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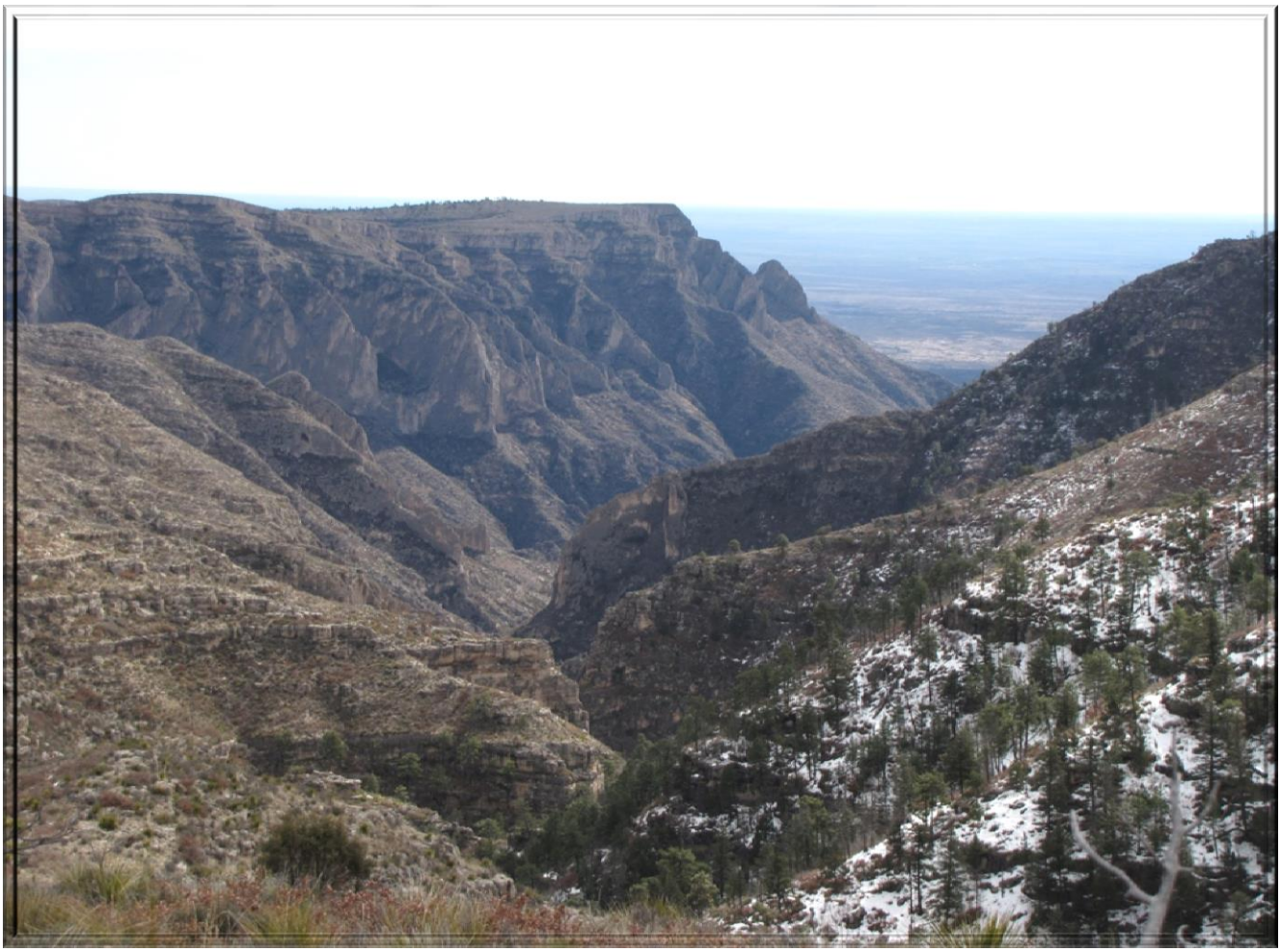
Forest Plan Inventory and Evaluation Report Fiscal Year 2013



Forest Service | Lincoln National Forest | Supervisor's Office | July 2014

Forest Supervisor Certification

I certify that the Lincoln National Forest Plan, as amended is sufficient to guide management of the Lincoln National Forest over the next year. A need for change analysis conducted as part of this monitoring report will be considered during the Forest Plan revision process scheduled to begin in fiscal year (FY) 2015.

Travis G Moseley

Travis Moseley
Forest Supervisor

8/14/2014
Date

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Inventory and Monitoring Evaluation Report
FY 2013

OVERVIEW

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.

Monitoring and evaluation provide the Forest Supervisor and land managers information and data to ensure responsive and efficient management of the Lincoln NF. There are two components to the Lincoln NF 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.

Monitoring and trend evaluations are provided for the following 13 resources:

- Timber
- Range
- Cultural Resources
- Soil and Water
- Protection
- Fire Management
- Recreation
- Caves
- Lands
- Visual Quality
- Wilderness
- Wildlife
- Facilities

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
Lincoln NF – Lincoln National Forest
MIS-Management Indicator Species

DBH-Diameter at Breast Height (4.5 feet above ground)

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
TIMS-Timber Information Management System

This report summarizes monitoring results on the Lincoln NF for FY 2013. Recommendations are provided to improve effectiveness of the current monitoring plan as outlined in the Lincoln NF Land and Resource Management Plan (Forest Plan), as amended. A monitoring action plan for 2014 work activities is provided as part of this report.

The number of monitoring activities, monitoring frequencies, accuracy, and precision standards vary for each of the items monitored. Individual monitoring activities are selected annually based on the annual plan of work and, as described in the Forest Plan, not all monitoring items are applicable each year. Annual work plan activities are based on the Agency's and the public's priorities, concerns and interests. Some monitoring methods have become obsolete and will be updated during the next Forest Plan revision to reflect information that is relevant to reflect present standards.

FOREST PLAN AMENDMENTS AND ISSUES NEEDING FURTHER ANALYSIS

The Forest Plan and associated environmental impact statement (EIS) were finalized by a signed Record of Decision (ROD) and published in 1986. Since implementation of the Forest Plan, 15 amendments and 6 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 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 guidelines for management of Sacramento Mountain salamander.
Amendment #4	September 1988	To correct typographic errors and minor mistakes not carried over from the Forest Plan.
Amendment #5	September 1990	To adjust to Title 2 of the Sikes Act funding and habitat improvement opportunity.
Amendment #6	April 1991	To amend limit of flexibility needed to accomplish the objectives for Carrizo Integrated Resource Area.
Amendment #7	April 1991	To update the Lincoln National Forest's list of recreation and trails projects.
Amendment #8	September 1995	To reduce tentatively suitable timber base in Management Area 2D by 3 acres in order to construct the Sunspot Visitor Center; and to clarify boundary of the Haynes Canyon Research Natural Area (RNA).
Amendment #9	June 1996	To include latest information on habitat needs for the Mexican spotted owl (MSO) 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 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 MSO habitat.
Amendment #13	May 2007	To allow for reissuance of recreation residence special-use permits to the same people holding current permits for 18 sites at the Pine Lodge Summer Home tract and 23 sites in 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 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 shifting trends occurring on the Lincoln NF 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 use 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.

Issues needing further analysis during the Forest Plan Revision process:

- Determining what uses will be allowed while working to protect resources.
- Evaluating needed rights-of-way.
- Balancing how to manage and implement the 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 availability and utilization of small-diameter wood products from the Lincoln NF.
- 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 Lincoln NF.
- Managing the wildland urban interface (WUI) to reduce catastrophic fire risk.
- Re-introducing native wildlife species to the Lincoln NF.
- Maintaining the necessary habitat to provide for viable populations of threatened and endangered species.

TIMBER

Timber 1 & 2: Acres of Regeneration and Intermediate Harvest

Monitoring Intent: To meet federal regulation and to monitor prescribed resource management practices and effects, including insect and disease control. The desired outcome is to achieve a balanced age class distribution, appropriate growing stock levels and appropriate rotations. A variation of +/-25 percent from the forest wide schedule at 5 year intervals would require an Interdisciplinary (ID) Team re-evaluation.

Monitoring Method/Unit of Measure: Natural Resource Manager Systems (TIM, FACTs, NRIS) and Lincoln NF staff field review of 5 percent of treated projects/acres.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/-10 percent / +/-10 percent

Monitoring and Trend Evaluation: Regeneration harvest covers specific even-aged silvicultural prescriptions for seed tree, shelterwood and clear cut treatments larger than 5 acres. Even-aged systems are used when there is a disturbance that requires salvage such as insect and disease outbreaks, windthrow events or fire. Intermediate silvicultural treatments are not meant to regenerate a new age class of trees. This includes all commercial thinning.

An insect outbreak of fir looper caused localized mortality on the Sacramento Ranger District in 2008-2009. A windthrow event in 2009 caused extensive blowdown on the same Ranger District. Salvage sales were implemented during the monitoring period in these areas and are listed under the regeneration harvest acres in Timber Table 1.

From 2009-2013 commercial timber sale treatments were designed to thin from below with the focus on removing smaller diameter trees. These sale acres are listed under intermediate harvest acres in Timber Table 1.

The following table lists sale acres of regeneration and intermediate harvest for commercial timber sales by year contract was awarded during the monitoring period.

Timber Table 1. Acres of Regeneration and Intermediate Harvest

Year	2009	2010	2011	2012	2013
Regeneration Harvest Acres	245	385	135	72	0
Intermediate Harvest Acres	616	1,561	829	532	311

Currently, silvicultural prescriptions implement uneven-aged management systems with treatments focusing on forest restoration, sustainability and resilience to disturbance. While regeneration harvest has been accomplished under the new guidelines released in September 2013 (Report Rocky Mountain research Station – General Technical Report-310 (RMRS-GTR-310)) areas are generally small averaging two acres or less using group selection methods. Seed blown in from adjacent mature trees provides a natural seed source. There is an overall need to reduce stocking of most stands to address declining forest health due to prolonged drought stress and increased insect populations.

The 5 year offer schedule is updated annually based on expected targets and current market conditions.

Timber Table 2- The 5 Year Offer Schedule

Timber Sale	Acres	100 Cubic Feet (CCF)	NEPA Document	Date Planned
MSO CFRP*	471	1030	Rio Penasco 2	2014
Walker	106	1060	16 Springs	2014
Dry	573	4584	16 Springs	2014
Mesa	167	2500	Perk Grindstone	2014
Totals	**1,305**	**9,577**		**2014**
Perk	289	3680	Jim Lewis	2015
Lewis	90	522	Jim Lewis	2015
Chilcoote	399	3192	Jim Lewis	2015
Trail	101	1010	Jim Lewis	2015
Totals	**879**	**8,404**		**2015**
Jim	358	2864	Jim Lewis	2016
Gage	408	3264	Jim Lewis	2016
Long	361	2888	Jim Lewis	2016
Totals	**1,127**	**9,016**		**2016**
Spring	137	1096	Jim Lewis	2017
Board	586	4688	Jim Lewis	2017
Jeffers	737	5896	Jim Lewis	2017
Totals	**1,460**	**11,680**		**2017**
Blue Water	687	5496	Jim Lewis	2018
Sleepy Grass	211	1688	Jim Lewis	2018
Totals	**898**	**7,184**		**2018**

*Collaborative Forest Restoration Program (CFRP) was established in 2001 to encourage collaborative, science-based ecosystem restoration of priority forest landscapes.

Timber 3: Adequate Restocking of Regeneration Harvests and Other Reforestation Projects.

Monitoring Intent: To meet federal regulation to insure restocking and determine success of planting projects. The desired condition is to insure all regeneration cuttings within a sale area are minimally restocked within 5 years after final harvest. Minimally restocked means 70 percent of the timber sale area has at least 60 percent of the recommended trees per acre. Planting projects will be to the same stocking standard. If samples at fifth year indicate inadequate stocking, an ID Team will re-evaluation stocking levels.

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Monitoring Method/Unit of Measure: Measurements will be taken on randomly placed plots within each regeneration area.

Monitoring Frequency: At 3rd and 5th year following harvest and planting.

Expected Precision/Reliability: +/- 20 percent/ +/- 20 percent

Monitoring and Trend Evaluation: There have been no planting projects in harvested areas for the 8 years. Regeneration harvests have occurred in salvage sale areas and establishment of natural regeneration is occurring on the 358 acres salvaged in 2010.

Timber 4: Timber Stand Improvement (TSI) Acres

Monitoring Intent: To meet federal regulation, to monitor change in productivity of the land, and to control insects and disease outbreaks. The desired condition is to control stocking levels for accelerated growth. A variation of +/-20 percent from the forest wide schedule at 5 year intervals would require an Interdisciplinary (ID) Team re-evaluation.

Monitoring Method/Unit of Measure: Annual TSI needs report and FACTs database.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/-10 percent/ +/- 20 percent

Monitoring and Trend Evaluation: In 2013, 200 TSI acres were treated. There is no market for pre-commercial size class material on the Lincoln NF so project dollars are needed to implement TSI treatments on older timber sales where established regeneration is ready for pre-commercial thinning. Knutsen-Vandenberg (KV) funds have been greatly reduced on current timber sales due to decreased stumpage rates limiting availability of funds for TSI work. Stewardship contracting, which trades goods for services, should be explored as a means to meet this need in the future.

Timber 5: Board Feet of Net Sawtimber Offered

Monitoring Intent: To meet federal regulation and measure output. The desired condition is to offer timber sales annually on a sustained yield basis. Evaluations will be made at 3rd and 6th years during each period to insure that cumulative deviation for the period does not vary by +10 percent.

Monitoring Method/Unit of Measure: Annual cut and sold reports generated from the Timber Information System database.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/-10 percent / +/-10 percent

Monitoring and Trend Evaluation: The allowable sale quantity was not exceeded. The Lincoln NF sold and harvested less than two million board feet (MMBF) out of an allowable sale quantity of 15 MMBF. Updated inventory data is needed to establish if the current allowable sale quantity is still valid. The Lincoln NF will begin Forest Plan revision in 2015 which will address this issue.

Timber 6: Review Maximum Size Limits for Harvest Areas

Monitoring Intent: To meet federal regulation. The desired condition is to improve wildlife habitat through timber harvest by manipulation of stand sizes, methods of cut, and juxtaposition of stands.

Monitoring Method/Unit of Measure: A sample of openings will be checked to see if a reason may exist to change the size of stands. The ID Team will be the sampling team. Ten percent of openings created per year will be sampled.

Monitoring Frequency: Every third year

Expected Precision/Reliability: +/- 25 percent / +/- 20 percent

Monitoring and Trend Evaluation: Harvest prescriptions always consider wildlife habitat requirements. Management recommendations for the Northern Goshawk are used to insure adequate opening size and number in ponderosa pine types. MSO recovery plan requirements are followed in the mixed conifer stands. Uneven-aged treatments using group selection is the preferred harvest method on the Lincoln NF. Group size varies across the landscape and is determined by habitat requirements in conjunction with regeneration targets. Review and adaptation will be key in future implementation of projects.

Timber 7: Re-evaluation of Unsuitable Timber Lands

Monitoring Intent: To meet federal regulation. Desired condition is to better define those areas which may be unsuitable for sustained yield timber production.

Monitoring Method/Unit of Measure:
1) Review new or updated soil survey data;
2) Development of better technology for regeneration establishment;
3) Stand exams; and
4) Timber inventory results.

Measuring Frequency: At time of Plan revision; 10th year.

Expected Precision/Reliability: +/- 10 percent / +/- 20 percent

Monitoring Frequency: As part of Forest Plan revision effort or the tenth year.

Monitoring and Trend Evaluation: No stands identified as unsuitable were placed in the timber production category during this monitoring period. The data monitored will be used as the basis for re-evaluating which lands are suited to timber production during Forest Plan revision starting in 2015.

Timber 8: Cords of Fuelwood Made Available

Monitoring Intent: To meet federal regulation; to address any Lincoln NF related issue. Desired condition is that green wood sales will continue on a sustained yield basis and residues from commercial timber sales will be available for firewood. This is expected to meet demand.

Monitoring Method/Unit of Measure: Review firewood sale reports generated by TIM database.

Monitoring Frequency: Annually

Monitoring and Trend Evaluation: The fuelwood program on the Lincoln NF has included offering a combination of commercial, personal use and free use areas. The Lincoln NF has ensured fuelwood was available by designating green standing fuelwood areas as well as utilizing decks and slash created by commercial timber harvest and hazardous fuels treatments.

The fuelwood program provides a vital service to the public and helps the Lincoln NF meet resource objectives by removing biomass from designated treatment areas.

Timber Table 3. Cords of Fuelwood Made Available

Unit of Measure	2009	2010	2011	2012	2013
128 Cubic feet (one Cords)	4,254	3,937	5,610	4,783	3,971

Recommendations:

TIMBER 1 & 2: Acres of Regeneration and Intermediate Harvest

All timber harvest prescriptions and harvest activities should be combined and monitored under this item. Recommend item be changed to Acres Treated with Commercial Harvest during Forest Plan revision.

TIMBER 5: Board Feet of Net Sawtimber Offered

Also, during Forest Plan revision it is recommended to change units from board feet to current Agency standard of hundred cubic feet (CCF) and to change sawtimber to volume so fuelwood sales are included.

TIMBER 8: Cords of Fuelwood Made Available

Recommend this item be incorporated with the new Volume Offered item during Forest Plan revision.

RANGE

Range 1: Acres of overstory modification in woodland type

Monitoring Intent: To meet federal regulation; prescribed resource management practices and effects. To address any Lincoln NF related issue. To increase forage production in analysis areas where overstory modification is scheduled.

Monitoring Method/Unit of Measure: Review of annual work accomplishment reports.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/- 10 percent / +/- 20 percent

Monitoring and Trend Evaluation: Overstory modification was entirely done through fuels reduction projects. (See table below)

Range Table 1. Fuels Reduction and Prescribed Burn (Rx) Project by Ranger District

Smokey Bear Ranger District Fuels Reduction	ACRES
Ridge Fuel Reduction (first entry)	29
Ridge Fuel Reduction (second entry)	30
Gonzales Hazardous Fuels Treatment	144
West Mountain Push	330
Lower Lucas Well Canyon Push (first entry)	3.6
Lower Lucas Well Canyon Push (second entry)	3.6
Lower Lucas Well Canyon Push (third entry)	8.5

Smokey Bear Ranger District Fuels Reduction	ACRES
Tiny Fuel Wood Area	12.5
Coe Green Standing Personal Fuel Wood Unit	21
Capitan Commercial Fuel Wood Unit 5	11.4
Total	**594**
Sacramento Ranger District Fuels Reduction	
Akers Mastication	400
Railsplitter South	1260
Iron gate mastication Phase 2	190
Total	**1850**
Guadalupe Ranger District Fuels Reduction	
Fuel Reduction around Queen sub-division (on-going)	5
Dark Canyon thinning project (on-going)	50
Total	**55**
Smokey Bear Ranger District Rx	
Little Creek Fuels Reduction Project Rx	949
Skillet 3 Rx	470
Cora Dutton Commercial Fuel Wood Unit (1-13	98
Cora Dutton Commercial Fuel Wood Unit 9 and 10 (awarded)	32
Total	**1549**
Sacramento Ranger District Rx	
Akers Rx burn	150
Sombrero Rx burn	1140
Total	**1290**
Guadalupe Ranger District Rx	
No prescribe burn were completed in 2013 due to funding.	0
Grand Total	**5,338**

There are fuels projects identified for implementation in the future, but implementation is largely tied to funding. As funding becomes available these projects will be implemented.

Monitoring does occur in fuel reduction project areas when range effectiveness, compliance, or annual monitoring is conducted. Monitoring to prescribed resource management practices effects is not conducted.

Range 2: Acres of brush conversion and/or reseeding

Monitoring Intent: To meet federal regulation; prescribed resource management practices and effects. To address any Lincoln NF management concern. To increase forage production. The acres of brush conversion and/or reseeding completed for the evaluation period should be within 20 percent of projection. If not, the ID Team will evaluate, and Forest Plan modification may be necessary.

Monitoring Method/Unit of Measure: Review of annual work accomplishment reports.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/- 10 percent / +/- 20 percent

Monitoring and Trend Evaluation: The Lincoln NF has not completed any brush conversion projects in FY 2013 or in previous years.

Range 3: Range Development

Monitoring Intent: To meet federal regulation; to measure prescribed resource management practices and effects. Structural and non-structural improvements will be added or re-constructed.

Method/Unit of Measure: Data on completed range improvements (fences, waters, and pipelines) can be tracked through annual work accomplishment reports.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/- 10 percent / +/- 20 percent

Monitoring and Trend Evaluation: On the ground work of installation or replacement of new improvements collaborated between range staff and grazing permittees include:

Smokey Bear Ranger District

- Four miles of fence reconstruction on various allotments.
- Placement of a new cattle guard on County Road A039 for the Haskins Allotment.
- Restoration of Baca Canyon Well with solar energy and replacement of trough.
- 1000 feet of pipeline replaced on the Salazar Allotment.
- Restoration of Powell Spring Well with solar energy and replacement of trough.

Sacramento Ranger District

- Five miles of fence were reconstruction on various allotments affected by the 2011 Mayhill Fire.
- Placement of a new trough and storage for the Pumphouse Allotment.
- Installed pipeline and new water source on the Perk Allotment.
- Reconstructed approximately four miles of on the Mule Canyon Allotment.

- Installed new storage tank on an existing water source on the Dry Canyon Allotment.

Guadalupe Ranger District

- 4.5 miles of fence reconstruction on various allotments.
- Approximately four miles of pipeline replaced on the ranger district.

Range developments will continue to be implemented as funding becomes available and effects of the development have been analyzed in an environmental analysis.

Range 4: Permitted use on National Forest System Lands only

Monitoring Intent: To meet federal regulation; to measure prescribed resource management practices and effects. To address any Lincoln NF issue related. Range permitted use will be balanced with capacity.

Method/Unit of Measure: Data generated from grazing permits and displayed in *Annual Grazing Statistical Report*.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/- 5 percent / +/- 5 percent

Monitoring and Trend Evaluation:

Smokey Bear Ranger District: Actual use on the Smokey Bear Ranger District totaled 4,001 head of cattle which is 96 percent of permitted use. Nine term grazing permits were reissued in 2013. Approximately 158,319 acres of pasture were administered to standard.

Sacramento Ranger District: Authorized use on the Sacramento Ranger District totaled was 67percent of permitted use. The 23 percent difference was mostly the result of drought impacts on forage resources. Approximately 150,400 acres of pasture were administered to standard.

Guadalupe Ranger District: Authorized totaled roughly 90 percent of permitted use. Four term grazing permits were reissued in 2013. Approximately 26,000 acres of pasture were administered to standard.

Permitted use in balance with capacity is evaluated on an allotment by allotment basis during environmental analysis to reissue a term grazing permit or term private land grazing permit.

Range 5: Range Condition and Trend

Monitoring Intent: To address any Lincoln NF issue related. Range conditions will be improved by 2030 by decreasing unsatisfactory range to 62,000 acres; satisfactory range 544,000 acres and increasing from there.

Method/Unit of Measure: Range analysis conducted per Southwestern Region 3 standards by qualified Range conservationists.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/- 20 percent / +/- 20 percent

Monitoring and Trend Evaluation: Range condition and trend monitoring on the Lincoln National Foreset consisted of using the *Common Non-Forested Vegetation Sampling Protocol* (CNVSP) using *Vegetation/GIS Data System* (VGS) software.

On Smokey Bear Ranger District two allotments, Merchant and Skinner, were monitored in 2013 and consisted of two plots on Merchant allotment and five plots on Skinner allotment. Data collected were ground cover, frequency, dry weight biomass and standing crop estimates.

Two decisions to reauthorize livestock grazing were signed on Smokey Bear Ranger District in 2013. Range condition and trend data was analyzed for each allotment, and both allotments were in satisfactory condition.

On Sacramento Ranger District two allotments, James and Pendleton are scheduled in 2014 for long-term trend monitoring. Data collected will be ground cover, frequency, dry weight biomass and standing crop estimates.

Range condition and trend monitoring on Guadalupe Ranger District consisted of using landscape appearance or a qualitative assessment on several allotments. On Sargent Allotment data collected were ground cover, frequency, dry weight biomass, and standing crop estimates.

Sargent Allotment environmental analysis to reauthorize livestock grazing was ongoing on the Guadalupe Ranger District in 2013. Range condition and trend data was analyzed and is in satisfactory condition.

Range condition and trend will be evaluated on an allotment by allotment basis through an environmental analysis to reauthorized livestock grazing.

Range 6: Grazing Capacity on National Forest Lands only

Monitoring Intent: To meet federal regulation; to sample output of the range resource. To address any Lincoln NF issue related. Through improved management and additional structural and non-structural range improvements, range capacity is expected to increase.

Method/Unit of Measure: Production/utilization studies and range analysis data.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/- 10 percent / +/- 20 percent

Monitoring and Trend Evaluation:

Smokey Bear Ranger District: As stated previously in section Range 4, actual use totaled 4001 head of cattle which is 96 percent of permitted use. Nine term grazing permits were reissued in 2013. Approximately 158,319 acres of pasture were administered to standard.

Sacramento Ranger District: As state previously in section Range 4, actual use totaled is 67 percent of permitted use. Utilization monitoring was conducted on approximately 1/3 of the allotments. Utilization monitoring includes range readiness prior to turnout on summer allotments, mid-season pasture use monitoring, and end of season utilization. The **Rapid Assessment Method** (RAM) developed by New Mexico State University (NMSU) is utilized to accomplish this monitoring. The monitoring method also includes pellet counts used to evaluate relative impacts of domestic livestock and wild ungulates, primarily elk. The **Range Improvement Task Force** (RITF) and the New Mexico Department of Game & Fish (NMGF) are cooperators.

Guadalupe Ranger District: As state previously in section Range 4, actual use on the Guadalupe Ranger District totaled 3,200 head of cattle which is 90 percent of permitted use. Approximately 26,000 acres of pasture were administered to standard.

Permitted use balance with capacity is evaluated on an allotment by allotment basis during environmental analysis to reauthorize livestock grazing.

Recommendations:

Range 2
Remove this item during Forest Plan revision, the Rangeland Management program does not do brush control.

Range 4 and 6
These two items are the same and should be combined during Forest Plan revision. The Rangeland Management program no longer has the capacity to do in-depth production utilization study.

Range 5
The terminology is very specific to data collect by the Parker-3-step methodology. During Forest Plan revision there is a need to tie this item to current ecological thought and to meeting desired future condition.

CULTURAL RESOURCES

Cultural Resources 1: Protection of Significant Historic Properties & Cultural Resources 2: Clearance Surveys for Cultural Resources

Monitoring Intent: The intent of monitoring is to ensure protection of a historic property's *integrity*, which has made it eligible for inclusion on the National Register of Historic Places (NRHP). Once historic properties have been identified and evaluated (see "Identification" below), protection measures are prescribed to eliminate, reduce, or mitigate harm to those properties that result from natural processes, illegal activities, overuse, and effects of USDA Forest Service or USDA Forest Service-authorized activities (Forest Service Manual (FSM) 2360.63).

Identification: To ensure that historic properties (historic property means any prehistoric or historic district, site building, structure, or object included in, or eligible for inclusion on the NRHP (36CFR800.16 (1)(1)) are not affected, land management activities (undertakings) are preceded by an archaeological resources inventory (historic properties survey) of the proposed area of potential effects (APE) (an APE is the geographic area or areas within which an undertaking may directly or indirectly cause alteration in the character or use of historic properties, if any such properties exist), and consultation with the New Mexico State Historic Preservation Officer (SHPO), and appropriate Tribal Historic Preservation Officers (THPO) (see 36CFR800.14, Forest Plan page 162, and the FSM 2361.02 (5). For a definition of an "undertaking," see 36CFR800.16(y).

Monitoring Method/Unit of Measure: When a s*ite*, is monitored, it is evaluated based on seven (7) aspects of *integrity* as defined in the *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. These seven aspects are:

- location
- design
- setting
- materials
- workmanship
- feeling
- association

Monitoring Frequency: Eligible sites are monitored annually and prioritized based on manpower, time, and cost. Every eligible site is not monitored every year but in order to maximize efficiency, a monitoring scheme has been developed (see "Monitoring and Trend Evaluation" for a management scheme).

Percent Accuracy/Precision: 100percent/No variance allowed

Monitoring and Trend Evaluation: All significant historic properties encountered each year during heritage resources compliance activities (i.e. Sec. 106 of the NHPA) are assessed, inspected, inventoried and/or monitored. In addition, a program of site preservation and protection under Sec. 110 of NHPA provides inventory and monitoring of additional significant cultural sites and Priority Heritage Assets (PHAs) every year. These include both previously recorded and newly identified cultural resource sites.

Annually the Forest assesses its "Heritage Program Management." This assessment is based on 7 measures, of which number four is the Condition Assessment of PHAs. PHAs are those heritage assets of distinct public value that are or should be actively maintained and meet one or more of four criteria (see FSM 2360.5). A national forest earns one point for every 10 percent of identified PHAs that have a current condition assessment (less than five years old) with a recommended management use. So the goal is to formally monitor (that is to specifically plan to visit the site and write a condition report) at least 20 percent of identified PHAs a year to maintain 100 percent monitoring for this class of sites. Currently the Lincoln NF manages 69 PHAs, and is formally at 86 percent monitoring since this target scheme was implemented. Management trend indicates that the Lincoln NF's formal PHA monitoring will reach 100 percent by end of 2014 and all future out years.

While at least 20 percent of our PHAs are formally monitored each year, we manage a volunteer program called "*SiteWatch*," to monitor some of our more vulnerable sites. This program assigns various sites to a core of volunteers that visit them on a reoccurring basis; monitoring for vandalism and or looting, as well as any changes to site condition. Monitoring reports for these sites are developed on a quarterly basis.

A third monitoring scheme that is utilized, is to take the opportunity to revisit non PHA eligible sites when they are in close proximity to a historic property survey being conducted as a normal part of the annual NHPA section 106 program of work. If one of these sites is visited, a description of the monitoring will either be included in the current projects heritage survey report or a separate short report. In either case, the heritage INFRA database monitoring section will be updated with the site visit date and any other important information. NHPA section 106 surveys are performed prior to any undertaking. If an eligible resource is found within a project's APE and the project cannot be modified to exclude or remove it from the project APE, then the site is flagged for avoidance; and will be monitored to ensure protection during project implementation.

As stated above, monitoring is to ensure the *protection* of sites unevaluated or eligible for inclusion on the NRHP. When a site is discovered and has either been evaluated as eligible, or has not yet been evaluated, the Lincoln NF will utilize one or more of a variety of protection schemes such as: avoidance, elimination of effects through project design, or mitigation of effects through a variety of data recovery techniques following protocols and treatments provided in the Southwestern Region Region's programmatic agreement (PA) with the New Mexico SHPO.

Recommendation: There are two categories currently listed in the Forest Plan. *Cultural Resources 1* discusses historic properties that are eligible or listed on the NRHP. All historic properties that are eligible, on the NRHP, or unevaluated (treated as eligible until determined otherwise) are treated exactly the same (that is protected). *Cultural Resources 2* discusses clearance surveys for historic properties. This description is unclear. During Forest Plan revision, it is recommended that this wording be changed to account for undertakings where it has been determined that eligible sites exist within its APE, followed by site monitoring during project implementation to insure that no damage is done to the site(s). The 36 CFR 800 describes how the national forests perform heritage work (that is NHPA Section 106 compliance surveys). If a national forest has a PA, it stands in lieu of 36 CFR 800 and was agreed upon by SHPOs, THPOs, and national forests or national forest regions. For the purposes of this monitoring report these two sections for *Cultural Resources* have been combined.

SOIL AND WATER

Soil and Water 1: Watershed condition acres (satisfactory or unsatisfactory)

Monitoring Intent: To comply with federal regulation. Increased acres of watershed in satisfactory condition. Estimated improvement acres must be no less than 20 percent of predicted satisfactory condition or the ID Team will evaluate, and Forest Plan modification may be necessary.

Monitoring Method/Unit of Measure: Review of acres in unsatisfactory watersheds treated; management plans implemented; terrestrial ecosystem survey; and watershed condition inventory.

Frequency: Annually; one project will be checked.

Percent Accuracy/Precision: +/- 10 percent / +/- 15 percent

Monitoring and Trend Evaluation: There are about 193 miles of perennial streams the Lincoln NF and a number of seeps and springs. A majority of perennial streams, as well as the springs, are on the Smokey Bear and Sacramento Ranger Districts with very little perennial water on the Guadalupe Ranger District. Many concerns with hydrology occur not only in perennial drainages but also in intermittent and ephemeral stream drainages. The number of miles of intermittent and ephemeral stream drainages within the national forest is far more than the perennial drainages.

Smokey Bear Ranger District: There are about 90 miles of perennial streams. The headwaters of the Rio Bonito, much of which is located at high elevations within White Mountain Wilderness, and a large portion of the main stem of Rio Ruidoso, is what comprises many of the perennial streams. The Little Bear Fire occurred in 2012 and covered about 40,000 acres. Much of this fire occurred on steep slopes and burned with a high to moderate fire intensity. Emergency work was completed after the fire in 2012 as part of the Burn Area Emergency Response (BAER) effort. BAER monitoring was completed and a soil condition monitoring report and a post fire debris flow report were prepared in 2013. As part of the debris flow report,

precipitation data over selected sites within the burned area was collected by the U.S. Geological Survey (USGS). During 2013, there were still many soil and hydrology issues as stream channels continued to fill with sediment and roads were covered with mud and debris. Overland flow occurred in areas that have not re-established sufficient vegetation. Rio Bonito, including the main stem, South Fork, and most of the headwater tributary drainages, were affected by the fire. Bonito Lake, owned by the City of Alamogordo, was also affected and has been closed for recreation. The City of Alamogordo plans on dredging the lake in the near future. The New Mexico Division of Wildlife Resources proposes to re-introduce Rio Grande Cutthroat Trout into Rio Bonito in the next two to four years. Part of this proposed plan will include installing fish migration barriers at selected places within the stream. It will be necessary to assure the stream is functioning properly without elevated sediment loads before this action is implemented.

Figure 1. Debris Flow Event, Smokey Bear Ranger District

Three Rivers from the Lincoln NF boundary to the headwaters is water quality impaired (303 (d) of the Clean Water act) from *E. coli*. Eagle Creek is also water quality impaired for *E. coli* to U.S. Highway 70 bridge. Total Maximum Daily Loads (TMDL) has been developed for both of these water bodies. A TMDL is a study followed by a plan for mitigation and de-listing. Rio Bonito is water quality impaired (303 (d) of the Clean Water Act) for benthic macro-invertebrates and fecal coliform. Part of this stream is dewatered due to the dam (Bonito Lake). A TMDL was developed for fecal coliform and then the criteria changed to an *E. coli* listing for contact use. This listing will be retained until *E. coli* data is collected to determine whether there is any impairment of contact uses. The probable sources of these listings are due to low flow alterations from water diversions.

The USGS collected data during 2013 at five gauging stations that are either directly within the Lincoln NF or that are off the Forest but the drainage areas above these stations is partially on the Lincoln NF. At four of these stations stream discharge data was collected and at least one of them water quality data was collected. At Bonito Lake, lake elevations and precipitation data was collected. A majority of watershed that drains into Bonito Lake is on Lincoln NF land. The Sierra Blanca SNOTEL Site located on Lincoln NF land, recorded snow and temperature data during 2013. A Remote Automated Weather Station (RAWS) station located on the Smokey Bear Ranger District collects weather data on a continuous basis and collected data in 2013.

Sacramento Ranger District: There are about 88 miles of perennial stream. Most of this is comprised of the Rio Penasco and its tributaries. Much of Rio Penasco has been channelized and connection between the stream and floodplain has been lost. Bank erosion is prominent along much of this stream, including many of its tributaries. Rio Penasco is listed as water quality impaired (303 (d) of the Clean Water Act) by State of New Mexico Environmental Department for sedimentation/siltation. Aqua Chiquita is a stream which is listed as impaired (303 (d) of the Clean Water Act) for benthic macro-invertebrates. However, the cause of this impairment could not be supported with existing data. There are no TMDLs for either of these streams. A small section of Dog Canyon is perennial and is listed as impaired for water temperature. However, this listing is under review because the 20 degrees Celsius criteria for "Cold Water Aquatic Life" may not be appropriate (2012-2014 State of New Mexico Clean Water Act 303d/305b Integrated Report Appendix A List of Assessed Surface Waters US EPA Approved May 8, 2012). Stream monitoring occurred on the Aqua Chiquita during fall 2012 for habitat, flow, water chemistry, aquatic bugs, and water temperature. A RAWS weather station in Mayhill collects weather data on a continuous basis and collected data during 2013.

Figure 2. Rio Penasco, Wills canyon, Sacramento Ranger District

Guadalupe Ranger District: The Guadalupe Ranger District has 14 miles of perennial streams. Dark Canyon, Sitting Bull Canyon, and Last Chance Canyon are streams that have short sections of perennial reaches. These canyons are very prone to flooding during monsoon season. Sitting Bull Canyon experienced extremely severe flooding during the fall 2013. This was due to a combination of the Last Chance Fire that burned over a large portion of the watershed in 2011 followed by an extreme climatic event that occurred in September of 2013. BAER monitoring occurred during 2013 for this fire. Dark Canyon and Turkey Creek have been subject to recent flooding. All of these areas are prone to rock and debris flows due to thin soils, sparse vegetation, and steep rocky slopes. Water quality data has been collected in conjunction with cave monitoring and management. A RAWS station in Queen, NM collected weather data in 2013.

Soil and Water 2: Best management practices

Monitoring Intent: To comply with federal regulation. To assure compliance with State of New Mexico water quality standard Public Law 92-500. It is expected that production of water from national forest lands will meet State of New Mexico water quality standards. Failure to implement at least 80 percent required best management practices (BMP) will require evaluation by the ID Team.

Monitoring Method/Unit of Measure: Established BMPs (i.e., seeding disturbed areas, water barring roads, etc.) will be checked for implementation on the ground by designated qualified personnel.

Frequency: Annually; one project will be checked.

Percent Accuracy/Precision: +/- 20 percent / +/-10 percent

Monitoring and Trend Evaluation: Little Bear Fire of 2012 accounts for vegetation changes across the Ski Apache Recreation Enhancement planning area in recent history. Prior to Little Bear Fire, past land use strategies and management policies have contributed to formation of contiguous dense forested stands with interlocking canopies and increased risk to fire at a landscape level. In terms of soil condition, continuous ground cover from organic litter contributed to near optimum soil forming conditions by contributing maximal amounts of decomposed organics to the soil. Following the fire, areas in high severity burns lost all ground cover from consumption and the ash left over was then largely lost to high runoff conditions after the start of summer rains. Moderate burn severities suffered equal loss of ground cover and ash, but some of this is mitigated by needle cast from the killed but unburned canopies. Low burn severities largely have no or little long term effect on soils.

March 19, 2013 – a field visit was conducted to evaluate the effectiveness of BAER treatments and soil conditions. Figure 4 is an example of some areas that had major soil displacement occurring. Soil-loss leaving the upper steep slopes and settling behind fallen tree logs. BAER treatments have responded very well in the south fork canyon, where high to moderate fire severity existed. Hydrophobic soil points were taken in this canyon. Year one post fire revisit was warranted given the severity in these areas.

Figure 3. Close View of a Debris Flow Monitoring Event, Little Bear Fire Scar

Figure 4. Panoramic View of a Debris Flow Monitoring Event, Little Bear Fire Scar

During 2013 field season, a total of 2 full surveys were completed. Survey 1 was completed on July 10th and survey 2 was completed on July 23rd; both surveys were conducted the day after a significant rain event (any event that produced 0.50 inches of rain per hour). During survey 1 it was observed that 20 of the tributaries produced debris flows, 2 tributaries produced flooding events and the rest were not significantly impacted. During survey 2, 21 debris flows and 6 flooding events were recorded from previous day rain events. For both surveys conducted, digital ONSET HOBO rain gauge meters were also downloaded so rain events could be linked to recorded debris flows in both watersheds. Rain events were recorded.

Recommendations: In the southwestern United States, wildfires pose a great threat to human safety. There has been an increase of human development within fire active WUI areas and additional research is needed to evaluate how we can prevent the loss of human life. On the Smokey Bear Ranger District of the Lincoln NF, fire has always been a major component of the landscape. Monitoring the processes on the post-fire landscape can help us understand how we can keep the public and our people in the field safe.

On the Smokey Bear Ranger District, 40 tributaries have been identified as hazards to human safety and are of importance to monitor. Over half of the identified hazardous tributaries on this district have actively produced debris flows in areas where the public safety is of concern. Because most post-fire debris flows are common for about two years after the fire has occurred (USGS 2005), it would be recommended that monitoring and the awareness of such events, are to be kept as a priority of safety on this district. Although prediction models for such hazards are still in the developmental process, further intensified monitoring by the USGS and partners, is recommended.

Post-Little Bear Fire rehabilitation activities are recommended including prescribed burning, contour falling and log terracing, slope stabilization, and reforestation on National Forest System lands within the Ski Apache ski area, west of Ruidoso, New Mexico. Rehabilitation would repair and improve lands that are unlikely to recover from wildland fire damage. Approximately 60 acres of cut and dozer-piled burned timber would be prescribed burned within the constraints of the approved programmatic Ski Apache burn plan. Approximately 45 acres of hazard trees would be cut, lopped and scattered, to prevent falling hazards and improve public safety at the ski area. Contour falling and log terracing would be applied over approximately 150 acres of non-skiable slopes to stabilize and promote the recovery of hydrophobic soils, and to add ground cover. Approximately 60 acres of slopes would be reforested to reestablish forest cover. The full project is expected to be completed within 3 years of the Little Bear Fire with monitoring continuing for five years.

PROTECTION

Protection 1: Insect and Disease Protection

Monitoring Intent: To determine that destructive insects and disease organisms do not increase to potentially damaging levels following management activities.

Monitoring Method/Unit of Measure:

a) Periodic aerial surveys; and
b) Ground check by qualified personnel.

Monitoring Frequency: Annually

Expected Precision/Reliability: +/- 40 percent / +/- 30 percent

Monitoring and trend Evaluation: Bark beetle-caused tree mortality has intensified on the Lincoln National Forest and adjacent tribal, state and private lands. Ponderosa pine mortality was observed across 65,300 acres this year as compared to 35,200 acres mapped in 2012. Douglas-fir mortality was observed on 12,400 acres this year, an increase from 9,800 acres in 2012. Fir mortality decreased from 8,800 acres in 2012 to nearly 1,100 acres in 2013. A significant amount white pine is also being affected by bark beetles; almost 2,200 acres were observed this year.

Figure 5. Douglas-fir Tussock Moth damage in the Southern Sacramento Mountains

In other forest types, we also observed increases in bark beetle-caused mortality. Piñon ips beetle activity has increased from 1,700 acres in 2012 to 8,000 acres in 2013. Small increases in juniper mortality by cedar bark beetles and other agents were observed on over 300 acres and in corkbark fir mortality on 50 acres.

Douglas-fir tussock moth activity seems to be increasing on the Sacramento Ranger District; trapping efforts over the last three years have shown an increasing population and damage was visually apparent during aerial surveys this year. Defoliation from tussock moth activity was observed on nearly 400 acres in vicinity of Scott Able Canyon, Agua Chiquita Canyon, and Carissa Lookout, as well as within the Village of Cloudcroft. Oak defoliation was observed on 100 acres in the southern Sacramento Mountains. Aspen defoliation increased to approximately 1,300 acres and piñon defoliation fell to just under 900 acres in 2013. New or previously unmapped areas of aspen decline were observed on 50 acres this year.

Protection Table 1. 2013 Forest Insect & Disease Activity on the Lincoln National Forest Summary of Aerial Survey Results (Acres[1])

Mortality

Ponderosa Pine Bark Beetles	Bark Beetles in White Pine	Piñon Ips Beetle	Douglas-fir Beetle	Fir Mortality	Western Balsam Bark Beetle	Cedar Bark Beetles	Aspen Decline[2]	**Mortality Total (acres)[3]**

Ranger District

Sacramento	FS[4]	24,420	1,690	4,570	5,490	750		330	30	**28,050**
	P	5,240	490	650	390	210			20	**6,050**
	S	2,000		370	60	60				**2,290**
Sacramento Total		31,660	2,180	5,590	5,940	1,020		330	50	**36,390**
Smokey Bear	FS	27,410	*	2,260	5,750	60	50			**30,360**
	P	6,090		160	740					**6,300**
	S	140								**140**
Smokey Bear Total		33,640	*	2,420	6,480	60	50			**36,800**
Lincoln National Forest Total		**65,300**	**2,180**	**8,010**	**12,420**	**1,080**	**50**	**330**	**50**	**73,190**

1 – Values rounded to nearest 10 acres; sum of individual values may differ from totals due to rounding and multiple agents.
2 – Areas with new or previously unmapped aspen decline.
3 – Areas may be mapped with more than one damage agent. Totals represent 'footprint' or affected area on the ground with no multiple counting of acres within the damage type.
4 – Ownership of land within national forest boundary: FS = U.S. Forest Service; P = Private; S = State

Protection Table 2. 2013 Forest Insect & Disease Activity on the Lincoln National Forest Summary of Aerial Survey Results (Acres[1])

Defoliation

		Aspen Defoliation	Douglas-fir Tussock Moth	Ponderosa Defoliation	Oak Defoliation	Pinon Defoliation	Defoliation Total[3]
Ranger District							
Sacramento	FS[4]	940	250		110	550	1,840
	P	90	120			340	550
	S						
Sacramento Total		**1,030**	**370**		**110**	**890**	**2,390**
Smokey Bear	FS	260					260
	P						
	S						
Smokey Bear Total		260					260
Lincoln National Forest Total		**1,290**	**370**		**110**	**890**	**2,650**

1 – Values rounded to nearest 10 acres; sum of individual values may differ from totals due to rounding and multiple agents.
2 – Areas with new or previously unmapped aspen decline.
3 – Areas may be mapped with more than one damage agent. Totals represent 'footprint' or affected area on the ground with no multiple counting of acres within the damage type.
4 – Ownership of land within national forest boundary: FS = U.S. Forest Service; P = Private; S = State

Protection Table 3. 2013 Forest Insect & Disease Activity on the Lincoln National Forest Summary of Aerial Survey Results (Acres[1])
Other

Branch Flagging	Discoloration	Juniper Dieback	Oak Dieback

Ranger District

Sacramento	FS[4]	30			
	P				
	S				
Sacramento Total		**30**			
Smokey Bear	FS		40		
	P				
	S				
Smokey Bear Total			40		
Lincoln National Forest Total		**30**	**40**		

1 – Values rounded to nearest 10 acres; sum of individual values may differ from totals due to rounding and multiple agents.
2 – Areas with new or previously unmapped aspen decline.
3 – Areas may be mapped with more than one damage agent. Totals represent 'footprint' or affected area on the ground with no multiple counting of acres within the damage type.
4 – Ownership of land within national forest boundary: FS = U.S. Forest Service; P = Private; S = State

FIRE

Fire Management 1: Fire suppression effectiveness

Monitoring Intent: To determine compliance with federal regulations; prescribed resource management practices and effects in relation to budgets and resource losses. Periodic evaluation will be made to determine if fire management organization is insuring compliance with standards and guidelines applied to 90 percent of the wildland fires and Rx burn activities. Variability that would indicate a need for re-evaluation include: excessive budget expenditures which are not commiserate with activity on forest and Incident Qualifications and Certification System (IQCS) records which appear to be inconsistent or incorrect in documentation process.

Monitoring Method/Unit of Measure:

a) Periodic inspections and reviews to determine if fire management organization is effective in controlling fire losses within prescription. This includes audits of IQCS records, fire reports, and annual base inspections;
b) Use of fire budget analysis process to determine fire management efficiency; and,
c) Fire reviews of selected fires.

Monitoring Frequency: Annual inspections, periodic reviews, and fire budget analysis process as needed.

Expected Precision/Reliability: +/- 10 percent / +/- 10 percent

Monitoring and Trend Evaluation: Annual reviews of operations forest wide occurred in spring 2013. Reviews occurred at all ranger districts as well as at Alamogordo Interagency Dispatch Center and tanker base. Reviews assessed preparedness and ability to respond to a varying complexity of incidents. No issues were encountered and all administrative units were operational.

Review of IQCS qualifications is on-going with the bulk of the assessment occurring from late winter to spring 2013. The Lincoln NF manages on average 204 individuals within IQCS. Audits are conducted on incoming employees and on existing Lincoln National Forest employees as positions are added or as task books are certified. At any point in time when and if an employee is missing documentation they are granted time to provide necessary documentation to validate their qualifications.

Thirty-one employees are qualified within Interagency Fire Program Management (IFPM) guidelines. Twenty-nine meet IFPM standards. Employees lacking qualifications will meet standards pending training and documentation.

The Lincoln NF had a total of 26 wildfires in 2013, burning 133 acres. For 10 years the Lincoln NF has burned 237,225 acres with some years inactive and others historical in nature. District Forest Management Officers (FMOs) and Assistant Forest Management Officers (AFMOs) review up to 100 percent of all wildfire occurrences on their respective ranger district; there were no issues and suppression resources were compliant with standards and guidelines outlined in the Forest Plan, IDCS, and IFPM for FY 2013.

Funding in 2013 was sufficient to facilitate staffing of all suppression resources. The fire season was inactive with resources providing significant support within and outside of the region. Budget costs were within allocations and did not exceed five (5) percent of allocations.

Fire Management 2: Project generated fuel treatment

Monitoring Intent: To determine compliance with federal regulations and prescribed resource management prescriptions and effects. Fuel treatment will follow the various timber activities as a means of reducing fire hazard and insect and disease potential. Determination of acres treated to meet both hazardous fuels and restoration treatment objectives and targets through assessment of the landscapes' pre-treatment to determine existing conditions relative to current restoration direction; assessment of the landscapes' post treatment to assess conditions relative to environmental analysis decision documentation direction; assessment of the landscapes' post treatment to determine treatment interaction with wildfire as well as post fire succession. Variability that would indicate a need for re-evaluation would depend on large scale disturbances such as wildfire which impact vegetation treatments and / or create vegetation type conversions. Evaluation will be made of project fuels. If 80 percent of fuels are not being treated within 2 years of generation, an adjustment in the Forest Plan will be necessary.

Monitoring Method/Unit of Measure: Annual fuel treatment report. Data is generated from field personnel who monitor and/or direct fuel treatment by U. S. Forest Service crews, logging companies, contractors, etc. The report includes acres treated/acres monitored; Common Stand Exam (CSE) protocols used to compare to objectives/prescriptions of environmental analysis decision documents; Common Non-Forested Vegetation Sampling Protocols (CNVSP) to assess post fire succession; comparison of desired conditions described in current science relative to monitored landscapes.

Monitoring Frequency: Annually or more depending on wildfire and other large scale disturbances.

Expected Precision/Reliability: +/- 10 percent / +/- 10 percent

Monitoring and Trend Evaluation: The forest accomplished 10,590 acres of vegetation treatment in 2013. The table below displays treatments by acres:

Fire Table 1. 2013 Vegetation Treatments

Treatment Type	Acres
Prescribed Rx	5,445
Thinning	4,211
Commercial Timber	934
Total Acres Treated	**10,590**

CSE monitoring occurred on 14,733 acres of the Lincoln NF. Project areas were monitored to compare post treatment conditions relative to environmental analysis decision documents guidelines and prescriptions; regeneration of tree species post treatment; existing conditions relative to current restoration desired condition direction. Data was collected regarding tree density, basal area, and dead and down woody fuels, surface cover, as well as overall vegetation composition.

Fire Table 2. Monitoring Intent by Acres

Monitoring Intent	Acres
Post treatment tree regeneration.	474
Post treatment conditions relative to environmental analysis decision document	2,231
Existing conditions relative to restoration guidance.	10,674
Post wildfire conditions relative to restoration guidance.	1,354
Total Acres	**14,733**

Post Treatment Regeneration: Landscapes were assessed post timber and activity fuel treatment to determine regeneration. Project areas spanned 3 decades of timber harvest from 1980 to the 2000's.

1980s: Trees average 398 per acre with trees less than 5 inch diameter represent 68 percent of tree density. Majority are species which also grow in shrub form such as oak, locust, and maple. Trees 5-9" diameter comprise 15 percent of the tree density of species such as white fir, ponderosa pine, southwestern white pine, and Douglas fir. Douglas for and white fir are the dominant species.

1990s: Trees average 302 per acre with trees less than 5 inch diameter comprises 73 percent of tree density. Tree species are a combination of white fir, southwestern white pine, and Douglas fir. Trees 5-9 inch diameter comprise 9 percent of the tree density, comprised of similar species. In general Douglas fir and white fir are the dominant species.

2000s: Trees average 184 per acre with trees 5 inches and less diameter account for 54 percent of tree density while trees 5-9 inch diameter comprise 15 percent of tree density. Species are comprised of white fir, ponderosa pine, southwestern white pine, and Douglas fir. White fir and Douglas fir are the dominant species.

Throughout all areas sampled Douglas fir and white fir dominate tree composition. Areas sampled from the 1980's appear to have the highest shrub cover. In general all areas are young with average stand age amongst all areas sampled in the 70's for tree age.

Post Treatment Comparison of Vegetative Conditions relative to Environmental Analysis Decision Documents' Guidelines: Multiple landscapes were monitored post treatment to compare both environmental analysis decision documents objectives as well as silviculture prescriptions for treatment.

Smokey Bear Ranger District: All treated areas have an average basal area of 82 which is within the range within environmental analysis decision documents.

Fuel loadings are averaging 26 tons per acre. The environmental analysis decision document recommends up to 15 tons per acre of course woody debris.

Treatments sampled show a continued shift towards pre-settlement conditions. However, small diameter trees, less than 5 inches remain a concern. Application of prescribed burning or Rx will continue to sift landscape toward pre-settlement conditions.

Sacramento Ranger District: Two projects within the 16 Springs Forest Landscape planning area have begun to create interspaces which favor grass-forb-shrub dominance and establish a mosaic pattern within the project area.

Tree densities for both projects are still 2-8 times higher than prescription guidelines. Basal areas for ponderosa pine are within ranges established in the environmental analysis decision document while mixed conifer is higher than recommended.

Reconsider use of vegetation structural stage (VSS) classification, recognizing some classes are not manageable through timber and other thinning activities. The current intermix of woodland species further complicates accurate characterization of VSS classes. While the classification process is useful to understand diversity and abundance of various size classes it is important to understand it is an inventory of tree density, not a true representation of spatial distribution of structural stages for Northern Goshawk. For example VSS 1 is a grass-forb-seedling stage is based on the presence of tree seedlings less than 1" diameter. VSS 1 is not developed based on amount of interspace which is grass-forb-seedling. Trees of this size class can occur anywhere within the landscape. Therefore, it is not a true representation of the amount of openings within a specific area, but a description of how many trees less than 1" diameter there are. Removing trees from VSS classes 1, 2, and 3 will improve the percentages in VSS classes 5 and 6 even though those size classes will not be treated. Current drought trends have increased both overall tree mortality as well as limiting moisture which impedes growth. It becomes critical to document occupancy in current climate trends to better understand the dynamics of forest structure which support Northern Goshawk habitat.

Tree density in the <5 inch diameter size class continues to be high, with sprouting occurring in cut alligator juniper. Application of prescribed fire would continue to reduce stem density and shift stands to historical conditions described in the environmental analysis decision document.

The highest diversity of plant species is within shrubs and forbs.

Existing Conditions Relative to Restoration Guidance: Existing conditions within a broad scope of ponderosa pine and pinon juniper woodlands were collected within the Lincoln NF. They are broken into two sections desert influenced landscapes and higher elevation forested landscapes.

Smokey Bear Ranger District: Ponderosa pine landscapes vary from 158 trees per acre to 1,400 trees per acre. Historically ponderosa pine averaged 23-63 trees per acre. Dead and down woody fuel loadings are within recommendations of local environmental analysis decision documents, averaging 13 tons per acre.

Pinon –juniper woodlands monitored average 400 trees per acre. Historically, trees would have averaged 111 per acre of mainly juniper and some pinon pine.

Sacramento Ranger District: At present the combination of pinon and juniper average 378 per acre. Historically, pinon pine would have averaged 11-33 trees per acre compared to 218 trees per acre currently. Juniper would have averaged 32-61 trees per acre compared to 160 trees per acre currently.

Relative to grass-forb-shrub composition, forbs had the highest plant diversity while shrubs and grasses had higher frequencies of occurrence.

Guadalupe Ranger District: Higher elevation landscapes within the southern portion of the Guadalupe Ranger District favor ponderosa pine and some mixed conifer. Currently tree densities average 702 trees per acre with 76 percent of tree density in trees less than 5" diameter. Juniper contributes up to 70 percent of the tree density. Historically, juniper in this would have averaged 95-181 trees per acre, while currently juniper averages 476 trees per acre. Pinon pine averages 65 trees per acre; historically pinon pine would have averaged 3-10 trees per acre. Ponderosa pine would have averaged 43 trees per acre.

The lower elevations of the Guadalupe Ranger District favor a mixture of grassland, shrubland, woodland, and riparian landscapes, with some pockets of pinyon-juniper woodland. Current conditions within shrubland landscapes average 81 trees per acre within the RD277 project. Currently juniper averages 32 trees per acre and pinon 36 trees per acre. Historically juniper averaged 6-12 per acre while pinon averaged 2-5 per acre. Fuel loadings are within historical ranges and tree density is low indicating encroachment has begun to increase tree density within a shrub-grassland landscape.

Post Wildfire Conditions Relative to Wildfire Disturbance: One project area was monitored post wildfire to assess the impact of two fire occurrences within a short time span. The Acery project was affected by two fires, 2008 Rocky Fire and 2011 Acery Fire.

Tree densities are the lowest where both fires overlap, averaging 8 trees per acre, while areas within Rocky Fire average 84 per acre.

Some pinon pine can be found within fire scars averaging 75 years old with the oldest pinon aged at 101 years old. The age of pinon can give perspective on intervals between fires as well as time frames for encroachment to occur.

The occurrence of wildfire, particularly where fires have overlapped has moved the landscape towards historical conditions of lower tree densities**.**

CNVSP monitoring occurred in four (4) wildfires within Lincoln NF encompassing approximately 129,000 acres of fires which occurred in 2011 and 2012. The intent was to establish trends in post fire succession.

While fire effects may be considered high severity immediately post fire, post fire succession will vary across the landscape in areas considered high severity. Complete type conversions typically occur in forested areas in the higher elevation shifting landscape from forest overstory to forb, grass, shrub landscapes, typically on the Sacramento and Smokey Bear Ranger Districts. Vegetative growth will depend on soil, slope, aspect, and precipitation trends. Approximately, 1-2 years post wildfire areas will often show moderate to significant regrowth of grass-forb species. Other data collected from older fires (up to 20 years) indicates shrub species such as oak will begin to dominate vegetative cover over time. Type conversions, based on older fire scars from the 1900's to 1950's indicates these types of conversions can last for multiple decades, potentially shifting areas to oak type woodlands favoring locust and Gambel oak as seen in landscapes within Upper Rio Bonito watershed.

BAER activities do show rapid growth of nonnative species used to stabilize soils post fire. However, native species will begin to populate low to high severity areas immediately post fire regardless of BAER efforts.

Desert landscapes appear to have higher resiliency with landscapes shifting to conditions existing previous to fire disturbance within 1-2 years. The exceptions are landscapes where ponderosa pine and mixed conifer dominate as well as riparian areas where cat claw dominates vegetative cover post wildfire.

Fire regimes within desert influenced landscapes in the southern portion of the Lincoln NF tend toward a stand replacement fire regime, even within ponderosa pine dominated stands. A low severity frequent fire regime does not appear to be representative of the area. Age classing shows even aged stands which is further supported by fire occurrences where stands of ponderosa pine and mixed conifer experience stand replacement. The oldest stands of mixed conifer are found in protected pockets within cooler moister drainages in elevations 7,000 feet and higher. No trees thus far have been found over 200 years old. Regeneration of ponderosa pine can be found in recent fire scars from the 1990's.

RECREATION

Recreation 1: Dispersed Recreation Use

Monitoring Intent: To meet federal regulations; and to monitor prescribed resource management practices and effects. To monitor actual dispersed recreation use in recreation opportunity spectrum (ROS) settings. To ensure demand for dispersed recreation use will be within capacity. To ensure quality of experience will increase due to more intensive management. Compare actual use records for a five year time period to project use by ROS setting. If use exceeds 30 percent of projected use, the ID Team will evaluate and make recommendations to management.

Monitoring Method/Unit of Measure:

a) Recreation Information Management (RIM) report; and
b) Inspections of heavily used dispersed areas, including evaluation of vegetative deterioration and soil erosion.

Measuring Frequency: Annually

Percent Accuracy/Precision: +/- 25 percent / +/- 25 percent

Monitoring and Trend Evaluation: a) The RIM reporting system has been eliminated. The Lincoln NF had an estimated 752,000 site visits per year as recorded from the national visitor use monitoring survey (NVUM) FY 2009 NVUM round two survey results. About 511,000 visits took place in dispersed, undeveloped areas and about 28,000 visits took place in one of the two designated wilderness areas. The general conclusion is the trend for Lincoln NF visits will increase. Results from NVUM survey show that visitors rated their satisfaction with undeveloped areas as good or very good in the satisfaction elements for developed facilities (93.1 percent), access (94.3 percent), services (69.6 percent), and feeling of safety (92.9 percent). Results for designated wilderness show that visitors rated their satisfaction as good or very good in the satisfaction elements for developed facilities (100 percent), access (87.5 percent), services (92.3 percent), and feeling of safety (90 percent). This survey takes place every five years and will show a trend in visitor use within the Lincoln NF. A discussion of NVUM is found at http://www.fs.fed.us/recreation/programs/nvum/.

b) There is no data available on inspections on heavily used dispersed, areas; therefore there are unknown site conditions.

Recreation 2: Developed site use, public and private sector

Monitoring Intent: To meet federal regulation; to sample output for Lincoln NF related issues as needed. The projected annual demand for developed recreation by the end of the fifth period of the decision date of the Forest Plan will be 1,210 RVDs. The Forest Plan will provide 1,069 recreation visitor days (RVDs) or 88 percent of the demand. During the first five planning periods, 7,178 persons-at-one-time (PAOT) capacity will be added. The Lincoln NF will compare actual use to projected use. Average actual use for each three year reporting period will be calculated. If actual use is under by 10 percent or is over by 30 percent, the ID Team will evaluate and Forest Plan modification may be necessary.

Monitoring Method/Unit of Measure: The RIM reporting system has been eliminated and the USDA Forest Service is currently using the number of *Recreation Sites Managed to Standard and Recreation Site Capacity Operated to Standard*. The Lincoln NF also uses the National Survey on Recreation and the Environment (NRSE) to help describe outdoor recreation by the general public and their interest in and around the Lincoln NF. It is recommended that the RIM reporting system to the number of *Recreation Sites Managed to Standard and Recreation Site Capacity Operated to Standard*.

Measuring Frequency: Annually

Percent Accuracy/Precision: +/- 20 percent / +/- 20 percent

Monitoring and Trend Evaluation: The RIM reporting system has been eliminated and the USDA Forest Service is currently using number of *Recreation Sites Managed to Standard and Recreation Site Capacity Operated to Standard*. The Lincoln NF had an estimated 752,000 site visits per year as recorded from the FY 2009 NVUM. Of these, about 181,000 were at developed day use sites and about 33,000 were at developed overnight use sites.

Number of recreation PAOT days operated to standard as identified in the recreation sites standards for each national forest region (see "Regional Required Standards" at http://fsweb.wo.fs.fed.us/rhwr/ibsc/docs/regional-required-quality-standards.pdf). Total PAOT days comes from INFRA. The number of PAOT days operated to standard = the Lincoln NF recreation funding allocated to recreation site operations multiplied by the INFRA generated cost divided by PAOT day. In 2013, the Lincoln NF administered 160,000 PAOTs.

The general conclusion is the trend for the Lincoln NF visits will continue to increase. The Lincoln NF averaged 59 *Recreation Sites Managed to Standard* over the last five years with 59 *Sites Managed to Standard* in FY2013. Results from FY2009 NVUM survey show that almost 88 percent of visitors rated their satisfaction with developed day use and overnight use sites as good or very good in the elements for developed facilities, access, services, and feeling of safety. A discussion of the NVUM is found at www.fs.fed.us/recreation/programs/nvum/.

CAVES

Caves 1: Cave use and resource protection

Monitoring Intent: Assure cave resource is protected from vandalism and overuse. Caves will be subject to vandalism and the resource deteriorates without protection. Compare actual use records and incidence reports every third and sixth year to track trend of use. If damage exceeds 20 percent, an evaluation will be completed by an ID Team and recommendations to management will be made.

Monitoring Method/Unit of Measure: Use reports and number of incidence reports through inspection of caves internally and externally in conjunction with other resource activities.

Monitoring Frequency: Annual, bi-annual and every 3rd year for different individual caves.

Expected Precision/Reliability: +/- 5 percent / +/- 5 percent

Monitoring and Trend Evaluation: In 2013, cave use by people stayed near the average rate of 550 person/visits participating in 185 cave trips for the year. A new trip leader structure and an avid volunteer program was successful in producing monitoring information of one type or another on 80 percent of these trips. Consequently the small number of highly used caves was monitored bi-monthly for most of the year. No degradation was detected at these high use sites or other cave sites.

In 2013, cave use by bats and other wildlife was unchanged. No new bat sites were found and none were abandoned. No MSO sightings were made in cave entrance areas, making the last sighting in spring 2012.

Recommendations:

- Complete bio-inventory of the Lincoln NF cave systems. Using a systematic approach, intricately survey each internal cave site for unique cave fauna. Inventory at this level is likely to uncover new species. Establish a collection of species that would facilitate outside research. This would establish a baseline to detect impacts to the cave including climate change.
- Long term climatology monitoring of the Lincoln NF cave systems. Using a subset of caves, establish continuous temperature and humidity datalogging. Climate monitoring at this level can be an indicator for impacts to the cave including climate change.
- Karst inventory of the Lincoln NF cave systems. Using a systematic approach, intricately search limestone areas for caves, rock shelters, sink holes, sinks, karst features and springs. Karst inventory at the landscape level will provide information necessary for documents like a karst potential map for timber operations.
- Cave survey of the Lincoln NF cave systems. Complete drafted maps of all unmapped or improperly mapped caves by completing cave survey, cave inventory and map drafting.
- Acoustic inventory for bat sites of the Lincoln NF cave systems. Using a comprehensive approach to detect use of caves by bats during different seasons.

- Convert cave inventory procedures to digital format. Using the portable digital analysis (PDA) technology that exists, cave inventory teams could enter data digitally in the cave that would be automatically linked to GIS.

LANDS

Lands 1: Rights-of-way acquired

Monitoring Intent: To meet federal regulations; and to monitor prescribed resource management practices and effects. Failure to acquire projected needed rights-of-way at the end of the fifth year of this Forest Plan will require ID Team evaluation, and Forest Plan modification may be necessary.

Monitoring Method/Unit of Measure: Work accomplishment report in miles. Per the Forest Plan, priorities for rights-of-way acquisition are for the following purposes:

a) Resource outputs
b) Administration
c) Public access
d) Local government jurisdiction, (LUMP, replacement page 46, Amendment 2, September 1988)

Monitoring Frequency: Annually

Percent Accuracy/Precision: +/- 5percent; +/-5percent

Monitoring and Trend Evaluation: Historically, it was not unusual for private land owners and USDA Forest Service officials to verbally agree or do a gentlemen's handshake agreement to develop miles of roads across private land without documenting or recording a legal right-of-way (ROW) instrument. Private landowners have become more aware and informed of this lack of documentation and have taken this as an opportunity to lock/block traditional access to the Lincoln NF by exercising their private land rights. As time progresses, the U. S. Forest Service continues to see more and more private landowners lock gates across Lincoln NF developed roads resulting in exclusion of public from use and enjoyment of tens of thousands of acres and preventing stewards access from managing public lands and natural resources.

Acquisition of ROW's ensures that the public will continue to have access to the Lincoln NF. As timber harvesting programs have declined, the need for access for resource harvesting has also declined. Access for the range program has experienced some issues, but not to the level of the recreation and lands administration programs. Need for access in the recreation and lands administration program has significantly increased since implementation of the Forest Plan due to blocking of traditional access routes by private landowners.

At this time, ROW acquisition is unpredictable due to its dependency on willing sellers and reduction of federal budget dollars to purchase and process these types of cases. Owners of high priority ROWs need to always be approached for possible conveyance by way of donation, reciprocal ROW, acquisition, or exchange. If the private land owners are not interested in granting access, other willing private landowners w/moderate level priority ROWs will be entertained and considered for acquisition.

Public access is not solely dependent on the U. S. Forest Service acquiring easements. As subdivisions and other private developments are created, some of the subdivision roads are dedicated to public use through dedication of those access roads to its respective county. It is imperative to continue to build relationships and partnerships with local public road agencies to improve as we work together on roads and trails management in order to serve multiple uses and effectively manage millions of acres.

Recommendation: Due to annual national forest minerals and lands funding progression of reduced funding, acquisition of road and trail ROWs has been a continuous challenge. The Forest Plan identifies 44.8 miles of ROW trails and roads for acquisition of which 16 acres of road and trail ROW area have been acquired since implementation of the Forest Plan. In addition, over 14 acres of road and trail ROW area are not identified in table 1 and have been acquired since implementation of the Forest Plan (see table 2). Final determination of actual mileage acquired will be reviewed and updated during Forest Plan revision due to varying width and length of each ROW. Other mileage/acreage of roads and trails has been acquired and are not listed in the Forest Plan. These may not be documented or minimally documented. This is due to fee simple lands that were acquired from the private sector or local government entity by way of direct land acquisition or land exchange. This is indicated in the +/- 5percent variation allowance, therefore, this list will be revised and updated during Forest Plan revision in accordance with current federal ownership status and the table of identified road and trail ROWs recommended for acquisition on the Lincoln National Forest (see Lands table 3).

Lands Table 1: Estimated segments of priority road and trail ROWs to acquire, (Forest Plan, Page 218, Amendment 9, June 1996)

District	Road Number	Name	Miles	Comments
2	630	Poison Canyon	1.1	See Table 3 comments
2	405	Dry Canyon	2.1	See Table 3 comments
2	171	Perk Canyon	2.1	See Table 3 comments
1	5655	Bear Canyon	0.5	See Table 3 comments
2	257	Hay Canyon	0.5	See Table 3 comments
2	169	Willis Canyon	3.25	See Table 3 comments
2	541	Prestridge	0.73	See Table 3 comments
2	265	Pendleton Canyon	1.25	See Table 3 comments
2	433 (trail)	Wayland Canyon	1.2	See Table 3 comments
2	437	Potato Canyon	0.25	Acquired a portion of an existing road easement in 1987 from multiple private landowners, 92’ wide (2.246

District	Road Number	Name	Miles	Comments
				acres).
2	255	Jim Lewis Canyon	0.75	See Table 3 comments
2	625	Bell Canyon	0.8	See Table 3 comments
1	175	Sixteen Springs	1.5	See Table 3 comments
1	616	Capitan Gap North	1.5	Acquired a 66' wide existing road easement, (0.648 acres) in 1991 (Canning Ranches).
1	56	Capitan Gap South	4.9	See Table 3 comments
1	441	Benado Gap North	2.6	See Table 3 comments
1	441	Benado Gap South	0.1	See Table 3 comments
1	256	Seven Cabins	1.3	Acquired ROW totaling 2.485 acre road easement in 1991 and in 2014 a ROW 0.139 miles (0.84 acres).
1	163	Copeland	1.0	See Table 3 comments
1	5657	Arabella	1.7	See Table 3 comments
1	1.5	Nogal Lake	1.5	See Table 3 comments
1	583	Dry Gulch	0.1	See Table 3 comments
1	480	Elder/Water Canyon	9.0	See Table 3 comments
1	5626	Windy Canyon	2.4	See Table 3 comments
1	108	Tanbark	0.3	See Table 3 comments
1	120	Eagle Lake	1.5	Acquired a portion of a 66' raw-land road easement in 1989 (10.704 acres from multiple private land owners).
1	130	Pine Lodge	0.6	See Table 3 comments
2	64	Agua Chiquita	0.25	See Table 3 comments
		Total Miles	44.8	See Table 3 comments

*Note: District 1 = Smokey Bear Ranger District, 2 = Sacramento Ranger District, & 3 = Guadalupe Ranger District

Lands Table 2: Road and trail ROWs acquired since implementation of the Forest Plan. These were not identified for acquisition in the above table

District	Road/Trail Number	Name	ROW – width /acreage	Comments
2	258	Springs Canyon	varied width (0.553 acres)	Acquired road easement as part of a STA interchange.
1	84	Indian Divide	66’ (4.659 acres)	Acquired existing road easement in 1988.
1	N/A	Mills Canyon Trail	2.54 acres	Acquired raw-land for trailhead and visitor facilities in 1991.
1	N/A	Mills Canyon Trail	10’ (0.79 acres)	Acquired existing trail easement in 1994.
2	408 (re-alignment of 329)	N/A	40’ (acres undeter mined)	Acquired by donation an existing road easement in 1989 from multiple private landowners.
2	Off State Hwy 82	Cloudcroft Trestle Road	Varied width (1.549 acres)	Acquired in 1994.
2	Off State Hwy 82	Cloudcroft Trestle Trail	30’ wide (0.503 acres)	Acquired a trail easement in 1996.
2	9373	Trail	30’ wide	Acquired an easement trail ROW in 1997 by land exchange.
2	569	Road	66’ wide	Acquired road ROW in 1997 by land exchange.
2	171	Perk Canyon area (located in between 171 and Perk Cnyn and access entry to Weed Baptist church)	(0.007 acres)	Acquired access easement for an existing road in 2002.
2	5659 also referenced as 5459	Hoosier Canyon	66’ (0.54 acres)	Acquired road easement in 1993.
2	T15S, R14E, sections 33 & 34	Campbell Properties	10’, (3 acres)	Acquired in 1989 (waterline ROW only).

Lands Table 3. Roads in which all or a segment of a ROW is recommended for acquisition. Exact locations and priority levels will be revisited and determined during forest plan revision period.

Road Number	Ranger District	BMP*	EMP**	Miles Needed	Status as of 11/09/2011
00056	D1	0.000	10.633	TBD	**Per Forest Plan, 4.9 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00057	D1	0.000	17.168	17.168	Need ROW
00072	D1	0.000	18.985	18.985	ROW undetermined; to be reviewed during Forest Plan revision
00084	D1	0.000	8.520	8.520	ROW undetermined; to be reviewed during Forest Plan revision.
00105	D1	0.000	1.340	TBD	**Per Forest Plan, 1.5 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00107	D1	0.000	8.678	8.678	ROW undetermined, to be reviewed during plan revision
00107 A	D1	0.000	2.210	2.210	Closed in 2009 due to No ROW with no chance of obtaining ROW, however access is allowed through private
00108	D1	0.000	4.200	TBD	**Per Forest Plan, 0.3 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00116	D1	0.000	1.510	1.510	ROW undetermined; to be reviewed during Forest Plan revision.
00119	D1	0.000	0.760	0.760	Closed in 2009 due to no ROW with no chance of obtaining ROW; to be reviewed during plan revision
00120	D1	0.000	11.480	TBD	**Per Forest Plan, 1.5 miles identified for ROW acquisition; to be reviewed during Forest Plan revision
00130	D1	0.000	4.340	TBD	**Per Forest Plan, 0.6 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00131	D1	0.000	5.520	5.520	ROW undetermined; to be reviewed during Forest Plan revision.
00139	D1	0.000	3.503	3.503	ROW undetermined; to be reviewed during Forest Plan revision.
00142	D1	0.000	5.150	5.150	ROW undetermined; to be reviewed during Forest Plan revision.
00163	D1	0.000	4.965	TBD	**Per Forest Plan, 1.0 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.

Road Number	Ranger District	BMP*	EMP**	Miles Needed	Status as of 11/09/2011
00165	D1	0.000	1.660	1.660	ROW undetermined; to be reviewed during Forest Plan revision.
00256	D1	0.000	5.360	TBD	**Per Forest Plan, 1.3 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00338	D1	0.000	6.930	6.930	ROW undetermined; to be reviewed during Forest Plan revision.
00400	D1	0.000	7.180	7.180	ROW undetermined; to be reviewed during Forest Plan revision.
00440	D1	0.000	2.860	2.860	ROW undetermined; to be reviewed during Forest Plan revision.
00441	D1	0.000	8.630	TBD	**Per Forest Plan, 2.6 miles for North Gap and 0.1 miles for South Gap identified for ROW acquisition; to be reviewed during Forest Plan revision.
00443	D1	0.000	15.110	15.110	ROW undetermined; to be reviewed during Forest Plan revision.
00480	D1	0.000	0.000	TBD	**Per Forest Plan, 9.0 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00482	D1	0.000	4.315	4.315	ROW undetermined; to be reviewed during Forest Plan revision.
00486	D1	0.000	4.740	4.740	ROW undetermined; to be reviewed during Forest Plan revision.
00488	D1	0.000	3.680	3.680	ROW undetermined; to be reviewed during Forest Plan revision.
00493	D1	0.000	3.900	3.900	ROW undetermined; to be reviewed during Forest Plan revision.
00580	D1	0.000	0.640	0.640	Closed in 2009 due to no ROW and no chance of obtaining ROW; to be reviewed during Forest Plan revision.
00583	D1	0.000	3.040	TBD	**Per Forest Plan, 0.1 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00594	D1	0.000	5.090	5.090	ROW undetermined; to be reviewed during Forest Plan revision.
00616	D1	0.000	11.160	TBD	**Per Forest Plan, 1.5 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00987 A	D1	0.000	2.040	2.040	ROW undetermined; to be reviewed during Forest Plan revision.
05620	D1	0.000	0.360	0.360	Closed in 2009 due to no ROW and no chance of obtaining ROW; to be reviewed during plan revision.

Road Number	Ranger District	BMP*	EMP**	Miles Needed	Status as of 11/09/2011
05620	D1	1.000	2.930	1.930	ROW undetermined; to be reviewed during Forest Plan revision.
05624	D1	0.000	1.230	1.230	ROW undetermined; to be reviewed during Forest Plan revision
05624 A	D1	0.000	4.620	4.620	ROW undetermined, to be reviewed during Forest Plan revision.
05626	D1	0.000	0.000	TBD	**Per Forest Plan, 2.4 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
05639	D1	0.000	1.530	1.530	ROW undetermined; to be reviewed during Forest Plan revision.
05657	D1	0.000	3.580	TBD	**Per Forest Plan, 1.7 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
09033 B	D1	0.000	2.430	2.430	ROW undetermined; to be reviewed during Forest Plan revision.
00024 F	D2	0.000	3.220	3.220	ROW undetermined; to be reviewed during Forest Plan revision.
00063	D2	0.000	7.411	7.411	ROW undetermined, to be reviewed during Forest Plan revision.
00064	D2	0.000	10.800	TBD	**Per Forest Plan, 0.25 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00064 J	D2	0.000	3.818	3.818	A portion closed in 2009 due to no ROW and no chance of obtaining; to be reviewed during Forest Plan revision.
00090	D2	0.000	29.862	29.862	ROW undetermined; to be reviewed during Forest Plan revision.
00090 B	D2	0.000	3.866	3.866	ROW undetermined; to be reviewed during Forest Plan revision
00162	D2	0.000	12.433	12.433	ROW undetermined; to be reviewed during Forest Plan revision.
00162 B	D2	0.000	3.600	3.600	ROW undetermined; to be reviewed during Forest Plan revision.
00162 C	D2	0.000	6.494	6.494	ROW undetermined; to be reviewed during Forest Plan revision.
00162 F	D2	0.000	3.000	3.000	ROW undetermined; to be reviewed during Forest Plan revision.
00169	D2	0.000	0.000	TBD	**Per Forest Plan, 3.25 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00171	D2	0.000	15.635	15.635	**Per Forest Plan, 2.1 miles identified for ROW acquisition; to .be reviewed during Forest Plan revision.

Road Number	Ranger District	BMP*	EMP**	Miles Needed	Status as of 11/09/2011
00175	D2	0.000	4.483	TBD	**Per Forest Plan, 1.5 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00176	D2	0.000	10.331	10.331	ROW undetermined; to be reviewed during Forest Plan revision.
00179	D2	0.000	1.530	1.530	Stop at private for now (map correction); proposed easement and preliminary survey work done; easement not finalized/recorded.
00228	D2	0.000	10.126	10.126	ROW undetermined; to be reviewed during Forest Plan revision.
00232	D2	0.000	6.607	6.607	Closed in 2009 due to no ROW and no chance of obtaining ROW; need to pursue reciprocal ROW.
00245	D2	0.000	1.991	1.991	Need ROW; resource damage in some areas.
00252	D2	0.000	7.789	7.789	ROW undetermined; to be reviewed during Forest Plan revision.
00253 A	D2	0.000	0.978	0.978	ROW undetermined; to be reviewed during Forest Plan revision.
00255	D2	0.000	8.735	TBD	**Per Forest Plan, 0.75 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00257	D2	0.000	8.570	8.570	**Per Forest Plan, 0.5 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00258	D2	0.000	6.832	6.832	ROW undetermined; to be reviewed during Forest Plan revision.
00265	D2	0.000	5.160	TBD	**Per Forest Plan, 1.25 miles identified for ROW acquisition; to be reviewed during Forest Plan revision**Closed in 2009 due to no ROW and no chance of obtaining ROW.
00269	D2	0.000	5.190	5.190	ROW undetermined; to be reviewed during Forest Plan revision.
00329	D2	0.000	8.879	8.879	ROW undetermined; to be reviewed during Forest Plan revision.
00329 A	D2	0.000	2.650	2.650	ROW undetermined; to be reviewed during Forest Plan revision.
00339	D2	0.000	2.890	2.890	ROW undetermined; to be reviewed during Forest Plan revision.
00405	D2	0.000	0.450	TBD	**Per Forest Plan, 2.1 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.

Road Number	Ranger District	BMP*	EMP**	Miles Needed	Status as of 11/09/2011
00417	D2	0.000	9.241	9.241	ROW undetermined; to be reviewed during Forest Plan revision.
00429 A	D2	0.000	2.500	2.500	ROW undetermined; to be reviewed during Forest Plan revision.
00433	D2	0.00	5.10	TBD	**Per Forest Plan, 1.2 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00437	D2	0.00	6.930	TBD	**Per Forest Plan, 0.25 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00539	D2	0.000	3.411	3.411	ROW undetermined; to be reviewed during Forest Plan revision.
00541	D2	0.000	0.000	TBD	**Per Forest Plan, 0.75 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
00552	D2	0.000	1.080	1.080	Closed in 2009 due to no ROW and no chance of obtaining ROW; to be reviewed during Forest Plan revision.
00564	D2	0.000	3.140	3.140	A portion closed in 2009 due to no ROW and no chance of obtaining ROW; to be reviewed during Forest Plan revision.
00565	D2	0.000	2.000	2.000	ROW undetermined; to be reviewed during Forest Plan revision.
00620	D2	0.000	2.750	2.750	ROW undetermined; to be reviewed during Forest Plan revision.
00620 A	D2	0.000	2.706	2.706	ROW undetermined; to be reviewed during Forest Plan revision.
00625 A	D2	0.000	1.302	TBD	**Per Forest Plan, 0.8 miles identified for ROW acquisition; road begins at FDR625, ends at NFSR5585; Current status is Closed road, Need ROW; to be reviewed during Forest Plan revision.
00630	D2	0.000	2.370	TBD	**Per Forest Plan, 1.1 miles identified for ROW acquisition; to be reviewed during Forest Plan revision.
05608	D2	0.000	11.650	11.650	Closed in 2009 due to no ROW and no chance of obtaining ROW; to be reviewed during Forest Plan revision.
05655	D2	0.000	6.250	TBD	**Per Forest Plan, 0.5 miles identified for ROW acquisition; to be reviewed during Forest Plan revision (currently status – Closed).
09622 C	D2	0.000	2.900	2.900	ROW undetermined, to be reviewed during Forest Plan revision.

Road Number	Ranger District	BMP*	EMP**	Miles Needed	Status as of 11/09/2011
09649 A	D2	0.000	1.060	1.060	Closed in 2009 due to no ROW and no chance of obtaining ROW; to be reviewed during Forest Plan revision.
09652	D2	0.000	0.500	0.500	ROW undetermined; to be reviewed during Forest Plan revision.
09654	D2	0.500	1.300	1.300	ROW undetermined; to be reviewed during Forest Plan revision.
00067	D3	0.000	48.758	48.758	Several segments in between distance that we need a ROW on; total length will be determined during Forest Plan revision.
00069	D3	0.000	6.030	6.030	ROW undetermined; to be reviewed during Forest Plan revision.
00277 A	D3	0.000	0.912	0.912	Closed in 2009 due to no ROW and no chance of obtaining ROW; to be reviewed during Forest Plan revision.
00307	D3	0.000	6.400	6.400	ROW undetermined; to be reviewed during Forest Plan revision.
00322 B	D3	0.000	7.200	7.200	ROW undetermined; to be reviewed during Forest Plan revision.
00511	D3	0.000	7.850	7.850	ROW undetermined; to be reviewed during Forest Plan revision.
00511 B	D3	0.000	2.700	2.700	ROW undetermined; to be reviewed during Forest Plan revision.
00524 A	D3	0.000	0.633	0.633	ROW undetermined; to be reviewed during Forest Plan revision.
00526	D3	0.000	2.300	2.300	ROW undetermined; to be reviewed during Forest Plan revision.
00540 A	D3	0.000	0.700	0.700	ROW undetermined; to be reviewed during Forest Plan revision.
00540 B	D3	0.000	2.500	2.500	ROW undetermined; to be reviewed during Forest Plan revision.
05512	D3	0.000	4.534	4.534	ROW undetermined; to be reviewed during Forest Plan revision.
05530 A	D3	0.000	2.700	2.700	ROW undetermined; to be reviewed during Forest Plan revision.
09403	D3	0.000	1.300	1.300	ROW undetermined; to be reviewed during Forest Plan revision.
09442	D3	0.000	1.186	1.186	ROW undetermined; to be reviewed during Forest Plan revision.
09471	D3	0.000	1.513	1.513	ROW undetermined; to be reviewed during Forest Plan revision.
09506	D3	0.000	9.950	9.950	ROW undetermined; to be reviewed during Forest Plan revision.
09517	D3	0.000	4.423	4.423	ROW undetermined; to be reviewed

Road Number	Ranger District	BMP*	EMP**	Miles Needed	Status as of 11/09/2011
					during Forest Plan revision.
09572	D3	0.000	1.583	1.583	ROW undetermined; to be reviewed during Forest Plan revision.
09576	D3	0.000	2.282	2.282	ROW undetermined; to be reviewed during Forest Plan revision.

*Beginning Mileage Point
**Ending Mileage Point
Note: ROWs marked with "**" are listed in the preceding table as planned and prioritized for acquisition in the Forest Plan.

Lands Table 4. Trails in which all or a segment of a ROW is recommended for acquisition. Exact locations and priority levels will be revisited and determined during forest plan revision period.

Trail Number	District	BMP	EMP	Miles Needed	Status as of 11/09/2011
104	D2	0.00	7.30	7.30	ROW undetermined, to be reviewed during Forest Plan revision
114	D2	0.00	2.30	2.30	ROW undetermined, to be reviewed during Forest Plan revision
118	D2	0.00	1.80	1.80	ROW undetermined, to be reviewed during Forest Plan revision
119	D2	4.67	5.00	0.33	ROW undetermined, to be reviewed during Forest Plan revision
433	D2	0.00	5.10	TBD	** ROW undetermined, to be reviewed during Forest Plan revision
5579	D2	0.00	2.10	2.10	ROW undetermined, to be reviewed during Forest Plan revision
9311	D2	0.00	1.10	1.10	ROW undetermined, to be reviewed during Forest Plan revision
9312	D2	0.00	0.60	0.60	ROW undetermined, to be reviewed during Forest Plan revision

Note: ROWs marked with "**" are listed in the preceding table as planned and prioritized for acquisition in the Forest Plan.

VISUAL QUALITY

Visual Quality 1: The effect of management activities on acres of visual quality levels.

Monitoring Intent: To comply with federal regulations; and to monitor prescribed resource management practices and effects. The plan requires the visual quality levels (VQL) to be managed at current inventory levels with emphasis on maintenance of retention and partial retention VQL. Activities such as timber harvest, vegetation modification and road construction generally occur on modification and maximum modification acreages. If visual quality level acres in *retention* or *partial retention* are reduced 20 percent, the ID Team will evaluate and a Forest Plan modification may be necessary.

Monitoring Method/Unit of Measure: The *Visual Resource Management System* will be used as a basis of monitoring activity.

Monitoring Frequency: 4th and 9th year of the Forest Plan

Expected precision/Reliability: +/- 10 percent / +/- 10 percent

Monitoring and Trend Evaluation: There are no known effects on VQLs from management activities within the last five years. Vegetation treatments have included mitigations in the environmental analysis decision document to limited in scope and size implementing VQLs. Any changes in visual quality levels for all vegetation treatments were within the allowable limits for *retention*, *partial retention*, and *modification*, and no changes have been made for *preservation* within the last five years. All treatment activities have complied with the visual quality levels through mitigation in project proposal development and application of BMPs.

Recommendations: The *Visual Resource Management System* is no longer being used to monitor activities. A *Scenery Management System* (SMS) is now in place and a SMS inventory and assessment was completed for the Lincoln NF in FY 2012. This inventory and assessment will be used during Forest Plan revision to re-evaluate what is in the Forest Plan.

The SMS provides a systematic approach for determining relative value and importance of scenery in National Forest System lands. Ecosystems provide environmental context for the SMS. Ecosystems as recreational settings greatly affect quality and effectiveness of recreation experience. A key attribute of recreation settings is quality of aesthetics. SMS is to be used in context of ecosystem management to inventory and analyze scenery on National Forest System lands, to assist in establishment of overall resource goals and objectives, to monitor scenic resources and to ensure high quality scenery for future generations. The process described is outlined in *Landscape Aesthetics: A Handbook for Scenery Management*, Agricultural Handbook Number 701, with refinement for Lincoln NF management needs.

WILDERNESS

Wilderness 1. Wilderness use by Wilderness Opportunity Spectrum Class or Recreation Opportunity Spectrum Class.

Monitoring Intent: To comply with federal regulation; and to monitor prescribed resource management practices and effects. To address any Lincoln NF related issue. Wilderness use, exclusive of wildlife recreation use, is expected to be less than practical capacity at 2030 on a Lincoln NF-wide basis. Wilderness use will increase at an average annual rate of 4 percent.

Monitoring Method/Unit of Measure: RIM report and NVUM, (based on ranger district estimates). Compare actual use record for a three year time period to projected use for each wilderness. If use exceeds 30 percent of total projected use, ID Team will evaluate, and Forest Plan modification may be necessary.

Monitoring Frequency: Annually

Percent Accuracy/Precision: +/- 20 percent / +/- 20 percent

Monitoring and Trend Evaluation: Based on the 2009 NVUM survey results, the Lincoln NF has about 28,000 National Forest visits to the two designated wilderness areas. The Forest managed the White Mountain and Capitan Wilderness areas to a minimum stewardship level according to criteria of the 10-Year Wilderness Stewardship Challenge. The goal is to have both designated wilderness areas managed to a minimum stewardship level by 2014. The White Mountain and Capitan Wilderness areas met the minimum stewardship level as determined by the criteria of the 10-year Wilderness Stewardship Challenge.

Wilderness 2: Miles of wilderness trail reconstruction and maintenance.

Monitoring Intent: To comply with Federal regulations and to monitor prescribed resource management practices and effects. To address any Lincoln NF related issue. Wilderness use is expected to be less than practical capacity at 2030 on a Lincoln NF-wide basis. An improved trail system through reconstruction and maintenance and construction of trail heads is expected to provide a better distribution of visitor use and improve wilderness opportunities.

Monitoring Method/Unit of Measure: Work accomplishment reports. Evaluation by the ID Team will be made at the third and sixth years during the period to insure that cumulative deviation for the period does not vary by +25 percent. Forest Plan modification may be necessary if +25 percent is exceeded.

Monitoring Frequency: Annually

Percent Accuracy/Precision: +/- 5 Percent / +/- 5 percent

Monitoring and Trend Evaluation: In the last five years (2009 – 2013) the Lincoln NF maintained an average of 75 miles of system trail maintenance per year. In FY 2013, the Lincoln NF maintained 31 miles of system trail. No new construction was completed in FY 2013.

WILDLIFE

Monitoring Intent: To comply with federal and state regulations and identify Lincoln NF related issues. To monitor changes in riparian habitat quality. Document population and habitat trends of management indicator species; changes in horizontal and vertical diversity; population trends in wintering Bald Eagle populations; productivity and utilization of Peregrine Falcon eyries; population and habitat trends of state and federally listed plants and animals and sensitive species. It is expected that wildlife habitat will be maintained or increased. Threatened, endangered, and sensitive species will be protected. The monitoring system includes wildlife operation and maintenance costs of management, analysis, and interpretation of the data obtained from monitoring. Monitoring as described is tentative and exploratory; modifications may be needed to better indicate effects of management activities on the wildlife resource.

Monitoring Method/Unit of Measure:

Riparian: Site analysis and environment analysis of riparian habitat.
Nongame Birds (Indicator species): Point-counting method developed by Reynolds et. al. (1980) Single-season monitoring (Verner 1980). Monitor trends in habitat (Thomas et. al. 1979)
Game Animals (Indicator species: State Game and Fish Department surveys. Monitor trends in habitat.
Habitat Diversity: Monitor changes in habitat. Range analysis reports. Compartment examination reports.
Bald Eagle: Direct count. Monitor habitat condition.
Peregrine Falcon: Direct Count. Nest count.
Other Threatened and Endangered (T&E) Species: Direct count. Monitor habitat trend.
Sensitive Species: Direct count. Monitor habitat trend.

Monitoring Frequency:

Riparian: Annually
Nongame Birds (Indicator species): Monitor indicator species annually
Game animals (Indicator species): Monitor indicator species annually. Monitor improvement of game habitat annually.
Habitat Diversity: Monitor diversity changes every 10 years
Bald Eagle: Annually
Peregrine Falcon: Annually
Other T&E Species: Annually
Sensitive Species: Annually

Expected Precision/Reliability: +/- 20 percent / +/- 20 percent

Bats

Monitoring and Trend Evaluation: The following list of bat species was documented in 1994 during the contract survey work of Dr. Bill Gannon (et.al.) of University of New Mexico (UNM). Due to funding priorities, the Gannon survey is the last comprehensive bat study conducted on the Guadalupe Ranger District to date.

Table 1. Current list of bat species on the Guadalupe Ranger District

Scientific Name	Common Name
Antrozous pallidus	Pallid
Corynorhinus townsendii	Townsend's Big-Eared
Eptesicus fuscus	Big Brown
Lasiurus cinereus	Hoary
Myotis ciliolabrum	Western Small-Footed Myotis
Myotis thysanodes	Fringed Myotis
Myotis velifer	Cave Myotis
Myotis volans	Longlegged Myotis
Myotis yumanenis	Yuma Myotis
Myotis californicus	California Myotis
Nyctinomops macrotis	Big Free-Tailed
Pipistrellus hesperus	Western Pipistrelle
*Plecotus townsendii pallescens**	Pale Townsend's Big Eared
Tadarida brasiliensis	Brazilian Free-Tailed

*Indicates sensitive species

Bat Survey Work in FY 2013: This survey work is to detect presence/absence of the species.

- Lincoln NF, Sacramento Ranger District, Guadalupe Ranger District personnel: Cottonwood, Pinyon, Hidden, Pink Dragon; for bat species presence and/or I.D. and MSO activity,
- Lincoln NF and Guadalupe Ranger District personnel: Pink Dragon, Gunsight; MSO & bat activity, roost locations and use.
- Sacramento Ranger District and Guadalupe Ranger District personnel: cottonwood; exit flight bat count
- D. Beecher and Guadalupe Ranger District personnel: Cottonwood; hibernacula survey
- Hi Guads Volunteers: White Mule; Hibernacula survey
- Guadalupe Ranger District personnel and volunteers: Cottonwood; Acoustic Monitoring equipment emplaced.

Burrowing Owl (*Athene cunicularia hypugaea*)

Monitoring and Trend Evaluation: The first sighting of the burrowing owl (owl) was north of Capitan, New Mexico. Pictures taken in FY 2012 of pellets were taken when the owl was seen and after not observing any presence in FY 2013 it was concluded that those pellets did not come from a burrowing owl. The size and shape of the pellets were too large and circular instead of slim, short, and cylindrical. Based on the time of year the owl was seen, it is the opinion that the owl that was seen was a transient. The owl was observed late in the breeding season during the time when most nests are fledging. According to the report, the owl did not exhibit any behavior that would indicate that a nest was nearby. It was also noticed the lack of fossorial mammals within the site and this observation is important because they provide nesting habitat for the owls.

Recommendations: There are documented sightings of burrowing owls on the Bureau of Land Management Lands (BLM) adjacent to the Lincoln NF. There are some management actions that can be taken to improve management for burrowing owl habitat such as:

- Preserve historic nesting sites and natural burrows
- Install artificial burrows where burrows are lacking
- Manage for fossorial mammals (squirrels, prairie dogs, badgers, etc.)
- Vegetation needs to be low and or sparse
- Protect 600m radius around each nest, 95percent of all movements take place within this radius, that is pesticide free and no action should be taken within this radius during the breeding season (Haug & Oliphant 1990).

Kuenzler's Cactus (*Echinocereus fendlei var. kuenzleri*)

Monitoring Intent: The Kuenzler's cactus is an endangered species that occurs in New Mexico, within Chaves, Eddy, Lincoln, and Otero Counties. In the Guadalupe Mountains this species occurs in patches and can be consistently found year to year in each documented area. Within the Guadalupe Mountains suitable habitat contains a rocky specific limestone substrate and savanna like woodland attributes. Suitable habitat is restricted to the limestone substrate vegetated with desert scrub with the presence of Muhlenbergia, drop seeds, blue grama, Spanish dagger, and yucca. When in bloom, Kuenzler's is distinguished by its deep violet/pink flower. Babies are less than three years old and adults between 6-8 years old with an average life span of up to10 years.

Figure 6. Kuenzler's Cactus, Guadalupe Ranger District

Monitoring Trend and Evaluation:

Smokey Bear Ranger District: In June of 2013, Larry Cordova and Todd A. Rawlinson (Smokey Bear Ranger District) coordinated and hosted the Kuenzler's Cactus Recovery Team meeting with multiple agencies and individuals in attendance. The continued communication between U.S. Fish and Wildlife Service (USFWS), BLM, and the National Heritage New Mexico Group continues to enhance effective management design and sampling modifications throughout the species range in an effort to recover the Kuenzler cactus species. The Lincoln NF is focused on Kuenzler cactus survey and monitoring on a yearly basis. In 2012 and 2013 Smokey Bear Ranger District completed over 1,900 acres of survey for the Kuenzler cactus species.

Guadalupe Ranger District: Within the Guadalupe Mountains, Kuenzler's has been found only on the tops and upper areas of the eastern ridge line of south-facing slopes. Limited areas of cactus occur on the northeast part of the Guadalupe Ranger District (figure 7). This cactus has never been documented on the western ridge line or at the southern portion of the Guadalupe Ranger District. The range of the Kuenzler's cactus on the Guadalupe Ranger District is within the eastern three miles of the ranger district and northern three miles from the boundary of the ranger district. Surveys began in 1993 when this cactus was first spotted by fire personnel that identified the cactus as a Kuenzler's. Prior to this revelation, the cactus was predicted to not occur within the Guadalupe Ranger District because habitat was compared to populated areas on Fort Stanton, New Mexico. The surveys continued for six years until all populated areas were mapped and population boundaries were established.

Currently, lack of funding restricts surveys to project sites only. Site surveys are conducted using the spot survey technique which determined presence or absence of the cactus. A specific protocol is not used however surveys are largely based on the presence or absence of sandstone or the specific limestone substrates present, shrub-density and type of ground cover. Usually, the beginning survey time is determined by the visibility of the flower bloom. The most successful way to locate a Kuenzler's cactus is during the blooming period which usually takes place between May-June depending on the amount of winter moisture received. Its distinctive violet/pink flower can be easily identified during the bloom season. Surveyors would typically walk in a line with locally appropriate spacing in between and the line would meander following the ridge line.

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, New Mexico State Botanist, found that 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". Approximately, 250 acres of Kuenzler habitat were surveyed in 2013 in regards to range water installation on allotment permit proposal.

Recommendations: Recovery effort goals in FY 2013 and beyond:

- **Develop Standardized Short-term and Long-term Survey and Monitoring Protocols:**
    - Define what qualifies as a population (element occurrence (EO), sub-EO, etc.).
    - Determine how to delineate a population (spatially, temporally, etc.).
    - Develop appropriate survey and monitoring methodology (spatially = plots vs. transects; temporally = every three years).
    - Decide what data is necessary at a minimum to provide qualitative and quantitative trend analysis.
    - Decide what additional data is necessary (life history, biology, ecology, threats, etc.) to provide insight into what is happening with short and long-term trends.

- **Habitat and Life History Considerations:**
    - Explore GIS models, micro and macro topography, and other significant layers.
    - Include negative occurrences.
    - Utilize soil type and chemistry.
    - Determine dispersal agents, pollinators, and recruitment.
    - Define age class characteristics and longevity.

- **Threats:**
    - Wildland and Rx-prescribed fires.
    - Livestock grazing (cattle and sheep).
    - Other herbivory/predation (feral hogs, rodents, elk and deer, etc.).
    - Climate change – short and long-term drought.
    - Climate change – freeze/thaw cycles and growing season length.
    - Energy development, recreation, disease and infestations; collection.

- **Research Needs:**
    - Clarify genetics and range boundaries of *Echinocereus fendleri* var. *kuenzleri* versus *Echinocereus fendleri* var. *fendleri*.
    - Effects from wildland fire. Multivariate approach to include climatic parameters as well as temporal and spatial factors.
    - Effects from pinon/juniper encroachment. Experimental conversion back to juniper savannah grassland.
    - Effects from cattle grazing. Utilize Ft. Stanton as the control group.

- **Pursue Funding**:
    - Restore New Mexico – State, Natural Resource Conservation Service (NRCS)-Environmental Quality Improvement Program (EQIP), and BLM
    - Joint Fire Science Program – Southwest Fire Science Consortium
    - USFWS Showing Success and Preventing Extinction Initiative
    - Plant Conservation Alliance and National Fish and Wildlife Foundation Grant Program
    - Other internal funding sources for research and graduate students from USDA Forest service, BLM, and USFWS.

Mexican Spotted Owl *(Strix occidentalis lucida)*

Monitoring Intent: On April 15, 1993, the U.S. Fish and Wildlife Service listed the Mexican spotted owl as a threatened species on the federal endangered species list.

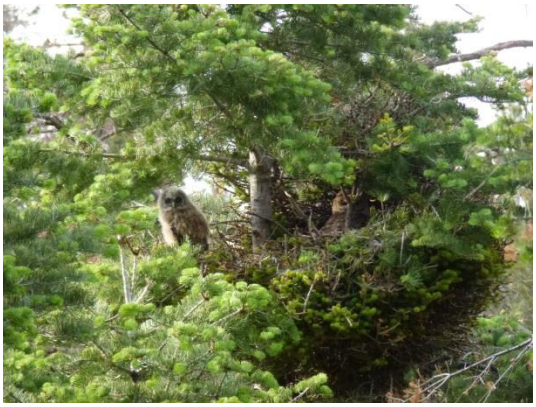

Figure 7. Mexican Spotted Owl, Smokey Bear Ranger District

Monitoring and Trend Evaluation:

Smokey Ranger District: The Smokey Bear Ranger District has been implementing wide-scale WUI projects to decrease the amount of hazardous fuels and the possibility of catastrophic fires. The Bonito WUI area encompasses 30,675 acres (16,047 of which is wilderness) most of which are within mixed conifer forests. MSO owl numbers, location, and reproduction data collected by the Smokey Bear Ranger District is utilized in assessing possible impact of all proposed actions to areas where owls are identified, so that critical habitat is maintained, optimized, and protected.

A total of 35 surveys were conducted in the field season 2013 in 15 separate survey sites, beginning middle of April to middle of August. We strained to survey targeted survey areas four times unless reproductive pairs were confirmed in fewer visits; however due to time constraints and the ability of the crew, some protected activity centers (PACs) were not visited four times. Argentina, Argentina Canyon, Aspen, Bear, Big Bear, Bluefront, Carlton, Dry, Little Bear, Little Bonito, Littleton, Nogal Canyon (potential), and Three Rivers Canyon were all surveyed less than four times this season. Brady, Perk and Flume were all surveyed at least four times. Pine Springs, Carrizo and Capitan Area (potential) were not surveyed this year due to timing constraints. Dark Betsy, Eagle, George Washington, Iron, Krause (potential), Kraut, Schoolhouse, Gavilan, Walt Smith, and Upper George Washington (potential) were not surveyed this year due to the Little Bear Wildfire (2012) or fires from previous years. This year was extremely hard to conduct four surveys on each area due to the crew getting started late. Most of the PACs that were visited fewer than four times were because reproduction status had been achieved in fewer visits. Reproductive success was noted within the fire perimeter in Littleton, Argentina Canyon, Bear, Bluefront, Carlton, and Little Bonito. In the FY 2013 survey efforts resulted in 13 pairs, 1 unknown pair ** 1 single bird, 1 occupied areas*.

This season, there were 15 prioritized PACs that had been surveyed. Surveyors found 13 pairs of owls, 20 fledglings, one single owl, and an area that had multiple birds within one PAC. There were 11 areas that had no visits due to timing constraints or the loss of suitable habitat for the owl. The unknown fates for some of the PACs are largely credited by the Little Bear Fire damage and also due to surveys being conducted late in the season. The high reproduction success for 2013 was a contrast from 2012 season which had severe winter conditions and a very dry spring environment. Reproduction numbers in 2013 were most likely higher due to favorable winter conditions that allowed for better prey base success. The upcoming seasonal survey efforts should focus on monitoring old survey areas that still have suitable habitat and inventorying new areas that have potential habitat.

Recommendations: Recommendations for the upcoming season are to continue to monitor established PAC's that still contain suitable habitat and are still reproducing. Inventory potential habitat along the Crest Trail/East slopes and continue to survey new areas that were found to be occupied this season such as Bear Canyon, Three Rivers Canyon and Argentina Canyon. Due to confirmation of MSOs this year in Dry Canyon and Three Rivers, these areas should be considered a priority in the upcoming survey season along with the Perk, Flume, and Brady PACs. The Aspen, Little Bear, Dry Bear Canyon, Littleton, and Bluefront PACs should be monitored early due to the detection of fledglings off of the nest in late May. The Little Bear and Big Bear PACs should be monitored simultaneously to determine the location of both pairs within the area.

Smokey Ranger District, Perk-Grindstone: On April 21st, 2008 a biological opinion (Consultation #2-22-05-F-143) was produced for the Perk-Grindstone area by the USFWS. Conservation measures that were proposed by the U.S. Forest Service were than evaluated by the USFWS as part of the adverse modification analyses to minimize impacts associated with MSO and critical habitat. In addition to the conservation measures, the USFWS requested that the U. S. Forest Service monitor the three PACs within the project area. These actions are non-discretionary, and must be undertaken by the U. S. Forest Service because they are part of the proposed actions. Monitoring was proposed to ensure that conservation measures are appropriately applied, and to determine the effects of treatments and conservation measures.

In 2009, formal monitoring (six visits) began within the three MSO PACs during reproduction period for the MSO. This monitoring will take place over the life of the Perk-Grindstone WUI Project. Monitoring will determine presence/absence and MSO reproduction success within the three PACs (Brady, Flume, and Perk) within the project area. The monitoring includes individuals, pairs, reproduction success, apparent survival, habitat recruitment and age structure.

During 2013 field season, two out of three PACs were determined occupied. Flume was the only PAC where conformation of a confirmed pair yielded reproductive success. This PAC was surveyed a total of four times. Brady PAC was determined non-nesting but was territorially occupied by a confirmed pair. This PAC was surveyed a total of five times. It was determined that the Perk PAC was unoccupied this season and a total of three surveys were conducted in order to confirm un-occupancy.

This season, Flume and Brady PACs showed occupancy by bonded pairs. In the Flume PAC, the pair nested in a small diameter Douglas fir's "witches broom", which is not commonly observed on the Smokey Bear Ranger District. This pair successfully fledged one young. The Brady pair was recorded as having a strong pair bond, often recorded preening and staying close to each other when field crews were moussing the pair. Although reproduction was not confirmed, this pair seemed to have a strong pair bond and appeared to defend a large foraging territory.

Perk was the only PAC that was determined to be unoccupied for the 2013 field season. In previous seasons it was established that field crews were picking up other MSO's from either other PAC's or from the Mescalero Apache Reservation. This season, field crews positioned a pair of surveyors in the Brady PAC with the Brady MSO's, a pair in the Perk drainage and one survey pair on the Mescalero boundary ridge. It was confirmed that the MSO's recorded defending the Perk PAC, was the Brady pair. Field crew pairs communicated individual molting patterns and observed flight routes to confirm this behavior.

Recommendations: It is recommended that survey efforts in this treatment zone are to be kept at the highest priority in future years. Coordinated survey approaches such as the ones performed in Perk PAC are critical in determining occupancy in areas that are historically difficult to survey. Similar approaches are recommended to be taken when monitoring or inventorying any PAC, but efforts are especially crucial for the Perk PAC in future years. There is thought to be potential suitable habitat in the Cedar Creek area just northwest of the Brady PAC and bordering the Mescalero Indian Reservation. It is recommended that the Cedar Creek area be surveyed for possible owl occupancy in the future.

Sacramento Ranger District: MSO is known to inhabit the Sacramento Ranger District from historic records. In 1987, a pair of MSOs with three young was verified on the Sacramento Ranger District. As of 2013, there are 122 established PACs on the Sacramento Ranger District.

A total of 90 surveys were conducted in the field season 2013 in 27 separate survey sites, beginning at the end of March to the beginning of July. We strained to survey targeted survey areas four times unless reproductive pairs were confirmed in fewer visits; however due to time constraints and the ability of the crew, some PACs were not visited four times. Rawlins, Bail, Radio, Water, El Paso, Hoosier, Carrisa Lookout, Lower Newman, Pierce, Wayne, Chilcoote, Hyatt, Atkinson, and Gayney were all surveyed at least four times. Most PACs that were visited fewer than four times were because reproduction status had been achieved in fewer visits. Reproductive success was noted within the Zinker Trick Tank, Poison, Bail, Carissa Lookout, Kerr, Sullivan, Pierce, Wayne, Wills, Jim Lewis, Zoo, and Thunder PACs. The FY 2013 survey efforts resulted in 13 pairs; 9 occupied areas.

Guadalupe Ranger District: MSO formal surveys began in 1996 and ended in 2004 due to lack of funding. Currently there are 10 PACs on the Guadalupe Ranger District that provide suitable MSO habitat and at some point showed MSO activity. These areas include Big # 1, Middle Fork, North Fork, Upper Big, Black Canyon # 1, Black Canyon # 2, Double Canyon, Gunsight, Lonesome, and McKittrick.

Many of these PACs are in close proximity despite MSO being territorial. The PACs 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 MSO presence. Often this technique enabled surveyors to determine overlapping pairs. Rarely is mousing used to help determine reproduction within Guadalupe Ranger District. Mousing is a technique used to help determine reproduction by feeding mice to MSO and observing their behavior. Reproduction is almost impossible to determine due to severely steep and rough terrain with the inability to follow the MSO. Maple trees within shaded areas are indicative to potential MSO presence.

Recommendations: Calling and listening from ridge tops is essential for locating and separating owl territories. Owls are more apt to respond to calls from above, as is evident from comparing the Guadalupe surveys of 1997 and 1998.

Wind, water noise, and echoing may be a problem for survey work in the canyon bottoms. It has proven very difficult to hear any bird calls at any distance when surveying in the deep, narrow, and twisting canyon bottoms. Most canyons will require at least two simultaneous call points to maintain full coverage, and to differentiate one owl from another within a canyon.
Expect several nights of camping within multiple surveyors distributed throughout the ridge tops to perform accurate surveys.

New Mexico Meadow Jumping Mouse *(Zapus hudsonious luteus)*

Monitoring Intent: Due to proposed listing as endangered, under the Endangered Species Act, of the New Mexico meadow jumping mouse (sometimes referred to as *Z. h. luteus* or *luteus*), an effort to trap this subspecies has been undertaken by the Lincoln National Forest on the Sacramento Ranger District. This endeavor seeks to help determine presence or absence of this subspecies within historically and potentially suitable riparian habitat within the Sacramento Mountains. The effort is arguably more important now than ever, given that *luteus* is under consideration for listing as endangered by the USFWS, under the Endangered Species Act.

Monitoring and Trend Evaluation: Previous capture data on *Z. h. luteus* is in short supply. To date, only two researchers have focused on the New Mexico montane subspecies populations. Though methodologies differed, both efforts sought to quantify habitat, primarily in the way of associated vegetation, at *Z. h. luteus* capture locations. The lack of long-term research data yields little in the way of population estimates.

Research was first conducted by Joan Morrison during the mid-1980s, who snap-trapped and live-trapped individual *Z. h. luteus*. In short, her conclusion was that the *Z. h. luteus* was an infrequent population, but occurred sufficiently enough not be in jeopardy, provided suitable habitat was managed properly. Additionally, her locations of the specimens were recorded using legal descriptions for each occurrence. This adds some ambiguity to historical species locations.

Approximately 15 years later, Jennifer Frey conducted a status assessment for the *Z. h. luteus*, trapping with very limited success, though not in all of the same historic locations. Sites were ruled out by Jennifer Frey based on a visual survey of suitable vegetation heights in current or former riparian areas. She concluded that the Sacramento population of the subspecies was in jeopardy of extirpation and that poor riparian habitat quality and quantity were key contributing factors.

Grazing pressure was extensive at the Hubble site, grass height was at a minimum. Grazing pressure at Upper Mauldin, Lower Rio Penasco, and Telephone were moderate, most sites had recovered to acceptable stubble heights for the *Z. h. luteus*. Silver Springs Complex and Barrel Spring showed little to no grazing pressure, due to a closed allotment and an exclosure fence.

All *Z. h. luteus* trap sites did have wetland obligates present in most areas where traps were placed, including sedges, rushes, and cat-tails. Water was present at all sites, in most cases there was surface water present or wet soils in areas where traps were placed.

Out of the 2494 trap nights, 1 *Z. h. luteus* was found at a 2013 trap site location. Specifically, it was captured in the center of Upper Mauldin Habitat Stamp Exclosure. This single, scrotal male *Z. h. luteus* was captured on July 10, 2013. His measurements were nearly that of a type specimen (Frey, 2007).

The 2012 and 2013 trap site selection and grid lay out, likely played an important role in the successful capture of the *Z. h. luteus*. The traps were laid out as a grid, covering all potential habitat. The grid dimensions differ from site to site, depending on over-all size of suitable habitat. All grids were laid out in the standard 10 meter x10 meter trap spacing.

Recommendations: Based on 2012 and 2013 capture data, it seems important to set up a grid to cover all potential *Z. h. luteus* habitats. Our captures have varied in distance from running water. Lower Mauldin (2012) was caught directly in moving water in a dense stand of grass. The Rio Penasco/ Cox Canyon captures (2012) were caught approximately 100 meters away from the nearest source of running water (Rio Penasco was dry at our trapping location, but flowed again directly downstream on private property). The capture site at Upper Mauldin was 15 meters away from running water. This varies greatly from recommendations from Jennifer Frey, whose traps were only set in *Z. h. luteus* habitat directly adjacent to flowing water.

Future survey site selection would be augmented by assessing the current year's conditions, during the dry season. Due to the *Z. h. luteus* tendency to hibernate until mid-May, it seems that habitat conditions at that time may play a larger role in site selection. During the monsoon many riparian areas may look suitable, but in fact didn't have suitable herbaceous cover earlier in the year.

The 2014 *Z. h. luteus* effort should first focus on reconfirming presence at Dark Canyon, which is a historic capture location (Morrison). Finding new populations in Wills canyon could prove vital to the survival of the *Z. h. luteus* in the Sacramento Mountains, by providing a connectivity corridor, from the Rio Penasco/Cox Canyon site to the Mauldin exclosures. Survey efforts by Dr. Pat Ward (1994) found a population of *Z. h. luteus* near the confluence or Bear Canyon and Wills Canyon, which suggests there's currently inter-connecting populations of NMMJM located in Wills Canyon.

More information about the *Z. h. luteus* will become valuable to the conservation of the species. Some of the things that may want to be researched are; home ranges, hibernation sites (den types, soil types, distance from summer ranges), effects of different grazing approaches, detection methods, and habitat evaluations.

Sacramento Mountain Checkerspot Butterfly (SMCB) (*Euphydryas anicia cloudcrofti)*

Monitoring and Trend Evaluation: During the beginning of survey efforts for the SMCB (late June/early July), surveyors had to venture just outside of transects along the forest edge of meadows to locate the species due to those foraging plants (ex. Orange Sneezeweed) being limited in meadows from intense grazing by mule deer and elk but more predominately by feral horses. It was believed by Sacramento Ranger District biologist that adult SMCB were using these sites due to the woody debris along the forest edge which would hold more water while providing a natural barrier for foraging plants from grazers like feral horses and elk. Approximately 300 acres were surveyed this year due to ecology of the Lincoln NF being affected heavily by drought and those SMCB foraging plants only being in large clusters within debris along the edge of meadows the transects are found within. A total of four visits were made to each of the 9 transect sites during the time frame of (late June-mid August).

The 2013 summer season for adult SMCB was a decent year for the population with signs of adult SMCB being detetected in 77 percent (7 of 9) of designated monitoring sites 5-8 miles outside the vicinity of Village of Cloudcroft. Larval plot monitoring showed a slight resliency in populaitons with a total of 9 tents being detected in three of 9 locations within and near the larval plots. Approximately 200 caterpillars were observed during fall 2013 (September).

Figure 8. Sacramento Mountain Checkerspot Butterfly, Sacramento Ranger District

Sacramento Mountain Salamander (*Aneides hardii)*

Figure 9. Sacramento Mountain Salamander, Sacramento Ranger District

Monitoring Intent: The federal government has listed Sacramento Mountain salamander as a sensitive species and State of New Mexico has listed it as endangered. Areas containing suitable salamander habitat and historical presence were surveyed to determine occupancy. Lincoln NF treatments, such as thinning and Rx fires that reduce stand density, result in decreased suitable habitat, increased soil temperatures, and lowered moisture content. Thus, is it essential that complete and thorough surveys are completed to preserve protected sites.

Monitoring and Trend Evaluation:

Smokey Ranger District: Due to the 2012 Little Bear Fire, habitat conditions have been altered in much of the historical range of Sacramento Mountain salamander within the Smokey Bear Ranger District. Approximately, 8,500 acres of habitat burned at high severity, with an additional 3,670 acres in moderate severity. Of the 20,800 acres of suitable habitat, 15,350 acres were affected in Upper Rio Bonito watershed, with 9,000 acres in high or moderate severity burn areas (Parsons 2012). After survey efforts of the 2013 field season it was observed that in areas where habitat was disturbed at high severity, salamander populations were impacted severely. In burn areas that were moderate - low severity, populations also were impacted significantly. In some areas where fire intensities were labeled as moderate or low, much of the large decadent downed woody debris was lost, resulting in an overall loss of suitable habitat. Habitat alterations due to direct and indirect fire effects have changed composition of these communities. Further monitoring is needed to fully assess impacts of fire on Sacramento Mountain salamander populations.

Sacramento salamanders were present in 13 of 28 surveyed areas. The elevation range for salamander presence was between 7,972 to 10,757 feet. Habitat with salamander presence consisted of aspen, mixed conifer, and pine trees with some sites consisting of mostly rocky terrain. This 2013 survey season was a success due to abundant rains from the monsoon season. This resulted in high success of presence in sites where Sacramento Mountain salamander was located. The majority of sites surveyed were located within the burn perimeter of the Little Bear Fire. Various locations that had a moderate to low burn intensity, such a Buck Mountain, did not affect Sacramento Mountain salamander populations. It was discovered that in sites where moderate to low burn did occur Sacramento Mountain salamander would be located under rocks compared to woody debris.

Sacramento Ranger District: During the 2013 field season, 5,955 acres were surveyed within and outside 8 targeted project inventory sites which were either proposed or previously treated. The 8 targeted project sites were as follows:

Wildlife Table 1. Hectares of Surveyed project sites for Sacramento Mountain Salamander by award year.

Project Site	Year Treatment Contract Awarded	Year Completed	Hectares Surveyed
Scot Able Fire Scar	--	--	2,874
Wayne Timber Sale	2010	2013	439
Benson Timber Sale	2007	2013	304
Chilcoote Timber Sale	--proposed--	--	781
Carissa Timber Sale	--proposed--	--	718
Slug Salvage Unit	2009	2013	306
Skeeter Salvage Unit	2009	2013	370
Grub Salvage Unit	2010	2013	163

Scott Able Fire Scar

In May 2000, Scott Able Fire burned approximately 16,000 acres leaving a fire scar of 6,488 acres of the Sacramento Mountains including Agua Chiquita drainage. Agua Chiquita drainage, along with the area the Scott Able Fire burned, is historically and presently known habitat for *A.hardii*. While generalizations about effects of fire are made difficult by variables such as fire intensity, size, and behavior, it is known that fire alters vegetation structure and composition, reduces litter depth and other surface features, and modifies soil chemistry (ex. pH, mineral content). It is believed that short-term survival of *A.hardii* following a fire is conceivable due to its ability to retreat belowground to avoid inhospitable surface conditions. In the long term, however, paucity of prey beneath the surface and elimination of litter on the surface (where the majority of prey are found) would hinder its ability to obtain enough energy to support its metabolic requirements.

Of the 6,488 acres associated with the Scott Able Fire scar, 2,874 acres (44 percent of fire scar) were surveyed for *A.hardii*. The objective was to see whether the population would be resilient after a 10 year period since fire burned through the area. The late succession of conifer species can require considerable time (15-20 years under most favorable conditions). Within the 2,874 acres surveyed, there where individual stands which ranged from 6-70 acres each. A total of 128 stands where surveyed within the Scott Able Fire scar. Of those 128 stands, 68 stands were deemed as occupancy for the species. Ultimately 53 percent of those stands surveyed had *A.hardii* present within them. Observations detected that majority of the area which the *A.hardii* were found within the Scott Able Fire scar had very little to no canopy cover. However, there was a plentiful amount of downed wood (10-100 hour burning fuels) on the ground which believed to help conserve moisture and sustain a healthy insect population for *A.hardii* to forage. (See figure 1.1)

Wayne Timber Sale

This sale area of 181 acres is located in:
Township 16 south, Range11 east, Section 36; Surveyed New Mexico Prime Meridian, Otero County, New Mexico

This project site of potential and identified *A.hardii* habitat commenced analysis for presence or absence. Of the 439 acres surveyed for *A.hardii*, 180 acres was treated for the Wayne Timber Sale. Within the 439 acres surveyed, lie 19 stands ranging from 5-63 acres per stand. Presence of *A.hardii* was detected in 18 stands. In addition, 95 percent of the stands surveyed within Wayne Timber Sale were deemed as occupancy.
(See Figure 1.2)

Wayne Timber Prescription

The sale contains approx. 181 acres in (3) cutting units. The expected net volume is 1,771 CCF of mixed conifer. This includes cutting trees greater than 9 inches diameter but less than 24 inches diameter. Temporary roads were scarified, seeded, and closed after use for logging trees out.

The primary purpose is to perform vegetation treatments that reduce fuel loadings (activity created) and reduce vegetation density through pre-commercial and commercial timber harvest and associated fuels treatment activities. These activities would reduce risk and intensity of stand-replacing wildfire, beginning with treatment in the WUI and other at-risk areas. The treatment would make wildfire suppression safer for firefighters. This prescription also treats units affected by insect/disease epidemics: and subsequently, move the landscape toward more historic and sustainable conditions.

Wildlife Table 2. Volume Estimate and Utilization Standards

Species	Product	Est. Quantity*	Unit of Measure
Douglas-fir	Sawtimber	1,113	CCF
Engelmann Spruce	Sawtimber	926	CCF
True Fir	Sawtimber	229	CCF
W. White Pine	Sawtimber	23	CCF
Douglas-fir	Pulpwood	83	CCF
Engelmann Spruce	Pulpwood	115	CCF
True Fir	Pulpwood	32	CCF
TOTAL QUANTITY:		**2,521**	**CCF**

*Quantities not included here are described in BT2.4 (see Figure 1.3).

Benson Timber Sale

This sale area of 136 acres is located in:
Township 16, Range 11 east, Section 36; Surveyed New Mexico Prime Meridian, Otero County, New Mexico

This project site of potential and identified *A.hardii* habitat commenced analysis for presence or absence. Of the 304 acres surveyed for the species, 136 acres were treated for Benson Timber Sale. Within the 304 acres surveyed, lie 13 stands ranging from 6-47 acres per stand. Presence of *A.hardii* was detected in all 13 stands. Safe to say that 100 percent of the stands surveyed within Benson Timber Sale were deemed as occupancy.

Benson Timber Prescription

This timber sale contains 136 acres in one cutting unit. This includes cutting trees greater than 9 inches diameter but less than 24 inches diameter. Temporary roads were scarified, seeded, and closed after use for logging trees out.

The primary purpose of this project is to perform vegetation treatments that reduce fuel loadings (activity created) and reduce vegetation density through pre-commercial and commercial timber harvest and associated fuels treatment activities. These activities would reduce risk and intensity of stand-replacing wildfire, beginning with treatment in the WUI and other at-risk areas. Treatment would make wildfire suppression safer for firefighters. This prescription also treat units affected by insect/disease epidemics: and subsequently, move the landscape toward more historic and sustainable conditions.

Wildlife Table 3. Volume Estimate and Utilization Standards

Species	Product	Estimated Quantity	Unit of Measure
Douglas-fir	Sawtimber	869	CCF
Engelmann Spruce	Sawtimber	123	CCF
True Fir	Sawtimber	456	CCF
W. White Pine	Sawtimber	106	CCF
Douglas-fir	Pulpwood	310	CCF
TOTAL QUANTITY:		**1,864**	**CCF**

*Quantities not included here are described in BT2.4 (see Figure 1.3)

Carrisa Timber Sale –proposed-

This sale area of 234 acres is located in:
Township 19 south, Range 12 east and Range 13 east, Sections 4 and 5; Surveyed New Mexico Prime Meridian, Otero County, New Mexico

This project site of potential and identified *A.hardii* habitat commenced analysis for presence or absence. Of the 718 acres surveyed for the species, 234 acres are proposed to be treated for Carrisa Timber Sale. Within the 718 acres surveyed, lie 16 stands ranging from 10-183 acres per stand. Presence of *A.hardii* was not detected in the 16 respected stands. No percent of the stands surveyed within Carrisa Timber Sale were deemed as unoccupied.

Carissa Timber Sale Proposed Prescription

This proposed sale contains 234 acres in five cutting units. The expected net volume is 1,872 CCF of mixed conifer. This includes cutting trees greater than 9 inch diameter but less than 24 inch diameter. Temporary roads were scarified, seeded, and closed after use for logging trees out.

The primary purpose of this project is to perform vegetation treatments that reduce fuel loadings (activity created) and reduce vegetation density through pre-commercial and commercial timber harvest and associated fuels treatment activities. These activities would reduce risk and intensity of stand-replacing wildfire, beginning with treatment in the WUI and other at-risk areas. The treatment would make wildfire suppression safer for firefighters. This prescription also treat units affected by insect/disease epidemics: and subsequently, move the landscape toward more historic and sustainable conditions.

Chilcoote Timber Sale –proposed-

**Location and size of proposed sale area has not been officially determined as of September 12, 2013.

This project site of potential and identified *A.hardii* habitat commenced analysis for presence or absence. Approximately 781 acres were surveyed for the species. Within the 781 acres surveyed, lie 22 stands ranging from 11 to 63 acres per stand. Presence of *A.hardii* was detected in just one stand out of 20 stands. Five percent of the stands surveyed within the proposed Chilcoote Timber Sale area was deemed as occupied. (**Historically this species has never been discovered in this area. Majority of habitat is dry mix conifer and ponderosa pine forest.)

Chilcoote Timber Sale Proposed Prescription

**Units cut and acres have not been determined as of September 12, 2013. However, treatment, if awarded, would include cutting trees greater than 9 inches diameter but less than 24 inches diameter. Temporary roads would be scarified, seeded and closed after use for logging trees out. The primary purpose of this project is to perform vegetation treatments that reduce fuel loadings (activity created) and reduce vegetation density through pre-commercial and commercial timber harvest and associated fuels treatment activities. These activities would reduce risk and intensity of stand-replacing wildfire, beginning with treatment in the WUI and other at-risk areas. The treatment would make wildfire suppression safer for firefighters.

Slug Salvage Unit

The Slug Salvage Sale is located on the Sacramento Ranger District, Lincoln NF (Township 18 south, Range 12 east, Sections 8, 9, and 17).

This project site of potential and identified *A.hardii* habitat commenced analysis for presence or absence. Approximately 306 acres were surveyed for this species. Within the 306 acres surveyed, lie 13 stands ranging from 10 to 35 acres per stand. Presence of *A.hardii* was detected in all 13 stands. This area was deemed as 100 percent occupied.

This is a salvage sale and contains 120 acres in 6 cutting units. Expected net volume is 1210CCF (605MBF) of dead mixed conifer.

Slug Salvage Prescription

The short term objective is to decrease fuel loading, which would provide a better opportunity for natural regeneration post-defoliators, rather than allowing all dead trees to fall ground, creating large areas of continuous heavy fuel loading. Salvage harvesting and hazard tree removal of all merchantable dead trees between 9 inch and 24 inches. All trees greater than 24 inches will be retained, unless deemed to be a hazard tree. A minimum of three snags per acre, greater than 18 inches will be retained. A 20 foot streamside buffer zone (each side of channel beginning from streambank) will be implemented along intermittent/ephemeral streams.

Skeeter Salvage Unit

The Skeeter Salvage Sale is located on the Sacramento Ranger District, Lincoln NF.
The legal description is Township 18 south, Range 12 east, Section 7; Surveyed, New Mexico Prime Meridian, Otero County, NM.

This project site of potential and identified *A.hardii* habitat commenced analysis for presence or absence. Approximately 400 acres were surveyed for this species. Within the 400 acres surveyed, lie 14 stands ranging from 10 to 65 acres per stand. Presence of *A.hardii* was detected in all 14 stands. This area has been deemed as 100 percent occupied.

This is a salvage sale and contains 108 acres in one cutting unit.

Skeeter Salvage Prescription

The short term objective is to decrease fuel loading, which would provide a better opportunity for natural regeneration post-defoliators, rather than allowing dead trees to fall, creating large areas of continuous heavy fuel loading. Salvage harvesting and hazard tree removal of all merchantable dead trees between 9 and 25 inches. All trees greater than 24 inches will be retained, unless deemed to be a hazard tree. A minimum of three snags per acre, greater than 18 inches will be retained. A 20 foot streamside buffer zone (each side of channel beginning from streambank) will be implemented along intermittent/ephemeral streams.

Grub Salvage Unit

The Grub Salvage Sale is located on the Sacramento Ranger District, Lincoln NF. Township 18 south, R12 east, Section 16; Surveyed New Mexico Prime Meridian, Otero County, New Mexico

This project site of potential and identified *A.hardii* habitat commenced analysis for presence or absence. Approximately 200 acres were surveyed for this species. Within the 200 acres surveyed, lie 6 stands ranging from 8 to 36 acres per stand. Presence of *A.hardii* was detected in all 6 stands. This area has been deemed as 100 percent occupied.

This is a salvage sale and contains 105 acres in one cutting unit.

Grub Salvage Prescription

The short term objective is to decrease fuel loading, which would provide a better opportunity for natural regeneration post-defoliators, rather than allowing dead trees, creating large areas of continuous heavy fuel loading. Salvage harvesting and hazard tree removal of all merchantable dead trees between 9 and 24 inches. All trees greater than 24 inches will be retained, unless deemed to be a hazard tree. A minimum of three snags per acre, greater than 18 inches will be retained. A 20 foot streamside buffer zone (each side of channel beginning from streambank) will be implemented along intermittent/ephemeral streams.

The *New Mexico State Salamander* working group has recommended that no more than 25 percent of the District known occupied habitat have vegetative treatment within a ten year period. The U.S. Forest Service has adopted this recommendation.

Wildlife Table 4. Acreages of all vegetative activities or causes for habitat removal in known occupied *A.hardii* habitat over the past 10 years.

10 Year period	Acres Occupied	Acres with Activity	Acres available for Activity	Comments	Percent
1987-1996	27,364	5,167	1,674	Timber Sales were quite large at this time	18.9
1988-1997	27,364	5,367	1,474	Timber sales were still occuring	19.6
1989-1998	27,733	5,025	1,908	Telephone and turkey Timber sales were over ten years old by 1998	18.1
1990-1999	27,733	4,050	2,883	Most of the big sales (Pierce, Peak) with salamanders were over 10 years old	14.6
1991-2000	32,851	4,627	3,586	A few parts of large sales like Harris and Scott Able remained with only small sales (Benson) being added.	14.1
1992-2001	40,728	5,160	5,022	More occupied habitat was inventoried in 2001.	12.7
1993-2002	46,921	4,418	7,312	More occupied habitat was inventoried in 2002.	9.4
1994-2003	47,451	4,657	7,206	More occupied habitat was inventoried in 2003, and more activities occurred within occupied habitat.	9.8
1995-2004	47,451	4,819	7,044	In 2004, 162 acres of activities occurred within occupied habitat for Rio Penasco 2 projects.	10.2
1996-2005	47,451	6,773	5,090	In 2005, Scott Able timber sales dropped 205 acres from the list of activities, and 2,159 acres of activities occurred for Rio Penasco 2 projects.	14.3
1997-2006	49,504	7,163	5,213	More occupied habitat was inventoried in 2006. In 2006, 390 acres of activities occurred in occupied habitat for Rio Penasco 2 projects.	14.5
1998-2007				More occupied habitat was found during 2007 inventories. In 2007, 299 acres of activities	14.5

10 Year period	Acres Occupied	Acres with Activity	Acres available for Activity	Comments	Percent
	50,950	7,411	5,327	occurred in occupied habitat for Rio Penasco 2 projects. Approximately 50 acres from the Sunspot Salvage were dropped from the 10 year tally.	
1999-2008	51,034	8,463	4,296	More occupied habitat was found during 2008 inventories. In 2008, 1,052 acres of activities occurred in occupied habitat for Rio Penasco 2 and 16 Springs projects.	16.6
2000-2009	51,198	9,309	3,491	In 2009, additional habitat was found to be occupied. In 2009, 846 acres of activites occurred in occupied habitat for Rio Penasco 2 projects.	18.2
2001-2010	51,308	9,972	2,873	In 2010, additional habitat was found to be occupied. In 2010, 663 acres of activities occurred in occupied habitat for 16 Springs projects	19.4
2003-2013	51,347 (Added 39 acres for 2013 year)	1,735	11,102	In 2013, additional habitat (39 acres) was found to be occupied.	3percent

Recommendations: With abundant rain received in July 2013, *A.hardii* seemed to strive in sites where fire impacted salamander habitat. Continuation of surveys in each burn site is necessary to determine if fire has any long term effects on future populations. In addition, surveying in all and new sites where fire did occur is necessary to determine habitat rehabilitation and salamander presence. Survey sites need to be expanded more to the north and made a priority. For example, survey sites such as, Carrizo Peak, should be made a priority and completed earlier in the Sacramento Mountain salamander season to ensure the data is collected.

This season inventory surveys were done in four sites because of habitat disturbance due to future construction in or around Sacramento Mountain salamander habitat. These areas were Axel Bend, Last Curve (Ski Run Road), Texas bend, and Ski Apache Power line. The area that should be monitored in the future should be Last Curve (Ski Run Road). This area is important do to the fact that many Sacramento Mountain salamanders were located in this area, furthermore future construction would deeply impact salamander habitat.

In the future, more specific habitat data should be acquired. This data would include moisture content, microclimate, habitat preference, and ground pH. This type of data can help identify possible trends that may reveal environmental impacts on salamander populations. Additional data that would strengthen the research of this species would include sex, length measurements in millimeters, a temperature/relative humidity hygrometer to record microclimate, ambient climate conditions, canopy coverage and a soil moisture meter in areas where salamanders are present.

Future surveys should be postponed at least one week after the onset of monsoon season to ensure more suitable habitat and higher moisture content in soils and woody debris. Conversely, areas with high moisture content (i.e., Big Bear and Little Bear) can be surveyed upon arrival of monsoon season because these areas contain high moisture content for longer periods of time. Additional mountain ranges such as Tucson, Carrizo Peak, Capitan Mountains and Patos should be surveyed in areas above 8000 feet during 2014 field season.

Future reports should have survey acreage readily available both hard and electronic copies to eliminate the time to look up historical data. Survey maps with Universal Transverse Mercator (UTM) grids should be made and filed for future use to make survey maps easy to access. Historical salamander presence should be converted to UTMs and filed both electronically and in hard copy format to allow technicians to locate yearly presence.

Sacramento Prickly Poppy (*Argemone pleiacantha* Greene ssp. *pinnatisecta* G.B. Ownbey, Synonym *A. pinnatisect)*

Monitoring Intent: The 2013 progress reports on Sacramento prickly poppy conservation measures conducted by the Lincoln NF, as described in the 2012 Biological Opinion for the Sacramento Grazing Allotment (Consultation #2-22-00-F-473). These reports summarize the Sacramento prickly poppy transplant effort, June 2013 Survey Report and 2012-2013 Range Report for Alamo Pasture.

Monitoring and Trend Evaluation: The July 2013 survey located a total of 496 individual poppy plants; 375 of those were classified as adults occurring on Lincoln NF within Alamo Canyon system.

Wildlife Table 5 provides a comparison between previous range wide population surveys; Malaby (1987), Tonne (2006-2007), NFS (June 2012) and Lincoln NF (July 2013). The 2012-2013 droughts did effect Alamo Canyon system population. Seedling production and survival were greatly diminished due to this drought. Many sub-adults and immature plants were also impacted by the drought while established; mature plants appeared to subsist through the drought.

Wildlife Table 5. Comparisons between previous range-wide population surveys

	Malaby, 1987	Tonne, 2006-2007	Lincoln NF, 2012	Lincoln NF, 2013
Alamo Canyon (NFS)	744 plants	321 *ad 81**sd	378 ad 84*** sub	334 ad 15 sub 734 stems
Alamo Canyon (City)	84 plants	117 ad 97 sd	106 ad 5 sub	104 ad 2 sub 273 stems
Caballero Canyon	117 plants	SO ad 57 sd	59 ad 4 sub	41ad 0 sub 111stems
Fresnai/La Luz Canyon (Total)	172 plants	150 plants	120ad 6 sub	
Fresnai/La Luz Canyon (NFS)	80 plants		97 ad 6 sub	
Salado Canyon (NFS)	1 plant		32 ad 1sub	
Salado Canyon (Private)	3 plants		4 ad 1sub	
Comments	No differentiation between age class	Fresnal Canyon surveyed in piecemeal fashion in 2006-2007	Lands within Salado Canyon acquired by Lincoln NF in 2010 not included in previous Lincoln NF totals	Alamo Canyon System post 2012-2013 drought

***ad-adult:** Individual with an obvious stem

****sd-seedling:** Retain the seed leaves; rosette with very small leaves

*****sub-sub-adult:** Individual without an obvious stem; in the rosette stage

Recommendations: Several lessons were learned during June 2012 and July 2013 surveys regarding scheduling of surveys and blocking of areas to be covered in a given day. These are being discussed here to help improve the efficacy of future surveys within these two canyon systems. First, late May to early June was observed to be too early in the season to survey for mature plants as many of the plants observed had not begun to flower at the time of the June 2012 surveys. The lack of poppy plants in flower resulted in greater difficulty in classifying plants as adults, sub-adults or seedlings. Mid July to early August, following the onset of monsoonal rains would likely be conducive to more successful surveys for this species. Even in dry years, a greater proportion of mature plants would be expected to be in flower at that time, aiding in the detection of plants. During mid- June 2012 surveys, several plants, mostly at lower elevations, were observed with senesced leaves and stems from the previous year's growth with no current year's growth apparent. This timing would also provide for a better picture regarding the population's reproductive potential for current year.

Finally, when planning for future complete surveys of Alamo Canyon system, crews should expect to dedicate at least three full days in the field with alternate days for inclement weather. In June 2013, this approach was utilized and successfully facilitated needs of the survey. With three teams of surveyors, it is feasible to survey the upper two-thirds of Caballero Canyon in one day, upper reaches of Alamo Canyon (above Purgatory Canyon) in one day, and the lower portions of Alamo and Caballero Canyons in one day.

Sacramento Prickly Poppy Transplant Report: This project is currently ongoing and final determinations regarding survival of transplants will be made in summer of 2014, and updates to the results and discussion may be made at that time.

Preliminary Recommendations: The following discussion is based on personal observations and inferences. 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 potential transplant locations. With that in mind, a better understanding of transplant timing and soil requirements become important.

The use of latex as a diagnostic feature?

As stated in Cervantes et al. 2010, "In the most recent monograph of Argemone, Ownbey {1958) described the taxon from his own specimens and an 1899 Wooton collection. This geographically restricted taxon was distinguished from other Argemone pleiacantha Greene by the presence of simple bud prickles, paler yellow latex, and sparingly prickly capsules."

While planting summer of 2013 transplants, one plant was observed to be producing orange latex. After this discovery was made all 2012 and 2013 transplants were sap tested to determine latex color and any questionable plants were removed from the transplant program and destroyed. Some plant materials were saved from these transplants for genetic testing if the

opportunity were to arise. Buds, capsules and flowers were removed from all transplants prior to planting. This discovery has led to multiple observations and questions: Is latex color a reliable diagnostic characteristic, and what is the variability in the native population? Are there other factors influencing latex color like soils? It was observed on some of the transplants that nicks made at different locations on the same plant produced varying latex colors. Is hybridization occurring within our seed crops and if so to what extent? Unfortunately, diagnostic characteristics used to differentiate between *Argemone pleiacantha* and *Argemone pinnatisecta* are weak and muddled with these characteristics being exhibited among both species to some extent and hybridization would be virtually undetectable without genetic testing.

It would be recommended to conduct sap tests on random plants during the 2014 surveys to observe the variability of latex color among the native population.

It is my recommendation that collaborative discussions regarding this issue take place between the Lincoln NF and the USFWS prior to any future transplants or seeding trials.

FACILITIES

Facilities 1: Amount and distribution of use of the Lincoln National Forest transportation system open for public use.

Monitoring Intent: Identification of a transportation system that is adequate to meet needs without causing undue resource damage. There are currently 2,960 miles of routes within the Lincoln NF of which 100 miles (three percent) would be closed by the first period of the Forest Plan. Evaluation at three year intervals will indicate effectiveness of road or trail management. Changes in size of the system exceeding +25 percent of planned levels may require evaluation by the ID Team for Forest Plan modification.

Monitoring Method/Unit of Measure: Engineering will submit data on roads constructed, reconstructed, maintained, and obliterated which are entered in the *National Forest Transportation Inventory System*. Similar update data on the trail system will be entered in the RIM system.

Monitoring Frequency: Annually

Percent Accuracy/Precision:

a) Size: +/- 20 percent / +/- 30 percent
b) Use: (Roads and Highways)
    a. +/- 5 percent / +/-5 percent
    b. +/- 5 percent / +/- 5 percent
c) Use: (Trail System) RIM

Monitoring and Trend Evaluation:

Amount and distribution of use of the Forest transportation system and the total miles in the system: The transportation system inventory is verified every year in September.

At the end of FY 2013 the following mileages were: Level 1 – 1,128 miles, Level 2 - 900 miles, Level 3 – 330 miles, Level 4 – 19 miles, Level 5 – 0 miles. Of the total 2,377 miles that comprise the transportation system, 349 miles are considered to be arterial and collector roads, while majority of remaining 2,028 miles are classified as high clearance vehicle roads. Any changes in the disposition of roads are recorded in the travel routes module of INFRA. The Lincoln NF decommissioned 9 miles of road in FY 2013 with annual targets of approximately four miles. This annual may vary as it is determined at the Southwestern Regional level.

Assure adequate road system to meet goals and objectives of Forest Plan: On an annual basis, the engineering staff meets with each District Ranger to determine construction, reconstruction and maintenance needs for the coming fiscal year. Upon completion of ranger district meetings, an overall Lincoln NF priority schedule is developed for project implementation.

National Forest Transportation Inventory System (miles constructed and reconstructed): At the end of each FY, a report is generated listing amount of roads that were constructed/reconstructed over the past 12 months. Trends show less construction/reconstruction projects are being completed. No new roads were constructed since the last reporting. No road reconstruction was conducted during the same time period.

Road management records on miles of travel-ways closed: The INFRA database is used to track disposition of each road within the Lincoln NF, with one of the categories being closed roads. The current inventory shows that 1,128 miles of roads are classified as closed. While the number of closed roads does vary slightly from year to year, the number has remained fairly stable. Any change in mileage is associated with corrections to the data.

Road maintenance records for roads maintained to standard: Road maintenance accomplishments are reported at the end of each FY through the Road Accomplishment Report (RAR). In FY 2013, 230 miles of roads received maintenance. This represents 18.4 percent of the open system roads. The majority of these miles are not fully maintained (i.e., correcting all deficiencies to ensure road and all its appurtenances are functioning properly). Trends indicate that no substantial change in the percentage of roads maintained will occur in the near future.

Recommendations: Change in average size of the system and in average miles not maintained to standard that exceed 25 percent of planned level. Review every three years: The number of miles of roads within each maintenance level category is verified in September. Trends show that decreasing budgets are causing number of miles of roads maintained to standard to decrease. As a result, amount of deferred maintenance is subject to increase over time.

ACTION PLAN FOR 2014

Action Plan Table 1. The Action Plan for 2014 identifies which monitoring items and monitoring activities will be reported on FY 2014 monitoring report.

Monitoring Item	Monitoring Activity	Description of Monitoring Activity	2013 Monitoring Item
Timber 1	Acres of regeneration Harvest	Restoration standards (review of 5percent treated project)	No 1
Timber 2	Intermediate and removal harvest	Prescriptions and effects	Yes
Timber 3	Regeneration harvest	Prescriptions and effects	No 2
Timber 4	Timber stand improvement	Stocking levels	Yes
Timber 5	Saw timber	Allowable sale quantity	Yes 3
Timber 6	Harvest area size	Opening size limits	No 4
Timber 7	Timber Land Classification	Suitable for sustained yield production	No 5
Timber 8	Fuel wood	Sustained yield	Yes
Range 1	Woodland over story	Forage production	Yes
Range 2	Brush conversion and reseeding	Forage production	No 6
Range 3	Range development	Range use and capacity	Yes 7
Range 4	Permitted use	Balance use with capacity	Yes
Range 5	Range Condition and Trend	Satisfactory Condition and trend	Yes
Range 6	Grazing Capacity	Projected levels	No 8
Cultural 1	Protection of significant cultural resource properties	Resource protection	Yes
Cultural 2	Compliance	Project clearance	Yes
Soil and Water 1	Watershed condition	Increase in satisfactory condition (acres)	Yes
Soil and Water 2	Prescriptions	Compliance with State and federal regulations	Yes
Protection 1	Insects and Disease	Periodic Survey	Yes

Monitoring Item	Monitoring Activity	Description of Monitoring Activity	2013 Monitoring Item
Fire 1	Fire suppression	Prescriptions and effects	Yes
Fire 2	Fuel treatment (activity fuels) need uncharacteristic levels/FRCC	Prescriptions and effects	Yes
Recreation 1	Dispersed recreation (ROS settings)	Demand and capacity	Yes
Recreation 2	Developed sites (public and private)	Output	Yes
Caves	Cave Use and Resource Protection	Use Reports and incident Reports	Yes
Lands 1	Rights-of-way acquired	Prescriptions and effects	Yes
Visual Quality	Visual Quality Levels	VMS	No 9
Wilderness 1	Wilderness or recreation opportunity spectrum class	Prescriptions and effects. Ensure demand does not exceed capacity	Yes
Wilderness 2	Trails	Construction, reconstruction and maintenance	Yes
Wildlife	Threatened and endangered species, management indicator species and sensitive species	Population and habitat trends	Yes
Facilities	Transportation system amount and distribution	Forest Plan goals and objectives	Yes
Cost 1	Units costs	Ability to implement Forest Plan	No 10
Cost 2	Annual budget	Ability to implement Forest Plan	No 10
Cost 3	Program budget	Ability to implement Forest Plan	No 10

1. The Lincoln NF is currently not doing regeneration cuts.
2. The Lincoln NF is currently not doing regeneration cuts.
3. The allowable sale quantity (ASQ) is outdated in the plan and will be revisited during Forest Plan revision.
4. The Lincoln NF is not clear cutting openings since the Goshawk guidelines have been implemented.
5. The Lincoln NF will re-evaluate classification of suitable timber lands in Plan Revision.
6. The Lincoln NF is not doing any brush conversion projects at this time.
7. The Lincoln NF evaluates range developments as necessary or during permit renewal.

8. The Lincoln NF recommends combining this with Range 4.
9. The Visual Resource Management System is no longer used. SMS inventory and assessment will be used during Forest Plan revision.
10. Measuring progress toward achieving the goals, objectives and standards of the Forest plan using unit costs is a difficult measure and not always an effective tool. Fund code and accomplishment definitions have changed extensively over the life of the Forest Plan and fund codes have been added, deleted and/or combined during the implementation of the Forest Plan.

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