

Forest Plan

Monitoring and Evaluation Report

Lincoln National Forest

Fiscal Year 2006

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Forest Service

Southwestern Region

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Monitoring and Evaluation Summary—FY 2006

Lincoln National Forest

Introduction

Forest monitoring and evaluation is designed to focus attention and resources on evaluating on-the-ground management practices and the implementation of the Forest Plan. Monitoring and evaluation provide the Forest Supervisor and land managers with necessary information to ensure responsive and efficient management of the Lincoln National Forest.

The purpose of this report is to inform the Forest Leadership Team, federal, state, and local agencies, Indian tribes, and the public of the progress the Lincoln National Forest has made toward Forest Plan implementation and ecosystem management. The report is a two-part report containing this summary and an appendix. It is a continuation of the 2005 monitoring report, includes past and present monitoring activities, and provides a summary of monitoring activities for fiscal year (FY) 2006. The appendix provides additional information and expands on the information in this summary. In addition, several links to websites have been included to provide more specific, detailed information on some topics within this report.

Setting the Context

What's New? Over the past three years, new legislation brought about the realignment of priorities within the Lincoln National Forest and the Southwestern Region. Some of the new legislation, initiatives and programs and how they relate to the Lincoln National Forest 2006 program of work are listed below.

The Healthy Forest Initiative (HFI), Healthy Forests Restoration Act of 2003 (HFRA), and The Southwest Forest Health and Wildfire Prevention Act of 2004. In response to the Initiative and Act, the Southwestern Regional Forester established five focus areas for management of the Southwestern National Forests. The five areas are: 1) assisting in protecting communities adjacent to national forests, 2) contributing to the economic vitality of communities, 3) restoring ecological functionality of southwestern forests and rangelands, 4) providing a safe and healthy work environment, and 5) maintaining strong leadership and supervision. In addition, the Southwestern Region established the Central Priority. The Central Priority is the restoration of fire adapted ecosystems which consists of three key components: fire-use planning, reducing risks to communities, and promoting the utilization of excess biomass. Addressing the Acts and Priority required the realignment of Regional and Forest resources to accelerate vegetation treatments across the Southwest. Some accomplishments in 2006 include:

- A Forest Central Priority Team was established. This team will deal specifically with priority projects under the Regional Central Priority strategy with a focus on

ecosystem restoration, fuels reduction, and encouraging the development of new, forest-product industries. In the fall of 2006, work began on the following three priority projects.

- On the Sacramento Mountains Defoliation Analysis, the Central Priority strategy was applied to the defoliation situation across an area from the Village of Cloudcroft south to the Sunspot Observatory.
 - On Bonito Lake Restoration Analysis, the Central Priority strategy was applied to the Bonito Lake watershed northwest of the villages of Alto and Ruidoso. Along with being a very popular recreation area, Bonito Lake is a major drinking water source for the city of Alamogordo and Holloman Air Force Base.
 - On the Jim Lewis Restoration Analysis (formerly known as the Bluewater Restoration Analysis), the Central Priority strategy was applied to one of the largest remaining, contiguous areas of Ponderosa pine dominated stands on the Forest.
- The Smokey Bear Ranger District requested a Forest Service Enterprise Team for environmental and implementation planning on a critical Central Priority Project, Perk/Grindstone III Fuels Reduction Project, as well as two Village of Ruidoso projects (North Fork Wells NEPA and emergency/evacuation planning). The Perk/Grindstone project is also a Healthy Forest Restoration Act project designed to reduce hazardous fuels and restore healthy forest/watershed ecosystems on National Forest lands west and south of the Village of Ruidoso. The 5,200 acre project will continue to connect community protection among the Forest, Mescalero Apache Tribal lands, and Village of Ruidoso. In August 2006, the environmental planning was intensified and the preparation to do an Environmental Impact Statement for the area began.

The Travel Management Rule was announced by the Forest Service on November 2, 2005, governing off-highway vehicles and other motor-vehicle use on national forests and grasslands. The new Travel Management Rule provides a national framework for local units to use in designating a sustainable system of roads, trails, and areas for motor-vehicle use. One of the major goals of the Rule is to secure a wide range of recreation opportunities while ensuring the best possible protection of resources on public land.

The Rule was prompted by a national increase in recreational use, with an increase in the use and capability of off-highway-motorized vehicles. The local process includes public involvement and coordination with State, local and tribal governments to gather information to better understand management activities that need to change on the Lincoln National Forest. In response to the Travel Management Rule, the Lincoln National Forest began the review and necessary updating of the Forest designated roads and trails system for motorized-vehicle-use travel. Under this process, the method of motorized-vehicle access to dispersed camping sites on the Lincoln National Forest could change.

For example, the current Forest policy allows motor-vehicle travel anywhere up to 300' from all open designated routes to access dispersed camping. The large area permitting motor vehicle use up to 300' does not meet the intent of the new Rule which limits travel to designated routes only. The Lincoln National Forest is evaluating decreasing the 300' corridor to a 100' corridor. The areas currently used beyond 100' would, for the most part, still be available for public use but access to them would be limited to one designated route into and out of the area. This change in policy would help the Forest to minimize erosion and resource damage caused by multiple user-created routes into a single area.

Under the new Rule, motor-vehicle-use maps will be produced and printed in 2008 to inform the public about the designated routes within the Lincoln National Forest. For more information, go to <http://www.fs.fed.us/r3/lincoln/projects/TMR/index.shtml>

For national information, go to <http://www.fs.fed.us/recreation/programs/ohv/>

The Federal Lands Recreation Enhancement Act (formally known as the Fee Demonstration Program) was passed in the 2005 Omnibus Appropriations Bill and signed into law by President Bush on December 8, 2004. Under the new Act, reports to Congress will be required beginning May 2006 and every three years thereafter. Reports to Congress include information on all federal agencies that charge fees under the Recreation Enhancement Act and under the old Fee Demo authority.

For information about this Act and to find out what was done with the money collected under the Act, go to <http://www.fs.fed.us/passespermits/accomplishments.shtml>

Community Vitality –The Southwest continues to experience a shift in trends that will affect future Forest Plan direction, goals and objectives. Demographics highlight an older-age population, and resource managers will need to consider programs that are service and amenity oriented towards this segment of forest users. For instance, an increase in the kind and number of recreational opportunities appropriate to these needs would be made available. Recreation visitor surveys; socioeconomic assessments; and values, attitudes and beliefs assessments help provide data to refine and address shifting trends.

In addition, the implementation of the Forest Plan and multiple-use policy continues to create conflicts among Forest users. An increase in project administrative appeals and management litigation demonstrates the public is very interested in public resource use. This is also apparent through several specific program elements receiving current attention. Some of the issues needing further analysis during the Forest Plan Revision process are:

- Managing the current transportation system and future needs

- What roads and trails will be available for public use or additional resource needs?
 - What uses will be allowed while working to protect resources?
 - What rights-of-way are needed?
 - How can the Forest better manage and implement the new Transportation Management Rule and control resource damage?
- Balancing public-land use, land exchanges, and special uses
 - Establishing an even and sustainable flow of wood products
 - Increasing the availability and utilization of small-diameter wood products from the Forest
 - Managing recreation opportunities
 - Are developed recreation sites adequate in kind and number?
 - Where are the dispersed recreation sites and are the variety and number of dispersed recreation opportunities adequate?
 - What are the Forest's existing and future recreation site maintenance obligations?
 - Protecting heritage resources
 - Which National Register sites, established since 1986, need to be incorporated?
 - Which standards and guidelines developed since 1986 need to be incorporated as appropriate?
 - Which interpretive opportunities exist to implement Section 110 of the National Historic Preservation Act?
 - Which paleo-environmental (historical) data acquisition or summation can identify human-related sources of ecological trends?
 - Managing elk and livestock forage competition on allotments
 - Meeting water yield, water quality, and water-use standards on the Forest
 - Managing the Wildland-Urban Interface (WUI) for the reduction of catastrophic fire risk
 - Re-introducing native wildlife species (Rio Grande Cutthroat trout, beaver, Desert Bighorn sheep) to the Forest
 - Maintaining viable populations of threatened and endangered species

Regarding a need to better understand Forest and community dynamics and the multi-use paradigm, several surveys, assessments and reports were completed within the past few years. They include: a recreation visitor survey conducted in

2004; an assessment titled "Values, Attitudes and Beliefs Toward National Forest System Lands: The Lincoln National Forest" in May 2006; and, the University of New Mexico Bureau of Business and Economic Research is currently preparing a comprehensive socioeconomic assessment of the Forest environs.

Land Health - The evolution toward an ecosystem-management approach refocused the Lincoln's sensitivity to ecological issues from the project level to the landscape level. Coupled with human dimension trends, ecological issues brought needed Plan modifications to the forefront.

Foundational concepts, upon which the future Forest plan revision process will be built, include: 1) managing listed threatened and endangered plants and animals; 2) increasing knowledge of the function, processes, and interrelationship of ecosystems; and, 3) recognizing thresholds beyond which ecosystems may no longer be sustainable. We need a common understanding of forest restoration needs to effectively use these concepts and integrate various resource management programs in a way that measures and monitors restoration progress over time.

During the Forest Plan Revision process, ecological issues will be further analyzed; and, specific Plan modifications will be considered. For example:

- Watershed
 - Which ecological objectives need to be strengthened?
 - Which proper-functioning conditions need to be addressed?
 - Which standards and guidelines will provide clear and measurable results?
 - Do water rights need to be more clearly addressed?
 - Which riparian management issues need to be more clearly addressed?
 - Which standards and guidelines do we need that will allow more forest restoration activities on slopes greater than 40%?
- Fire
 - How can the Forest best re-introduce fire use into the appropriate ecosystems?
- Range and Wildlife
 - How does the Forest balance elk, livestock, and other ungulates management needs?
- Noxious weeds
 - How does the Forest incorporate effective treatment needs and measure progress?
- Forest health
 - How does the Forest set priorities for areas needing treatment?
 - How does the Forest best describe baseline forest-health conditions?

- How does the Forest strengthen tools and programs to address resource needs?
- Threatened, endangered and sensitive (TE&S) plants and animals
 - How does the Forest keep plants and animals from becoming threatened or endangered?
 - How does the Forest coordinate plans for more effective recovery of various species?
 - How can the Forest effectively manage for recovery of various species in the context of ecosystems versus single-species management?

Attempting to better understand and document the Forest land health is an on-going process. Monitoring and evaluation assists forest managers and planners in addressing the above issues. In preparation for the first phase of the Forest Plan Revision process in 2007, this report serves to document the assessment of land health and other factors that may influence forest planning and management. For information on Plan Revisions throughout the Southwestern Region, go to <http://www.fs.fed.us/r3/plan-revision/index.shtml> or go to <http://www.fs.fed.us/r3/lincoln/> for information specific to the Lincoln National Forest.

Monitoring Results

There are two components to the Lincoln National Forest monitoring and evaluation program--formal and informal monitoring.

Formal Monitoring

Formal monitoring is conducted in accordance with monitoring plans specifically developed for the project or program level. Monitoring occurs during administrative and operational activity field visits, or during formal monitoring trips. Some examples of formal monitoring activities conducted during FY 2006 are listed below.

Restoring Ecological Functionality

Air quality was monitored over the White Mountain Wilderness Class I air shed area, with no degradation findings reported.

The mid-scale vegetation project began in October 2006. This project involves the collection and mapping of mid-scale vegetation across the Lincoln National Forest. Data collection and analyses will result in creating three data sets--vegetative cover type, vegetative canopy cover, and vegetative structure. The project is expected to be completed in late 2007. This information will help guide sustainability and other assessments during Plan Revision.

New Mexico State University (NMSU) established test-treatment plots on the Sacramento Ranger District in 2006. The test plots consist of three 100-acre plots. Two plots will have treatments including harvests and burns. The other is a control plot

(no treatments). The areas are on north and south-facing slopes, are accessible and considered logical burn areas. NMSU will monitor the plots and furnish reports to the Forest. Once the areas have been harvested, the Forest will determine the burn schedules and results will be documented.

Contributing to the Economic Vitality of Communities

Shortly after the Travel Management Rule was announced, the Forest began planning to meet the Rule requirements. One of the requirements is to produce an off-road motorized-vehicle-use map (MVUM) for each ranger district. MVUMs are expected to be ready for publication beginning in 2008 and will be available to the public immediately after publication. For more information on the Rule, go to <http://www.fs.fed.us/r3/projects/travel-mgt/index.shtml>

For addition information about the travel management program, go to <http://www.fs.fed.us/recreation/programs/ohv>

Providing Quality Leadership

The Ecological Restoration Institute (RCI) from Northern Arizona University is developing monitoring guides, training community groups, and assisting the Forest Guild with compiling monitoring reports from specific Collaborative Forest Restoration Program (CFRP) grant projects. The Forest Youth Conservation Corp (YCC) crews and the Forest Guild conducted ecological monitoring on grant projects that are adjacent to Lincoln National Forest lands. Monitoring funds were part of the CFRP grant projects and used to cover field crews and data collection, and the analysis/writing of the final report. For additional information about the ERI and its studies, see <http://www.eri.nau.edu/cms>

Under the High Guads Restoration Project, volunteers restored and gated some caves to restrict public access, documented bat counts, and resurveyed and mapped portions of caves. In addition, exploration continued with the focus on finding caves where underground air flow had been previously detected.

Informal Monitoring

Informal monitoring is also conducted during administrative and operational activity field visits. Although the majority of the monitoring is conducted by Forest employees, partners and the public also participate. Below is a summary of some informal monitoring activities during FY 2006.

Restoring Ecological Functionality

Individuals and groups donated over 20,000 hours of their time (an estimated value of over \$360,000) to assist with diverse projects including monitoring archaeological sites, surveying for wildlife, rebuilding railroad trestles and repairing damaged cave formations.

Contributing to the Economic Vitality of Communities

The Forest committed \$2,059,523 in fiscal year 2006 through thinning contracts on 8,324 acres in local, small business development.

The Lincoln National Forest also collected \$412,155 in fees related to forest products and services delivered through other Forest Service programs. Below is breakdown of fees collected.

Forest Products and Services	Revenues
Recreation Residences/Ski Areas/Outfitter Guides	\$109,567
Communication Sites, Power Lines, etc.	\$17,768
Minerals	\$6,420
Outfitter/Guide	\$10,982
Wood Products	\$94,073
Grazing	\$123,263
Recreation Fee Demonstration Collections	\$50,082
TOTAL	\$412,155

Assisting in Protecting Communities Adjacent to National Forests

Pre- and post-treatment monitoring on the 48-acre Turkey Springs Canyon Collaborative Forest Restoration Program (CFRP) grant project was completed. The multi-party monitoring team consisted of Smokey Bear Ranger District employees, a Youth Conservation Corp (YCC) group and Forest Guild. They found the objectives of the CFRP and project were achieved. The ecological monitoring data indicated the percent canopy was reduced between 22% and 75% across the entire treatment site. This will reduce the potential for crown fire at the treated site and protect the larger locale of Ruidoso Downs by creating a break in the continuity of the forest canopy.

Providing Quality Leadership

Due to on-going drought conditions, the Forest went into "severity" from January – July 2006. This was a long time period and out of the ordinary for the Lincoln National Forest. The Forest hosted six national fire prevention teams before and during forest closure. Severity procedures included bringing in extra fire suppression resources, crews, and engines. Due to the Forest's extra efforts, those of the prevention team and severity resources, there were no significant fire events on the Forest in 2006.

Evaluation

What was Learned

The Forest continues to apply what is learned from monitoring and evaluation activities. This includes changing, modifying and adapting management practices to meet both

current and future needs. In addition, inventory processes and monitoring program execution are adjusted. Some examples in 2006 are listed below:

- Numerous public contacts were made during the travel analysis process. The contacts were primarily with employees, grazing permittees, special-use permittees, contractors, partners and the public to gather specific on-the-ground transportation information. Through these one-on-one visits, historical transportation information was gathered which resulted in a better understanding of Forest transportation issues and recommended changes.
- Preparing for the publication of motor-vehicle-use maps has helped the Forest to accomplish a thorough review of its transportation data. This more complete and accurate information will help to address multi-use conflicts among Forest users.
- The Engineering Department started a traffic count program in 2006. Preliminary findings showed more than half the use is generated by non-Forest Service use, i.e. subdivision access, etc.
- As a result of socioeconomic assessments conducted in 2006, the Forest gained a better understanding of the changing demographics to be considered during the upcoming Forest Plan Revision process; and, using what is learned will enhance current and future project decisions.
- The mid-scale vegetation project will provide additional vegetation data across the Forest by late 2007. This information, used in conjunction with existing and historical information, will help us to better document the Forest land health.
- The Forest acquired extra resources to assist with high-fire danger between January and June 2006. The Forest was able to expand public announcements, visit communities and schools, participate in numerous events, and provide extra on-the-ground resources. The extra resources were very effective. The 1.1 million-acre Lincoln National Forest had only eight human-caused fires and a minimal loss of about 15 acres.

Key Findings and Forest Supervisor's Certification

The Forest made considerable progress in 2006 in hazardous fuels reductions, forest management and restoration. Projects on the Lincoln National Forest were aimed at reducing dangerous tree densities and excessive buildup of ground fuels to enhance watershed conditions and habitat for plant and animal species.

Establishment and participation in community collaborative efforts helped to accomplish common forest-health goals--producing a healthier, more resource-balanced forest.

Since implementation of the Lincoln Land and Resource Management Plan in 1986, four corrections and twelve amendments have been completed. More significant corrections and amendments include the Southwestern Region "*Final Environmental Impact Statement: for Amendment of Arizona and New Mexico Forest Plans*" to incorporate Mexican spotted owl and Northern goshawk management direction. Current corrections and amendments can be found on the Forest website at <http://www.fs.fed.us/r3/lincoln/projects/index.shtml>

During 2006, work continued on the analysis for amending the Forest Plan to reflect the current Wildland Fire Policy (1995/2001) and Forest Fire Management Plan. The amendment is expected to be completed in 2007.

Due to new Congressional direction, the Lincoln National Forest Land and Resource Management Plan revision process will begin in the summer of 2007. For additional information on the Planning Revision processes, go to <http://www.fs.fed.us/r3/plan-revision/index.shtml>

The Lincoln National Forest Land and Resource Management Plan, as amended, is sufficient to guide management of the Lincoln National Forest over the next year. As identified in, and guided by the findings described in this document, necessary changes will be considered during the upcoming Plan Revision process.

/s/ S.E. Woltering
S.E. "LOU" WOLTERING
Forest Supervisor

June 4, 2007
Date

Appendix A

The purpose of Appendix A is to provide additional monitoring and evaluation information or to expand on a monitoring topic covered in the Monitoring and Evaluation Summary. This information was gathered through interviews with Forest staff and resource specialists; and, from various resource reports, news articles and briefing papers. If additional information is needed or you have questions, you can e-mail Joe Garcia, Public Affairs Officer, at jgarcia@fs.fed.us, or contact one of the Forest Staff listed below at (505) 434-7200.

Lou Woltering—Forest Supervisor
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Shelly Pacheco—Forest Safety Officer
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Vacant—Land, Minerals, & Recreation Staff

Formal Monitoring

Insect and disease—Survey flights were conducted August 2-9, 2006. The area surveyed included National Forest Service land and the private lands within the administrative boundary of the Forest, and the Mescalero Apache Tribal lands. Prior to the annual surveys, supplemental surveys were conducted on June 7 to evaluate the looper-caused defoliation in the mixed-conifer on the Sacramento Ranger District. The majority of the information below was provided by the Regional Office aerial-detection team.

- Within the Lincoln National Forest boundary, defoliation of the mixed-conifer forest by caterpillars of a geometrid moth, commonly known as loopers, continued to be the major insect activity on the Forest and particularly on the Sacramento Ranger District. The supplemental survey in June revealed an estimated 4,000 acres with some level of defoliation from late winter/early spring feeding by the caterpillars. Additional defoliation was observed on approximately 2,200 acres during the August survey flights. Field-collected caterpillars were reared to adulthood and identified as *Nepytia janetae*. In previous years, defoliation had been attributed to a similar summer-feeding caterpillar, the New Mexico fir looper (*Galenara consimilis*). In 2006, *Nepytia janetae* distinguished itself from the other defoliating caterpillars by its late-winter/early spring feeding habits. Since the first observations in 2002, looper activity in general has affected over 15,800 acres on the Lincoln National Forest and Mescalero Apache Tribal lands, with the majority of affected area occurring on the Sacramento Ranger District. Notably, an estimated 10,200 acres mapped from

2002- 2006 appeared to have recovered from the looper defoliation of previous years.

- Other observed defoliator activity was minor. Defoliation by western spruce budworm was visible on 700 acres. Aspen defoliation caused by various biotic and abiotic agents decreased to 90 acres from the 505 acres observed in 2005.
- Overall, bark-beetle caused tree mortality declined in 2006. Approximately 12,170 acres were mapped with mortality in 2006 compared to 19,700 acres in 2005. Ponderosa pine mortality was observed on 2,150 acres, a slight increase from the 1,640 acres observed last year. The area with fir mortality remained relatively high, affecting nearly 10,000 acres. This is a decline, however, from the 16,985 acres mapped in 2005.
- The overall mortality in the mixed-conifer forests throughout New Mexico declined in 2006 from the levels observed in 2005. The other minor bark beetle activity observed was spruce beetle (80 acres) in the higher elevation forests. For more information on the bark beetle infestation in New Mexico and Arizona, go to <http://www.fs.fed.us/r3/resources/health/beetle/index.shtml>

On the adjacent Mescalero Apache Tribal Lands, minor amounts of defoliation (40 acres) caused by the looper were also observed. Mixed conifer defoliation by western spruce budworm was more significant (760 acres) than the looper activity on the Tribal lands. White fir mortality caused by the fir engraver beetle was the primary bark beetle activity on the Tribal lands. The area affected by the white fir mortality increased slightly from the 8,800 acres observed in 2005 to 10,350 acres in 2006. Notably ponderosa pine mortality increased from the minor amount recorded last year (50 acres) to nearly 2,700 acres this year.

Range—National Environmental Protection Act (NEPA) evaluation and analyses processes were accomplished on five range allotments with NEPA disclosure completed and decisions signed. Decisions were made on the Cavanaugh, Perry Canyon, Burnt Canyon and North Cox allotments. Analysis and NEPA documentation were also completed on four additional allotments, with decisions pending concurrence from the U.S. Fish and Wildlife Service under the Endangered Species Act (ESA), Section 7 consultation.

A joint monitoring strategy was completed for the Sacramento Allotment summer range through coordination with New Mexico State University and the Range Improvement Task Force (RTF).

Threatened, Endangered, and Rare Plants Monitoring and Surveys—The Sacramento prickly-poppy was monitored in four occupied canyons within the Sacramento Ranger District. Comprehensive surveys were documented using global positioning system (GPS) technology. Biological information was collected regarding numbers of plants located, phenology, demography, habitat parameter, presence/absence of plant pathogens, and associated species. Seedlings located were documents as well as the presence and impacts of livestock in the monitored areas.

Kuenzler's cactus studies and surveys – The purpose of the 2006 forest-wide studies were to 1) conduct a multivariate study of morphological characters of the several varieties of Fendler's hedgehog cactus, including the federally endangered Kuenzler's variety; and, 2) conduct intuitive-based field surveys in specified areas to determine Kuenzler's cactus populations or suitable habitat presence. The study and survey results included: vegetative keys for the identification of hedgehog cacti present on the Forest, and review and taxonomic definition of sub-specific taxa within the Fendler's hedgehog group. Surveys of the Jicarilla and Tucson Mountain areas include maps of cacti populations found with GPS data, and herbarium specimens of each hedgehog species and variety found, except the endangered variety.

Kerr's Milkvetch, Scarlet Penstemon and Kuenzler's Hedgehog cactus surveys – Plant surveys were conducted on several project areas within the Smokey Bear Ranger District. Results included finding no target species on the Nosker Habitat Improvement Project (436 acres), the Hightower Fuels Treatment Project (815 acres), and the Bonito Drainage Fuels Treatment Project (3,295 acres). Within the Bonito Drainage Project surveys included three additional species: New Mexico Larkspur, Sierra Blanca Cinque Foil, and Sierra Blanca Cliff Daisy. Although no target species plants were located in this project area, survey results indicated substantial but unoccupied habitat--with heavy elk use present in the Bonito area.

Tall Milkvetch, Wright's Marsh Thistle, Wootton's Hawthorn, Golden Bladderpod, Sacramento Mountain Thistle, and Kuenzler's Hedgehog Cactus – Plant-clearance surveys were conducted on approximately 1,002 acres of the Sacramento Ranger District and within the Sixteen Drainage Timber and Fuels Treatment Project areas. Population and site characteristics were found for each of the target species listed above.

On the Sacramento Ranger District, surveys for plant species prior to treatments of timber stands were conducted on 1,831 acres as part of the Mexican Spotted Owl Study. Population and habitat data on each target species occurrence were located.

Sacramento, White and Guadalupe Mountains Bird Monitoring—The Gray Vireo is a scrub-foraging songbird of national and regional conservation concern. In 2005, Hawks Aloft, Incorporated searched for and monitored Gray Vireo territories in the Sacramento and Guadalupe Mountains. Fifteen territories were located and monitored within the Guadalupe Mountains. Of the 19 nests monitored, considerable parasitism (71%) was discovered. Only six nests fledged at least one Gray Vireo. Although nest parasitism was relatively high and productivity relatively low, the extent of how parasitism affects Gray Vireo reproductive success is unknown. Continued monitoring would help clarify the effects of parasitism on populations. And, identifying and monitoring other populations within New Mexico would improve understanding of distribution and local threats, thereby improving future status assessments and priority ranking of Gray Vireos conservation efforts. (*January 26, 2006, Gray Vireo Population Monitoring in Southeast New Mexico, Hawks Aloft, Inc.*)

Avian—Bird monitoring (2001-2005) within the Scott Able fire area resulted in identifying approximately 10 potential Purple Martin colonies. Purple Martins appeared to be establishing colonies within the severely burned coniferous forest areas. In July 2006, four colonies were found. Purple Martins were also observed in transit with no apparent colony. (*Aloft, The Journal of Hawks Aloft, Vol. 13, No. 2, 2006, pages 12 & 27*)

Sacramento Mountain Salamander — Known habitat for the salamander are mixed conifer and aspen forests at elevations of 8,000 feet and above, particularly on north-facing slopes.

Federally, the Sacramento Salamander is listed as a sensitive species, while New Mexico has it listed as an endangered species. Of the 450,610 acres on the Sacramento Ranger District, approximately 143,793 are considered potential habitat for the Sacramento Mountain salamander. Annual surveys have been conducted since 1987 with the exception of 2005.

The New Mexico State Salamander Working Group has recommended that no more than 25% of the Sacramento Ranger District's known occupied habitat have vegetative treatments within a 10-year period. The Forest has adopted this recommendation. Under the direction of the New Mexico State University Department of Fisheries and Wildlife Sciences, the Sacramento Mountain salamander is being studied before and after thinning projects within known occupied habitat areas. In 2006, 390 acres of treatment activities occurred within occupied habitat. Plans call for post-treatment surveys to be conducted but no date has been established. As of this report date, the post treatment surveys had not been conducted.



Salamander surveys are conducted in areas depicted in these before and after treatment pictures.

The summer of 2006 was unusually wet, allowing the District to survey areas that were previously declared unoccupied during dry years. The high moisture influenced the salamander to be more active and visible in areas that had been previously surveyed with no observations reported. As a result, many of the areas that were dry in previous years were determined to be occupied. In 2006, 3,810 acres were surveyed and 2,053 acres considered occupied (54%).

Within the Smokey Bear Ranger District the salamander is endemic to the Capitan and White Mountain Wilderness areas. Documented surveys on this District have continued annually since 1993. Approximately 1,075 acres were surveyed between July 17 and August 14, 2006. Surveys began when forest conditions were dry and continued after the peak monsoon season. The salamander was absent in all areas with the exception of one.

Mexican Spotted Owl (MSO) Recovery Plan Monitoring—MSO monitoring included collecting stand-exam data within variable plots. Both standing and dead-down materials that fall within MSO guidelines (at least 12" diameter and 8' in length) are also collected using a ½ acre-fixed plot at each point. And, azimuth and distance are recorded for all dead material meeting these guidelines. Photos are taken in each cardinal direction. Each plot is re-visited after each phase of treatment. The main purpose of this monitoring is to maintain required habitat structures. Revisiting after each phase of treatment helps us to determine which function, if any, could take us out of compliance with the Mexican Spotted Owl Recovery Plan. In 2006, 1,255 acres were revisited.

Smokey Bear Ranger District –Mexican Spotted Owl (MSO) and Northern Goshawk Inventory and Monitoring—Forty night and morning Mexican spotted owl surveys, covering approximately 7,431 acres on 12 areas, were conducted over the field season beginning May 12, 2006. Unless reproductive pairs were confirmed in fewer visits, target areas were surveyed with four visits. Of the 12 areas surveyed, seven owl pairs, five fledglings, a single female owl, and a new pair were observed.

Ten Northern goshawk survey areas covering 4,860 acres were monitored in 2006. Nine of the areas were targeted survey areas and monitored four times. The tenth area was monitored only once due to finding a pair during the first visit. Findings included a single goshawk, one pair (along with a nest tree), but no young.

Sacramento Ranger District-- Mexican Spotted Owl (MSO) and Northern Goshawk Monitoring—Of the 114 established MSO protected activity centers (PACs) on the Sacramento Ranger District, MSO monitoring was conducted on the PACs within three project areas during the year. Some of the findings include:

- Within the Burnt Goat area (8,029 acres), four visits resulted in confirming an owl pair within the Karr PAC and no additional MSOs were detected. Other rapture species detected include the great horned owl and flammulated owl.
- Within the Bluewater area (11,356 acres), four visits resulted in detecting the Carrisa PAC male and a pair of MSOs in Board Canyon. The pair in Board Canyon was determined to be the Chilcoote PAC pair. Because the pair has been detected in a different area for two consecutive years, the PAC boundary and no-touch areas were redelineated in September 2006. Other rapture species detected during the inventory include the Northern pigmy owl and flammulated owl.

- Within the Sixteen Springs area (19.259 acres), a pair of MSOs was heard in the Wofford lookout area in June. No MSOs were heard or seen during either of the daytime follow-up visits. And, no other MSOs were detected within the project area. Other raptor species detected include the great horned owl, Northern pygmy owl, and flammulated owl.

Northern Goshawk monitoring on the Sacramento Ranger District confirmed 33 post-fledgling family areas (PFAs) had been established. A total of 172 acres in three PFAs were treated with pre-commercial thinning, and a commercial timber sale affected approximately 44 acres of another PFA. Of the nine area PFAs monitored with four visits per PFA, goshawks were absent in seven areas, one area was occupied, and in one area a goshawk was detected or heard but not located. And, only one young was found within one PFA.

Sacramento Mountain Checkerspot Butterfly Survey and Monitoring—Surveys conducted between 1999 and 2006 have expanded the known range of Checkerspot occupied habitat. In past surveys, most of the ten plots had eggs or larvae. In 2006, only three plots had them. However, Deerhead Canyon was exceptionally productive. In spite of the overall downward trend in tent numbers since 1999, the tent numbers appear to have increased since 2005, with more than twice as many larval colonies identified in 2006.

Mexican Spotted Owl (MSO) Demography Study in the Sacramento Mountains — This study evaluates the effects of forest thinnings on the MSO in the Sacramento Mountains. In 2006, the Rocky Mountain Research Station (RMRS) crew monitored 67 Mexican spotted owl territories and one newly detected pair whose territory status has not yet been determined. Areas monitored were defined by mapped foraging areas around protected activity centers (PACs). They found 53 territories occupied by owl pairs, and a single owl found at the remaining 12 occupied sites (six females and six males). Only eight pairs of owls nested. Seven of these nests were successful, fledging a total of eight owlets.

Of 79 banded territorial adult and sub-adult owls present in 2005 (40 female and 39 males), only 34 female and 32 male owls could be relocated in 2006. And, four territory occupancy shifts by banded owls were also observed.

Elk and Cattle Demographics and Habitat-Use Monitoring—In partnership, the Lincoln National Forest and New Mexico Fish and Game Department are working on an elk and cattle demographics project. The goal of this project is to determine relations between elk and cattle condition, population density, distribution, and foraging dynamics across the foraging landscape of the Lincoln National Forest. The first annual report was written in June 2005 (received June 2006) and deals primarily with preliminary data collected in 2004 in response to eight research questions on elk ecology, relative distribution of all large herbivores, and impacts on woody browse species aspects. In 2006, elk and livestock data was collected on 17 additional range allotments. Data

analysis is ongoing and findings and answers to research questions are expected in June 2007.

Heritage Program—The survey of 12,294 acres for presence of archeological sites resulted in documenting 66 new sites. Using the site stewardship program, in-house archeologists, and the Passport-In-Time Program, the Forest monitored the condition of 50 archeological sites.

Water, Watershed Inventory and Monitoring—As part of the agreement with the State of New Mexico under the Non-Point Source Program of the Clean Water Act and aggressively working to reduce fire risk and improve watershed, the Forest reported the following to the New Mexico State Environment Department. On the Smokey Bear Ranger District and within the wildland-urban interface (WUI) areas, 2,820 acres were mechanically thinned and 824 acres prescribe burned. On the Sacramento Ranger District, 4,094 acres were mechanically thinned and 1,367 acres prescribe burned. In non-WUI areas, the Smokey Bear Ranger District reported 1,410 mechanically thinned and 824 prescribe burned.

Biology students from colleges in Miami and St. Louis collected isopod samples from the spring feeding the Sitting Bull Falls Recreation Area. The spring contains a unique isopod known to be found in only a few places around the world.

Recreation—On the Sacramento Ranger District, the Aspen, Black Bear, and Slide recreation areas were remodeled and brought to Americans with Disabilities Act (ADA) standards. Preliminary work began on the renovation of Deerhead and the survey and design work began for the Sleepy Grass area.

Within the Sitting Bull Falls Recreation Area on the Guadalupe Ranger District signs were repaired or replaced, painted and caulked. A backup electrical system, paint and gas lockers, and an eye wash station were installed. In addition, a trail was re-routed after reports that several members of the public failed to return to the parking area by closing time. The new trail route now breaks off to an established road and circles back to the recreation area.

Caves— Thayer Cave entrance cleanup and air monitoring continued into 2006. After several years of dumping at this cave site, recent soil samples are showing no toxicity. Air continues to flow from the cave and large boulders need to be removed to gain access to the cave. Sheet Metal Cave was also used as a dumping site and cleanup is underway.

Informal Monitoring

Wildlife--Over \$60,000 of volunteer work contributed to improving wildlife habitat. Much of it came from wildlife groups and from the New Mexico Game and Fish Department Habitat Stamp program. In addition, motion detection cameras were installed and

moved around various SIKES habitat stamp improvement projects on the Sacramento Ranger District. The information collected showed the numbers and types of species using the habitat improvements as well as the success of some and whether design changes were needed.



A trick tank is designed to collect and disperse water easily to various wildlife species. Large game animals, various birds, small mammals, and bats were photographed using trick tank areas.

Mexican spotted owl observation counts were taken within the Cottonwood and Gunsight caves. The count within Gunsight is holding steady but a slight decline in observations was reported in the Cottonwood Cave area. And, bat counts were found to be stable in the Sitting Bull Falls and Sentinel Cave areas.

In February 2006 a bald eagle survey at the Monument Canyon roost site was conducted. No eagles, including golden eagles, were observed in the Canyon.

Red Squirrel Densities in Mixed Conifer—Limited data on Red Squirrel (*Tamiasciurus hudsonicus*) densities on the Lincoln National Forest have been collected by Ms. Christy Wampler as part of her Masters thesis in Wildlife Science at New Mexico State University. The thesis research concerns the effects of four silvicultural treatments on small mammals and carnivores with the Sacramento Ranger District. The study area includes the Sleepy Grass, Pumphouse and Cox Canyon areas.

Red squirrels are territorial and each squirrel maintains and defends a large cache of food called a midden. Long-term trends in red squirrel populations can be monitored by

evaluating changes in the number of active and inactive primary middens. Findings included red squirrel densities varied with overall densities being comparable to those found in mixed conifer habitat on the Carson National Forest during 2003 and 2004. In comparison, Red squirrel densities in this study (conducted in an area dominated by Douglas fir and white fir) were found to be higher than those found on the Carson National Forest. It was determined the difference might be due to the absence of the Abert's squirrel (*Seiurus aberti*) in the Sacramento Mountains. Abert's squirrels compete with red squirrels in lower elevation conifer-forest zones, including lower mixed-conifer types.

Fire and Fuels Management—Priority Wildland-urban interface (WUI) areas on the Smokey Bear Ranger District include: the Perk/Grindstone, Turkey/Gavilan, Eagle Creek, and Bonito areas. Accomplishments within the Turkey/Gavilan area included treating 3,100 acres. Approximately 1,100 acres were masticated or treated by means of mechanical obliteration, pushing piling or extraction piling. A prescribed burn treatment is planned for 2007.

Because the Forest received sufficient moisture by mid-July 2006 prescribed burn projects resumed July 15th. The Lucas prescribed burn project on the Smokey Bear Ranger District consisted of 14 project units located anywhere from one to six miles southeast of Ruidoso Downs. The purpose of the burn was to reduce hazardous fuels loading within the additional benefit of creating openings for wildlife and range forage enhancement.

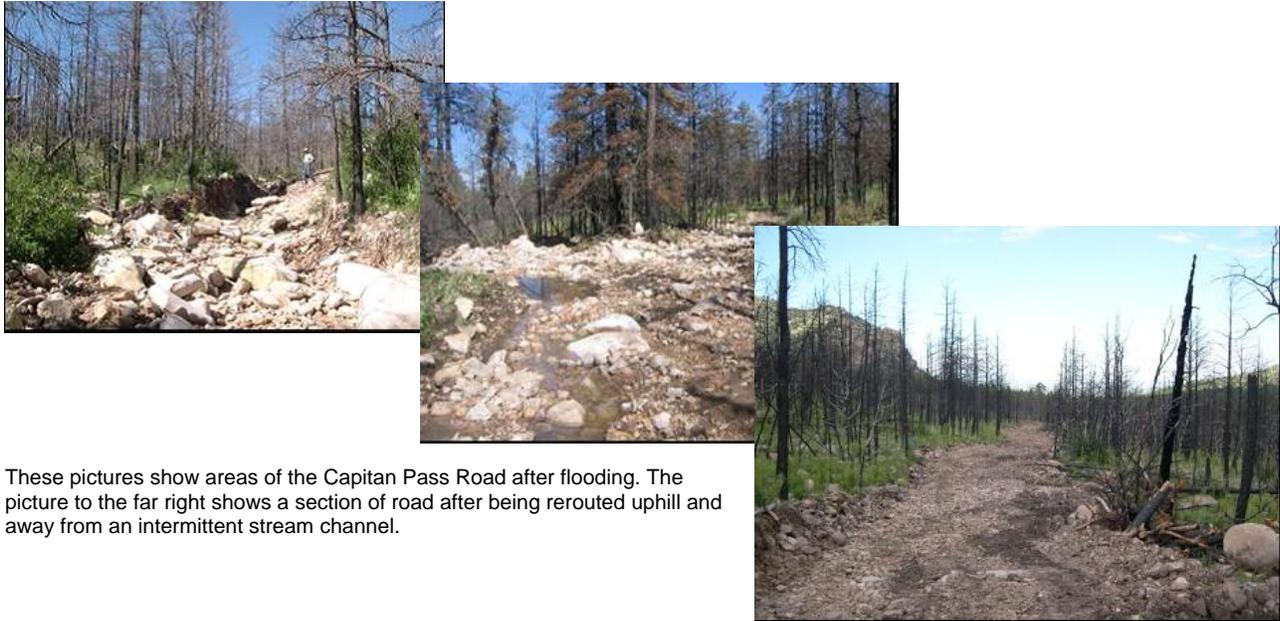
In late September 2006, the Sacramento Ranger District resumed the Rio Peñasco and James Ridge fuels reduction projects. These projects incorporate the Deerhead and James Ridge hand-pile prescribed burns amounting to about 420 acres. The areas were thinned then hand piled in 2003 and 2004. They were designed to remove fuels in ponderosa pine and mixed conifer stands, reduce the potential for damaging crown fires, and enhance fire fighting capabilities.

The Sixteen Springs Stewardship Project, consisting of 15,000 acres of commercial and 1,000 acres of pre-commercial thinning, was implemented in 2006.

The 2004 Peppin Fire Area on the Smokey Bear Ranger District was monitored with the following findings reported.

- An increase in area flowing streams and springs, and new springs were identified.
- Grass reseeding in the area produced over 3,000 pounds an acre.
- Aspen has regenerated.
- Several trails were re-routed around private land.

- About one mile of the Capitan Pass Road 5643 was relocated a few hundred feet uphill.



These pictures show areas of the Capitan Pass Road after flooding. The picture to the far right shows a section of road after being rerouted uphill and away from an intermittent stream channel.

Under a CFRP grant, a 250-acre parcel within the Cedar Creek area (near the Smokey Bear Ranger District office) was treated with a swing-harvester system. Plans are to use this area as a demonstration area beginning in 2006.

Under the Wyden Amendment, \$113,000 was received and used to treat 150 acres of Village of Ruidoso lands adjacent to Grindstone Reservoir. For more information on the Forest Service and the Wyden Amendment go to <http://www.fs.fed.us/spf/coop/wyden/index.shtml>

Recreation— The Forest Facilities Master Plan was drafted in 2006. This process involved planning to balance Forest recreation site deferred and annual operations maintenance.

Within the Upper Bonito dispersed-recreation sites, access roads and camping sites were refined to reduce erosion and provide better structure to the area.

At Ski Apache, Smokey Bear Ranger District, the parking lot paving was completed in 2006. This work helped to address on-going drainage and watershed concerns.

Another small passage way was found in the cave portion of the Queen of the Guadalupe cave/mine. The area was closed to the public in 2006.

Range—On-the-ground grazing allotment conditions were monitored more frequently in 2006 due to the lack of moisture during the first half of the year and the excessive moisture during the late summer months.



Range improvements were monitored, mapped and databases updated. Range specialists worked closely with range permittees to refine the allotment, pasture and constructed features (pipelines, tanks, etc.) automated data. New improvements such as cattle guards, drinking troughs and fences were added to the allotment maps and database.

Kevin Sanchez, Smokey Bear Ranger District Range Staff, is taking production-sample clippings using a .96% acre-loop weighing method on the Dillard Pasture of the Hawkins Allotment on the Smokey Bear Ranger District.

The Smokey Bear Ranger District reported species remained the same but more than twice as productive. Conditions were greatly improved due to summer moisture. Some areas went from 300-400 pounds per acres to over 1,500 pounds per acre.

Informal ocular estimates were conducted on the Guadalupe Ranger District Dark Canyon, McCollum, Irabarne, National, Panama Prude, Bullis Springs, Bear Springs, Hardin, Board Tree/Last Chance, and Sitting Bull allotments. Conditions were found to be fair.

An Annual Management Plan (AMP) was approved and implemented on the Burnt Canyon/North Cox combined allotments on the Sacramento Ranger District.

Transportation— Heavy rain in some areas of the Forest caused transportation safety concerns. In response, road condition surveys were completed to assess high-use areas. Where road repairs could not be immediately addressed, object markers were installed and signing increased.

High-clearance roads are being inventoried for each priority watershed project. The results are used to assess risk and road value--resulting in recommendations for future road management. In 2006, approximately 72 miles of road were inventoried.

Motorized vehicle trespass on and across private land is an on-going issue. Additional monitoring of closed roads, especially in areas where trespassing is continuously reported e.g. White Oaks, Ruidoso and Ruidoso Downs, is needed.

Other Activities—

- During 2006, there was a Forest-wide emphasis in reducing the backlog of special-use permit renewals.
- On-the-ground treatments within wildland-urban-interface (WUI) consisted of 9,105 acres and 2,234 acres of non-WUI. Approximately 14,644 CCF of timber volume was sold in 2006.
- Three new caves were found in 2006 bringing the total of known caves to 158.
- International caving relations in 2006 included hosting caving experts from South Africa, Germany, and Australia. The group compared management strategies and vertical techniques, and discussed the various cave characteristics and their similarities and differences.
- Stand-exam inventories were conducted on approximately 12,297 acres.
- Within the High Rolls mining district, historical mining areas were found to have significant amounts of lead concentrates—causing concern about the impacts to existing and surrounding watersheds. A review of the areas has been contracted and site cleanup alternatives will be developed and implemented in 2007.
- Informal monitoring along the Sacramento River Road included evaluating the vegetation planting that was completed in 2006 and the old roadway. The new vegetation was found to be flourishing. In areas where the original road was moved out of the bottom, segments of the old road are still being used. Attempts to close these road segments continue to be a struggle. Primarily because a local electric company continues to utilize them for power pole and line maintenance.
- Monitoring of trespass on Forest land is an on-going issue. The Jicarillas on the Smokey Bear Ranger District continues to be an area of concern. In 2006, a trespass mineral case within this area was resolved. The structures will be evaluated in 2007 to determine whether historic preservation is necessary. In the meantime, there is a closure order for this area stating no camping within 300 feet.
- The Forest and Regional Office initiated a Centennial Grant Project to evaluate and plan the restoration of the Monjeau and Ruidoso historic lookouts.
- The Greater Ruidoso Area Wildland Urban Interface Group (GRAWUIG) formed a Field Assessment Group to review thinning projects on federal, state, and municipal lands. The Group conducts field assessments and documents their findings. These assessments and group discussions are helpful in the development of future thinning prescriptions and adaptive forest management within and around the area of Ruidoso, NM.

- The Smokey Bear Ranger District accomplished the preliminary work (site selection, determining work to be done, and assessed holding lines, water sources, etc.) for a Ft. Stanton Area cooperative prescribed burn between the Bureau of Land Management (2000 acres) and Forest Service (300-400 acres) scheduled in 2007.

For additional information or to receive a complete copy of a specific resource report, please contact the Lincoln National Forest at (505) 434-7200.