projected fire danger ratings through the use of hazard analysis procedures Pre-season preparedness reviews are conducted and safety discussions held. After Action Reviews are held after each incident. Informal reviews are conducted periodically during the fiscal year to assess needs to the fire organization. Budget allocations for the Forest are discussed with Regional Office Fire Management to evaluate requirements for funding levels. Mid-year reviews are conducted to project funding needs and/or potential savings in the Preparedness Budget through the end of the FY. Spring and Fall fire leadership meetings are conducted to confirm fire program needs to meet operational objectives for fire suppression.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
		as needed		
LAW ENFORCEMENT				
Law Enforcement Person Hours	Improve law enforcement Forest Issue related	Professional evaluation of trend based on a review of case loads, solution rates and public complaints Based on: protection of cultural resources, Off-road Driving damage, firewood theft, dollar cost of vandalism and trends in user protection. Update monthly using LEIMARS	Annually	Law enforcement officers on the Forest respond to Washington Office and Regional priorities in addition to Forest issues. The demand for law enforcement exceeds Forest capacity. FY 2010 statistics include: Fines collected: $78,582 Damage to Government property and resources: $15,814 Public contacts: 4,065 Violations issued: 1,109 Warnings issued: 141 Arrests: 33 Cannabis plants eradicated: 635 Cannabis plots eradicated: 2

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
PUBLIC INVOLVEMENT				

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
Citizen Participation Plans Public Affairs Standards	Measure responsiveness to potentially affected interests.	Citizen Participation Plans and Public Affairs Plan review/ Completed contacts and actions	Quarterly	Based on quarterly SOPA reports from October 2009 – September 2010, public contacts were made with respect to: ▪ Administration site sale ▪ Arizona Snowbowl improvements ▪ Aspen restoration ▪ Burned area restoration (Schultz) ▪ Campground improvements ▪ CC Cragin Reservoir ▪ Childs-Irving Hydropower Project ▪ Christmas tree area ▪ Eagle nesting areas ▪ Firewood permits ▪ Flag Center co-location plans ▪ Forest closure areas and wet road closures ▪ Four Forest Restoration Initiative ▪ Forest health projects ▪ Forest fires ▪ Forest plan revision ▪ Forest restoration projects ▪ Fuels reduction ▪ Fossil Creek Area recreation management ▪ Graffiti mitigation on forest resources ▪ Houston Draw Aquatic Organism Passage ▪ Land exchange ▪ Logging operations ▪ Mineral exploration ▪ Mountainaire boundary issues for private parcels ▪ Outfitter guide permits ▪ Partnerships with other agencies ▪ Pit permit

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
				▪ Prescribed burns and fires managed for resource benefits ▪ Travel Management Rule and OHV ▪ Transmission line permits/wind energy ▪ Tribal relations ▪ Range allotments ▪ Recreation projects (climbing, trails) ▪ Recreation Residence Permits ▪ Red Rock Pass Program ▪ Resource Advisory Committee projects ▪ Sedona National Scenic Area proposal ▪ Smoke impacts and mitigation ▪ Special Use Permits (roads, improvements, access) ▪ Walnut Canyon Study ▪ Water storage tanks ▪ West Fork of Oak Creek Aquatic Restoration ▪ Wildlife protection and habitat improvement ▪ Youth camps
Verification of Unit Cost Used in Plan Compared to On-the-Ground Cost	Acquire accurate cost data.	Actual costs from a representative sample of projects and programs including both force account and contract. Discount to 1982 dollars for comparison to Plan costs/Dollars	Annually	Due to a change in budgeting process, this can no longer track in the same manner.

Items Monitored	Intent	Monitoring Method Unit of Measure	Frequency	FY 2010
LAND MANAGEMENT				
Effects of Management on Adjacent Lands on National Forest Goals and Objectives	Determine effects of manage ment of other ownership on Forest Plan.	Reports from appropriate resource monitoring items, review of other Agency plans, new issues	Every 5 years	Effects of adjacent land management on Forest goals and objectives has led to an increased public desire for Coconino National Forest lands to provide open space around communities, as well as the need for easements on, or land conveyances of, Forest lands for community infrastructure, roads and energy corridors. Because these needs are not necessarily well addressed in the current forest plan, they are currently being considered in the development of the revised plan.

Coconino National Forest 2010 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, 2009 – September 30, 2010), the Coconino National Forest has designed, implemented (using Best Management Practices), or cooporated in a variety of activities intended to improve and protect soil and water resources and water quality on and off of the Forest. The Forest was also active in soil, vegetation, riparian and water resource monitoring and in watershed related assessments and partnerships.

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

Recreation Management

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

Red Rock Ranger District:

10 port-o-pots were installed within the Fossil Creek Area to reduce pathogen contamination of Fossil Creek and help fish and the macroinverts by improving water quality. These were funded through the ADEQ Water Quality Improvement Grant - 11-00609.

Livestock Grazing Allotments

Environmental Assessments were completed and Decision Notice signed off on the Buckhorn Allotment and the Peaks Allotment. Livestock numbers will be substantially reduced and allowable use will be conservative due to declined vegetative and soil conditions.

Red Rock Ranger District

1) Signed Decision Notice on Buckhorn Allotment reduced allowable use from about 50% to 30-40% and soil condition objectives identified. BMP's included in the NEPA are designed to minimize sediment production on-site and improve downstream water quality.
2) Completed environmental assessment and released draft EA on Walker Basin allotment reducing allowable use, esablishing pasture deferrals with high amounts of unsatisfactory soil and estableshed soil condition objectives similar to the Buckhorn Allotment.

Peaks and Mormon Lake Ranger Districts

1) Completed the Environmental Assessment and signed a Decision Notice on the Buckhorn Allotment reducing allowable use to a conservative 30-40%. BMP's included in the NEPA are designed to minimize sediment production on-site and improve downstream water quality.

Resource Protection Measures and BMP's:

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

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

Grazing Resource Protection Measures and BMPs include the following.

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

Select recommended use guidelines for riparian areas used include the following

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

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

Hazardous Fuel Reduction/Wildland Fire Use Fires:

2010 Hazardous fuel reduction was accomplished on about 26,780 acres. About 21,600 acres were treated with prescribed fire including initial, maintenance or pile burning and about 4700 acres were hazardous fuel reduction or precommercially mechanically thinned and piled or chipped on both Wild Urban Interface areas and out. Best

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

3 Wildland Fire Use (Resource Benefit) Fires occurred on the Forest and burned 5860 acres. Most occurred (about 3892 acres) in the Upper Clear Creek 5th code watershed on the Mogollon Rim Ranger District. These low burn severity fires were allowed to burn (consistent with Forest and Fire Plan direction) since the effects were predicted to be beneficial to the soil and thinned out overstocked forests. Subsequent burn severity mapping proved these fires met resource objectives where less than about 5% burned in the high burn severity class.

RRRD:
1507 acres were thinned in the Oak Creek 5th code watershed to reduce risk to watershed and water quality from stand replacing fires that could result in high burn severity and accelerated erosion, sediment delivery, nonpoint source pollution and adverse effects to water quality.

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

Watershed Improvment Acres Red Rock and Flagstaff Ranger District
About 145 acres of pine encroached meadows were treted to remove pine and restore meadow function in the Mountainaire Project. About 100 acres on Ponderosa Pine were hand thinned described above. About 1000 acres aer estimted to be benfited by the road closures and decommisions in the Upper and Lower Clear Creek watersheds and will aid in the recovery of the Little Colorado Spinedace.

Specific BMP's include the following:

Harvest Activities

24.11 - Use of Terrestrial Ecosystem Survey Timber Harvest Limitation Rating
1. Objective. To identify severe and moderate erosion hazard areas and othersoil limitations in order to adjust treatment measures to prevent downstream water quality degradation.

24.13 - Limiting the Operating Period of Timber Sale Activities
1. Objective. To ensure that the Purchaser conducts operations, including but not

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

24.18 - Tractor Skidding Location and Design

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

24.2 - Log Landing Location

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

24.21 - Erosion Prevention and Control Measures During Timber Sale Operations

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

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

24.3 - Slash Treatment in Sensitive Areas

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

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

41.3 - Obliteration of Roads

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

Roads that are no longer necessary for public access or management purposes need to be obliterated. Roads that are allowed to exist without proper maintenance

are subject to continued, uncorrected damage and can become chronic sediment sources.

Prescribed Burning

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

On areas to be prescribed burned, retain 5-10 tons/acre of course woody debris in ponderosa pine and 10-15 tons/acre of course woody debris in mixed conifer be left on-site after the prescribed burns to maintain long-term soil productivity on areas to be burned outside of the buffers around private land in.

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

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

NFP Projects: Several NFP projects were implemented targeting invasive weed control. The purpose of NFP projects is to accomplish critical rehabilitation and restoration work on lands damaged by fire or fire-related impacts and should restore watershed function and reduce nonpoint source pollution. More than 75 acres were restored under the NFP.

Burned Area Emergency Response: Two wildfires were located and assessed on the Flagstaff Ranger District and two resource benefit fires were located on the Mogollon and Red Rock Ranger Districts in 2010.

The 15,051 acre Schultz Fire was treated to reduce threats to life and unacceptable resource damage. A BAER Team completed an assessment of the fire as of July 8, 2010, reporting the high potential for post-fire flooding, sedimentation and possible debris flows due to the severity of the fire. About 40% of the burn area (greater than 5,000 acres) was high-severity burn largely concentrated on steep mountain terrain with slopes greater than 30% and in many places exceeding 100%. Eleven watersheds were identified as posing potential threats of storm runoff response into the adjacent suburban developments. Five of the watersheds (listed as watersheds of concern) experienced high burn severities over more than 50% of the watershed area. Two watersheds experienced high burn severities over more than 70% of the catchment area. Both of these factors contribute to higher than normal post-fire runoff.

Hillslope treatments were approved and implemented in 3 phases. Althogether, about

4200 acres were helimulched and 6700 acres were seeded with certifed weed-free straw and a mixture of native and quick growing serial grass seed. Road drainage work was performed including removal of culverts, water bars, rolling dips and road strom-proofing to redice debris flow energy, erosion, runoff and sediment downstream.

The three remaining fires were assessed but not treated since emergency watershed conditions did not exist.

Legacy Roads and Trails Projects

Four Legacy Roads and Trails Projects were implemented. These projects are designed to improve road and trail drainage, riparian area and aquatic function and reduce nonpoint source pollution to connected waters.

The Walker Creek Road Rehabilitation Project was implemented to remove road and trail access that has been damaging the riparian area, aquatic habitat and water quality that connects to Beaver Creek and the Verde River. About 12 acres were improved.

30 miles of urban trails were restored including heavy rock armoring and treads in the Red Rock Ranger District. The restoration will improve riparian habitat, redice sedimentation and improve water quality into Oak Creek.

On the Flagstaff Ranger District, the Sawmill Spring road and stream crossing was improved by installing a culvert resulting in riparian and spring damage and improved local water quality. An additional road to trail conversion was implemented with multiple rock crossings installed totalling about 2 miles and an additional 2.5 miles closed.

Wildlife, Fisheries Riparian and Aquatics Projects:

Chiricahua Leopard Frog Stocktank Cleanout
Cleanout occurred at Buckskin Tank, refugia and habitat for the Chiricahua Leopard frog in the Verde River Lower Fossil Creek 5th code watershed.

Riparian Exclosures:
A riparian exclosure on Horselake Tank was implemented protecting the riparian area and improving riparian function on the Flagstaff Ranger District.

Mormon Lake Ranger District:

- Stream Channel Restoration
    1) Houston Draw meadow restoraion occurred on about 10 acres in the Mogollon Rim Ranger District.
    2) Additional stream channel restoration was implemented on the Hoxworth Springs drainage (Upper Lake Mary watershed) on the Mormon Lake Ranger District. Section 401 and 404 permits applied for and received prior to construction. BMP's in place include silt fence downstream of channel activities, revegetation, hydromulch, erosion blanket and 8-foot fence to

remove grazing pressure from all ungulates and designed to limit on-site sediment production.

Instream Flow Water Rights
Three perennial stream instream flow water rigths were perfected this fiscal year. The Forest procured certifed water rights on Sycamore Creek, Walker Creek and Spring Creek for wildlife including fish. The water will remain insitu and cannot be diverted thereby assuring riparian fucntion is maintained or restored and aquatic habitat and biota have ample water to rely on.

Stream Assessments
Riparian Proper Function Condition Assessments were made on three riparian areas on the Red Rock Ranger District including Upper and Lower Sycamore Canyon and Mud Tank Draw.

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

Mogollon Rim Ranger District:
East Clear Creek Spring Monitoring Assessment. In cooperation with Dr Larry Stevens of the Grand Canyon Wildlands Council, approximately 60 springs were inventoried in 2009 and work continued in 2010. The assessments looks at water chemistry, macroinvertebrates, habitat and plant assemblages. Final report has not been completed and data is not currently available for distribution but will be available to ADEQ upon receipt.

Forest-wide:
A new volunteer group led by Steve Monroe (NPS) and specialists at the Coconino National Forest has began additional spring inventory in the Rio de Flag and West Clear Creek watersheds and plan to continue collecting location, chemistry and some flow data Forest-wide on unkown and non GPS located springs.

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

Mogollon Rim and RRRD:

Travel Management Planning contiunes on the Forest. The Draft EIS was released and proposes to restrict cross-country travel and designate suitable roads for travel that should result in reduced nonpoint source pollution to connected waters downstream.

Forest Plan Revision

Planning continued in 2010 and Ecosystem Sustainability Report finalized. The draft plan is currently developing plan components (desired condition, standards and guidelines and due to be released in early 2011.

NPS Grants and Partnerships:

ADEQ Water Quality Improvement Grant - 11-00609

Middle Fossil Creek Water Quality Improvement Grant

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

Arizona Water Protection Fund Grant - 09-162WPF

Middle Fossil Creek Riparian Habitat Protection and Restoration

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

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

In 2009, the Arizona Department of Environmental Quality awarded a $311,603 grant to the Oak Creek Canyon Task Force to reduce the level of E. coli bacteria in the Oak Creek Watershed. Phase one of this two phase grant continued in 2010 and focused on developing a watershed improvement plan and the watershed improvement council which will help the cleanup projects to be implemented the following year.

Other Partnerships:

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

A partnership with the Oak Creek Task Force, (now known as the Oak Creek Watershed Council) 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 5^{th} 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. No meetings were scheduled I 2010 to our knowledge.

Presidents Initiative:

In 2009, the Oak Creek watershed and portions of the Sedona Red Rock Area was selected as part of the Presidents Initiative where some $21 million dollars may be spent to improve maintenance deferred recreation areas. Projects are linked to improvement of water quality, facilitating TMR implementation, addressing urgent health and safety needs and/or restore the ecosystem or cultural resources with special emphasis on sacred site protection.

The Forest identified potential projects to submit under the initiative and wuold plan projects in the first year and implement in the second. Treatment implementation should result in reduced nonpoint source pollution into Oak, West Fork of Oak Creek and Spring Creek and improved water quality. In 2010, there has been no response on the status of project selection under this initiative.