



Forest Plan

Monitoring and Evaluation Report

Lincoln National Forest

Fiscal Year 2003

**United States Department of Agriculture
Forest Service**

Southwestern Region

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Monitoring and Evaluation Summary—FY2003

Lincoln National Forest Plan

Introduction

The purpose of this report is to inform the Forest Leadership Team, other 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 continuation of the 2002 monitoring report, and includes past and present monitoring activities. This report provides a summary of monitoring activities for fiscal year (FY) 2003. If additional information is needed, please refer to Appendix A.

Setting the Context

What's New? — In 2000, the United States suffered its worst wildland fire season in 50 years. And, 2002 was the second-worst fire season in modern history. “The catastrophic wildfires of recent years are not happenstance. They are the culmination of a century of aggressive fire suppression coupled with massive buildups of dense undergrowth—causing forest conditions to deteriorate.”

At the National level, the Healthy Forests Initiative (HFI) provides the Forest Service and the Department of Interior agencies with new tools, better procedures, and increased funding to restore the health of our forests and rangelands. On December 3, 2003, President Bush signed into law the “Healthy Forests Restoration Act of 2003” (HFRA), also referred to HR 1904. The Act consists of several titles covering areas such as: hazardous fuels reduction on Federal land, biomass, watershed forestry assistance, insect infestations and related diseases, healthy forest reserve programs, and forest inventory and monitoring.

The passage of HFRA was the first major piece of environmental legislation since the National Forest Management Act of 1976. Field guides explaining the different authorities under the HFRA and implementation were developed in early 2004. Under the HFRA, the Southwestern Regional Forester established five focus areas for management of the Southwestern National Forests. The five areas are: 1) assist in protecting communities adjacent to National Forests, 2) contribute to the economic vitality of communities, 3) restore ecological functionality of southwestern forests and rangelands, 4) ensure a safe and healthy work environment, and 5) supervision and leadership. For additional information about the HFRA or HFI, go to the website <http://www.healthyforests.gov/>.

At the local level, the National Forest County Partnership Restoration Pilot Project was established in 2003. The Project is a partnership between the Lincoln National Forest

and counties included within the Forest's boundaries. As an oversight group, it was identified to develop a strategic approach to improve ecosystem conditions using the best natural resource science available. The oversight group, in collaboration with surrounding communities, will develop landscape and site-specific projects that accomplish watershed restoration goals during FY2004 and beyond.

Community Vitality – In the Southwest, we continue to see a shift in trends that affect Forest Plan direction, goals, and objectives. Demographics highlight an older-aging population. With this shift, managers will need to consider more programs that are amenity oriented.

We are also seeing an increase in Forest visitors of all ages. This trend will increase the kind and number of recreational opportunities available—appropriate to this change. Visitors are expecting better access to the Forest and we are continuously addressing the public's various needs.

The implementation of the Forest Plan and multiple-use ethic continues to create difference among Forest users. An increase in administrative project appeals and litigation demonstrates the public is very interested in the use of public resources.

Specific human dimension program areas needing future analysis and possible modification at Plan revision are:

- Transportation system and roads analysis
 - o What roads and trails will be available for public use or additional resource needs?
 - o What uses will be allowed and are we considering all uses to protect resources?
 - o What right-of-ways are needed?
 - o How can we better manage off-highway-vehicle use and control resource damage?
- Public land use, land exchanges, and special uses
- Allowable sale quantity of wood products
- Economical availability and utilization of small-diameter wood products
- Recreation opportunities
 - o Are developed recreation sites adequate in kind and number?
 - o Are the variety and number of dispersed recreation opportunities adequate?
 - o What are our existing and future maintenance obligations?
- Heritage-resource management
 - o What National Register sites established since 1986 need to be incorporated?
 - o What standards and guidelines developed since 1986 need to be incorporated as appropriate?

- Elk and livestock forage competition
- Water yield, water quality, and water use
- Wildland-urban interface management for the reduction of catastrophic fire risk
- Re-introduction of native species (Rio Grande Cutthroat trout, beaver, Desert Bighorn sheep) to the Forest
- Biomass/small-diameter wood utilization

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

Ecosystem management concepts, upon which the future Plan Revision will be built, include: 1) an increase in the number of listed threatened and endangered plants and animals, 2) an increase in knowledge of the function, processes, and interrelationship of ecosystems, and 3) a recognition that thresholds exist beyond which those ecosystems may no longer be sustainable.

Specific Plan modifications to be considered during Plan Revision are:

- Watershed
 - o Strengthening ecological objectives
 - o Clarifying existing and desired conditions of riparian habitats
 - o Clarifying achievable standards and guidelines
- Fire
 - o Incorporating natural fire and other fire uses into the appropriate ecosystems
 - o Emphasizing wildland-urban interface
- Range and Wildlife
 - o Reassessing wild ungulate and livestock management
- Invasive plants
 - o Incorporating invasive weed treatments and accomplishments
- Forest health
 - o Identifying resource areas with more urgent needs
 - o Describing baseline forest health conditions through monitoring activities
 - o Strengthening programs to address resource needs
- Threatened, endangered and sensitive plants and animals
 - o Evaluating single-species management in the context of a whole ecosystem
 - o Manage habitat for TE&S to prevent jeopardy and formal listings

Monitoring Results

Introduction

The Lincoln National Forest monitoring and evaluation program has two components--informal and formal monitoring. Monitoring results have been summarized below and additional information can be found in Appendix A.

Informal Monitoring

Informal monitoring is conducted during administrative and operational activity field visits. Although the majority of the monitoring is conducted by Forest employees, our partners and the public also participate. Below is a summary of some informal monitoring activities during FY 2003.

Restoring Ecological Functionality

Invasive-plant-population monitoring involves looking for changes in current densities as well as new infestations, and determining the effectiveness of current and prior-year treatments. Over 3,000 acres of invasive-species were monitored in 2003. We found most treatments to be effective and some areas needing follow-up treatments.

Surveys were conducted for range analyses and project-level clearances for the following Federally listed and Forest Service sensitive plant species: Kuenzler's cactus, Bigelow's clematis, Scarlet penstemon, White Mountain larkspur, Wright's marsh thistle, Wootton's hawthorn, and the Sacramento prickly poppy. Kuenzler's cacti were found in locations beyond its previously understood range and at higher elevations than in the past.

Contributing to the Economic Vitality of Communities

On the Lincoln National Forest, Economic Action Programs (EAP's), as well as Rural Community Assistance Programs, are assisting communities and businesses dependent on Forest products to become sustainable. A few examples follow.

- The Bookout Thinning in Cloudcroft, NM, was a 2003 recipient of an EAP grant. Grant funds helped to purchase a truck, trailer, grapple loader and chainsaw. The equipment enabled the small business to remove in excess of 10,000 board feet of small-diameter wood and 100 tons of chips.
- In 2001 and 2003, Sierra Contracting, Inc. in Ruidoso, NM, received EAP grant to purchase equipment, and fund marketing and advertisements for its compost products.
- SBS Wood Shavings in Glencoe, NM, received an EAP grant to purchase manufacturing equipment. This facility utilizes small-diameter wood derived from

forest and watershed restoration efforts in and around the Village of Ruidoso and Lincoln National Forest areas.

See Appendix A for additional information on the above mentioned Economic Action and Rural Community Assistance Programs.

Helping Communities Protect Themselves from Fire Threats

In 2002, the National Fire Plan was integrated with local communities'/governments' management plans. For example, new landscaping codes were announced to Village of Ruidoso residents in early 2003. Five subdivisions in the southwest corner of the Village were selected to receive the first notification enforcing the new regulations. This area was selected because the prevailing wind direction places them in jeopardy of wildfire that could increase the fire danger for the entire Village. By November 2003, 68 lots were inspected by the Village and certified as conforming to the new requirements; and, a reduction of materials causing fire hazards on another 49 lots was in progress. One-hundred percent of the materials from the Village fuels-reduction efforts were recycled. In addition, small-diameter trees were used to produce animal bedding; and, compost was created from other waste. This effort is on-going.

Providing Quality Leadership

The Forest Service, Southwestern Region, and the Forest continue to relay, interpret, and present information about the Healthy Forests Restoration Act of 2003 and its effects on other agencies and private land owners. In addition, the Act has helped to strengthen partnerships among those affected by wildland fire.

The Lincoln interagency fire organization continues to improve their emergency communications plans that include pre-identified staging areas and staging area managers. This has increased coordination among the Forest Service, volunteers, cooperators and partners. The groups frequently review responsibilities, share training, and inspect equipment. In addition, the Forest Service and local fire organizations, within the various surrounding communities, conduct emergency exercises to test the fire plans. Necessary adjustments are discussed and incorporated before an emergency.

Formal Monitoring

Formal monitoring is conducted in accordance to monitoring plans at the project or program levels, and during administrative and operational activity field visits. Some examples of formal monitoring activities conducted during FY 2003 are listed below.

Restoring Ecological Functionality

Surveys and inventories were conducted on some Southwestern Region and Federally threatened plant species. Surveys for rare plants and monitoring of re-vegetation and succession in burned areas continued in the Scott Able Fire area (2003 is year two) of a

four-year contract. Extensive monitoring of 80+ occurrences of the Federally threatened *Cirsium vaniceum* was conducted as well as additional monitoring of other species.

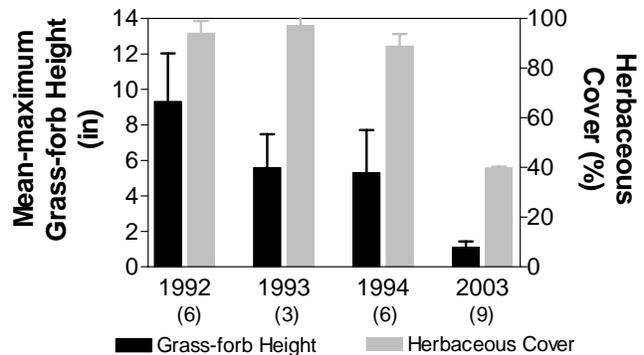
Biological monitoring and analysis was conducted on the Sacramento Ranger District during 2003. See Appendix A for additional information on this type of monitoring and plant species monitored.

Management Indicator Species (MIS) monitoring during FY 2003 included sampling in montane meadows. The sampling objectives were to:

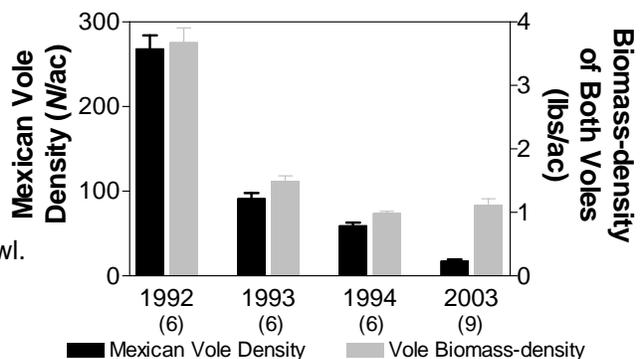
- 1) evaluate an existing model that relates height and percent cover of herbaceous vegetation to abundance of two species of vole that are common prey to Mexican spotted owls.
- 2) quantify the change in vegetative measurements from the early growing season (May/June) to later in the growing season (mid-late Aug.)
- 3) collect data by plant species (rather than independent of plant species as was done for the original model).

These objectives were deemed fundamental to understanding and maintaining habitat conditions for Mexican voles—a Sacramento Ranger District montane meadows primary MIS. To accomplish the monitoring, 10 meadows were selected from the set of possible “key grazing areas” as defined by the MSO Recovery Plan (1995). University skilled biological science technicians developed the design and data collection protocol; and, they collected the data. The graphs depict trends in vole habitat and density.

The graph to your right helps to display the decline in herbaceous plant height and cover within the 10 meadows on the Sacramento Ranger District.



The second graph to your right shows an abundance of Mexican voles (a Management Indicator Species), and an abundance of two voles species (Mexican and long-tailed) that are common prey of the threatened Mexican spotted owl.



Number of sites sampled is shown in parentheses below each year.

Graphs by Dr. Pat Ward, RMRS

Actions conducted by the Forest have both a direct and an indirect impact on the protection or improvement of water quality from a sub-watershed scale to a landscape scale. As part of the agreement with the State of New Mexico under the Non-Point Source Program of the Clean Water Act, the following activities were reported in FY 2003.

On the Smokey Bear Ranger District:

- Fourteen miles (on-going) of perennial streams surveyed in the White Mountain Wilderness for perennial stream classification and verification.
- Ski Apache watershed improvement for the reduction of silt and soil movements into stream channels. Channel stabilization, seeding, and stream bank protection is on going.
- Five acres of riparian improvement done in Philadelphia Canyon. A livestock enclosure fence was built around a natural pond.
- Thirty-seven acres of spring enhancement accomplished in Gum Springs.

On the Sacramento Ranger District:

- Four hundred acres treated for wildlife openings in the Calico Peak area (100 acres savannah, and 300 acres wildlife) and 400 acres treated in the Bible Canyon area.
- Reconstruction of Sacramento Lake fence on 15 acres of riparian lands along the Sacramento River.
- Two miles of riparian improvement fence enclosures on Sacramento River.
- Eight structure (rock header dams) improvements for riparian enhancement along the Aqua Chiquita.
- Approximately five miles of National Forest System Road 239 treated as part of the Scott Able Burned Area Road Maintenance Project involving 115 rolling grade dips, and 4.2 miles of compaction of an aggregate base.
- Eight miles of riparian improvement fence enclosures accomplished along the Aqua Chiquita.
- Six miles of riparian improvement fence enclosures along the Sacramento River.
- Four acres of riparian improvement fence enclosures in the Mauldin Springs riparian area.
- Ten acres of riparian improvement fence enclosures in the Hubble Springs riparian area.
- Twenty acres of riparian improvement fence enclosures in the Silver Springs riparian area.
- Four acres of riparian improvement fence enclosures on the Western riparian area.

The Forest experienced the Homestead fire in 2001, the Peñasco Fire in 2002, and the Walker and Ski Run Fires in 2003. As the drought continues, so does the possibility of catastrophic fires. In the late stages of a fire, burned area emergency rehabilitation (BAER) teams are quickly mobilized to assess a burned area, its effects locally, and the potential down-stream effects. Where potential problems are noted, appropriate mitigating action is taken to help avoid damage. Within the Ski Run fire area, several areas were reseeded by helicopter; and, sediment retention structures, trash racks, and

tree felling were done in intensively burned area. This type of rehabilitation work proved effective in protecting the Eagle Creek well system. It also saved the existing road structure used by summer-home owners.

Required Range-Settlement-Agreement monitoring is conducted three times a year—1) in April prior to livestock occupying the area, 2) during mid-season for cover of the vole (prey species for the owl), and 3) to check forage utilization (how much did the animals eat). During FY 2003, range monitoring on the Sacramento Ranger District included pre-season monitoring of high-elevation allotments. Thirty-four key areas were monitored within 17 allotments to determine range readiness of forage species for grazing. During mid-season (July 15 through August 1) the 17 allotments were monitored for prey-base cover in meadow sites. In addition, summer allotments were monitored during mid-season to help project forage growth during the expected end-of-season drought period.

Elk and livestock monitoring were conducted on the Sacramento Allotment to determine if actions taken by the New Mexico Game and Fish, and the Forest Service are affecting forage utilization rates on the Sacramento summer range. The District has requested a reduction in the elk population to a number previously set by the New Mexico Department of Game and Fish.

Contributing to the Economic Vitality of Communities

The effects of State and Federal grant funds continue to stimulate local economies and protect surrounding communities. Seventeen grants and \$2,130,542 were awarded in fiscal years 2001-2004 to communities and small businesses. The funding helped businesses support projects that create small-diameter wood materials. See Appendix A for additional grant information and the grant recipients.

Recreational visits to Forest caves continued under the visitor-permit system. Four caves (Three Fingers, Virgin, Madonna, and Wonderland) were closed to recreational caving while conducting restoration work. And, three other caves had seasonal closures for biological concerns. Restoration work conducted by the High Guads Restoration Project (HGRP) volunteer caving was valued at approximately \$61,000. In addition to restoration work, trail delineation, cave monitoring, impact mapping, and bat-exit counts were also conducted throughout the year. Cave monitoring was conducted in the Red Lake, Cottonwood, Pink Panther, Black, and Sentinel caves. Monitoring results from trips to these caves and other caves entered during FY2003 included: current gates helped to prevent illegal entry and reduced formation collection, some additional impacts to formations were noted, clean shoe areas were being observed, cleanup and restoration work done by volunteers were successful, retaining walls/areas were holding, and re-routed trails were reducing impacts.

During FY2003, the Forest was selected to participate in a nationwide recreation-use survey. The National Visitor Use Monitoring Project involves collecting recreation-use information from visitors as they leave recreation sites. Information gathered during the Project will be used to estimate the total number of visitors to National Forest System lands for a one-year sample period. Accurate numbers are

necessary to improve customer service through well-maintained and managed recreation facilities and experiences. The information is also used for forest planning—i.e. describing the existing environment and projecting recreation/tourism economic benefits. The Project is expected to occur over a three-to-five year period with surveys repeated once during the Project period.

Helping Communities Protect Themselves from Threats

Over the past few years, we have experienced a rapid expansion of hazardous-fuels-reduction programs on Forest land and private property within and adjacent to Forest land. Some results of hazardous fuels reduction programs include: strengthening partnerships among various Federal, State, County and city governments; shifting of Federal funding to address citizens' understanding and involvement in resolving problems; increasing involvement in local fire-prevention programs; increasing emphasis and support toward quick, effective resource rehabilitation; and adding emphasis on acquiring Federal grants.

Providing Quality Leadership

The Forest is working toward a complete inventory of all Forest roads. Each year several miles or a percentage of the transportation system is inventoried. During the inventory, maintenance needs and road conditions are only a few items among many entered into a data base. We are finding additional roads that are not on our current inventory—those roads are added.

The Roads Analysis for levels 3-5 (passenger-level roads) was finalized in January 2003. There was no monitoring or inventory requirement associated with the Analysis. However, the Forest transportation system was further classified categorized into areas of value and risk; and, recommended management measures followed. In addition, new Forest recreation maps and future map updates indicate single jurisdiction and agency signing. Cooperative agreements with adjacent counties and highway departments help to ensure a better maintained transportation system.

Evaluation

What was Learned

Throughout the years, the Forest continues to apply what they learn from monitoring and evaluation activities. Adjustments are made in the way the monitoring program is executed as well as adjustments to inventory processes. Some examples are listed below.

- Forest fire-prevention technicians are also being trained in secondary positions such as staging managers and fire information officers. The districts now have staging managers who quickly respond to fire emergencies. In the past and during fire emergencies, volunteers would show up and start doing what they could. Now the staging manager, all volunteers, local residents, etc. meet to receive assignments.

- Some Forest roads had multiple-jurisdiction signs (more than one sign and signs from various agencies i.e. county, state, and/or Forest Service). This type of signing was not only costly to the agencies but also confusing the public. In most areas, we have changed to single-jurisdiction signing and developed cooperative agreements that allow sharing of road maintenance responsibilities among the State and counties. We are also updating Forest maps to reflect these new changes.
- Through road inventories, we found several roads not currently displayed on Forest maps. In addition, we found some railroad grades and creek bottoms indicated as roads. Corrections have been applied.
- During Forest Service sensitive-plant-species surveys, conducted for Range analyses and project-level clearances, we found Kuenzler's cacti in locations beyond its previously understood range and at higher elevations than in the past. In response, we have expanded our inventory and survey areas. We are also utilizing global positioning systems (GPS) to map current locations and to easily relocate known species.
- In monitoring past prescribed burns to determine the long-term effects and recovery of the vegetation, we have altered "burn windows" based on findings. The monitoring has also strengthened our understanding for the need of repetitive treatments over time.

Key Findings and Forest Supervisor's Certification

The Forest made great progress in 2003 in areas of hazardous fuels reduction, forest management, and restoration. Projects on the Lincoln National Forest were aimed at decreasing dangerous densities of trees and vegetation, enhancing watershed conditions and a variety of plant and animal species, and stimulating local economies.

In addition, the Healthy Forests Restoration Act of 2003 was signed into law and the County Partnership Restoration Pilot Project was enacted.

In 2004, a contract will be awarded that would evaluate and amend the Forest Plan to reflect the 1995 and 2001 Wildland Fire Policy. Since implementation of the Lincoln's Land and Resource Management Plan in 1986, four corrections and eleven amendments were completed. Corrections and amendments include the Southwestern Region "Final Environmental Impact Statement, For Amendment of Forest Plans"; to incorporate Mexican spotted owl and Northern goshawk management direction. The most recent amendments modified the Mexican spotted owl monitoring program and established management prescriptions for river segments eligible for suitability analysis as wild and scenic rivers. You can find these amendments on the Forest website at <http://www.fs.fed.us/r3/lincoln/projects/index.shtml>.

Due to new Congressional direction, the Lincoln National Forest Land and Resource Management Plan revision processes are scheduled to begin in 2007.

The Lincoln National Forest Plan as amended is sufficient to guide management of the Lincoln National Forest over the next year. As identified in this document, changes will be necessary at Plan revision.

Jose M. Martinez

August 25, 2004

JOSE M. MARTINEZ
Forest Supervisor

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.

Information in this report 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.

Jose Martinez--Forest Supervisor	Richard Newton—Heritage Resource Staff
Ron Hannan—Forest Planning & Timber Staff	Shelly Pacheco—Forest Safety Officer
Larry Cospers--Range, Soils, Water, Botany, & Wildlife Staff	Johnny Wilson—Land, Minerals, & Recreation Staff
Severo Cosyleon—Engineering Staff	Paul Schmidtke—Fire Staff
Louise McGuire—Administrative Officer, Grants & Agreements	

Informal Monitoring

Baseline inventories, and implementation, effectiveness, and validation monitoring are four broad categories or stages monitored. For the past 11 years, some of these types of monitoring activities have been documented on Forest monitoring forms. A summary of the past 11 years monitoring worksheets is listed below followed by additional monitoring activities conducted during FY 2003.

Table 1. Number of Informal Monitoring Activities from Monitoring Worksheets

YEAR	BASELINE	IMPLEMENTATION	EFFECTIVENESS	VALIDATION	TOTAL
1993	14	45	33	0	92
1994	16	28	55	0	99
1995	27	58	34	5	124
1996	44	65	49	2	160
1997	30	85	19	5	139
1998	52	128	135	2	317
1999	3	145	36	3	187
2000	15	94	36	5	150
2001	2	137	0	0	139
2002	9	138	14	0	161
2003	0	189	3	0	192

The worksheets are only one way of documenting monitoring activities. Other types of monitoring are often documented in news releases, various reports, and presentations. Below are a few examples of documented monitoring in FY 2003.

Recreation--Because Off-Highway Vehicle (OHV) recreation is recognized as an opportunity for economic growth by the State of New Mexico, the forests in New Mexico have an opportunity to support the State Department of Tourism's OHV program initiatives and the Forest Service National initiative on OHV management. The State is currently considering legislation to create an OHV registration fee that will fund development of OHV oriented recreation facilities. Because of National and State initiatives, an increased Forest emphasis is needed on management of off-highway-vehicle recreation. The emphasis will help to protect resources and provide recreational opportunities. The Forest Service has a Draft OHV Policy that can be found at www.fs.fed.us/r3/lincoln.

The Cedar Creek picnic area reconstruction consisted of paving parking areas and improving access to picnic areas; and, area trails were upgraded to the American's with Disabilities Act (ADA) standard. Future plans for this site include adding a site host in 2004.

Cave inventories were conducted on all three districts in 2003. Cave crews located known caves, entered them and conducted hazard and content ratings (as described in the Lincoln National Forest cave ecosystem management direction).

Range—The review of Allotment Management Plan (AMP) annual operational instructions, as well as range monitoring, are often accomplished in partnership with range permittees. This process provides opportunities to discuss options and make necessary adjustments. The Smokey Bear Ranger District reported "working relationships are strong among range staff and permittees on the District."

In addition to the monitoring efforts, the Forest is striving to automate range constructed features (tanks, pipelines, fences, etc.) by either adding or adjusting mapped on-the-ground features. Two districts also reported making progress on getting past monitoring activities into the Forest INFRA Range data base.

The picture to the right is of the Upper Carr picnic area and cattle being moved from one to another.



Photograph by Linda Cole, LNF

Trick-tank monitoring included: checking fences and road access, and tank conditions, usage, and design effectiveness. Areas surrounding the tanks are also monitored to ensure campsites are not built close to or around “drinkers.” Monitoring helps to verify the “drinkers” are getting a lot of usage.

Elk and livestock competition issues are ongoing. Permittees are required to maintain their fences--the elk are tearing them down. This brings different management issues on how to reconstruct the fences to allow for elk crossings.

Invasive-weed monitoring is being conducted before and after treatments. In most cases, treatments were successful in outlying and small areas. However, in large areas such as the Cree fire area on the Smokey Bear Ranger District, there is less success. Large-area treatments are being contracted and treatments are being applied with a boom sprayer.

Threatened, Endangered, and Rare Plants—With the continuing drought, there is growing concern about endangered species on the Forest. For example, some mature cacti are unhealthy, dead or gone. However, seedling cacti are present. It appears the drought killed the healthy, mature plants--causing the discarded seeds to germinate and new seedlings to appear.

Monitoring the life span of new seedlings in drought conditions is challenging. Because many sites are difficult to relocate, the districts are utilizing Global Positioning Systems (GPS) and Geographic Information Systems (GIS) to locate and map known sites.

Fire and Fuels Management-- Fire restrictions were imposed during the summer of 2003; and, closure orders and restrictions were put in place. The restrictions were the result of various conditions being established at the beginning of fire season. And, when they were met, the restrictions or closures were immediately put into action.

Through a new memorandum of understanding (MOU), employees are trained in the use of air/smoke monitoring equipment. Trained Forest employees are able to predict and evaluate smoke patterns before and during fuels projects. After a treatment, burn bosses evaluate whether objectives were met and complete prescribed-fire evaluations for each burn.

The Smokey Bear Ranger District established photo points in areas that will have or have had mechanical treatments. Photos are taken before, during and after treatment, and will cover a five-year period.

Thinning on private land continues to increase in the Cloudcroft area. This is mainly due to an area being provided to Cloudcroft residents for the disposal of vegetative



Photograph by Margo Whitt, LNF

material from thinning on their private property. Known as the National Forest Slash Pit, the area is monitored to control the nature of material deposited and prevent overload between burns.

In the picture to the left, the slash pit is located below and in front of the dirt/rock wall. The picture below shows the slash-pit debris being burned.

Monitoring showed up to 75 loads a day being taken to the pit. When conditions are favorable for burning the type and amount of debris, the slash is burned. Local and Forest Service fire departments help monitor the burn and amount of smoke.



Photograph by Margo Whitt, LNF

Vegetation Program--Effectiveness monitoring on under-story thinning was done in the Dark Canyon area of the Guadalupe Ranger District. Monitoring was done to determine whether the area had a successful regeneration of ponderosa pine and to determine if species composition was shifting. They found a good species shift and ponderosa-pine development improving. However, in other areas, the project was stymied by lack of grazing control, design problems, or for reasons outside our control. Observations such as these become part of the adaptive management opportunities applied to similar, future projects.

Long-term vegetation effects and recovery are items monitored within past prescribed-burn areas. The districts compared expected results with current conditions to determine whether or not the burn intensity was adequate. The findings helped to alter implementation "burn windows."

In 2003, initial monitoring at the Hale Lake Project, treated in 1997 with prescribed fire, showed an increase in forbs and grasses within treatment plots. In comparison, control plots (untreated) showed a decrease in grass and forbs composition over the same time period.

Heritage Program—The rapid expansion of hazardous-fuels reduction programs is causing an excess workload for the New Mexico State Historic Preservation Office (SHPO) and U.S. Fish and Wildlife Service. During FY 2003, heritage surveys supporting Forest projects resulted in locating 63 additional cultural sites.

Existing sites like the Mexican Canyon Trestle, constructed in 1899 and listed on the National Register of Historic Places, continues to be monitored annually. Because this site is strongly connected to the identity of the Cloudcroft community, it attracts many visitors. The Trestle is in an accelerated state of deterioration; and, at a minimum, needs stabilization. (Long-term restoration is another consideration.) The initial funding needs were identified to be \$1,000,000.

Transportation--Transportation system monitoring led to the need to replace existing road signs, change some sign locations, and place additional and/or new signs in high-traffic areas. To reduce resource impacts, the Guadalupe Ranger District identified roads for closure and roads to be relocated or redirected. They also identified needed road maintenance and flood damaged roads.

Due to the remoteness of many transportation corridors, the district employees are the “eyes and ears” for county road and the State Highway departments. District employees monitor and identify road concerns; then, work with the counties and highway departments on maintenance and signing. On Forest roads, the districts are adjusting signs on closed roads, monitoring where the public has difficulty either interpreting signing or dealing with the lack of signing, and adjusting to better meet public needs—i.e. is the signing adequate, in the right place, understandable, etc.

Due to the remoteness of Sitting Bull Falls on the Guadalupe Ranger District, the District has added additional signing to help educate the public as they approach the fee-demo area. In addition, they are testing signing on closed roads to include the cost of fines such as “A \$100 fine for proceeding past a point.” On-site monitoring of this new signing is showing that most of the public stop and turn around. Before the signing, they proceeded past the “closed road” signs.

Due to the monitoring of heavy-usage roads leading to trails heads, signing has been adjusted to include pictures of services provided. Through monitoring, one newly identified signing need included cell-phone coverage areas.

Grants and Agreements--Since August of 2001, the National Fire Plan and the 10-Year Comprehensive Strategy Implementation Plan were implemented. These Plans are a collaborative approach for reducing wildland-fire risks to communities and the environment throughout the Western States. Under the Community Forest Restoration

Act, introduced by Senators Bingaman and Domenici, the Collaborative Forest Restoration Program guides and assist communities in the State of New Mexico to restore and maintain fire-adapted ecosystems. The Economic Action Program funds are helping to develop economic uses for materials removed during fuels-management activities. Under National, Regional and State legislation, the collaboration between Federal, State, Tribal, county, local governments and other stakeholders is reducing the risk of catastrophic wildfire.

Local communities and small businesses received 17 grants and \$2,130,541 in fiscal years 2001-2004 for projects completed on public property. Table 2 shows how the money was allocated. A few success stories are also included below.

Table 2. Grants and Agreements

Collaborative Forest Restoration Program

Eagle Creek Fuels Reduction	Village of Ruidoso	\$335,852
Ruidoso Wildland Interface	Ruidoso High School	\$5,940
Ruidoso Interface	Sherry Barrow Strategies	\$74,250
Moon Mountain Fuel Reduction and Forest Restoration	South Central Mountain RC&D Council	\$358,699
Sacramento River Watershed Forest Restoration	Otero Soil & Water Conservation District	\$118,800
Turkey Springs Canyon Fuels Reduction/Forest Restoration	RC&D Council	\$360,000
Total		\$1,253,541

Economic Action Program/Rural Community Assistance

SBS Treatment & Transportation	Sherry Barrow Strategies	\$85,000
Ruidoso Interface	Sherry Barrow Strategies	\$250,000
Lincoln County Fuels Recycling	Sierra Contracting	\$85,000
Lincoln County Compost/Mulch	Sierra Contracting	\$90,000
Sacramento Mountain Fire Plan	Otero County	\$12,000
Timberon Community Action Plan	Otero County	\$48,000
Bookout Thinning Uses for Small Diameter Wood	Deral Bookout	\$67,000
Mescalero II Sawmill Retrofit	Otero County	\$225,000
Carrizozo Rehabilitations to Heritage Museum	South Central Mountain RC&D Council	\$5,000
Lincoln State Monument Security Upgrade	South Central Mountain RC&D Council	\$5,000
Ruidoso Downs Economic Development Board & Plan	City of Ruidoso Downs	\$5,000
Total		\$ 877,000

Success Stories

Community of Timberon, NM – Timberon is a small community located in the Sacramento Mountains. The community is designated 5th in New Mexico Western Wildland Urban Interface 20 Communities Program. The community is surrounded by Fort Bliss-McGregor Range, BLM, State, and U.S. Forest Service lands. These lands contain high-fuel levels that contribute to high-intensity fires.

In 2002, the Timberon Development Council (TDC) received a grant to develop a Community Action Plan. In the Plan, the community identified the threat of catastrophic fire as a key concern for the residents. The Council uses the Plan to guide action for applying for grants under the New Mexico Western Wildland Urban Interface 20 Communities Program. In addition, the Plan specifies economic development through small businesses designed to produce value-added wood products from the thinning on public and private lands. During 2003, several residents from the community designed business plans interconnected with a log sort-yard. One small business purchased a tub grinder to produce mulch as an erosion-control agent on steep slopes. Another small business is producing lumber from a portable sawmill.

Bookout Thinning in Cloudcroft, NM (2003 grant recipient) – Grant funds were used to purchase a truck, trailer, grapple loader and chainsaw. The equipment enabled the small business to remove in excess of 10,000 board feet of small-diameter wood and 100 tons of wood chips. The truck and dump trailer (with grapple loader) transports logs up to 20 feet long and hauls 1200-1500 board feet of wood. The dump trailer allows for quick unloading of wood and chips. The small business was able reduce the total time in thinning and acre of forest by one week. Bookout Thinning has removed 96 tons of small-diameter wood with the new equipment from this grant in less than one year.

Under the New Mexico Western Wildland Urban Interface 20 Communities Program, three contracts for thinning on private property are complete. The small-diameter wood from these thinning sites is transported to the Chippaway Lumber Company and Whispering Spur Log Homes. In addition, Bookout Thinning is able to sub-contract with larger thinning contractors to remove small-diameter wood from Sacramento Ranger District thinning units.

Mescalero II Sawmill in Alamogordo, NM – Before it closed in 2000, the original White Sands Sawmill, an Alamogordo landmark, had employed 150-180 people and put seven to eight million dollars annually into the local economy. The Sawmill was purchased by the Mescalero Apache in 2001. Now known as the Mescalero II Sawmill, it currently employs 53 people. EAP grant funds assisted in retrofitting sawmill equipment to produce wood products from small-diameter wood. A scrag saw, infeed deck, and a cut-off saw (for a pole peeler) increased production to 1,500BF/hour and 700-800 post poles/month. In 2002, approximately eight million board feet were produced in the Mill. In 2003, approximately 11 million board feet were produced. The increase in production is in part attributed to the equipment purchased with EAP grant funds.

Lincoln National Forest Rural Community Assistance Program offers a grant to promote the development of business plans focused on processing and marketing small-

diameter products. This grant pays tuition and text books necessary for the completion of a business development class at New Mexico State University in Alamogordo. Several residents from the communities in the Sacramento Mountains are working with the Otero Small Business Development Center to develop business plans around the value-added concept for small-diameter wood.

Other Monitoring Activities

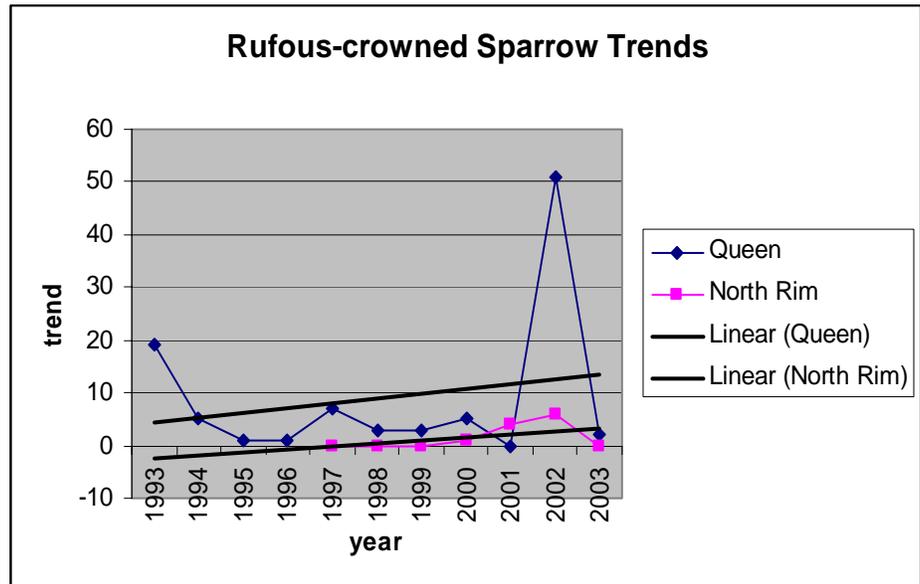
Biomass/small-diameter wood utilization is a growing concern. Small-wood processing and energy development companies need a commitment of a long-term wood material supply in order to amortize the investment to start, upgrade and continue operations. New Mexico Legislature is discussing policy that could require utility companies to generate a percentage of their power from renewable fuels.

The Guadalupe Ranger District and Bureau of Land Management teamed up in 2003 to present fire-prevention programs. During fire prevention week, they provided campfire safety to the schools in the Carlsbad area and taught the Six Pillars of Character-- respect, responsibility, fairness, caring, citizenship, and trustworthiness. Students also learned about the fire triangle—1) how the fuel, air and heat interact, 2) what it takes to be a firefighter, and 3) what firefighters do to control a wildland fire.

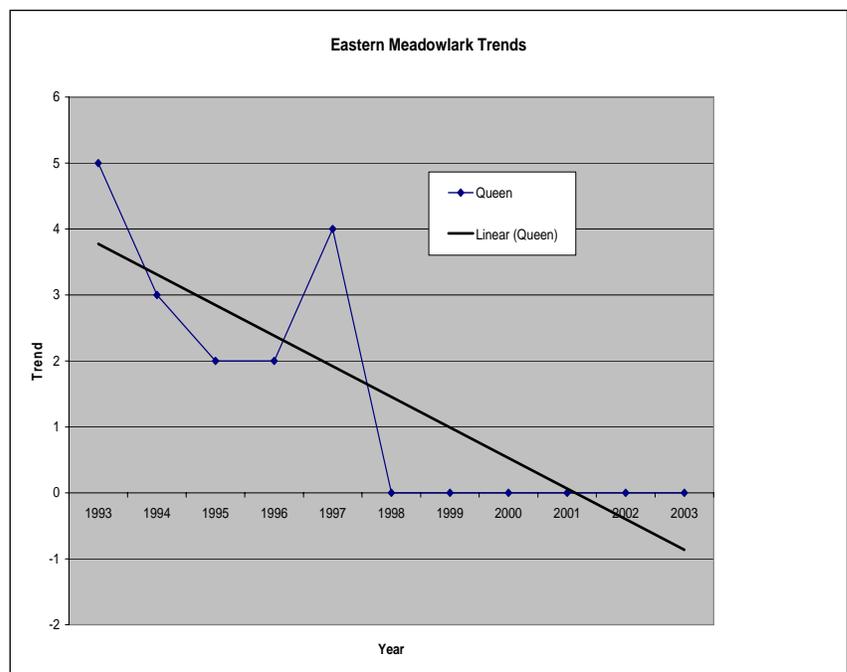
In addition, fire prevention programs are expanding annually. Program audiences were once on school-aged children and presentations at schools. Now, these programs are being presented public meetings, and in campgrounds and picnic area. We are seeing a shift in more cross-training between fuels and fire resources.

Formal Monitoring

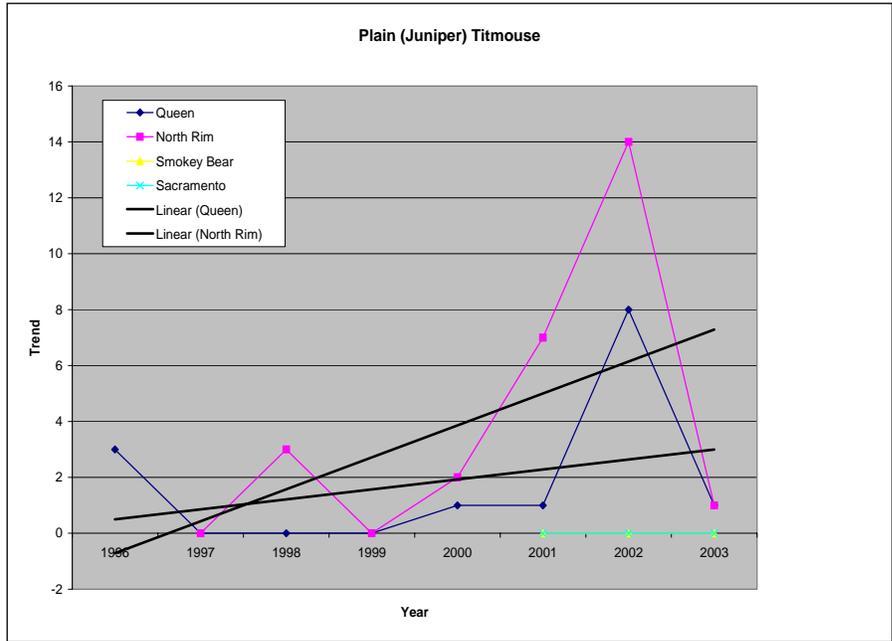
MIS trends for Birds –2003 Monitoring Results—Across the Lincoln National Forest, the Rufous-crowned Sparrow is a management indicator species for desert shrub habitats. During the 2003 survey year, few sparrows were found within survey sites/routes on the Guadalupe Ranger District. However, the 10-year trend for the Queen route still shows an upward trend (upper black line), and the seven- year trend for the North Rim route also shows an overall upward trend (bottom black line).



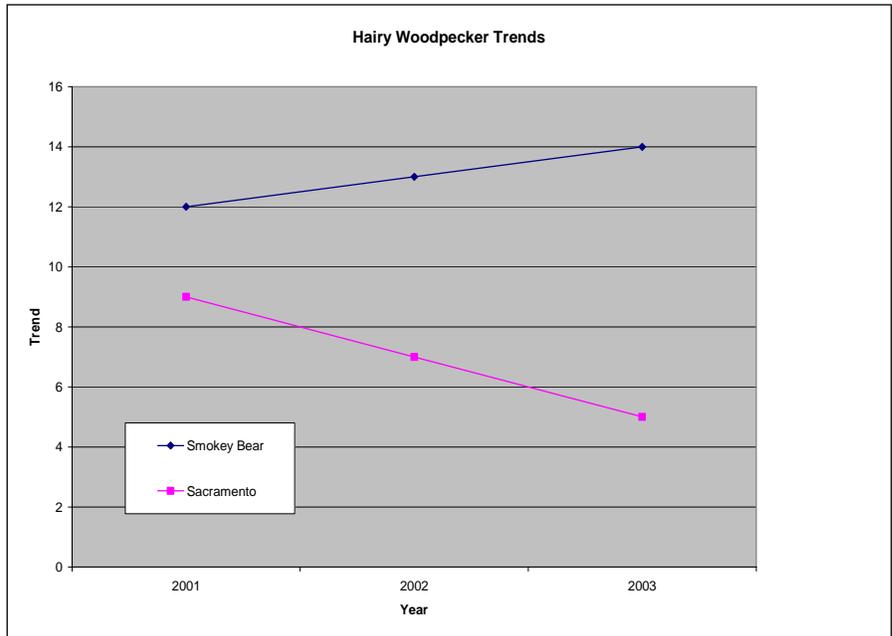
The Eastern Meadowlark is a management indicator species for low-elevation grasslands on the Lincoln National Forest. Fiscal year 2003 monitoring for the meadowlark along the Queen route of the Guadalupe Ranger District failed to locate any birds for the sixth consecutive year. The 10- year trend for the Queen route shows a downward trend (black line) for the meadowlark. We suspect the trend is due to the decline of grasses in the monitored areas.



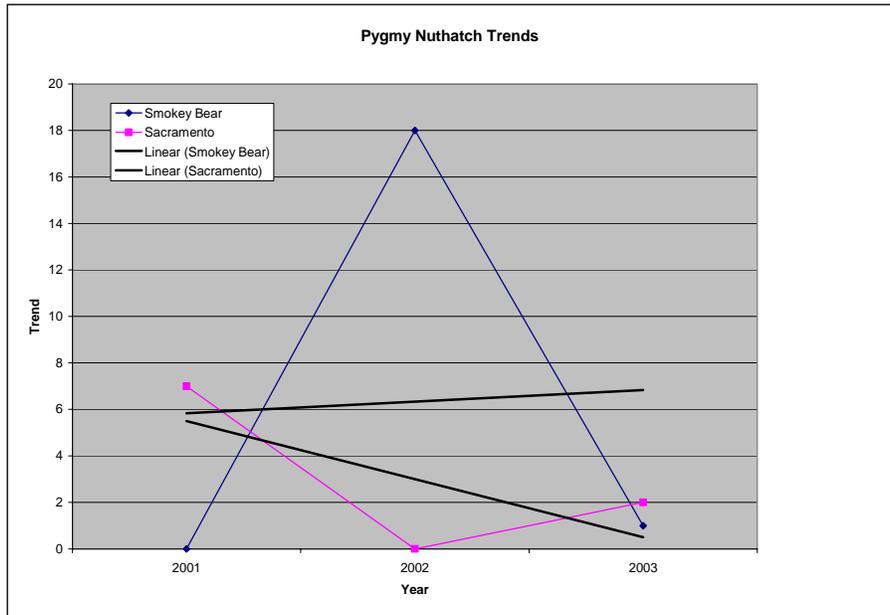
The Plain (Juniper) Titmouse is also a management indicator species for desert shrub habitats. The 2003 survey year found few titmice within survey sites/routes on the Guadalupe Ranger District. No titmice were found within survey sites/routes on the Smokey Bear or Sacramento Ranger Districts. The survey sites/routes visited on the two northern districts may have been too high (elevation) to detect this species. However, the eight-year trend for the Queen route still shows an upward trend (upper black line), and the seven-year trend for the North Rim route also shows an overall upward trend (lower black line).



The Hairy Woodpecker is a management indicator species for mixed conifer habitats on the Lincoln National Forest. Surveys for the Woodpecker have only occurred within the last three years. Long-term (i.e. 10 years) trend data is not available. Based on the three year data available, it appears the Hairy Woodpecker is maintaining an upward trend (blue line) within survey sites on the Smokey Bear Ranger District, and a downward trend (pink line) on the Sacramento Ranger District.



The Pygmy Nuthatch is a management indicator species for Ponderosa pine habitats. Surveys for the Nuthatch have only occurred within the last three years. Long-term trend data (i.e. 10 years) is not available. Based on the three-year data available, it appears the Nuthatch is maintaining a stable trend (relatively level black line) within survey sites on the Smokey Bear Ranger District, and a downward trend (black line declining left to right) on the Sacramento Ranger District.



Graphs by George Garcia, LNF

Forest Sikes Program--Annual inventory, maintenance, and monitoring continued on wildlife improvement projects funded by the SIKES Habitat Stamp Program. Vegetative monitoring plots and photo points were set up in seven Sikes projects. Vegetative plots consisted of 10" x 10" plots at either end of a 100' transect line. Vegetative plots are assessed at three intervals; 1) prior to treatment, 2) after burning, and 3) every two to three years after final treatment. Photo points are established to provide a visual comparison of the landscape during the same intervals as described above.



Danny Waldon, Sikes Coordinator (right) and Harold McCollough, Quail Unlimited, Hobbs Chapter, in front of the Habitat Stamp sign for the Bible Canyon Trick Tank, following a volunteer work day with Quail Unlimited installing the tank.

Photograph by LNF

Butterfly Study—A butterfly study was initiated in the late spring or early summer of 2000, and completed in the fall of 2002. The final report was submitted to the Forest during 2003. The study focused on obtaining Butterfly life history and ecological habitat associations to help forest managers develop and implement conservation measures for planning and implementation of Forest Plan activities. The study looked at three key areas; 1) larval habitat characteristics, 2) pre and post-diapause larval density and distribution, and 3) adult population structure, density and movement patterns.

The findings for larval habitat characteristics showed that larvae prefer ground cover associated with bare ground (33%), vegetation (37%) and litter (25%). Movement patterns of adults showed some adult butterflies (<12%) moved within meadow systems (i.e. Pumphouse Canyon), but not between meadows (i.e. Pumphouse Canyon to Zinker Canyon). Average life span of adult butterflies is about eight to nine days, with the longest recorded life span being 23 days at Pumphouse Canyon.

Sound Recordings of Road Maintenance Equipment on the Lincoln National Forest, New Mexico--The San Dimas Technology and Development Center financed a study to evaluate sound levels generated by road maintenance equipment within Mexican spotted owl habitat on the Forest. Dr. David Delaney from the Construction Engineering Research Laboratory and Dr. Teryl Grub from the Rocky Mountain Research Station conducted the pilot study with assistance from Lincoln National Forest personnel. The study evaluated three pieces of road maintenance equipment; a rock crusher, dozer, and grader from seven distances (from 30 meters out to 400 meters) within two different habitat types (meadow, forest). Sound from the road maintenance equipment was measured at the tree base and 10 meters up the tree. The study found that sound levels increased as the distance between the road maintenance activity and the microphone locations decreased, regardless of equipment type or habitat type. Sound recordings were louder at tree microphones than at base microphones. Sound levels were also louder at meadow sites than within the forested sites. Based on previous work by the researchers, the study found that Mexican spotted owls would be capable of hearing all of the sound generating equipment tested out to the maximum distance of 400 meters.



Photograph by Dr. Pat Ward, RMRS

Scott Able and Cree Fire Monitoring

- Northern goshawk monitoring on the Scott Able and Cree Fires in 2003 consisted of monitoring six goshawk post-fledgling-family areas (PFA's) during the 2003 field season (five with the Scott Able fire area and one within the Cree fire area). Each PFA was visited twice, once during the nestling period (early June – mid July), and a second time during the fledgling dependency period (July – early September). Of the six PFA's monitored, one PFA was found to contain a goshawk pair and one fledgling, and a second PFA contained a single bird of unknown age and sex. Both sightings occurred within the Scott Able fire area.

- Mexican spotted owl monitoring within the Scott Able fire area consisted of nine MSO protected activity centers (PAC's). Using formal monitoring protocol, owls were found in six PACs. One PAC contained two owl pairs. Of the six PACs that contained owls, a total of seven young were produced.
- Bat monitoring occurred from June 20 to August 6, 2003, at 11 sites representing burned and unburned areas within and adjacent to the Scott Able fire area. A total of 134 bats were captured representing six bat species. This total is down from 2002 monitoring when 265 bats were captured representing eight different bat species. The most abundant species captured was the silver-haired bat (*Leptonycteris noctivagans*). Monitoring also revealed bat diversity amongst sites (i.e. burned, unburned, edge of burned), varied with mean diversity being higher at unburned sites, followed by sites at the edge of the burn and lowest at sites burned during the Scott Able fire. A total of five lactating females were fitted with radio transmitters for locating maternity roost. Data collected from the studies since 2000 revealed some very important information regarding maternity roost. Maternity roosts tend to be found in large snags, with the exception of one roost which was found in a snag less than 10" dbh, and on east and southeast facing slopes.
- Monitoring for bird species within the Scott Able fire area began during the fall of 2001. In 2003, the same six survey routes, which vary in burn intensities, were monitored for birds--including Forest management indicator species (MIS). Monitoring results up through 2003 indicate the relative abundance of birds did not vary with burn severity. However, the relative abundance of birds within different foraging and nesting guilds (i.e. groups) does differ with burn severity. During the summer monitoring period, more ground foraging birds were seen in burned and partially burned areas. Whereas, foliage gleaners were more abundant in unburned areas. As for nesting birds, more cavity nesting birds were found in burned areas, as expected due to the increase in their nesting substrate (i.e. snags). In unburned areas, non-cavity nesting birds were more abundant. Results from 2003 and previous years indicate that overall bird abundance has not varied within the burn severity types (burned vs. unburned), but species composition has revealed differences between severity types. For example; two management indicator species, the Hairy Woodpecker and Pygmy Nuthatch which are cavity dependent species were found to be more abundant within the burned areas than the unburned areas.
- Salamander monitoring within the Scott Able Fire was conducted on 18 permanent plots (six control plots (unburned), six lightly burned plots and six heavily burned plots). The fire area was monitored for three variables; 1) arthropod (i.e. salamander prey) diversity and abundance, 2) salamander abundance, and 3) soil pH and precipitation. The total number of arthropod families was higher in 2003 than in previous years. Overall, relative abundance of arthropods has decreased from between 2000 and 2003. Relative abundance of salamanders within the three monitoring strata did not show major differences over the years.

- Aquatic habitats were monitored for aquatic biota for the third consecutive year. Twelve sites were monitored (seven within the fire area and five outside the fire perimeter). A total of 46 taxa were identified, which includes nine new taxa, not found in previous years. Five taxa were not found in 2003, due to dry conditions some monitoring sites. Two sites contained no aquatic biota as a result of dry conditions due to the drought.

Smokey Bear Ranger District

- Goshawk inventories were conducted within three major project areas; 1) Turkey/Gavilan WUI Project, 2) Eagle WUI Project and, 3) Perk/Grindstone WUI Project. A total of 4,070 acres were inventoried within these areas. No goshawks were observed within the Turkey/Gavilan inventory sites. Within the Eagle WUI area, a pair of goshawks and two young were located. In addition, within the Eagle creek inventory area, a single female goshawk was found with no indication of nesting. In the Perk/Grindstone area, no evidence of goshawk activity was found in any of the inventory areas.
- Goshawk monitoring within two PFA's resulted in the detection of a single goshawk. Follow-up visits however were never able to re-locate the bird.
- Mexican spotted owl inventories were conducted in three general areas: 1) Turkey/Gavilan WUI, 2) Perk/Grindstone WUI, and 3) Eagle WUI. The 1,250 acres inventoried resulted in finding no MSO's.
- Mexican spotted owl monitoring occurred within six established PAC's. Owls were found in three PAC's. Two PAC's contained pairs with two young. One PAC was found to have an owl pair, but nesting was not confirmed during the four visits to the site. No owls were found within the other three PACs.
- As part of the Endangered Species Act compliance with the Fish & Wildlife Service, Mexican spotted owl surveys were conducted along U.S. Air Force low-level military flyways that transect the Lincoln National Forest. Suitable mixed conifer habitat within the Carrizo Mountains, Smokey Bear Ranger District, was surveyed for a second consecutive year. No Mexican spotted owls were observed in the Carrizo Mountains in 2003.

Sacramento Ranger District

- Survey and monitoring of Checkerspot butterfly adult and pre-diapause larval stages was accomplished during FY 2003. The adult butterfly surveys were conducted in two areas—1) within ten established monitoring plots, and 2) in eight canyons areas covering approximately 500 acres. Four-hundred-fifty adults and 50 larvae were found in the 500-acre area. Monitoring of the 10 plots resulted in a total of 222 adults (down from the 419 adults found in FY2001). Of the 10 plots, only two plots had higher adult numbers in 2003 than in 2001.

Pre-diapause larval stage monitoring was also conducted within the same 10 established monitoring plots. We found a total of 52 larval tents. Overall, larval tent numbers appear to be downward from 139 in 1999 to only 52 in 2003. This may be attributed to the refined monitoring methods, since newer information and methods have significantly reduced the possibility of double counting. Grazing by ungulates or recreational use did not appear to influence larval tent numbers. Some areas increased in larval tent numbers from previous years while others decreased—regardless of the grazing or recreational use.



Photograph by Eric Hein, USF&WS

Other activities involving Checkerspot Butterflies included collection New Mexico penstemon seed and relocation of pre-diapause larvae.

- Nine MSO PAC's were inventoried and monitored within the Sacramento River Road corridor during FY 2003. Inventory efforts led to detection of a male owl. However, subsequent follow-up visits failed to locate the bird. Of the nine PAC's monitored, eight were found occupied with a total of 12 young, while one PAC was absent of birds. One owl pair had moved its nest location closer to the existing and proposed highway corridor.
- Goshawk monitoring within two existing PFA's resulted in no findings. However, within a MSO PAC, a pair of goshawks and a juvenile were found during MSO surveys. Additional monitoring will be needed to pinpoint the nest location for this pair of goshawks.
- Goshawk inventories in FY2003 focused on three main project areas: 1) Rio Peñasco II WUI Project, 2) proposed Sixteen Springs WUI Project area, and 3) Timberon Fuel-break Project. Within the Rio Peñasco II WUI Project area, one goshawk was aurally detected. Follow-up visits did not locate this goshawk. Within the proposed Sixteen Springs WUI Project area, three goshawks were aurally detected. Of the three, one goshawk pair and young with a nest was confirmed in the Walker area. A new PFA will be established for this pair within the Sixteen Springs WUI project. No goshawks were found within the Timberon Fuel-break Project.

Other incidental sightings by the Rocky Mountain Research Crew and an archaeologist led to the detection of two adult pairs with young. New PFA's will be established for pairs prior to the 2004 field season. Overall, goshawk inventories in these project areas covered 46,460 acres.

Nine established PFA's were monitored in 2003. Of the nine PFA's, six were absent of goshawks and pairs were found at three sites. Of the three PFA's occupied by a goshawk pair, only one had reproduced two young.

- Southwestern Willow Flycatcher inventories for five years (from 1998 to 2003). Inventories were conducted by Sacramento Ranger District biologists who have attended the formal training and certification course. Fiscal year 2003 resulted in no Southwestern Willow Flycatchers detected within the Springer Springs inventory area.

Guadalupe Ranger District

- Mexican spotted owl pellets (regurgitated indigestible food items) were collected from two caves and sent to Dr. James P. Ward, Jr. for analysis. Spotted owls within the caves consumed bats more frequently than any other prey. However, wood rats, which were consumed with less frequency, contributed the most biomass to the owl's diet.

Botany/Rare Plant Program—Southwestern Region sensitive plant species, as well as the Federally threatened *Cirsium vinaceum*, were searched for on 7,414 acres. The surveys were conducted on the proposed 2004 treatment units within the Rio Peñasco II Wildland Urban Interface Project area, Sacramento Ranger District. Target plant populations were located.

Seven hundred acres were surveyed within the Timberon Fuels Treatment Project, Sacramento Ranger District. The Federally endangered *Echinocereus fendleri* ssp. *kuenzleri* and R3 sensitive plant species were searched for on approximately 700 acres. No target plants were found.

Surveys for rare plants and monitoring of re-vegetation and succession in burned areas continued in the Scott Able Fire area in year two of a four-year contract.

Other plant species monitoring included:

- Extensive monitoring of 80+ occurrences of the Federally threatened *Cirsium vinaceum* was conducted by *Cirsium* expert, Dr. Pat Barlow-Irick under a Challenge Cost-Share Agreement. Contribution by challenger was \$2,330.
- Monitoring of Federally endangered *Argemone pleiacantha* ssp. *pinnatisecta* was conducted by the Forest Service in the Alamo, Caballero, and Fresno Canyon areas.

- Federally endangered *Echinocereus fendleri ssp. kuenzleri* occurred at the Elk Canyon Road/Highway 82 site.
- Southwestern Region sensitive *Crataegus wootoniana* occurred in the Agua Chiquita Allotment and along upper Eagle Creek.
- Region's sensitive *Delphinium novomexicanum* occurred along upper Eagle Creek.

Monitoring findings in these areas were not available at the time of this report.

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