

FOREST PLAN MONITORING AND EVALUATION REPORT

Santa Fe National Forest Fiscal Year 2002

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Forest Supervisor's Certification

I certify that the Santa Fe National Forest Plan (Forest Plan) as amended is sufficient to guide management of the Forest over the next year.

This Monitoring and Evaluation Report meets regulatory requirements for completing an annual report (36 CFR 219).

Gilbert Zepeda _____

GILBERT ZEPEDA

Acting Forest Supervisor

July 15, 2003

Date

Forest Plan Background & Amendments

The Forest Plan and associated EIS were first published as drafts in 1982, as finals in 1983, then were withdrawn in order to address appeal issues regarding timber harvesting and wild and scenic rivers. Once appeal issues were resolved, these documents were approved and published in final form in July of 1987.

Preliminary Forest staff recommendations for updating the Forest Plan were developed in 1996-98 and are contained in the fiscal year 1999 Monitoring & Evaluation Report. Those recommendations are still valid, and we continue to identify Forest Plan direction that should be updated in an amendment or revision in order to reflect new policy and program direction, such as National Fire Plan direction.

The following amendments were made to the 1987 Forest Plan:

- Amendment #1- Changed timber sale schedule (8/88)
- Amendment #2- Added management direction for recommended Wild and Scenic Rivers (1/89)
- Amendment #3- Changed timber sale schedule (5/89)
- Amendment #4- Added Pajarito Peak electronic site (2/90)
- Amendment #5- Adjusted management area boundaries between area "C" and "Q" (10/92)
- Amendment #6- Incorporated Region-wide amendment for managing Mexican spotted owl habitat, northern goshawk habitat, old growth and livestock grazing (5/96)
- Amendment #7- Allowed deviation from visual quality requirements for El Cajate Mine (12/96)
- Amendment #8- Modified Management Area J direction for Gallinas Municipal Watershed (10/97)
- Amendment #9*- Added new management area and associated direction for managing the East Fork of the Jemez Wild and Scenic River corridor (08/02)

Forest Plan Revision Schedule

Revision of the Forest Plan was originally scheduled for 1999 (Five-Year Forest Plan Review and Monitoring Report, USFS, 1993). However, the Southwestern Region modified the Forest Plan revision schedule while forest planning regulations (36 CFR 219) were being updated. The updated regulations are still being finalized. The Santa Fe National Forest is currently scheduled to begin Forest Plan revision in 2007.

* Replacement pages for these amendments have not yet been added to the Forest Plan

Status of Inventories & Assessments

During fiscal year 2002, we continued to build the Forest's digital databases of resource inventory information, for use during Forest Plan revision and other land management planning, analysis and monitoring activities. We continued to edit and update core database layers in the Geographic Information System (GIS), including roads, streams, water bodies, existing vegetation, range allotments, terrestrial ecosystem units (soil and potential natural vegetation), special management areas, and goshawk and spotted owl habitats. The Forest hired a Databases Coordinator to manage resource databases including GIS, Natural Resource Information Systems (NRIS), Infrastructure (INFRA) and others. An Inventory and Monitoring Program Plan (IMPP) was created in order to track, prioritize, budget for and coordinate all inventory, monitoring and resource assessment work activities on the Forest. We continued to populate the INFRA database with information collected about buildings, water systems, recreation sites, administrative sites, wastewater systems, roads, bridges, major culverts, dams, and range management structures and archaeological sites. Existing (legacy) data was "migrated" into NRIS, including water rights, vegetation, and the terrestrial ecosystem unit data.

Assessments work focused on roads analysis and hydrologic condition assessment activities. Fiscal year 2002 accomplishments are as follows:

- Forest-wide Roads Analysis Process (RAP): completed most steps; systematically assessed road management objectives, values (access needs) and risks (resource impacts) associated with maintenance level 3, 4 and 5 roads, which are higher level roads designed to accommodate passenger car travel.
- Watershed-scale RAP: completed 50% of the RAP for level 1 and 2 roads on Espanola and Coyote Ranger Districts (overlapping approx. 20 5th-code watersheds).
- Hydrologic Condition Assessment (HCA): completed five of the six steps on 5th-code Rio Guadalupe watershed, which overlaps the Jemez and Cuba Ranger Districts, and made progress on Rio Puerco de Chama, Rio Gallina, and Canjilon Creek (Rio Chama de Abiquiu) watersheds on the Coyote Ranger District.

Table of Monitoring Activities

The following table summarizes monitoring activities performed. The four columns consist of:

1. The resource being monitored.
2. The type of monitoring accomplished.
3. The location of monitoring data or documents.
4. The district or unit where the monitoring occurred.

List of acronyms used:

BAER - Burned Area Emergency Response
 BLM – Bureau of Land Management
 GIS – Geographic Information System
 INFRA – Infrastructure database
 NEPA – National Environmental Policy Act
 NRIS – Natural Resource Information System
 RD – Ranger District
 RO – Regional Office
 SHPO – State Historic Preservation Officer
 SO – Supervisor's Office

Forestwide

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	AREA
Facilities	Condition monitoring inspections at lookouts, cabins, compounds, office and field buildings	SO-INFRA database and RD files	Forestwide
Fire, Climate	Climate monitoring at 8 Remote Automated Weather Stations	SO-Fire Fire Weather Information Management System weather archives	Forestwide
Fire, Climate	Drought effects to vegetation/fuels in different elevations/life zones, on selected project areas. Collected live fuel moisture samples.	SO-Fire files	Forestwide
Fisheries	Population trend monitoring of Rio Grande cutthroat trout: Pecos River (Pecos/Las Vegas RD), Cow Creek (Pecos/Las Vegas RD), Cecilia Creek (Coyote RD), Capulin Creek (Coyote RD), Rio Gallina (Coyote RD), Rito de Los Pinos (Cuba RD), La Jara Creek (Cuba RD), Rio Puerco (Cuba RD), Rio Cebolla (Jemez RD) and all waters within San Pedro Parks wilderness –100 miles total	RD-Fisheries files	Forestwide
Fisheries/Water Quality	Stream habitat condition monitoring: Pecos River (Pecos/Las Vegas RD), San Antonio Creek (Cuba RD), Rio de Las Vacas (Cuba RD), El Porvenir Canyon (Pecos/Las Vegas RD), Hollinger Creek (Pecos/Las Vegas RD), Beaver Creek (Pecos/Las Vegas RD), Bull Creek (Pecos/Las Vegas RD) -- 87 miles total	RD-Fisheries files	Forestwide
Minerals	Permit compliance/surface effects monitoring of active mines and wells, plus recently closed mines, on Cuba and Jemez Districts.	Cuba RD – Minerals file	Forestwide
Fish	Population monitoring of brown & Rio Grande cutthroat trout in streams where browns were mechanically removed: American Creek, Palomas creek, Rito del las Perchas, Rio de las Vacas; 12.7 miles total	Cuba RD- Fisheries files	Forestwide
Pest Management	Insect/disease activity monitoring (aerial survey, map and report). Done annually by RO	SO Forestry files	Forestwide
Water Quality	Drinking water quality (nitrate) monitoring of wells and other FS drinking water supplies	SO Facilities files & NM Environmental Department	Forestwide

Pecos-Las Vegas Ranger District

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Fire	Implementation effects and effectiveness of prescribed burns monitoring of North Rim, Hartman, Hartman II, and Capulin projects	RD-Fire files	Pecos-Las Vegas
Fire, Prevention	Fire hazard/defensible space monitoring of residences in wildland urban interfaces at: Gallinas, Evergreen Valley, Macho, Dalton, Holy Ghost, Grass Mountain, Pecos, Windsor, Cowles	RD-Fire files	Pecos-Las Vegas
Fisheries/water quality	High lakes fish population and aquatic conditions monitoring at Truchas Lake group, Pecos Wilderness, 3.6 acres	Jemez RD-Fisheries files	Pecos-Las Vegas
Heritage Resources	Heritage resource site condition monitoring of Glorieta Baldy Lookout National Register site	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Heritage resource site condition monitoring of Hacienda, Glorieta Mesa Rock Art & La Cueva Rock Shelter, by Site Stewards	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Historical data recording/monitoring at Terrero Mine Tramway and Hacienda, by volunteers for research purposes	SO/RD-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Historical data recording/monitoring at Anton Chico Hacienda, by Passport-in-Time volunteers	SO/RD-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Fire effects monitoring on 27 sites in the Viveash wildfire area	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Pre-treatment site condition monitoring of 5 sites in Gallinas Municipal Watershed project area	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition monitoring of site within the CenturyTel Pecos Exchange Upgrade, Phases II and III project	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Historical data recording/monitoring of 6 sites along Forest Road 85	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition monitoring of 5 sites for Forest Road 86A reconstruction & heavy maintenance project	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition monitoring of 13 sites in North Rim prescribed burn area	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition/features monitoring for the Gandy/Ellis Lease Lot Cabin Removal	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition/features monitoring of 5 sites for the Forest Road 612 and 612D reroutes & closures	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Fire effects/condition monitoring of sites for the Dalton & Roybal/Trampas complex wildfires	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition monitoring 2 sites for the Valle Grande Grass Bank Collaborative Forest Reforestation Project	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition monitoring 1 site for the Farley Access Road	RD/SO-Heritage Resource files	Pecos-Las Vegas

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Heritage Resources	Site condition monitoring 3 sites for the Brazel Prescribed Burn	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition monitoring 13 sites for the Maestas Diversity Unit Prescribed Burn	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition monitoring 1 site for the Field Tract Campground Water Tank Repair	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition monitoring 3 sites for the Torito Addendum to the Viveash Salvage Project	RD/SO-Heritage Resource files	Pecos-Las Vegas
Heritage Resources	Site condition monitoring 2 sites for the Viveash Fire Rehabilitation: Canon Tijeras, Cow Creek, Rito Osha, and Manzanares Stream Stabilization	RD/SO-Heritage Resource files	Pecos-Las Vegas
Hydrology / water quality, fish	Proper functioning condition monitoring of streams within the Osha, Bull Creek, Cow Creek, Soldier Creek and Macho Range Allotments	RD Hydrology files	Pecos-Las Vegas
Noxious weeds	Weed population/spread monitoring on 18 of the Districts 26 allotments	RD-Range files	Pecos-Las Vegas
Non-Recreation Special Uses	Permit compliance and effects monitoring for powerline special use permits.	RD-Special Uses files	Pecos-Las Vegas
Range	Range readiness monitoring on high elevation allotments: Bull Creek, Bear Lakes, Beaver, Rio De La Casa, Macho, and Rosilla	RD-Range files	Pecos-Las Vegas
Range	Range utilization & condition monitoring on Rowe Mesa Grassbank, by New Mexico State University Extension Service, and on 19 allotments by FS personnel	RD-Range files	Pecos-Las Vegas
Range	Range condition & use monitoring on Springs, Barbero, El Pueblo	RD-Range files SO-Range files	Pecos-Las Vegas
Range	Range facilities condition monitoring 10 allotments including Viveash fire area	RD-Range files	Pecos-Las Vegas
Recreation Trails	Trail inventory and condition monitoring, approx. 30 miles	RD-Recreation files & GIS	Pecos-Las Vegas
Recreation Developed Sites	Condition & use observations monitoring of developed recreation sites throughout summer	No records	Pecos-Las Vegas
Recreation Developed Sites	Site condition and use monitoring inspections for 19 developed sites	SO-Recreation files	Pecos-Las Vegas
Recreation Trails	Trail condition & use monitoring (for maintenance needs), 50 miles	RD-Recreation files	Pecos-Las Vegas
Recreation Trails	Wilderness trail visitor use monitoring, using trail registration boxes at trailhead	RD-Recreation files	Pecos-Las Vegas
Roads	Road condition monitoring on all maintenance level 3 roads and 2% of maintenance level 2 roads on Viveash fire area	SO-Engineering files	Pecos-Las Vegas
Vegetation / Fuels	Vegetation/fuels condition inventory & monitoring; 200 acres of stand exams in Glorieta watershed	RD-Forestry	Pecos-Las Vegas

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Water Quality	Water quality monitoring of Gallinas municipal water supply, by City	City of Las Vegas and NM Environment Department	Pecos-Las Vegas
Watershed, vegetation	Water quality monitoring of Viveash fire area, by New Mexico Highlands University	RD files	Pecos-Las Vegas
Wildlife	Mexican spotted owl occupancy monitoring in Gallinas Municipal Watershed and Glorieta areas	RD Wildlife files	Pecos-Las Vegas
Wildlife	Northern goshawk occupancy monitoring in Gallinas, Rio De la Casa and Glorieta.	RD Wildlife files	Pecos-Las Vegas
Wildlife	Bird occupancy monitoring in Viveash fire area, by US Geologic Survey	RD Wildlife files	Pecos-Las Vegas
Wildlife	Breeding bird occupancy monitoring on Rowe Mesa Grassbank, by College of Santa Fe.	RD Wildlife files	Pecos-Las Vegas

Jemez & Cuba Ranger Districts

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Air Quality	Air quality monitoring in the San Pedro Parks Wilderness.	UC Berkeley at Davis	Cuba
Fire	Fire hazard/defensible space monitoring of residences in wildland urban interfaces, per homeowner request	No records RD-Fire files	Cuba/Jemez
Fire, Fuels	Contract operations were monitored/inspected (thinning, piling, lopping) for O’Neill, Jemez Corridor, Thompson Ridge and Virgin contracts.	RD-Contract files	Cuba/Jemez
Fire, Fuels	Implementation effects and effectiveness monitoring of Chaparral thin and burn projects, 600 acres of Rancho, Rancho South, and O’Neil projects	RD-Fire files	Cuba/ Jemez
Fire, Fuels	Fuel treatment effects monitoring using permanent plots: Chaparral, Virgin & Lake Fork Mesa areas.	Rocky Mountain Research Station-Flagstaff (Edminster)	Cuba/Jemez
Fire, Fuels	Hazardous fuel condition monitoring, inventory & mapping, using air photos & field inventories	RD-Fire files	Cuba/Jemez
Fire, Fuels	Fire and smoke effects monitoring on mistletoe plots; 4 th year.	Rocky Mountain Research Station, Colorado	Jemez
Fire, Fuels	Vegetation condition monitoring & inventory in Monument Canyon Research Natural Area	University of Arizona & RD-Fire files	Jemez
Fire, Fuels	Fire regime/history monitoring in Monument Canyon Research Natural Area permanent plot locations	University of Arizona, Tree Ring Lab files (Faulk)	Jemez
Fire, Fuels, Vegetation	Fuel load monitoring in the Ojitos fuelwood cutting areas, compared to non-cut areas (1500 acres)	No records	Cuba
Fire, Prescribed - Rehabilitation	Mitigation measures effectiveness monitoring following the Mud Springs prescribed burn.	No records	Cuba

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Fire, Prevention	Effectiveness monitoring of fire closures	No records	Cuba
Fire, Fuels, and Soils	Fuels, vegetation, and soils inventoried and monitored at Virgin Mesa, Bales Canyon (Lake Fork Mesa burned August 2002)	Rocky Mountain Research Station	Jemez
Fire, Fuels - Post & Pre Treatment	Post and pre treatment monitoring with interest groups, environmental organizations, media and internal groups	RD-Fire files	Jemez
Fire, Prescribed	Hourly weather monitoring plus fire behavior, smoke, and fire effects monitoring: Mud Springs, Sierra Los Pinos, Bench, North Chaparral, Stable Mesa projects.	RD-Fire files	Jemez/Cuba
Fire, Prevention	Fuels/defensible space monitoring inspections: private homes within wildland interface	RD-Fire files	Jemez
Heritage Resources	Heritage sites monitored to insure sites were properly marked; 40 sites in 9 timber sale areas in the Chaparral project area	RD-Heritage Resource files	Cuba
Heritage Resources	Heritage site condition monitoring during Passport in Time projects: Gallina sites in the Llaves area	RD/SO-Heritage Resource files	Cuba
Heritage Resources	Condition monitoring of 20 National Register sites	RD/SO-Heritage Resource files	Jemez
Heritage Resources	Site condition monitoring of Astialakwa and Patokwa sites, with University of Pennsylvania	RD-Heritage Resource files	Jemez
Heritage Resources	Effects of cattle grazing monitoring on 98 heritage sites within San Diego Allotment	RD-Heritage Resource files	Jemez
Heritage Resources	Site condition monitoring along 12 miles of roads in Valles Caldera National Preserve	RD-Heritage Resource files	Jemez
Heritage Resources	Site condition monitoring 20 sites: San Juan and Borrego Mesas, Eagle Point, and Llaves Valley	RD/SO-Heritage Resource files	Jemez/Cuba
Hydrologic condition	Stream condition monitoring using proper functioning condition protocol: American Creek, Clear Creek, Rio Las Vacas, Palomas, Rito Café, Rio Peñas Negras, Rock Creek	RD-Hydrology files	Cuba
Noxious weeds	Weed occurrence and spread monitoring & inventory	GIS map	Cuba, Jemez
Partnership Volunteers	Volunteer and partnership work-time monitoring: Youth Conservation Corps, Backcountry Horseman, Rocky Mountain Elk Foundation, New Mexico Cross Country Ski Club, environmental education w/Jemez and Cuba schools, Senior Citizen Employment Program, Passport In Time Projects, Seeking Common Ground, Sierra Club, livestock permittees, Job Corps, New Mexico Volunteers for the Outdoors, Forest Trust	RD- Grants and Agreements, Recreation, Heritage and other files	Cuba, Jemez
Range	Trespass livestock monitored on 7 allotments	RD-Range files	Cuba
Range	Compliance monitoring of 43 grazing permits, per annual operating instructions	RD – Range + INFRA	Cuba
Range	Stock tank condition monitoring, 27 tanks	RD – Range +INFRA	Cuba

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Range	Range condition monitoring: 7 allotments with reduced # of cattle, with Range Improvement Task Force	RD and SO – Range +NMSU	Cuba
Range	Range fences monitored & inventoried: 12.5 miles	RD – Range+ INFRA	Cuba
Range analysis	Watershed/soil/range condition, forage production/ utilization, ecological status, wildlife habitat, and invasive plants monitored & inventoried: 4 allotments undergoing NEPA analysis	RD – Range files	Cuba
Range condition, wildlife	Mexican spotted owl key use area monitoring: 2 allotments	RD-Range files	Cuba
Range Condition, Readiness	Range readiness for cattle entry monitoring: 29 allotments (10 on Jemez & 19 on Cuba RD)	RD-Range files	Cuba, Jemez
Range Condition, Use	Grazing use in key areas, range condition and permit compliance monitoring: 29 allotments (10 on Jemez RD and 19 on Cuba RD).	RD-Range +INFRA	Cuba, Jemez
Recreation Developed Sites	Weekly recreation site use and facilities condition monitoring, including hazard trees: 2 on Cuba RD and 5 campgrounds, 2 group areas, 2 picnic areas, and 5 fishing access sites on Jemez RD	RD/SO-Recreation + INFRA	Cuba, Jemez
Recreation Developed Sites	All developed sites and facilities within sites, monitoring and detailed inventory	RD/SO-Recreation+ INFRA	Cuba
Recreation Dispersed	Dispersed sites monitoring, inventory and GPS locations: Rio Guadalupe, San Antonio Hot Springs, McCauley Warm Springs	RD-Recreation	Jemez
Recreation Outfitters /Guides	Vegetative recovery, resource conditions, and permit compliance monitoring: outfitter/guide campsites for 20 permits on Cuba RD, and motorcycle trials, horse uses, road easements, and utility easements on Jemez RD	RD-Permit files	Cuba, Jemez
Recreation Trails	Trails, including culverts, water bars, etc. monitoring and inventory	SO-INFRA	Cuba, Jemez
Roads	Effectiveness monitoring of past road decommissioning, and checked 5 miles of proposed road decommissioning	No Records	Cuba
Roads	Effectiveness monitoring of cattle guards	RD-Roads files	Cuba, Jemez
Roads	Road sign monitoring and inventory, and comparison with road conditions	RD-Roads files	Cuba
Roads	Resource damage monitoring on maintenance level 2 roads: 117, 264, Old 539, 95, 96, north district	RD-Roads files	Cuba
Roads	Effectiveness of road decommissioning: 26 miles	RD-Roads files	Jemez
Soils	Off-road vehicle use and soil resource condition monitoring	RD-Project files+ GIS and photos	Cuba, Jemez
Soils, Mine Reclamation	Mine reclamation effectiveness and water quality monitoring: Nacimiento and Las Conchas mines	RO/SO-Minerals files	Cuba, Jemez

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Vegetation	Vegetation monitoring and inventory (stand exams) on 3,658 acres	RD - Forestry	Cuba
Vegetation	Fuel treatment implementation and effectiveness monitoring: collaborative forestry restoration program projects	RD – Forestry and Grants and Agreements	Cuba
Vegetation	Project implementation monitored for Economic assistance program with Forest Trust and American Forest Products	RD – Forestry and Grants and Agreements	Cuba
Vegetation, forest products	Permit compliance monitoring- Christmas tree, firewood, boughs, vigas, latillas, posts permits	SO-Forestry & special use permit files	Cuba, Jemez
Water	Nacimiento ditch condition monitoring	RD/SO Hydrology	Cuba
Water Quality	Road 539 rehabilitation effectiveness monitoring	SO-Hydrology files	Cuba
Water Quality	Watershed restoration effectiveness monitoring: Rio Puerco (BLM lead)	BLM Albuquerque	Cuba
Water Quality	Domestic water sources permit compliance monitoring: Clear Creek, Rio de las Vacas, Horseshoe Springs, Cuba, La Jara, & Regina water supply	RD-Hydrology files Cities of La Jara & Regina	Cuba
Water rights	Water flow monitoring: Rio de las Vacas acequia	SO-Hydrology files	Cuba
Water rights	Water right monitoring/verification for tanks	RD-Hydrology files	Jemez
Weather	Precipitation monitoring	Natural Resource Conservation Service	Cuba
Wildlife	Mexican spotted owl monitoring: Forest Road 103 vegetation/fuels project area	RD – Wildlife files	Cuba
Wildlife	Black bear monitoring near recreation sites, by New Mexico Department of Game and Fish	RD-Wildlife files	Cuba
Wildlife	Elk/deer population monitoring, by New Mexico Department of Game and Fish	RD-Wildlife files	Cuba/Jemez
Wildlife	Deer population and effectiveness of predator control program monitoring, by New Mexico Department of Game and Fish	RD-Wildlife files	Cuba
Wildlife	Mexican spotted owl monitoring in 2 protected activity centers (1200 ac.)	RD-Wildlife files	Jemez
Wildlife	Breeding bird monitoring: Dome Fire Area, 100 ac.	RD-Wildlife files	Jemez
Wildlife	Elk hunt effectiveness monitoring; reducing elk numbers in Dome Wilderness/Bandelier National Monument, by New Mexico Department of Game and Fish	RD-Wildlife files	Jemez
Wildlife	Peregrine falcon breeding success monitoring, by New Mexico Department of Game and Fish	RD-Wildlife files	Jemez
Wildlife	Wildlife use and water tank effectiveness monitoring at 10 stock tanks	RD-Wildlife files	Jemez
Wildfire Effects	Burned Area Emergency Response rehabilitation effectiveness monitoring (water bars, fire lines, fire camps...): Lakes and Labor fire areas	RD-Hydrology files	Jemez

Española – Coyote Resource Area

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Fire	Fire suppression effects and effectiveness monitoring: Borrego fire	RD –files and Kansas City national database	Española
Fire, closures	Fire closure effectiveness monitoring including Cerro Grande and Borrego fire areas	RD – site forms in files	Española
Fire, Smoke	Smoke emissions permit compliance monitoring: Mesitas prescribed burn.	RD- Fire + State data	Española
Fish, Aquatic	Fire effects on water quality and aquatic macro invertebrates monitoring, pre and post-Cerro Grande fire, including Guaje Canyon	Colorado State University, McRury	Española
Heritage Resources	Site condition/disturbance monitoring and erosion control effectiveness monitoring: sites in Cerro Grande fire area including Guaje Ridge ruins	RD -Heritage Resource	Española
Heritage Resources	Mitigation effectiveness & site protection monitoring for: Caja thinning project, Tetilla wildlife tank project, Santa Fe Municipal Watershed fuels project, Forest Road 27 project	RD -Heritage Resource files	Española
Heritage Resources	Site monitoring and inventories for: proposed Borrego fire salvage project, historic Caja headquarters well removal, and Panchuela cabin stabilization	RD -Heritage Resource files	Española
Heritage Resources	Site condition monitoring: 10 sites in the Rio Chama, Caja del Rio and Polvadera Mesa areas	RD -Heritage Resource files	Española
Heritage Resources	Mitigation effectiveness & site protection monitoring for: Mesitas burn, Santa Clara salvage activity along FS road 416, Valle II fuels reduction project, FR 151 maintenance,	RD -Heritage Resource files	Española
Heritage Resources	Site monitoring and inventories during NEPA analysis for: Mesa Alta, Coyote, Los Indios, and Mesa Poleo Allotment Management Plans; Canada Tusas Meadow Restoration; Road Maintenance projects (FR 100, 76, 77, 8); Continental Divide Trail Phase II; Gallina Wildland-Urban Interface Fuels Project; Aranda Timber Sale; Horse Pasture Fuelwood Sale, Mesa Ojitos sage treatment	RD -Heritage Resource files	Coyote
Heritage Resources	National Register site condition monitoring	RD - Heritage Resources	Coyote
Hydrology	Stream and channel condition monitoring and inventories: Rendija and North Pueblo Canyons	On-line, Los Alamos	Española
Hydrology	Post-fire erosion and sedimentation monitoring and modeling, Los Alamos reservoir	SO-Hydrology + Los Alamos National Lab	Española
Hydrology	Riparian vegetation, species diversity and water runoff monitoring, Pueblo Canyon Watershed	On-line, Los Alamos	Española
Hydrology	Landscape-scale hydrology trend monitoring using LANDSAT images	Los Alamos, Salt Lake City	Española
Hydrology	Recovery/rainfall/runoff monitoring	LANL, Los Alamos	Española

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Hydrologic condition	Hydrologic condition monitoring using Proper functioning condition surveys: Rio Gallina, Puerco de Chama, and Youngsville.	RD files	Coyote
Lands, Special Use Permits	Riparian stream stabilization monitoring after disturbance on Arroyo de los Frijoles (Barranca)/ Vallecitos creeks, and Neil Bachman	Law Enforcement files and RD files	Española
Law Enforcement	Illegal trash dumping, poaching and other illegal activities monitoring (5 dump sites, etc.)	RD-Law Enforcement	Coyote
Minerals	Mining permit compliance monitoring at Guaje pumice mine, and mine reclamation effectiveness monitoring at old La Bajada uranium mine site	RD-Minerals + New Mexico Environmental Department	Española
Noxious Weeds	Noxious weed occurrence and spread monitoring and mapping, including 20,000 acres in the Cerro Grande fire area and 9 acres on Coyote RD	RD – Range + GIS	Española, Coyote
Partnership Volunteers	Volunteer and partnership work-time monitoring	RD/SO-Recreation and Heritage Resources	Española, Coyote
Range	Grazing permit compliance, utilization in key use areas, & range condition monitoring: 20 allotments (9 on Española and 11 on Coyote RD)	RD-Range files	Española, Coyote
Range	Range facilities and condition monitoring and inventories: 20 allotments (9 on Española and 11 on Coyote RD)	SO-INFRA + GIS	Española, Coyote
Range	Effectiveness monitoring: 1 riparian enclosure, 25-mile pipeline, and 10 water tanks	RD-Range files	Española
Range	Effectiveness monitoring: 16 riparian enclosures, 1 pipeline, and 2 water tanks	RD-Range files	Coyote
Range Readiness	Range readiness condition monitoring for cattle entry: 20 allotments (9 on Española and 11 on Coyote RD)	RD-Range files	Española, Coyote
Range	Range condition and use monitoring, key areas, by Range Improvement Task Force	RD-Range files	Coyote
Recreation	Trails, roads, and developed recreation site and facilities monitoring, including hazard trees	RD-Recreation files	Española, Coyote
Recreation, Developed Sites	Visitor use at developed recreation sites monitored including the fee demo site -Black Canyon Campground	RD-Recreation files	Española
Recreation, Developed Sites	All developed recreation sites and facilities condition monitoring, by campground hosts and weekly FS visits, including sites along Santa Fe ski basin road, and along Rio Chama	RD-Recreation files	Española, Coyote
Recreation Outfitters, Guides	Recreation special use permit compliance and resource condition monitoring: 21 permits including special events and outfitter/guide permits	RD-Special Use Permit files	Española, Coyote
Recreation Special Use Permits	Santa Fe Ski Area permit compliance monitoring, including parking lot, lift line, and fence constructions projects	RD-Special Use Permits	Española
Recreation Trails	Cerro Grande Fire impacts to trails monitoring, including culverts, waterbars, retaining walls, ditches, etc.	SO-INFRA Cerro Grande RD –Recreation files	Española, Coyote

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Recreation Trails	Trail reconstruction effectiveness monitoring	RD-Special Use Permit files	Española
Recreation, Wilderness	Wilderness visitor use and dispersed site condition monitoring: Continental Divide Trail in San Pedro Parks Wilderness, and “Wild” section of Rio Chama Wild & Scenic River	RD-Recreation files	Española, Coyote
Recreation	Bulletin board information effectiveness monitoring	Informal – no records	Coyote
Recreation	Visitor use monitoring at day-use sites and take outs on Rio Chama, and at Resumidero and Rio Puerco campgrounds	RD – Recreation files	Coyote
Roads	Road condition monitoring on all maintenance level 3 roads and 2% of maintenance level 2 roads, including Cerro Grande fire area	SO-Engineering files	Española, Coyote
Small products/ personal use	Permit compliance monitoring: vigas, latillas, Christmas trees, posts, rocks, wildings, rocks, fuelwood	RD-Timber/small sale files	Española
Special Use Permits	Permit compliance monitoring: powerlines and electronic sites (Tesuque Radio Company and New Mexico State permits)	RD-Special Use Permit files	Española
Special Use Permits	Los Alamos water tank construction compliance and resource condition monitoring	RD-Special Use Permit files	Española
Special Use Permits	Spring development monitoring on Cañones Creek	RD- files	Coyote
Soils	Soil loss and erosion plot monitoring, Cerro Grande Fire area	RD-Soils files and published thesis	Española
Soils	Post-burn sediment production monitoring, Lino prescribed burn	Riverside Fire Research Center in CA	Coyote
Timber	Timber sales implementation and mitigation effectiveness monitoring: Aranda and Kettle sales	RD-Forestry files	Coyote
Vegetation	Contract compliance monitoring at firewood sites: Borrego Mesa, Lovato, Los Alamos, Caja, Twin Hills; vegetation plots and photo report	RD-Timber/small sale files + photos	Española
Vegetation	Post-fire windthrow plot monitoring on Quemazon trail ridgeline and Rendija Canyon.	On-line, Los Alamos	Española
Vegetation	Planted seedling survival monitoring in Cerro Grande Fire area.	On-line, Los Alamos	Española
Wildlife, Vegetation	elk use of vegetation monitoring of enclosures, Cerro Grande fire area	RD-Project files	Española
Wildlife, Vegetation	Arizona willow protection/ enclosure effectiveness monitoring	Sean Ferrell	Española
Vegetation	Fuelwood salvage compliance and effectiveness monitoring	RD-files	Española
Vegetation	Vegetation trend monitoring, Sagebrush Flats	RD files, kept at Grass bank (Will Barns)	Española
Vegetation	Thin and burn effectiveness monitoring, Sagebrush Flats and Twin Hills	RD files	Española

RESOURCE	MONITORING ACCOMPLISHED	RECORD LOCATION	DISTRICT
Vegetation	Insect and disease effects monitoring, Santa Fe Watershed	RO District files	Española
Vegetation	Fire rehabilitation effectiveness on soil erosion monitoring, Borrego Fire mastication project	LANL (Sam Loftin)	Española
Vegetation	Effectiveness monitoring, Caja mastication project in conjunction with the Grassbank	Caja Grassbank (Will Barns)	Española
Vegetation	Effectiveness monitoring, Fuertes Meadow Restoration project	RD – Planning,+ photos	Coyote
Vegetation, Soil	Vegetation, and soil movement monitoring Cerro Grande fire rehabilitation areas	LANL	Española
Water Quality	Water quality monitoring, test wells on Caja, Santa Fe Municipal Watershed, and Buckman well fields	RD-Hydrology files, City of Santa Fe	Española
Water Quality, Hydrology	Hydrological functions monitoring, Cerro Grande Fire and rehabilitation areas	RD-Hydrology files	Española
Water Rights	Water use monitoring: Pine Springs, Erosion Allotment, and three administrative sites – Pine Springs, Borrego, and Aspen Basin	SO-Hydrology files, RD-Special Use Permit files	Española
Water Rights	Acequia disturbance and water use monitoring	SO-Hydrology files, RD-Special Use Permit files	Española
Water Rights	Santa Fe Ski Basin water usage, snowmaking, domestic uses, and wells monitoring	SO-Hydrology files, RD – files Santa Fe ski basin	Española
Water Rights	Wells and water use monitoring for Coyote administrative site, and all water related developments in the Gallina River watershed	SO-Hydrology files	Coyote
Water Rights	Water use monitoring on tanks and springs on Rio Puerco 5 th code watershed	RD-Hydrology files	Coyote
Water Yield	Snow course, flow stations, runoff, and storage monitoring for Rio Grande and Chama river.	Army Corps of Engineers	Española, Coyote
Weather	Snow course precipitation monitoring, monthly from January through April	Natural Resource Conservation Service	Española
Wildlife	Post-fire water tank condition monitoring: Bean Field tank and Sawhorse tank	Wildlife, Fish, and Rare Plants Report	Española
Wildlife	Post-fire monitoring of Jemez Mountains Salamanders, Cerro Grande Fire area	SO/RD files and New Mexico Department of Game and Fish	Española
Wildlife	Peregrine falcon monitoring, Cerro Grande Fire area	RD – Cerro Grande BAER files	Española
Wildlife	Wildlife habitat trends monitoring, including bald eagle winter range, and successional habitats	FWS	Española
Wildlife	Goshawk monitoring, Cerro Grande Fire area	RD – Cerro Grande file	Española
Wildlife/Fish	Post-Fire trick tank monitoring, Cerro Grande area	Wildlife, Fish, Rare Plants report	Española
Wildlife	Mexican spotted owl monitoring, San Pedro Mountain project area	Jemez RD-Wildlife	Coyote

EVALUATION OF MONITORING RESULTS

1. Lessons Learned From Monitoring

“We learned that...”

Recreation

- Mapping of actual trail locations and identifying conditions for infrequently visited trails will aid us in our recreation planning work.
- The annual maintenance schedule should be increased for trails.
- There are specific user-created trails to block off and trails to designate in order to appropriately direct foot traffic to San Antonio Hot Springs.
- We can greatly improve our information posted on bulletin boards to be of greater interest and importance to the visiting public.
- There are specific locations and methods for creating effective barriers to redirect recreation use in overused portions of our campgrounds.
- There are specific dispersed campsites scattered on each District; some that should be eliminated or moved, and some that should become designated dispersed camping sites, to mitigate resource impacts while meeting public needs for dispersed recreation opportunities
- Additional criteria should be added to the visitor use form about specific visitor use and behavior
- Meeting with outfitter-guides for Wilderness use and Wild and Scenic River boat launchings helps to improve compliance with leave no trace principles, reducing riparian impacts, regulations, and general wilderness or river use etiquette.
- We should improve the terms and conditions of outfitter-guide permits and criteria for performance.

Mechanical Treatments

- Contracted timber sales, stewardship contracts, and vegetation treatments are viable and effective tools for managing the hazardous fuels conditions and controlling disease.
- Piñon and oak can readily be sold under firewood permits, while mixed conifer species firewood is hard to even give away. Some people continue to harvest firewood without a permit.
- The continued build-up of small understory trees that need to be thinned out is leading to more hazardous fuel and forest health conditions.
- Embedded contracts eliminate the need for follow up burning and reduce costs to the district.
- There is a need for a more cost effective public and industrial use of smaller products (trees under 9 inch diameter).

Prescribed Fire

- Drought effects are still present, resulting in lower than average fuel moistures in live and dead fuels.
- Hand piling slash and burning piles appears to be easier to control than broadcast burns.
- Chipping of slash from thinning can reduce the smoke particulates released during prescribed burning projects.
- Snow can help compress thinning slash that was left on the ground, at higher elevations. This reduces the cost and need for lopping the slash during thinning operations.
- Prescribed burns are meeting objectives of reduction of dead/down fuels. Smaller standing overstocked trees are killed, thus reducing the overall trees per acre.
- Prescribed burns increase the distance from the ground to lower branches through pruning (killing) the lower branches. This increased distance between the ground and lower branches reduces the risk of crown fires by eliminating the ladder fuels.

- Prescribed burns have been very effective in reducing fuel loads, but are not as precise a tool for protecting overstory trees when compared with hand thinning or mechanical thinning. Allowances need to be made in our burn prescriptions and timing to allow for overstory protection.
- Public acceptance of prescribed burns has increased when a fire prevention person was posted at visible locations to public to monitor smoke over roads and inform public.

Wildfire

- Seeding after a fire (e.g. Lakes Fire) should be done in all high severity burn areas.
- Lakes Fire burned up most of the dead and down wood, which will need to be gradually replaced in Mexican spotted owl and Jemez Mountain salamander habitat.
- It is important to assess and treat fire effects to heritage sites after a wildfire, and to request Burned Area Emergency Rehabilitation money for this activity.

Fisheries

- Riparian and stream conditions and aquatic production are limited by historic land use as well as roads, recreational use, and grazing. Provided recommendations to various resource areas across the forest.
- Native fish distribution is primarily limited by exotic species introduction, so we should continue to remove exotics while developing a larger plan and partnership with New Mexico Department of Game and Fish.

Roads

- Road signs weren't in compliance with the Highway Safety Act, so we made efforts to bring signs into compliance by working with State Highway Department to install signs on Level 3 roads.
- The extent and season of damage to maintenance level 2 roads is being identified during inventory and assessment (RAP) work so we can address those problems.
- Roads are being maintained at wrong time of season. It is too dry when they maintain it. The maintenance causes loss of gravel and contributes to more washboarding.
- Dispersed camping increases damage to riparian areas and causes user-created roads.
- Road closure methods are generally ineffective and should be better designed, such as through signing, closure orders, and more enforcement and public education. Road closure gates are effective on some districts.
- In many cases, light gauge gates do not work. They are easily vandalized and road closures violated.
- It's better to use more permanent closures for closing roads such as buried boulders, log/cattle barriers and guardrail barricades where frequent access is not needed.
- Improved coordination with SO and District is needed concerning the road maintenance contracts and schedules. Districts need to know when the contractor is working on the District so that coordination can take place, i.e. locate heritage sites. Districts need a schedule of Maintenance Level 3 roads and a copy of the contract.
- Signing of maintenance level 2 roads on the ground does not correspond with what we have on the GIS layer and visitor use maps. Information is wrong on map.
- Maintenance levels don't always meet the requirements for visual quality and Recreation Opportunity Spectrum criteria. This will be addressed in the Roads Analysis Process.
- Forest wide forest closure should be in effect during high fire danger.

Range

- Drought related decreases in forage production resulted in significant reductions to livestock numbers and season of use.
- Permittee cooperation has been good overall.
- Range review information that was collected and added to INFRA database will greatly help us in future range management planning and analysis, especially if it is eventually linked with GIS
- Our dry-land/year round allotments depend on wells and pipelines for water distribution, which are old, in poor condition and costly to maintain.
- Most range fences have reached their life expectancy and need to be replaced.
- Unauthorized livestock grazing is resulting in over-utilization in areas where the livestock congregate, so we need to work with neighboring allotments to resolve this problem.
- Annual Operating Instructions need to be modified as a result of monitoring results from previous year.

Heritage Resources

- There is not enough personnel and funding to do all the promised or required monitoring along with other project priorities.
- We have insufficient baseline data to make adequate comparisons of site conditions, before and after ground-disturbing actions or land uses.
- Sixty percent of our heritage sites have been degraded from undertaking projects. This is hard to determine due to lack of baseline data. None of the damage appears intentional.
- There are shortcomings in current monitoring in regards to disturbances that may be related to cattle.
- We need to step up monitoring as a result of impacts to heritage sites.
- Monitoring by Site Stewards of significant sites is effective.
- It is important to have fire-line qualified archeologists to monitor initial and extended attack during wildfire and to carry out emergency mitigation of suppression effects.
- It is important to achieve drainage stabilization both within and upstream of heritage sites immediately after wildfires in order to avert impacts to sites during post-fire flooding.

2. Monitoring Strengths & Improvements Made

- By limiting some types of heritage resource monitoring we were better able to ensure avoidance of sites during project activities, and we have a 100% avoidance record.
- Use of digital cameras has improved our ability to begin to collect baseline monitoring information and keep photo point data for long-term monitoring of campsites, timber, fire, heritage, fisheries, watershed, and range.
- Use of Geographic Positioning System units has made our inventories are easier, more accurate, and able to be linked to Geographic Information System map locations.
- Using an Interdisciplinary Team approach improved the road analysis process and determinations on which roads should be decommissioned or closed.
- Improved collaboration between district, permittees, and the Range Improvement Taskforce resulted in better communication and management.
- Placing more emphasis on monitoring this year allowed us to compile more useful data.
- It helped that the Bureau of Land Management contributed financially in the management of Rio Chama Wild and Scenic River corridor as it increased the amount of data collected and the presence of federal agency personnel on the river. Hiring a student intern improved our customer service (e.g. better handle on traffic control at the take outs and also our presence as improved maintenance and operations within the whole corridor).

- Use of the Rapid Assessment Method, developed in cooperation with the Range Improvement Task Force, facilitated some permittee requests.
- By increasing our stream monitoring/inventory staffing from two to three people per team, we became much more effective.
- We developed a fire site treatment prescription form for use in monitoring and protecting heritage sites.

3. Monitoring Weaknesses or Barriers

- Realistic and feasible monitoring plans are not consistently developed.
- Training has been limited in how to do effective monitoring of specific resources and trends.
- Monitoring isn't always included in Project Work Plans or adequately funded.
- Monitoring isn't consistently emphasized as a priority by Forest Leadership Team.
- Protocols for Meaningful Measures and INFRA are poorly designed and in need of improvement. Example Road segments in INFRA don't link with GIS existing roads layer (not similarly segmented).
- Data collected in the field is taking a long time to get into the appropriate database (INFRA, NRIS, GIS). Need more personnel to do INFRA and monitoring.
- Temporary employee appointments are not long enough to collect, enter and interpret field data.
- National Fire Plan priorities and other add-on priorities limit ability to get surveys and monitoring done.
- Unplanned priorities resulted in less monitoring. Examples: drought-related closures to livestock grazing, wildfires (Lakes, Labor, BMG, Viveash, Dalton, Trampas and Roybal), post-fire rehabilitation work, patrolling and enforcement of fire closure orders, and a bark beetle epidemic.

4. Progress Toward Desired Conditions

Monitoring activities described in the previous table indicates that we are making significant progress moving toward desired conditions in the key national resource emphasis areas: forest health, watershed/riparian, recreation and partnerships. For example, we are:

- Improving protection of wildland urban-interface areas and watershed values by reducing fuel loads and creating fuel breaks
- Reducing water quality and soil erosion problems by decommissioning and improving roads
- Reducing soil, water and riparian impacts from cattle grazing by developing and implementing allotment management plans
- Improving riparian conditions, aesthetics, safety and accessibility at recreation sites by upgrading recreation sites
- Improving relationships with groups outside the Forest Service by building collaborative partnerships.

5. Public Involvement In Monitoring/Evaluation

- Campground hosts were effective in monitoring use and compliance of recreation sites.
- Permittees helped monitor range resources, which reduced our workload and protected resources.
- Thinning/logging contractors that provided input to the efficiency of equipment use resulted in achieving desired conditions on the ground.
- Heritage resource volunteers in the Passport-In-Time program, through the Site Steward and on individual projects were very effective.

- District personnel stationed throughout the Jemez valley helped disperse information on Lakes Fire and forest closure.
- Forest Service involvement at local schools and community events like the Albuquerque water festival, Dia del Rio, state fair, kid's fishing day increased delivery of our stewardship message.
- Forest Service participation in Seeking Common Ground proved to be an efficient way of getting public participation in elk management.
- Monitoring by state agencies and universities helped increase our database i.e. water quality, Holy Ghost Ipomopsis.
- A Range Improvement Task Force from New Mexico State University in Las Cruces worked on monitoring range conditions related to the drought.