Forest Plan

Monitoring and Evaluation Report

Lincoln National Forest

Fiscal Year 2012

United States Department of Agriculture
Forest Service

Southwestern Region

Forest Supervisor's Certification

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

Travis G. Moseley — July 31, 2013

Date

Forest Supervisor

Executive Summary

Forest monitoring and evaluation reports are designed to focus attention and resources on evaluation of on-the-ground management practices and Forest Plan implementation. In addition, monitoring and evaluation provide an overview of resource conditions and trends as they relate to indicators and criteria for sustainability, with specific attention to the effects of management on ecological system structure and function.

The Executive Summary section provides an overview of events that helped to shape Fiscal Year 2012 and summarizes some of the lessons learned from the monitoring activities found in the table on pages 10-36. These events and lessons learned are anticipated to be relevant to the future management of the Lincoln National Forest (LNF).

Fiscal Year 2012—Overview

Drought conditions persisted through 2012. Annual precipitation averaged from 9.19" at the Smokey Bear Ranger District to 17.04" at the Guadalupe Ranger District. The table below compares precipitation amongst the districts. Comparisons are for annual precipitation, rainfall during monsoon and precipitation in 2010, a wetter year than 2012. Weather data comes from the Smokey Bear, Mayhill, and Queen Remote Area Weather Stations (RAWS). Drought from January 2012 to December 2012 remained in severe to extreme conditions. Shifting Climate trends have contributed to an increase in the amount and size of fires occurring throughout the LNF. One indicator of this is that the LNF experienced 31 wildfires in 2012 alone.

Table 1 - Precipitation District	Annual Precipitation 2012	Annual Precipitation 2010	Precipitation July-September 2012	Precipitation July-September 2010
Smokey Bear	9.19"	21.51"	5.44"	11.63"
Sacramento	11.38"	23.51"	7.4"	12.04"
Guadalupe	17.04"	29.17"	11.56"	18.56"

The LNF conducted a series of prescribed fires on the Smokey Bear Ranger District and the Sacramento Ranger District in order to lessen the impact from potential wildfires near wild urban interface (WUI) areas. The Smokey Bear Ranger District was able to burn 456 acres by prescribed fire in the WUI and 367 acres outside of the WUI. Additionally, the district was able to thin 484 acres in the WUI. The Sacramento Ranger District was able to treat 1,316 acres with prescribed fire and thinned 944 acres in the WUI communities of Mayhill, Cloudcroft, Timberon, and Weed.

Meanwhile, Sitting Bull Falls and other lands in the Guadalupe Ranger District had begun showing signs of recovery from the past years very active fire season. In 2011, the Last Chance wildfire burned just over 53,000 acres including the Sitting Bull Falls recreation area. The area was hydro mulched and seeded and other treatments were completed that aided it in recovery. The recreation site remained closed early in the 2012 fiscal year due to safety concerns particularly mudslides that had occurred. The Sitting Bull Day Use Area officially reopened in April of 2012 with trails leading into the area remaining closed until conditions improved.

In June of 2012, the Little Bear Fire burned approximately 35,291 acres of National Forest System (NFS) Lands on the Smokey Bear Ranger District of the LNF, with a total burn area of 44,330 acres as of June 28, 2012. The fire started on Sierra Blanca and ran North East across 6 watersheds, including the Rio Bonito, in the mountains directly adjacent to Ruidoso, Alto, and Angus, New Mexico. The burn severity was high to moderate throughout 53% of the fire. This burned over several days, destroying 254 structures 242 of which were residences.

As the fire suppression team worked to contain the fire, a Burned Area Emergency Response (BAER) team or an interdisciplinary group of specialists was assembled to assess the severity of the Little Bear Fire, including threats to life and property, and to recommend emergency stabilization treatments. Treatments were designed after the team's assessment to minimize soil erosion and loss of control of water as well as for the mitigation of and protection against loss of life, property and critical infrastructures. Follow-up monitoring will be done to determine if 1) treatments were implemented to expected standards; 2) treatments were successful (effective ground cover, road damage mitigation, resource mitigation).

Drought conditions have continued to cause tree stress and mortality as indicated in the insect and disease section of the table below (Pages 13-15) . In early 2012, the Smokey Bear Ranger District and the Sacramento Ranger District began having public meetings and lecture series to inform the public and to generate discussion regarding drought and insect impacts affecting trees in the Sacramento Mountains. The latest updated information along with potential management and ecological effects of current bark beetle populations was discussed. Local, state, federal and tribal representatives were on hand to discuss the current situation and answer questions from the public. It is hoped that through these discussions, partnerships can continue to be developed to educate the public, treat acres, and reduce hazards in and surrounding the communities impacted by the drought and insects affecting the trees.

A powerful partnership was developed that includes the San Dimas Technology and Development Center, the Lincoln National Forest, a bat bioacoustics specialist, National Speleological Society (NSS) volunteers and commercial manufacturers. San Dimas Technology and Development Center is a specialized unit of the Forest Service, Washington Office

Engineering Staff. The mission of the Technology and Development Program is to assist Forest Service employees and cooperators, in doing their work more efficiently, effectively and safely, through the development of advanced technology. This partnership has initiated a multi-year and multi-seasonal deployment to test the newest bat dataloggers against each other. The results will be compiled into a report that will document the advantages and cost-effectiveness of using the different equipment under actual field conditions. The first phase of the deployment was started in November of 2012. This information will provide Forest Service managers with the information needed to choose a data logger that best fits their individual management priorities, as well as, provide researchers and manufacturers with a wealth of new data for understanding bats and thinking ahead to the next generation of devices.

In December of 2011, the Mexican Canyon Trestle Vista (Vista) was complete and opened for visitors. This was an American Reinvestment and Recovery Act (ARRA) project that was supported by various sources. The Mexican Canyon Trestle is a special area constructed in 1899 to access timber and provides tourism, listed on the National Register of Historic Places, and is an important local symbol of the Southern Sacramento Mountains railroad logging history. The Lincoln National Forest built the Trestle Recreation Area in 1993, and the New Mexico Rails-to-Trails Association (NMRTA), partnered with the Lincoln National Forest to build a trail system in this area. It is expected that mountain communities have and will continue to benefit economically from these projects.

Each fiscal year the Forest commits money to local small-business development. In Fiscal Year 2012, the Lincoln National Forest committed $25,750 through thinning contracts on 211 acres contributing to local, small businesses.

The Forest also collected $325,535 in fees related to forest products and services delivered through other Forest Service programs. Below is a breakdown of the fees collected in FY 2012.

Forest Products and Services	Revenues
Recreation Special Uses	$70,631
Recreation User Fees	$28,338
Minerals	$5,510
Land Use	$85,141
Wood Products (Timber & Salvage Sales)	$39,706
Grazing	$96,209
TOTAL	**$325,535**

Fiscal Year 2012--Findings/Lessons Learned

Below are some of the lessons learned from the monitoring and evaluation of on-the-ground management practices that are anticipated to be relevant to the future management of the LNF.

- Grindstone and Flume both would benefit from being surveyed with high priority next year for the Northern Goshawk. Both areas are within the WUI area and are also close

to each other. Grindstone and Flume are so close to each other that there was potential for surveys to identify the same goshawks in both areas. This idea was rebuked on July 26th 2012 when survey teams found presence in both Flume and Grindstone in the same day. In Grindstone a pair was found. The Flume area contained suitable habitat and since there was goshawk presence in the area this year, there is a need to re survey the area next year. In addition, with the Little Bear Fire causing so much habitat loss this year, it is believed that the W.U.I. areas should have the highest priority for surveying next year because of these areas being close to the perimeter of the fire, the suitable habitat within these areas, and because of more competition between displaced raptors that may occur. Also, areas that received low to moderate burns within the fire perimeter should be monitored and visited to determine habitat availability and to see if northern goshawks are trying to utilize these areas. These areas are Argentina, Aspen, and Mills.

- The Little Bear Fire affected salamander habitat in the Smokey Bear Ranger District and it is expected that surveys would be prioritized within the burn area in inventoried sites in 2013. Also, new areas would be surveyed for A. hardii outside of the fire perimeter to determine populations that have moved from the affected burn areas. More specific information about the habitat surround the salamanders, such as moisture content, microclimate, vegetation preference, and ground pH, would be recorded to help identify possible trends that may reveal other environmental requirements. A systematic approach is being developed for salamander surveys to establish a tentative presence across the whole forest.
- In 1993 a wildfire struck within a Kuenzler's cactus population. Subsequent survey found that the all cactus in the burned area perished as a result of the fire. The burned area population was monitored and compared to the surrounding, unburned population that was located outside the burn perimeter. Bob Sivinsky, NM State Botanist, found seven years post-fire, developing baby Kuenzler's cactus took growth at the size of golf balls and smaller. A subsequent survey by Dr. Mark Baker 15 years after the fire, found that after 15 years the cactus populations found both inside and outside the burn area showed no difference; that the population structures inside the fire and outside the fire were "in equilibrium". Subsequent surveys have found over 50 young plants growing.
- While there are rare occurrences of herbivory on Sacramento prickly poppies, mature plants appear to demonstrate full recovery from herbivory and mechanical damage to the vegetative portions of the plant. Mechanical damage to plants occurring in or near roads or trails occurs somewhat more frequently however these plants continue to persist and reproduce, with repeated mechanical damage.
- Sacramento prickly poppy transplants are not a feasible method for ongoing population augmentation due to the limited locations, climatic variability and logistical requirements. Seeding appears to be a more appropriate means of meeting this

objective. However, transplanting could be a beneficial tool for emergency population management, and it is important that we further explore the requirements for low input transplant success. While frequent watering would be beneficial it is not logistically possible and further reduces the potential transplant locations. With that in mind, a better understanding of transplant timing and soil requirements become important.

- The 2013 New Mexico Meadow Jumping Mouse *Z. h. luteus* effort should first focus on reconfirming presence at all previously occupied areas of suitable habitat which were successfully surveyed by Morrison, that we have not already confirmed presence. Concurrently, new occurrences should be sought in areas of potentially suitable habitat not yet surveyed. A staggered temporal approach may assist in species detection, and would likely account for differing phenological, reproductive, and energetic relationships that may occur in a given year, specific to the species within the Sacramento range.

Fiscal Year 2012--Changes/Changes Needing Additional Consideration

Prior to and during the Forest Plan Revision process, changes that are relevant to the future management of the Lincoln National Forest will be considered. Some of the 2012 Fiscal Year changes and those changes needing additional consideration during the Revision process are identified below.

- BAER treatment measures taken to reduce the post-fire effects of the 2012 Little Bear Fire will not completely eliminate potential effects. Although efforts were made in putting these treatments into place, both sedimentation and increased flows as a result of the fire is highly likely. Continued monitoring of the effectiveness of the treatments will be critical as well as a need for specialists to determine if further treatments may be needed in the future.

Forest Plan Amendments and Issues Needing Further Analysis

The Forest Plan and associated Environmental Impact Statement (EIS) were published in 1986. Since implementation of the Plan, fifteen amendments and six Correction Notices have been completed. The Amendment Table below displays each amendment, the decision date and a brief amendment summary followed by the Correction Notice Table.

Amendment Table

Amendment Number	Decision Date	Amendment Description
Amendment #1	May 1987	To clarify the operational procedures for identifying those roads and trails that are to be part of the transportation system and that will be open or closed to motorized vehicles.
Amendment #2	September 1988	To delete all references to base-in-exchange lands.
Amendment #3	September 1988	To change the guidelines for management of the Sacramento Mountain salamander.
Amendment #4	September 1988	To correct typographic errors and minor mistakes not carried over from the proposed plan.
Amendment #5	September 1990	To adjust to the Title 2 of the Sikes Act funding and habitat improvement opportunity.
Amendment #6	April 1991	To amend the limit of flexibility needed to accomplish the objectives for the Carrizo Integrated Resource Area.
Amendment #7	April 1991	To update the Forest's list of recreation and trails projects.
Amendment #8	September 1995	To reduce the tentatively suited timber base in Management Area 2D by three acres in order to construct the Sunspot Visitor Center; and to clarify the boundary of the Haynes Canyon Research Natural Area.
Amendment #9	June 1996	To include the latest information on habitat needs for the Mexican spotted owl and northern goshawk with clear standards and guidelines providing preliminary direction for site-specific project design.
Amendment #10	December 2002	To incorporate scientific research into the design of treatments in Mexican spotted owl (MSO) habitat so data and knowledge gained from treatment activities can be applied to management of future watershed projects with similar MSO habitat.
Amendment #11	September 2002	To protect eligible rivers (river areas) for their outstandingly remarkable values, and preserve their classification pending determination of their suitability for inclusion into the National Wild and Scenic River System.
Amendment #12	June 2005	To manage vegetation and fuels reduction in the 16 Springs project area within Mexican spotted owl habitat.
Amendment #13	May 2007	To allow for the reissuance of recreation residence special-use permits to the same people holding the current permits for the 18 sites at the Pine Lodge Summer Home tract and 23 sites in the Eagle Creek Summer Home tract.
Amendment #14	August 2007 (Withdrawn 2/2008)	To meet current Federal wildland fire management policy, direction, and terminology. Intended to revise current decision-making criteria for wildland fire use.
Amendment #15	June 2008	To modify forest characteristics to minimize the chance of large-scale crown fire within the wildland-urban interface (Perk Grindstone) around the Village of Ruidoso.

Amendment Number	Decision Date	Amendment Description
Amendment # 16	September 2009	To meet changes in Federal wildland fire management policy, direction, and terminology. Intended to revise current decision-making criteria for Unplanned Ignition for Resource Benefit.

Correction Notice Table

Amendment Number	Decision Date	Amendment Description
Correction Notice #1	June 1992	Replacement Page 35 referencing predator control measures.
Correction Notice #2	July 1992	Replacement Page 64 referencing range condition, water rights applications, and limited surface-use stipulations in oil and gas leases.
Correction Notice #3	August 1995	Replacement Page 102 referencing the Haynes Canyon RNA Management Area.
Correction Notice #4	June 1996	Removed Tables 2-8, Table 10 and 11on pages 14-16 and pages 20-25. Replaced Table 9 on pages 17-19. Replacement Pages 93, 101, 105-106, 109, 130-131, 133, 137, 139, 142, 145, and 148 reflecting the Record of Decision (ROD) changes deleting the Timber harvest Tables on each page.
Correction Notice #5	August 2007 (Withdrawn 2/2008)	Replacement Pages 31, 38, 41, 80, 83, 94, 101, 110, 131, 134, and 137 referencing fire terminology consistent with several National interagency efforts.
Correction Notice #6	December 2008	Replacement Pages 30 and 30A referencing changes to motor vehicle use and the Motor Vehicle Use Map (MVUM)

Plan amendments demonstrate the shifting trends occurring on the Lincoln National Forest and across the Southwest. For example, demographics today highlight an older-age population, and resource managers are considering programs that are service and amenity oriented to help address this segment of forest users. Recreation-visitor surveys, socio-economic assessments, and values, attitudes and belief's assessments refine and address shifting trends. Plan amendments will be used to keep the existing Forest Plan current until the Forest Plan Revision process occurs.

The future Forest Plan Revision process will be built upon foundational concepts. These include: 1) managing listed threatened and endangered plants and animals; 2) increasing knowledge of the function, processes, and interrelationships of ecosystems; and, 3) recognizing thresholds beyond which ecosystems may no longer be sustainable. Some of the issues needing further analysis during the Forest Plan Revision process are:

- Determining what uses will be allowed while working to protect resources
- Evaluating needed rights-of-way
- Balancing how to manage and implement the new Transportation Management Rule while controlling resource damage
- Balancing public-land use, land exchanges, and special uses

- Monitoring an even and sustainable flow of wood products
- Increasing the availability and utilization of small-diameter wood products from the Forest
- Managing recreation opportunities
- Protecting heritage resources
- Managing elk and livestock forage competition on grazing allotments
- Meeting water-yield, water-quality, and water-use standards on the Forest
- Managing the Wildland-Urban Interface (WUI) to reduce catastrophic fire risk
- Re-introducing native wildlife species to the Forest
- Maintaining viable populations of threatened and endangered species

Monitoring Activities

Monitoring and evaluation provide the Forest Supervisor and land managers information and data to ensure responsive and efficient management of the Lincoln National Forest. There are two components to the Lincoln National Forest monitoring and evaluation program--formal and informal. Formal monitoring and evaluation are conducted in accordance with monitoring plans specifically developed for the project or program level. Both formal and informal monitoring and evaluation occur during administrative and operational activity field visits.

Acronyms Used

EA – Environmental Assessment
FACTS – Forest Activity Tracking System database
FSVEG – Forest Vegetation database
GIS – Geographic Information System

GPS – Global Positioning System (a survey type/technique)
IMPROVE – Interagency Monitoring of Protected Visual Environments database
INFRA –Infrastructure database
LNF – Lincoln National Forest
MIS-Management Indicator Species
MSO – Mexican spotted owl
MVUM – Motorized-Vehicle-Use Map
NEPA – National Environmental Policy Act
NMED-New Mexico Environment Department
NMSU – New Mexico State University
NRIS – Natural Resource Information System
PHA- Priority Heritage Asset
RD – Ranger District
ROW – Rights-of-Way
TE&S – Threatened, Endangered and Sensitive

Table of Monitoring Activities, Findings and/or Lessons Learned for FY 2012

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
Air	Air quality over the White Mountain Wilderness Class I air shed.	IMPROVE	Smokey Bear	No degradation findings reported.
Caves	Cave condition and restoration	Recreation files	Guadalupe	Four caves are closed annually from 1 March through 31 August due to presence of owl. Additional caves have closed due to white nose syndrome and other resource concerns. Bat maternity and hibernation roosts are being surveyed for. Bat counts and identification studies are underway.

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				Electronic bat detection and identification equipment is being tested. Gating is discouraging illegal entry. All locks were checked and intact in FY2012. Monitoring of caves for bat hibernacula and symptoms of WNS were continued in FY2012. Significant bat caves were identified and temporarily closed. Two multi-year restoration projects were completed in FY2012. Previous restoration sites were monitored and no damage or new sites were discovered.
Caves	Collaboration and training	Recreation files	Guadalupe	This past year the National Cave and Karst Research Institute (NCKRI) supported USFS karst education programs, including hosting a National Environmental Education Week offered by the LNF, by donating the use of their new facility. Presenters from the USDA Forest Service, NCKRI and state/local agencies created a partnership for the weeklong program.
Caves	Cave resource protection	Recreation files	Guadalupe	Cave gates offer resource protection through controlled access. All cave gates were monitored in FY2012 with no breaches and no emergency repairs needed. Flagged routes in caves offer conservation by keeping impact to established areas. All routes in caves were inspected and the flagging tape that outlines the routes was maintained in FY2012. The process that controls the keys to the cave gates was updated and no keys were lost in FY2012. A new Trip Leader Program was completed and 36 Trip Leaders were trained by the end of FY2012. This Trip Leader Program will offer strong resource protection by empowering the leaders to enforce conservation rules and managing entry through a permitting system.
Facilities	Routine Maintenance, Deferred Maintenance and Real Property	Engineering files and field inspections and I-web	Forestwide	23 buildings were inspected in FY12 in conjunction with the final year of the 5 year cycle of deferred maintenance inspections and real property certifications.

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
Facilities	Communication Site Inventory and Monitoring	Realty Files and I-web	Forestwide	Communication sites were informally inventoried and monitored in FY2012 and inspected for facility owner/manager compliance of ground maintenance, exterior conditions of shelters and towers, and company labeling of shelters. These communication sites included: Buck Mountain on the Smokey Bear RD, Longridge, Benson Ridge, Alamo Peak, Cathey Peak, and High Rolls on the Sacramento Rd, and Dark Canyon and Picket Hill on the Guadalupe RD. The purpose of the inspection was to inventory each communication site and to gain a general idea of how the facilities are being maintained by the users. Many facility owners/managers lack identification of facilities, most facilities seemed to be in good exterior condition, and about half of the sites lack proper ground maintenance (overgrowth of weeds/brush/shrubs, debris consisting of trash and unused facility parts/equipment). Overall, most sites were in midrange of fair to good condition and validate the need to do a thorough inventory and monitoring of all communications sites (including lookout towers used as communication sites). A communications site timeline for formal audits, inspections, and implementation of site management plans has been developed and provided to the regional office for the 2012 – 2015 periods.
Heritage Resources	Mexican Canyon Trestle	Recreation/Heritage files	Sacramento	The vista parking lot and viewing area completed in FY 2012.
Heritage Resources	General Monitoring of Archaeological Sites	GIS and Heritage files	Forestwide	Site condition monitoring was completed at 26 National Register Listed or Eligible sites with recommendations for management.
Heritage Resources	Project Quality Assurance Monitoring	GIS and Heritage files	Forestwide	GUADALUPE RANGER DISTRICT communication site monitoring and some mitigation were completed in 2012 and major issues were identified. Additional mitigation is needed. Monitored restoration work at Mesa Barn, Carrisa, and Wofford Lookouts.

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
Heritage Resources	Inventory	GIS and Heritage files	Sacramento	Inventory of the Two Goats planning area. This was a site inventory contract and not project related.
Hydrology	Proper Functioning Condition Assessment Alamo Canyon System	GIS, Range, and Hydrology Files	Sacramento	The purpose of this assessment is to determine the functional rating of each listed stream and prioritize efforts for maintaining, improving and monitoring stream conditions. The assessment was conducted early spring towards the end of grazing season for the pasture, and during the emergence of plants from winter dormancy making Species Identification and assessment of vigor difficult. Vigor assessments were made from observations of persistence of seed heads from previous year's growth and spring emergence of various species. All assessed reaches (Caballero 1, Caballero 3, Alamo 1 and Alamo 2) were found to be in proper functioning condition.
Insect and Disease	Ponderosa pine and Douglas and White-fir bark beetle caused mortality	GIS and Pest Management files	Forestwide (including Mescalero Apache Tribal Lands	Bark beetle caused tree mortality continues to plague the Lincoln National Forest. The area within the Little Bear wildfire was not surveyed because of the difficulty of discerning the difference between fading trees killed by fire and fading trees killed by bark beetles. Ponderosa pine mortality was observed across 35,200 acres this year as compared to the 41,000 acres mapped in 2011. Last year there were areas of mixed conifer in which we observed fir, Douglas-fir and ponderosa pine mortality within the same stand, and failed to record the different species appropriately. This year there was a concerted effort to separate out the species, so that each damage agent was more aptly represented. Douglas-fir mortality was observed on 9,800 acres and fir mortality was observed on 8,800 acres. So, while it seems that ponderosa mortality decreased from last year, the real picture is that bark beetle mortality in ponderosa pine and mixed conifer stands increased from 42,700 acres in 2011 to 53,840 acres in 2012. In other forest types, we also observed increases in bark beetle-caused mortality. Piñon ips activity has increased from 720 acres in 2011 to 1,700 acres in 2012. White pine mortality was observed on 310 acres and cedar bark beetle

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				activity was recorded on 60 acres. Corkbark fir mortality was observed on ten acres. As on the Lincoln NF, the Mescalero Apache Tribal Lands ponderosa (22,000 acres), fir (7,400 acres), and Douglas-fir (4,050 acres) mortality were mapped as the most-affected tree species. Piñon ips activity was mapped on over 4,000 acres, an increase from 470 acres in 2011. Western balsam bark beetle activity was observed on 30 acres and cedar bark beetle activity was recorded on 80 acres.
Insect and Disease	Oak and Douglas fir defoliation by the Western Spruce budworm and the Douglas-fir tussock moth	GIS and Pest Management files	Forestwide (including Mescalero Apache Tribal Lands)	Oak defoliation was observed on 1,200 acres of the Smokey Bear RD. Defoliation by western spruce budworm continues to decrease, with only 280 acres mapped this year; however, we suspect 120 acres of mixed conifer forest was defoliated by the more damaging Douglas-fir tussock moth on the Sacramento RD. Defoliation on the Mescalero Apache Tribal Lands by western spruce budworm was mapped on 20 acres.
Insect and Disease	Aspen defoliation and decline and piñon defoliation	GIS and Pest Management files	Forestwide (including Mescalero Apache Tribal Lands)	Aspen defoliation declined to 210 acres across the Lincoln NF. Nearly 1,500 acres of piñon defoliation was mapped, especially on the west slopes of the Sacramento's and around High Rolls. Ground checks of this area showed little sign of needle scale, leading us to believe the needle loss was drought related. In other areas, 100 acres of piñon defoliation was attributed to piñon needle scale. Approximately 40 acres of aspen decline were mapped on the forest this year, representing either new areas of decline or areas where the aspen decline has progressed from light to heavy. There were 270 acres of aspen defoliation and ten acres of aspen decline observed on the Mescalero Apache Tribal Lands.
Plants (TE&S and Rare Plants)	Sacramento Prickly Poppy *Aremone pleiacantha* Greene ssp. *Pinnatisecta* G.B.Ownbey, *Synonym A. pinnatisecta*	GIS and Botany files	Forestwide	Surveys for the Endangered Sacramento prickly poppy were conducted in Fresnal, Alamo, and San Andreas Canyons by the Forest Service and the US Fish and Wildlife Service in June and July 2012. The surveys were conducted to provide

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
	populations			information on the long-term trend in relative abundance of this plant. Both seedlings and adults were counted during these surveys. During the survey in Fresnal Canyon there were 566 mature plants and 95 seedlings observed. All of the seedlings consisted of rosettes with small leaves; none of the seedlings retained their seed leaves (cotyledons). The total number of mature plants in Alamo Canyon was 458. There were also 91 seedlings observed. Individuals classified as sub-adults appeared to be sufficiently developed and the surveyors expected all to survive until the onset of monsoon rains and produce flowers later in the summer. The results of the June 2012 Sacramento prickly poppy surveys indicate that numbers of individual plants counted within these two canyon systems since 2007 significantly underestimated the size of the population. Considering the discrepancies among the survey methods, and the fact that the lower Alamo Canyon system was effectively not surveyed during June 2012, current poppy numbers appear to be well below 1987 total plant counts. When compared to the adult plant numbers reported from the 2006-2007 surveys, however, the June 2012 adult poppy numbers appear to indicate a relatively stable population within these two canyon systems.
Plants (TE&S and Rare Plants)	Sacramento Prickly Poppy *Aremone pleiacantha* Greene ssp. *Pinnatisecta* G.B.Ownbey, *Synonym A. pinnatisecta* Reponse to Herbivory and Other Mechanical Damage	GIS and Botany files	Forestwide	On April 11, 2012 while completing the proper functioning condition assessment for the Alamo Canyon system, the interdisciplinary team observed a few Sacramento prickly poppy (*Argemone pleiacantha* Greene ssp. *pinnatisecta* G.B. Ownbey) plants with evidence of herbivory and mechanical damage. While occasional herbivory does occur primarily after emergence from dormancy it does not appear to be common. On April 11, three plants were observed with evidence of herbivory and one plant located on the edge of the trail had mechanical damage from off highway vehicles. All four plants were located in the upper reaches of Caballero Canyon. Hoof prints and manure piles indicated that cattle and elk had recently been in the area, but no large ungulates were observed at any time during the assessment. On May 30, 2012 a return trip was made to

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				observe the plants response to the damage. While there are rare occurrences of herbivory on Sacramento prickly poppies, mature plants appear to demonstrate full recovery from herbivory and mechanical damage to the vegetative portions of the plant. Mechanical damage to plants occurring in or near roads or trails occurs somewhat more frequently however these plants continue to persist and reproduce, with repeated mechanical damage. The LNF will continue to monitor the above mentioned plants as to their response to mechanical damage. All of the above mentioned plants are also prime candidates for microsite exclosures to be constructed during the summer of 2013.
Plants (TE&S and Rare Plants)	Sacramento Prickly Poppy *Aremone pleiacantha* Greene ssp. *Pinnatisecta* G.B.Ownbey, *Synonym A. pinnatisecta* Transplant	GIS and Botany files	Forestwide	Four transplant locations were selected within the potential range of the Sacramento prickly poppy. The transplant locations are within La Luz, Salado, Alamo and Gordon Canyons. Sacramento prickly poppy transplants were grown out in seven and fourteen inch pots by Los Lunas Plant Materials Center (LLPMC), from seedlings collected at the Lincoln National Forest Native Plant Garden and from seed provided by the Rio Grande Botanical Garden. The transplants were received from LLPMC the week of August 6th, 2012 and planted August 8th and 9th. There were 109 total transplants, 60, 14-inch pots (large) and 49, 7-inch pots (small). The transplants were divided equally between the transplant locations. Each transplant location received twenty seven plants with the exception of the Alamo Canyon transplant location which received an additional small plant. Periodic visits were made to the transplant locations to record the status of the transplants. The Sacramento Ranger District received below normal monsoonal precipitation in 2012. The Alamo and Gordon Canyon transplant locations did receive periodic precipitation post-transplant therefore were not irrigated in addition to the watering tubes. The La Luz and Salado Canyon transplant locations received little precipitation post-transplant and were irrigated once post-transplant on

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				August 15th. This project is currently ongoing and final determinations regarding the survival of the transplants will be made in the summer of 2013, and updates to the results and discussion will be made at that time. The transplant status was last recorded September 11, 2012. Three plants in the Salado Canyon location were dug up by animals.
Plants (TE&S and Rare Plants)	Kuenzler's cacti (*Echinocereus fendleri var. kuenzleri,*) within range allotments/pastures	INFRA and Range files	Forestwide	Surveys were conducted in the appropriate seasons to determine any new locations for the cactus. In addition, surveys were conducted in areas of known occupancy to determine the current individual status of the cactus and potential response to management and protective actions. No new sites of cactus were found. The cactus was also not seen in areas previously surveyed and found.
Plants (TE&S and Rare Plants)	Kuenzler's Cacti (*Echinocereus fendleri var. kuenzleri,*) within West Mountain Sections 7 and 8 and Hale Lake sections 1 and 2	INFRA and District Range files	Smokey Bear	A total of 1,922 acres were monitored. The population numbers of the cacti remain small and relatively scattered throughout the Smokey Bear Ranger District. Some of the sites surveyed occurred in areas where there were disturbances from cattle and wildlife grazing and fragmentation by forest roads; however the disturbances do not seem significant. Although several of the sites contained various preferred elements (5,200' to 6,900' ft. elevations and east to south facing slopes from 0% to 5% comprised of limestone substrate), no individuals were found.
Plants (TE&S and Rare Plants)	Kuenzler's Cacti (*Echinocereus fendleri var. kuenzleri,*)	INFRA and District Range files	Guadalupe	Surveys are conducted on project sites only at this time for the Kuenzler's cactus on the Guadalupe Ranger District. In 1993 a wildfire struck within a Kuenzler's cactus population. Subsequent survey found that the all cactus in the burned area perished as a result of the fire. The burned area population was monitored and compared to the surrounding, unburned population that was located outside the burn perimeter. Bob Sivinsky, NM State Botanist, found seven years post-fire, developing baby Kuenzler's cactus took growth at the size of golf balls and smaller. A subsequent survey by Dr. Mark Baker 15 years after the fire, found that after 15 years the cactus

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				populations found both inside and outside the burn area showed no difference; that the population structures inside the fire and outside the fire were "in equilibrium". Subsequent surveys in 2013 have found over 50 young plants growing.
Plants (TE&S and Rare Plants)	Sacramento Mountain Thistle populations	INFRA and Botany Files	Sacramento	100 acres of known species presence was monitored, and the populations remain stable. Riparian enclosure fence, which protects the plant and its habitat, was identified for repair or replacement and these fence needs were implemented as needed on the ground. A portion of this was replaced with pipe fence. In addition, other riparian enclosures were completely replaced including a vulnerable enclosure that surrounded a calcareous seep/overhang that provides habitat for hundreds of Sacramento Mountain Thistle.
Plants (TE&S and Rare Plants)	Todsen's Pennyroyal populations	INFRA and Botany Files	Sacramento	125 acres within two known pennyroyal sites were visited by the New Mexico Heritage program to get a count of individuals and for general monitoring purposes. At the time of the visits, the plant numbers appeared to be the same as previous years. Comments on the habitat continue to identify the need to thin the pinion-juniper and shrub component around each of the pennyroyal sites to reduce potential for impact from wildfire events. Vegetative samples were collected by the NM Heritage Program, as per their FWS permit, to establish cloning methods at the Albuquerque Botanical Gardens. The NM Heritage Program is the official rare plants repository of data.
Plants (TE&S and Rare Plants)	Flora of the Guadalupe Mountains	INFRA and Botany Files	Guadalupe	An ongoing systematic botanical survey of the Guadalupe Ranger District was documented by a contractor during the spring (March-May), summer (June-August), and Fall (September- November) of 2012. The forest gained site information, location and mapping of plants listed as threatened, endangered, and Region 3 Sensitive that may be found on the Guadalupe Ranger District. In addition, a working list of plant species that may be found in the Guadalupe Mountains will be provided. As a result 25 new plant sensitive species and species of concern were located.
Range	Range allotment	INFRA and District	Forestwide	No significant findings. Permittees are following authorized

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
	administration/annual compliance/utilization	Range files		use, are in compliance with standards and guidelines, and rotation schedules are being met. Using an adaptive management approach by adjusting use in fire and drought situations. Two allotments were affected by the Little Bear Fire and authorized livestock were moved to allotments in non-use status.
Range	Range condition and trend	INFRA and Range files	Forestwide	Generally condition and trend was static in 2012. Summer precipitation varied across the forest, with some areas near average and significantly below average in others. Drought may become a significant issue in the near future.
Range	Range development	INFRA and Range files	Forestwide	Range improvements (infrastructure) such as: fences, pipelines and water features were reviewed with permittees. Mapped locations were adjusted that where incorrect, new improvements were added, and additional improvements recommended. A fencing contract was awarded and work started on 4.5 miles of fence damaged by the White Fire. The Little Bear Fire damaged boundary and interior fences on two allotments.
Range	Watershed, soil, range condition, forage production/utilization, ecological status of scheduled allotments to support NEPA analyses.	INFRA and Range files	Forestwide	No significant findings. Findings vary by allotment and adjustments are documented in Range files.
Range	Elk and livestock demographics and habitat use (In partnership with New Mexico Department of Game and Fish)	Range files	Forestwide	Findings show an increasing impact from elk populations. Populations are increasing in lower elevations. Higher elevation concerns include range allotment fencing and salt problems.
Recreation	Developed sites	GIS and INFRA	Forestwide	As part of an ongoing real property inventory of recreation infrastructure, condition surveys were completed in FY2012. The Little Bear Fire burned over the South Fork Campground, a highly popular developed campground, leaving it closed until further notice.
Recreation	Ski areas	Special-Use files	Smokey Bear, Sacramento	Ski Apache on the Smokey Bear RD opened and had a successful season. This Ski area was burned over in the summer of FY2012 and replacement/repairs were conducted in the fall of FY2013. Cloudcroft ski area was closed in the winter.
Roads	Road Condition and Class Rating	GIS and INFRA	Forestwide	Road maintenance was performed using both the road crew

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				and IDIQ contracts. As a result of the Burn Area Emergency Response recommendations, projects were implemented on roads affected by wildfires. The effectiveness of these projects will be monitored in the coming years. Road decommissioning in the Jim Lewis project area was completed.
Roads	High Clearance Roads Level 1 and 2	INFRA	Forestwide	Installed more than 100 LF of gabion baskets on NFSR 120 C on the downstream side of a low water crossing to prevent erosion from flood damage due to a severely burned area. Reconstructed multiple grade dips on NFSR 108, cleaned associated cattle guards, and redefined creek bed to accommodate proper drainage and make travel lanes more defined.
Roads	Passenger Car Roads Level 3-5	INFRA	Forestwide	Performed light blading and debris removal on all roads in the Little Bear Fire burned area. Installed 10 gabion baskets on NFSR 107 road shoulder, constructed low water crossings, and hauled off up to 500 CY of debris from the road surface. Installed rip-rap along road shoulders of NFSR 107C and removed hazardous building debris. Installed up to 700 tons of Class 5 rip-rap on road shoulder of NFSR 117 elevated the roadbed 3 ft. where road and stream alignment meet, and cleaned cattle guards. Installed gabion basket structures to protect NFSR 127A from erosion.
Vegetation	Forested Common Stand Exam (CSE) and Common Non-Forest Vegetation Sampling Procedures (CNVSP)	GIS, NRIS, and FSVEG	Forestwide	Vegetation monitoring was implemented Forestwide in 2012. Where applicable, conditions are compared to recovery plan guidelines for Mexican spotted owl (MSO) and northern goshawk. Data collection and analysis is intended to: -Document shifts in landscape attributes such as tree density, diameter size class, vegetative cover, and fuel

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				loading post vegetation treatment and /or wildfire. -Document current conditions. -Compares shifts in landscape attributes relative to planning and implementation documents, recovery plans, and applicable research. -Provide information to assist specialists in developing adaptive management strategies in land management planning and implementation. Attributes which are monitored are tree density for all size classes, vegetative cover, surface cover, and dead and down woody fuels. Common Stand Exam (CSE) protocols and Common Non-Forested Vegetation Sampling Protocols (CNVSP) are used as methodologies to assess landscapes. Data collection occurred across a variety of ecosystems from mixed conifer to pinyon, juniper, and oak woodland landscapes. Elevations range from 5,000 feet to 9,000 feet. Approximately 67,612 acres were monitored Forestwide. 711 CSE and 47 CNVSP permanent plots were installed Forestwide. Monitoring intensity varied based on accessibility, time and available resources.
Vegetation	Little Bear Fire Perimeter	GIS, NRIS, and FSVEG	Smokey Bear	Data was collected within the project area from 1998 to 2010. In 2010 36 plots were installed to asses post treatment effectiveness. Treatments assessed in 2010 had occurred from 2003 to 2008; however some removal had occurred in the late 1990's with limited documentation. 19 plots from the 2010 assessment were revisited post wildfire, with an additional nine plots installed in areas without 2010 survey to assess fire effects in both treated and untreated landscapes. **Eagle Planning Area** Pre-treatment tree density averaged 3,000 trees per acre, with a basal area of 108BA. Post treatment trees averaged 529 per acre with a BA of 98. The fire burned generally low to moderate intensity with some patches of stand replacement within the treated area. High intensity stand replacement fire tended to occur where activity fuels had

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				not been treated and where topographical features amplified winds, such as along ridgetops
Vegetation	Akers Wildlife Openings Phase II	GIS, NRIS, and FSVeg	Sacramento	The purpose of this project was to create wildlife openings over 800 acres of pinion juniper woodlands to improve wildlife habitat. Additional forage quality and quantity for emphasis species. This thinning project is expected to increase vigor of browse plants and improve forage habitat, while maintaining sufficient cover for emphasis species.
Vegetation	SCI-Turkey Creek/Robinson Draw Wildlife Habitat Enhancement	GIS, NRIS, and FSVEG	Guadalupe	The purpose of this project was to enhance wildlife habitat and create openings for the benefit of wildlife. This project, conducted in ponderosa pine riparian habitat was designed to restore the open woodland characteristics to the area providing increased forage and open spaces for wildlife use and to provide for regeneration of ponderosa pine. The Turkey Creek/Robinson Draw thinning involved mechanical thinning and removal of pinion and juniper on the landscape. This area now resembles more of the landscape as previously described from times in the previous century. The open woodland characteristic consisting of open grassy areas has also increased the edge habitat, allowing for a greater diversity of wildlife species and birds in the area.
Vegetation	Horse Canyon Fire- Unplanned Ignition for Resource Benefit	GIS, NRIS, FACTS, and FSVEG	Guadalupe	The Horse Canyon Fire was started by a natural ignition (lightning strike) in the summer season of 2012. This fire burned a total of 7,287 acres which included 5,196 acres of NFS lands on the Guadalupe RD and additional acres on National Park Service Land (1,897) and private lands (194). These acres will be available to provide fresh browse and forage for a wide variety of wildlife species including quail, turkey, elk, deer, and other wildlife. The encouragement of fire into the system will reduce brush and mid-story shrubs.
Vegetation	Middle Prescribed Fire Post Monitoring	GIS, NRIS, FACTS, and FSVEG	Guadalupe	In 2012, one prescribed burn area was monitored on the Guadalupe Ranger District to evaluate effectiveness of the burn and to measure if the action accomplished restoration goals for the areas. Results of the monitoring showed significant increase in canopy openings, while retaining clumps of large mature trees across the landscape. Vegetation diversity increased, promoting a grassy

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				herbaceous mix, and the fire was effective in reducing shrubs and juniper sprouts across the site.
Water (drinking)	Routine Testing and Monitoring	Test results and files	Forestwide	All seven Forest drinking water systems were maintained and tested in FY12. All are in compliance with New Mexico Drinking Water Regulations.
Wetlands/Riparian	Stream Enhancement Monitoring	Wildlife and Hydrology Files	Forestwide	The purpose of the Eagle Creek Project was to restore or enhance stream conditions on different segments of perennial streams across the LNF. Methods or techniques varied depending on segments of streams and the need for actions. Techniques included removal or exclusion of cattle from selected stream segments, repair and maintenance of stream exclosure fences, removal and exclusion of unauthorized off-road vehicle use of areas and related management actions. Additional actions included rebuilding of a stream channel, planting of native wetland species into areas and stabilization of the streambanks. Woody debris was placed into sections of the streams in order to provide habitat for aquatic species and herps. Woody debris was also used for organic closures and a way to slow water flow and encourage sediment deposition. Stream segments are improving and regaining function. An area in Pine Lodge Creek containing Rio Grande cutthroat trout is now showing improvement in condition and structure. Segment rehabilitation is expected to regain function and improve in condition.
Wetland/Riparian	Wetland/Riparian monitoring of three passages and willow plantings within Eagle Creek-North Fork Wells area	Hydrology Files	Smokey Bear	Three aquatic organism passages were constructed in 2011. In addition, riparian vegetation was planted and woody debris placed to re-establish habitat. Willows were planted at all the sites. The establishment and effectiveness success of this previous project was being monitored. Monitoring indicated that this was one of the sites destroyed by the Little Bear fire and post fire debris flows.
Wetlands/Riparian	Wetland and Pooled Water Restoration and construction Workshop	Hydrology Files	Sacramento	A hands on workshop taught practical, low cost techniques for building and restoring wetlands and other pooled water resources such as springs, seeps, and stock tanks. The workshop taught the attendees how to select the best locations for building wetlands, test soils, lay out proposed wetlands, choose construction techniques, work with heavy

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				equipment operators, and establish native plants. The class helped with the creation of a wetland and pooled water restoration project and other potential wetland creation sites were discussed and visited.
Wetland/Riparian	Wetland/Riparian monitoring within Aqua Chiquita stream	NRIS and Wildlife Files	Sacramento	Ambient air and in stream temperature monitoring is being performed on Aqua Chiquita and is being captured in reports. Fish habitat stream surveys have been conducted and findings from NMSU are being reported. It is anticipated the LNF will receive a report from NMSU indicating monitoring trends. Monitoring will be continued for the next year to determine if fish habitat is a potential for this stream.
Wilderness	Inventory of Wilderness Values in the Capitan and White Mountain Wilderness Areas	INFRA	Smokey Bear and Sacramento	The New Mexico Wilderness Alliance was able to secure grant funding through the National Forest Foundation to conduct inventory work in the Capitan and White Mountain Wilderness Areas. With the help of 35 trained volunteers, the LNF was able to report accomplished inventory on 5 campsites, 32 invasive plant locations, and 43 points of interest in the Capitan Wilderness and 62 campsites, 34 invasive plant locations, and 77 points of interest in the White Mountain Wilderness.
Wildlife	Burrowing Owl (Athene cunicularia hypugaea) – West Capitan Mountain Area	NRIS and Wildlife Files	Smokey Bear Ranger District	A burrowing owl was located in the West Capitan Mountain area on a fenderleri vs. kuenzleri cacti survey. Transects were being walked with a five person crew with a spacing of approximately 10 meters apart. The burrowing owl was heard in the distance and then spotted flying low within pinyon juniper habitat, elevation in the area is 6,563 feet. Two burrows were found along the fence line of New Mexico State Land and the United States Forest Service boundary. The burrow was located against cholla cacti and under a Pinyon juniper tree and approximate spacing between the two burrows was 15 to 20 feet. The burrowing owl spotted flying south was identified while sitting in the lower one third of pinyon juniper, then confirmed by other crew members when walking towards me by the vocalization of the owl.
Wildlife	Mexican Spotted Owl (MSO) preferred activity center (PAC)	NRIS and Wildlife files	Smokey Bear	The Forest was able to monitor 13,059 acres in FY 2012 and reviewed projects in critical habitat to make sure they

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
	populations including Bonito WUI, Eagle WUI, Perk/Grindstone WUI, Three Rivers, and Carrizo Mountain			met specifications. Areas of critical habitat and PACs did receive annual monitoring (District personnel work listed below) and were administered to standard as recommended in the Mexican Spotted Owl Recovery Plan and according to subsequent biological opinions issued by the USFWS regarding project on the LNF.
Wildlife	Mexican spotted owl (MSO) Perk-Grindstone PAC populations	NRIS and Wildlife files	Smokey Bear	In the field season 2012, 20 of the 23 PAC's were prioritized from high to low priority. The three that did not make the prioritized list were not surveyed due to lack of resource availability. This would include Gavilan P.A.C, Pine Springs P.A.C and Argentina P.A.C. Gavilan was not prioritized in field season 2012 due to the Cree Fire consuming most of the mixed conifer habitat in and around the P.A.C. Pine Springs has been demoted down due to less activity being projected in the area, and Argentina became less of a priority when the owls were only found in the Big Bear P.A.C for several years. A total of 35 surveys were conducted in the 2012 field season in 17 separate survey sites, beginning middle of April to middle of August. It was difficult to survey targeted survey areas four times due to the Little Bear Fire occurring in the areas. If reproductive pairs were confirmed in fewer visits the crew attempted to survey four times; however due to time constraints and the ability of the crew, some P.A.C.s were not visited four times. Brady, Dry, Littleton, Little Bonito, Bluefront, Big Bear, Dark Betsy, Eagle Creek, George Washington, Iron, Kraut, Krause, Walt Smith, Carlton, and Schoolhouse were all visited less than four times. Aspen, Carrizo, and Upper George Washington were not surveyed this year. Areas such as Brady, Littleton, and Carlton were all done in fewer visits because reproduction status was achieved. Reproduction success was witnessed within the Littleton Fire Perimeter. Other areas were surveyed post fire and the nest was consumed by the fire or had been burnt at high intensity levels. Aspen was not surveyed this year due to the fire; it was our initial plan to go out there the week the fire started.

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				The Carrizo P.A.C was not surveyed this year because of time constraints. In the fiscal year 2012 survey efforts resulted in 9 pairs of owls, 5 fledglings, 1 single bird, 1 occupied, and 6 unoccupied areas.
Wildlife	Mexican Spotted Owl (MSO) *Strix occidentalis lucida* within the Little Bear Fire Perimeter	NRIS and Wildlife files	Smokey Bear	16 areas were monitored within the Little Bear Fire Parameter for MSO which fall within the Bonito WUI and the Eagle WUI. The results show that three MSO PACs were destroyed, 5 were impacted, 3 reproduced and 5 are unknown.
Wildlife	Mexican spotted owl (MSO) *Strix occidentalis lucida* Protected Activity Center (PAC) populations	NRIS and Wildlife files	Sacramento	As of 2012, in accordance with the Region 3 MSO Survey Protocol, formal and informal monitoring was completed on 39 PAC's. Results confirmed 21 MSO pairs, 3 fledgling young and 3 MSO males within the PAC's.
Wildlife	Mexican spotted owl (MSO) *Strix occidentalis lucida* Protected Activity Center (PAC) populations	NRIS and Wildlife files	Guadalupe	Within the Guadalupe Mountains, MSO formal surveys began in 1996 and ended in 2004 due to lack of funding. This remained true for FY2012. Currently there are 10 Protected Activity Center's (P.A.C) on the Guadalupe District that provide suitable MSO habitat and at some point showed owl activity. These areas include Big # 1, Middle Fork, North Fork, Upper Big, Black Canyon # 1, Black Canyon # 2, Double Canyon, Gunsight, Lonesome, McKittrick,. Many of these P.A.C's are in close proximity despite owls being territorial. The P.A.C's were designed to cover potential MSO habitat based on suitable habitat. Generally the only data collected during surveys has been owl presence due to the extreme hazards associated with such steep and rough terrain. Occupancy within territories has been determined by compass triangulation. Contractors have developed a successful method wherein they distanced themselves along opposite ridgelines and used coordinated 4-note calls to determine owl presence. Often this technique enabled surveyors to determine overlapping pairs. Rarely is moussing used to help determine reproduction on GUADALUPE RANGER DISTRICT. Moussing is a technique used to help determine reproduction by feeding mice to owls and observing their behavior with it. Reproduction is almost impossible to determine due to severely steep and rough terrain with the inability to follow

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				the owls. Maple trees within shaded areas are indicative to potential owl presence. Three new territories were found to have documented owl pairs or reproduction.
Wildlife	Red Squirrel Population	NRIS and Wildlife Files	Forestwide	The Lincoln completed an objective to establish baseline population and occurrence of Red Squirrels on the forest, and compare Red Squirrel density in areas impacted by the looper (defoliation) resulting in salvage, and comparing with areas of no impact. The findings of the research were that the salvage operations had no statistical impact on the red squirrel or its habitat. Any future information obtained will be used in management indicator species (MIS) population trends and in Forest planning efforts as well as future recommendations. Red Squirrel Middens have been identified in the field both in areas of no impact from the defoliator and in areas impacted by the defoliator, thus resulting in timber salvage actions. A third area for statistical analysis has been identified has been identified as being areas here forest management activities has taken place over 10 years previously. A target 150 middens for the study have been identified, and a total of 100 sites were established. The findings showed the population differences to be statistically insignificant, with the impacts of forest management at a minimum.
Wildlife	Small Mammal Surveys	NRIS and Wildlife files	Forestwide	The Lincoln NF initiated a series of systematic surveys for the Regional Forester Sensitive small mammal species on the Smokey Bear, Sacramento, and Guadalupe Ranger Districts. Initial baseline data gathering on these species across the forest has been started, with the focus on the Smokey Bear and Sacramento districts in this first stage. The Forest expects to gain occurrence information, site information, location and mapping of small mammal species that occur on the districts. In addition, a working list of small mammal species that may be found in the Sacramento and Guadalupe Mountains has been provided to the Forest Wildlife Biologist. In addition, extra survey efforts were focused on the

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				Sacramento RD for the NM Meadow Jumping Mouse. Sites were established, and two new locations were discovered to hold NMMJM individuals.
Wildlife	Breeding Bird Survey	NRIS and Wildlife files	Forestwide	Established and maintained breeding bird survey routes were documented. Surveys were conducted along specific breeding bird survey routes. MIS birds were also noted, when present. The volunteer provided population inventory, data compilation, and mapping all bird species within the Lincoln NF. The breeding bird surveys were complete, and resulted in an updated bird list for the Smokey Bear RD.
Wildlife	Breeding Bird Survey	Wildlife Files	Guadalupe	Surveys were conducted along specific breeding bird survey routes, which included 1200 acres inventoried. MIS birds were also noted, when present. The volunteer provided population inventory, data compilation, and mapping of all bird species from transects preformed along Red Lick and Last Chance Canyon. The information will be used for future Forest planning and project planning and implementation.
Wildlife	Sacramento Mountain Salamander *Aneides hardii* occurrence	NRIS and Wildlife files	Smokey Bear	Sacramento salamanders were present in 1 of the 5 surveyed areas. The elevation range for salamander presence was between 8,017-10,700 feet. Habitat with salamander presence consisted of aspen, mixed conifer, and ponderosa pine trees. Surveys were delayed this year due to the Little Bear Fire and the forest closure. This, along with post fire efforts and other delayed projects, resulted in fewer surveys performed. Surveys beginning in July had low success of salamander presence. Despite abundant rain in August, salamanders were absent from the majority of survey areas. This could be due to the drier climates of these areas, and habitat consisting of more open grasslands with fewer trees, less canopy, less decomposing debris, limited drainages and low elevation.
Wildlife	Sacramento Mountain Salamander *Aneides hardii* occurrence	NRIS and Wildlife files	Sacramento	Presence/absence surveys were conducted from July 10, 2012 until September 11, 2012 by separating search areas into existing vegetation stands and physically verifying species presence or absence within the habitat. Approximately 3,572 acres were surveyed in the four

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				targeted project inventory sites. Among those sites were Pepper Springs & Pepper Canyon, Nelson Vista/Sunspot Hwy, Benson Ridge and Hay Canyon Sally. Of the 3,572 acres surveyed, a total of 1,947 acres had Sacramento Mt. salamander presence. The NM State Salamander working group has recommended that no more than 25% of the District's known occupied habitat have vegetative treatment within a ten year period. The forest has adopted this recommendation and has verified that they are within this 25% treatment level. A continued survey of forest stands allows for informed mechanical thinning and management and ensures salamander habitat is preserved.
Wildlife	Northern goshawk populations	NRIS and Wildlife files	Smokey Bear	The 2012 goshawk season was extremely affected by the Little Bear Fire. Sixteen scheduled survey areas were assigned to the Smokey Bear Ranger District, 14 out of 16 being high priority. Four more sites were inventoried as well. The Madden area located on Carrizo Mountain had previously been surveyed several years before. With the Little Bear fire suppression efforts on going and due to the large area of forest closed because of the fire, we decided to survey that site. The Maverick area needed to be surveyed due to a thinning project pending in that location. The Phillips area needed to be re-surveyed and goshawks were detected within the STOC PAC Flume this year, so two surveys were conducted in that area to determine goshawk presence. Northern goshawks were detected at 8 locations (40%) which included Flume, Gavilan, Grindstone, Mills, Pennsylvania, Schoolhouse, Spring, and Turkey/Argentina. No nests were identified and no juveniles were visually identified, although there were two possible juvenile calls recorded. The results for this year were the same percentages as last year; however we also surveyed more locations than last year. Findings success was still low, but the Little Bear Fire did significantly impact our survey efforts by limiting access into PFAs and even completely impeding our survey efforts in a few PFAs (Aspen, George

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				Washington, and Philadelphia were the PFA's not visited at all due to the fire). There were a number of factors influencing low goshawk occupancy and low reproduction such as prey abundance, human activity, habitat disturbance, forest maturity and weather with the biggest disturbance being the Little Bear Fire. There were areas which can be classified as suitable habitat for these raptors, yet yielded no sightings. Some of the areas where goshawks were not found were surveyed at least four times if habitat was considered suitable for goshawks. One sighting of a northern goshawk was documented during a STOC survey in the PAC Flume. Two follow-up surveys were performed in response to this and presence was determined both times.
Wildlife	Northern goshawk populations	NRIS and Wildlife files	Sacramento	Survey guidelines and protocol were adhered to during call-playback surveys in 10 historical Post-fledgling Family Areas (PFA) during nestling and fledgling stages from June 1st to August 15th. Occupancy was confirmed in the Dario PFA. Pair occupancy was detected as well as the nest along with 2 nestlings on June 30, 2011, both adults were present and the 2 nestlings had begun to develop their dark juvenile feathers. The winter and spring of 2011 was very dry and it is very possible this affected the nesting status and reproduction of the goshawk population of the Lincoln.
Wildlife	Rio Ruidoso Fish Sampling	NRIS and Wildlife Files	Smokey Bear	A portion of the Rio Ruidoso was sampled to monitor native and non-native fish populations. This was also conducted as a preliminary action to review if the river would be eligible for reintroduction of native fish, specifically the Rio Grande Cut-throat Trout. There were several species of fish captured during the monitoring/sampling that was conducted. The most fish caught were brook trout, not unexpected, given that the NMG&F have stocked brook trout in this system (lower down) since the 1950's. Also present were a few rainbow trout, various suckers and darters as well as a chub. No Rio Grande (native species) trout were found in this section of

RESOURCE	MONITORING FOCUS	RECORD LOCATION	DISTRICT	TARGETS, FINDINGS, AND/OR LESSONS LEARNED
				the river. Evaluations are being made as to whether to include this section of the river into the native fish restoration planning.
Wildlife	Butterfly species and Monarch Butterfly Surveys	NRIS and Wildlife files	Forestwide	Surveys were conducted on 1,100 acres within the Lincoln NF to look for butterfly species that may be present on the landscape. A record of historical data, capture methods, and mapped previously known sites was established. Transect locations were determined and established. Survey documentation included time of year, time of day, capture methods, and type of butterfly. Baseline information and a working list of butterflies found on the forest will be used to determine and project occurrence trends for the species. The Monarch butterfly was only present near was sources, and in the lower elevations of the LNF (e.g. 4,500-5,500 ft elevation). Several trick tank drinkers were modified to allow for a steel mesh and shallow escape ramps to be added. This mesh not only acts as an escape ramp for small mammals, but also allows for shallow water use by the Monarch butterfly. The confirmation of the Monarch butterfly presence at lower elevations has allowed the LNF to look at potential management actions that could be added to projects to benefit not only the butterfly but numerous other invertebrates and small mammals. Additional information is necessary for forest planning efforts and for establishing baseline data at the forest level.
Wildlife	Sacramento Mountain Checkerspot butterfly (SMCB) Transplant	Wildlife Files	Sacramento	The 2012 summer season for the adult SMCB was a down year for the population with no larvae tents being detected in any of the larval plots except for the Deerhead Transplant Study Site. During October 3, 2012, Phd Candidate/Butterfly Specialist Rachael Ryan, with the assistance Forest Service Biologist Reuben Gay, discovered a larvae tent approximately 75ft outside of the Deerhead Transplant Study Site. Total of (4) caterpillars were observed during this visit. This was a magnificent discovery due to the extremely low numbers Rachael Ryan and Forest Service Personnel have been finding across the Cloudcroft area. The larvae tent was discovered in a cool microsite

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				shaded by a cluster of tall trees ranging from Ponderosa Pine to Douglas Fir. It is proven that the SMCB will lay its eggs on penstemon in areas where moisture is retained longer in the soils during extended time periods of drought. Rachael Ryan observed several larvae tents in Zinker Canyon and Bailey Canyon (lower). District biologist Jack Williams and Reuben Gay, along with Rachael Ryan, determined that the 2010-2011 drought the Sacramento Mountains experienced, had a lot to do with this decline in population. For instance, during the 2011 adult SMCB flight season (late june-early july), SMCB's were seen and recorded all throughout the 5-6mile radius around The Village of Cloudcroft in record numbers. However, do to the drought there were not many penstemon sprouts or flowering plants where the females could lay their eggs. Forest Service Biologist along with Rachael Ryan then formed (2) hypothesis: **1st Hypothesis**: Just by watching the behavior of the SMCB during the 2011, and going off historic behavioral records, we ultimately believed that many of the SMCBs mated during the 2011 adult flight season but had no healthy host plants (penstemon) to lay their eggs or vegetation to protect the larvae tents. **2nd Hypothesis**: Due to the environmental conditions of 2010-2011 not being conducive to completing the life cycle, larvae may have remained in diapause. Efforts will continue to be made with the research and genetic study work from Rachael Ryan along with research and monitoring from the United States Forest Service & United States Fish & Wildlife Service to determine the effect the recent drought has caused on the population.
Wildlife	Butterfly surveys including the Sacramento Mountain Checkerspot butterfly (SMCB)	Wildlife files	Sacramento	A series of systematic surveys for Butterfly species were conducted. The District monitored 9 established plots for SMCB larvae to stay in compliance with the SMCB

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				Conservation Plan. The district also monitored for adult butterflies in established transects to compare to previous years. Adult butterflies were found in three of the nine areas monitored.
Wildlife	Bat Inventory and Monitoring	Wildlife Files	Forestwide	In 2012, bat monitoring continued across the Lincoln National Forest. Permanent monitoring sites were established, with monitoring to occur 3 times a year to begin to establish trend and use information. Data collection is being coordinated with Eastern New Mexico University. A working list of bats that occur on the Forest has been updated. The sites of occurrence, locations, habitat and season of capture are being documented. Eastern red bats were caught in the nets, verifying range expansion of that species. In addition, a tri-colored bat was also captured, which may either be an incidental or another range expansion. Further seasonal information provided bat activities at high elevations extended into November, one month later than previously believed.
Wildlife	Bat Inventory and Monitoring	NRIS and Wildlife Files	Sacramento	Areas with perennial slow moving water along forested areas were selected as monitoring sites. Methods of monitoring included mist netting and acoustical monitoring along selected water sites (passive and active). Surveys were conducted April through September 2012. Bats captured were identified to species, age and sex, and were also examined for any signs or symptoms of White Nose Syndrome (WNS). All handlers followed established WNS decontamination techniques, and were current on protective rabies vaccinations. A working list of bats that occur on the Sacramento Ranger District is currently being maintained. All capture and detection results can be found in an excel file on the district.
Wildlife	Bat Inventory and Monitoring	NRIS and Wildlife Files	Sacramento	A list of bat species was documented in 1994 during the contract survey work of Dr. Bill Gannon (et.al.) of UNM. The Gannon survey is the last comprehensive bat study conducted on the Guadalupe Ranger District to date. This list of 15 species was used to inventory and monitor the following locations in FY2012:

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				• Q. Hays, Guadalupe Ranger District personnel: Hidden, Cottonwood, Gunsight; for bat species presence and I.D. and MSO activity, • LNF & Guadalupe Ranger District personnel: Pink Dragon, Gunsight; MSO & bat activity, roost locations • Sacramento Ranger District& Guadalupe Ranger District personnel: Gunsight; exit flight bat count • D. Beecher & Guadalupe Ranger District personnel: Cottonwood; hibernacula survey • Hi Guads Volunteers: White Mule; Hibernacula survey Guadalupe Ranger District personnel & volunteers: Cottonwood; Acoustic Monitoring equipment emplaced.
Wildlife	New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus)*	Wildlife files	Sacramento	• 2012 trap efforts were conducted between the dates of 07-Jul-12 and 30-Aug-12. Four Historic Morrison trap sites were surveyed (Rio Penasco/Cox Canyon, Lower Silver Spring, Upper Agua Chaquita(Sand/Barrel),and Upper Rio Out of the 3480 trap nights, 3 *Z. h. luteus* were found at 2012 trap site locations. Specifically, two male NMMJM were captured at the wetland located at the intersection of the Upper Rio Penasco). Penasco road and Highway 130 (Cox Canyon). Both scrotal *Z. h. luteus* were captured on 12-7-12. The third NMMJM was caught at the Lower Mauldin enclosure. This specimen was a female, non-reproductive *Z. h. luteus*, captured on 29-Aug-12. Their measurements were nearly identical to that of the type of (Frey, 2007).
Wildlife	Zone-tail Hawk	Wildlife Files	Sacramento Guadalupe	Incidental siting of the zone-tail hawk occurred in Dark Canyon on the Guadalupe and the Rio Penasco drainage on the Sacramento District. Seven individuals were observed. Most were over water sources.

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Wildlife	Gray Vireo monitoring	Wildlife and Volunteer Files	Guadalupe	Post-fire monitoring of the Gray Vireo was established to observe and document the use of areas that had been impacted by wildfires. To insure complete coverage and increase the probability of detection, a contractor conducted surveys on 300 acres twice during the field season. Observations were made on presence and nesting use of the post –burn area. The information indicates a definite post-wildfire use of the area by the Gray Vireo. It appears that the birds used the more open grassy area that resulted from post fire conditions as a foraging area.
Wildlife	RX Photo Monitoring Project	GIS, Wildlife/Sikes Files, NMG&F	Guadalupe	The purpose of the photo monitoring project is to provide a visual prescription of the area that was treated by prescription fire. Photos that are provided in the report document before and after photos showing extent of regrowth and re-establishment of grasses and forbs as well as other visual changes.
Wildlife	Sikes Habitat Stamp Program (HSP) improvements	GIS, INFRA, Wildlife/Sikes Files, NMG&F	Forestwide	Additional habitat improvements were placed across the Forest and monitoring established. Sikes data was consolidated into a New Mexico Dept. of Game and Fish geodatabase. Trick tanks were installed in four sites on the Lincoln National Forest in 2012. Nygren trick tank was put into place on the Guadalupe Ranger District, Wofford, and Lookout Trick Tanks on the Sacramento Ranger District and Salazar Trick Tank was added on the Smokey Bear Ranger District. Jeffries, Lone Pine and Culp Trick Tanks were replaced. These provide a water source for wildlife, in an area that normally has little water resources. These benefit wildlife by providing a necessary component for survival. Maintenance was successfully performed on exiting NMG&F Habitat Stamp Program projects to prolong the life of existing projects during the 2012 field season except for tanks and sites located on the Smokey Bear Ranger District due the Little Bear Fire. Maintenance activities were necessary to provide a reliable source of water, food,

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				and cover for wildlife in areas where habitat improvement occurred. Due to the drought and pressure from cattle and wildlife, extra effort was taken on riparian fence exclosures because these fences are the ones most often damaged and non-functional.
Wildlife	Sikes Habitat Stamp Program (HSP) improvements	GIS, INFRA, Wildlife/Sikes Files, NMG&F	Smokey Bear	The Lone Pine Water Catchment Project was a collaborative effort between the LNF and the NM Game and Fish. Its dual purpose is to improve conditions for both wildlife and livestock within the burned area of the 2011 White Fire. This was a multi-funded project. This effort established a 70 by 70 foot water catchment, along with three 5,000 gallon tanks for holding collected water. A dedicated wildlife drinker as well as a separate drinker for livestock was installed in order to provide water in a dual use capacity. A fence enclosure was erected around the project to protect the water catchment pad from potential livestock impacts. Benefits to wildlife from this project will be monitored over the coming years. Salazar trick tank was installed for wildlife along the southern slopes of the Capitan Mountains. The project involved the placement of a 3,500 gallon storage tank used to catch and hold rain water, a trough style metal drinker was installed to provide the water supply for wildlife, and enclosure fence to protect the development from livestock disturbance. The purpose of the project was to increase availability of water for wildlife year round. Blue Lake Wetland Creation was scheduled for completion in September of 2012 but was delayed until April 2013 due to the Little Bear Fire.

For additional information, go to http://www.fs.fed.us/r3/lincoln/ or contact the Lincoln National Forest Supervisor's Office at 575-434-7200.