

**United States Department of the Interior
Bureau of Land Management
Las Cruces District Office
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Las Cruces, NM 88005**



**Environmental Assessment for
COOKE'S RANGE WATERSHED PRESCRIBED BURN**

T.20S, 21S, R.8W, 9W,

DOI-BLM-NM-L000-2011-0120-EA

Ricky Cox /s/

Signature and Title of Project Lead

Date

Jennifer Montoya /s/

Signature and Title Lead of Reviewer

Date

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1 INTRODUCTION

The Cooke's Range is located in Luna County, approximately 15 miles north of Deming, New Mexico. Cooke's Peak, with an elevation of 8,400 feet rises over 3,600 feet above the surrounding plains and dominates the landscape for miles around. Portions of the north and east slopes of Cooke's Range are within the boundaries of the Cooke's Range Wilderness Study Area (WSA). Several ridges, rising between 1,000 and 3,000 feet above the surrounding terrain, run the length of the Cooke's Range. These ridges, which form the backbone of the Range, are dissected by dozens of drainages and secondary ridges. Several steep-walled canyons with rock scree slopes and cliffs are located within the Cooke's Range.

The vegetation within the Cooke's Range is diverse and includes plant communities of piñon/juniper, mountain mahogany/oak scrub woodlands, grama and tobosa grasslands, creosote and mesquite shrub lands.

The legal description of the proposed project area is T 20S,R 8W, Sec. 7,18,19,30,31, T. 21S, R 8W, Sec. 6,7,8, 17,18,19,20,21, T 21S, R 9W, Sec. 1,2,3,4,9,10,11,12,13,14,15 and T 20S, R 9W, Sec.11,12,13,14,22,23,24,25,26,27,34,35,36.

Approximately 75% of the proposed project area lies within the Cooke's Range WSA. The boundaries of the proposed project contain 11,302 acres of BLM managed public lands, 3,280 acres of State lands and 1,818 acres of privately owned lands.

1.1 Purpose and Need

Presently, the proposed watershed treatment area is in a degraded forest condition consisting of primarily, juniper and piñon pine trees. Historical evidence reveals that much of this area was grass-oak savannahs with scattered piñon/juniper stands. These trees are overcrowded and many are in an unhealthy physical condition. This is due to three historical factors: mining practices which once denuded the hillsides, grazing practices, and fire exclusion. With the increase in woody species, the component of grasses and forbs in this watershed is declining. The elimination of fire has also affected the recycling of nutrients and thus the productivity of these areas. Soils are currently relatively stable throughout most of the area. High surface rock and some persistent plant communities are sufficient at slowing water runoff and allowing water infiltration. However, some locations display minor to moderate amounts of soil degradation. These sites are generally located in drainages and areas where vegetation densities have declined. Therefore, soil erosion is expected to increase as under story plant species decline and water infiltration decreases. Wildlife habitat has become less desirable due to decadent forage, a monoculture of juniper, and decreased populations of perennial grasses. The **Purpose** of the project is to restore the watershed of the Cooke's Range to a healthy, functioning woodland/grassland savanna ecosystem.

To improve watershed function along with wildlife habitat, the BLM needs to: 1) effectively restore the ecosystem potential for biotic and abiotic communities by creating a vegetative mosaic with openings of varying sizes and density, 2) Promote groundwater recharge by reducing the canopy cover of piñon-juniper and increasing understory vegetation, thereby enhancing infiltration rates allowing more water to penetrate the soil surface and percolate through the soil to the water table, 3) enhance wildlife habitat by reinvigorating desirable shrubs such as mountain mahogany and Wright's silktassel that have become decadent and undesirable for wildlife consumption, as well as increasing perennial grasses, forbs and thinning out dense oak and juniper stands, and 4) decrease soil loss due to erosion by increasing the variety of grasses and forbs across burned areas.

1.2 Decision to be Made

The decision to be made is to decide whether or not to conduct a series of prescribed burns throughout the project area of the Cooke's Range.

1.3 Plan Conformance

This proposed action conforms with the Mimbres RMP approved April, 1993 because it is specifically provided for in the following land use decision(s): Page 2-3 "Develop prescribed Natural Fire Plans for the Cooke's Range ACEC"; Page 2-31 "Vegetation Land Treatments-Grass bottomlands, mixed desert shrub (>10 percent slope), snakeweed, and mountain brush types would be treated using combinations of prescribed burning, prescribed natural fire and prescribed grazing management". The Mimbres RMP was amended by the Fire and Fuels Management Plan Amendment and Environmental Assessment for Public Land in New Mexico and Texas (2004) that has, as primary objectives: to restore fire as an integral part of fire-adapted ecosystems in order to meet resource management objectives and, improve the protection of human life and property through the reduction of hazardous fuels.

1.4 Scoping and Issues

1.4.1 Internal Scoping

The Cooke's Range Watershed Prescribed Burn treatment was scoped before the Las Cruces District Office NEPA ID team on January 3, 2011. Various field visits then followed to allow for resource specialists a hands-on experience to identify potential issues, and further develop the proposed action with consideration to each respective resource discipline.

1.4.2 External Scoping

Field visits were coordinated by the LCDO ID team, which included representatives from NMDGF and the Luna County Soil and Water Conservation District. All parties involved were in support of the proposed prescribed fire treatment.

1.4.3 Resource Issues Identified

Upon scoping the proposed treatment for the LCDO ID team, the following resources were identified as having present and potential impacts in need of further analysis: soil, air and water; wilderness/WSA; cultural; vegetation, livestock/range; wildlife/special status species; visual resource management. Resources found not to be affected by the treatment were: hazardous materials mat; lands access; and minerals.

2 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The LCDO proposes to conduct a series of prescribed burns throughout the Cooke's Range over a period of 5-8 years. The prescribed fire would decrease the amount of woody fuels by prescribing or allowing fire to burn during conditions when combustion will not excessively damage desired live vegetation. Prescribed fire would maintain natural fire-adapted plant communities and would help prevent accidental fires during the driest times of the year when they are hardest to contain.

The Cooke's Range Prescribed Burn would have an approved fire plan outlining the resources, safety, and environmental concerns affected by the burn. The Prescribed Fire Burn Plan would:

- a. identify the specific location of the treatment and identify contingency resources and parameters for declaring the burn a wildfire if the burn moves outside the boundaries,
- b. specify the weather and fuel conditions, fire behavior, holding resources, and prep work (e.g. sites to be protected, and line construction) needed to safely and efficiently meet the objectives for the project,
- c. identify any persons, agencies, and lease holders to be notified concerning the prescribed fire project,
- d. identify any potential receptor sites(i.e. local communities, nearby Class 1 airsheds, local hospitals, etc.) and smoke management mitigation measures necessary to minimize impacts to the airshed and receptor sites,
- e. identify natural barriers (i.e. rock outcrops, bare ground), bladed roads and two- tracks to be used as control lines, to avoid creating new surface disturbance. There would possibly be areas where control lines would have to be constructed via manual treatments.

f. have a fire prescription, which is a set of parameters that attempts to control the rate of fire spread and flame height within accepted limits for a given fuel model. The fuel model is a characteristic of the landscape relating to the type of vegetation and the quantity and distribution of fuels in horizontal and vertical dimensions.

Burn prescriptions would be designed for partial fuel removal. Prescribed fire would be concentrated on areas with Fuel model 1 (grasslands), Fuel model 8 (closed timber litter), Fuel model 6 (piñon/juniper shrub) and Fuel Model 2 (woodland with grass understory) to reduce tree density in areas that support grass cover and to create a mosaic of vegetation.

Conducting multiple treatments over five to eight years would minimize soil erosion and the possible impacts to the watershed from overland flow (sediment from scorched and/or exposed soil). This type of extended treatment is designed to mimic conditions that would be created by a more natural fire regime with diverse mixed-aged stands of woodland and shrub species developing over the next ten to twenty (10-20) years after the series of burns are completed.

The primary objective is to create a mosaic pattern of burned and unburned areas within the watershed and maximize benefits to wildlife, the watershed and domestic livestock grazing. Prescribed fire would be done using a combination of aerial firing techniques and hand ignitions on approximately 14,000 acres over an eight-year period.

The location and type of prescribed fire treatment would determine the need for deferment of livestock. Prescribed fire treatments that are accessible to livestock would require a minimum of two growing seasons of deferment prior to treatment unless sufficient vegetation existed that would allow for the proposed actions to be carried out, this would be determined on site tours by an ID team to determine if deferment would be required.

Following prescribed fire, deferment for the area would be required for one growing season to allow vegetation to reestablish itself. The deferment period would be carried out June 1-October Deferment could be achieved through manipulation of livestock with watering sources, this would be determined by the ID team.

Monitoring of treatment areas would be carried out through normal use supervision visits as well as photo points which would be used in conjunction to evaluate the effectiveness of the proposed action.

The renewable resources staff would coordinate with the permittee on each specific project phase to identify deferment and grazing rotation schedules and document this via a cooperative agreement.

2.2 No Action Alternative

Under the no action alternative, there would be no management-ignited prescribed burns or mechanical fuel treatment projects within the proposed project area.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

Mechanical control of the target species would clear the dense brush and allow forbs and grasses to recover. However, this type of treatment cannot be employed within the WSA boundaries, resulting in minimal treatable acres within the target area.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

3.1 Air Quality Affected Environment

The air quality of the area of the proposed action is considered good and is designated a Class II air quality area. A Class II area allows for moderate amounts of air quality degradation. The primary source of air pollution is pm10 (dust) generated off-site during high wind events, common during the spring months in southern New Mexico.

3.2 Environmental Impacts

3.2.1 Proposed Action

A burn plan would be developed that would address the impacts of smoke on air quality and mitigations to lessen smoke impacts.

3.2.2 No Action Alternative

Under the no action alternative, air quality would remain the same. The current situation would continue and no projects would be implemented to improve the conditions of the resources. Long term impacts to air quality would be concentrated increases of particulate matter during catastrophic fires.

3.3 Cultural Resources Affected Environment

Cultural resources occur throughout the area, and include archaeological, historic and socio-cultural properties. Most of the mine features are considered historic cultural resources. Archaeological resources generally refer to prehistoric sites while historic resources refer to those for which some form of written record exists. Socio-cultural properties refer to concerns of Native Americans and other entities as they pertain to archaeological and/or historic sites significant to their

heritage or other places of significance on the landscape. There are several distinct periods or traditions that are discernible in the archaeological records for the project area. The earliest occupation occurred from about 9,500 BCE to approximately 6,000 BCE. This period is known as the Paleo-Indian period. The period is divided into three traditions; Clovis, Folsom, and Plano. Each tradition is associated with distinctive projectile points and lithic tool kits. Isolated projectile points from these traditions have been found within the study region. Paleo-Indian people are thought to have been mobile hunters and gatherers who focused on migratory big game some species of which are now extinct.

The second prehistoric period is referred to as the Archaic or Desert Archaic. The Archaic cultures are believed to have occupied the study area from around 6,000 BCE to about 100 ACE. Archaic cultures are believed to have been nonsedentary, pre-pottery hunters and gatherers with a growing emphasis on territoriality and home bases and plant gathering leading to plant cultivation. The origins of agriculture in the southwest begin during this period. Here again, the Archaic cultures are known for a suite of projectile points that define sites distinctive to this 32 period as well as other lithic tools and organic remains in the form of basketry, sandals, and other textiles that have survived owing the dry conditions of this area.

The third of our periods or traditions has been identified as the Mogollon. The Mogollon culture group has been divided into the western Mogollon and eastern or Jornada Branch of the Mogollon. This period is also known as the Formative Period. This period begins at approximately 200 ACE and extends to approximately 1450 ACE. Within this time period, several distinct changes begin to occur in the archaeological record. 1) Agriculture becomes the basic element of the economy although supplemented by hunting and gathering in varying degrees. 2) Pottery is introduced and soon divides into technological and distinctive artistic/stylistic traditions. 3) Pithouse hamlets aggregate into sedentary pithouse villages. 4) These communities in turn begin to construct above ground residences known as pueblos of either masonry or adobe. 5) Interregional contact and trade are more evident, at least in the archaeological record, than heretofore. The Mogollon Period ends at 1450 to 1500 ACE. There appears to be complete break in occupation although this may be more apparent than real. This period is succeeded by the Protohistoric period or that period just before and phasing into the historic period. While variously dated, the Protohistoric occurs between 1540 ACE and 1680 ACE for this area. Several named protohistoric groups are recorded for this area and appear to have practiced hunting and gathering economy. During this period various peoples that would become the historic Apaches move into the project area from the west and northwest displacing and/or absorbing the peoples in their path.

The Chiricahua Apache occupation of the project area continued into the historic period until about 1890. The Apache were mobile hunters and gatherers and, increasingly during the historic period, depended on raiding to supplement the economy. A wide variety of historic sites are known to occur. The Spanish Colonial and the Mexican periods are not well represented owing to fierce Apache resistance to European encroachment although several military expeditions were mounted by the Spanish Colonial authorities to combat Apaches in several of the area mountain ranges. However, all broad historic trends are represented and are summarized as follows: explorers, trappers, and traders pioneered trails to be followed by 49ers heading west, military forts, mining camps and towns, the railroad and farming and ranching. All of these have left their imprint on the land in one form or another.

3.4 Environmental Impacts

3.4.1 Proposed Action

Prior to prescribed burning, sites would be evaluated by BLM archaeology staff.

The archaeologist would determine the level of survey needed for the project. All cultural surveys would be processed as outlined in the National Historic Preservation Act of 1966, 36 Code of Federal Regulations 800, and the BLM 8100 Manual series.

If the proposed projects would encounter cultural resources vulnerable to the effects of the impacts associated with the prescribed burn, the following mitigation measures, in order of most to least desirable, would be considered by BLM cultural resource staff: Avoidance, protection, testing, or data recovery.

3.4.2 No Action Alternative

Under the no action alternative, without a controlled reduction in vegetation by use of prescribed fire, current vegetation densities could continue to increase, enhancing the potential of catastrophic wildfire and potential negative impacts on cultural resources.

3.5 Livestock/Grazing Affected Environment

The area of the proposed action encompasses several different grazing allotments, all allotments are primarily ran as cow/calf operations, with year round ground grazing authorized (Table 1).

Table 1 Livestock Allotments in the Project Area

Allotment Name/Number	Livestock Kinds/Number	AUM's	% PL
Flying U Ranch 03028	762 Cattle	6,401	70%
	14 Horses	118	
Mimbres Mtn. 02030	299 Cattle	2,332	65%
	3 Horses	23	
Hidden Valley Ranch 02009	40 Cattle	96	82%
Clark Draw Lease 02518	32 Cattle	384	100%
Clark Draw 02039	8 Cattle	96	100%

3.6 Environmental Impacts

3.6.1 Proposed Action

The proposed action would not allow for increases in stocking rate, to preserve the effect of the treatment, but would still offer many benefits for livestock grazing. In the long term there would be more forage as an effect of the proposed action, which would decrease the need for destocking in years of lower forage production. There would also be more palatable forage in areas that livestock might otherwise avoid. All of these factors would help to improve rangeland health of the area, the advantages gained from improved rangeland health and watershed stability would assist in the long-term stability of ranching operations.

Grazing deferment may be required prior to burning, to accumulate sufficient fine fuels to carry fire well. Livestock would be removed from pastures to be burned. Forage to be burned would be unavailable to be consumed by livestock.

Post burn, deferment would be required for all burned pastures that livestock have access to. At a minimum, burned pastures would be required to defer for one growing season (June 1-October 1), livestock manipulation through watering sources could be used if the situation warranted. These stipulations would impact livestock grazing management and the amount of feed available for stock to consume during deferment.

3.6.2 No Action Alternative

Under the no action alternative, resources for livestock grazing and management could become degraded, as woody species would become more dominant grass would become less available to livestock. Over time livestock would be less likely to utilize these areas, which could lead to degraded rangeland health.

3.7 Recreation Affected Environment

The area is popular for outdoor recreationists. The mine features and the remains of the Cooke's town site are an attraction for history buffs and rock hounds. The unique diversity of wildlife that occurs in the Cooke's range makes the range popular among both big and small game hunters and wildlife viewers. It is one of the only mountain ranges where mule deer, Coues's white-tailed deer, and Rocky mountain elk occur. It is also home to 3 of the 4 species of quail found in New Mexico; Mearns's or Montezuma, Gambel's and scaled quail. Black bear and mountain lion hunters also frequent the range.

Hikers and rock climbers are attracted by the WSA and the Cooke's Peak monolith. Off Highway Vehicle (OHV) users seek the challenges of the primitive roads and trails in the area. There are no estimates of the amount of recreation use that actually occurs in the area.

3.8 Environmental Impacts

3.8.1 Proposed Action

Fire would have a temporary impact on recreation. During the time of a burn the area would be inaccessible to the public due to safety concerns. After the burn, the area would be open to the public. Recreation would only be impacted during the burning process.

3.8.2 No Action Alternative

Under the no action alternative, wildlife habitats would continue to degrade, indirectly leading to a loss of hunting opportunity or wildlife viewing. Under this action, increased soil erosion would cause damage to roads, making OHV travel less attractive. OHV use would also compound erosion problems. Water infiltration would continue to suffer which would cause the drying of springs that are important wildlife viewing areas for recreationists.

3.9 Special Status Species Affected Environment

3.9.1 Plants Affected Environment

Presence of special status plant species and their habitats in Luna and County was considered using LCDO species occurrence/habitat records and New Mexico Natural Heritage Program species records. Species descriptions and distributions were derived from LCDO office records and New Mexico Rare Plant Technical Council [NMRPTC. 1999. New Mexico Rare Plants. Albuquerque, NM: New Mexico Rare Plants Home Page. <http://nmrareplants.unm.edu> (Latest update: 06 December 2010)].

Based on evaluation of the above information in comparison with the habitat types in Cooke's Range, five species could potentially occur in the burn area and are listed in Table 2:

Table 2 Special Status Plant Species in Project Area

Special Status Plant Species			
	Conservation Status ¹		
Species	USFWS	State of NM	BLM
Grayish-white giant hyssop (<i>Agastache cana</i>)	<i>SoC</i>	<i>SoC</i>	
Mimbres figwort (<i>Scrophularia macrantha</i>)			<i>Sen</i>
Night-blooming cereus (<i>Peniocereus greggii</i> variety <i>greggii</i>)	<i>SoC</i>	<i>E</i>	<i>Sen</i>
Wright's campion (<i>Silene wrightii</i>)	<i>SoC</i>	<i>SoC</i>	
Wright's globe mallow (<i>Sphaeralcea wrightii</i>)	<i>SoC</i>	<i>SoC</i>	
	¹ <i>Sen</i> : Sensitive Species; <i>E</i> : Endangered, <i>SoC</i> : Species of Concern		

Habitat descriptions for these special status plant species are available from the Bureau of Land Management, Las Cruces District Office upon request.

3.9.2 Environmental Impacts

3.9.2.1 Proposed Action

Grayish-white giant hyssop, Mimbres figwort, Wright's campion, Wright's globe mallow all require steep rocky habitat in either crevices or on cliffs. These types of habitat do not carry fire well, thus would have minimal to no affect on these plant species.

Night-blooming cereus grows mostly in sandy to silty gravelly soils in gently broken to level terrain in desert grassland or Chihuahuan desert scrub in the lower elevations of the range. It is typically found growing up through and supported by shrubs such as creosote bush and honey mesquite which are usually in areas lacking the fine fuels to carry fire. The prescribed fire would have minimal to no affect on night-blooming cereus.

3.9.2.2 No Action Alternative

Under the no action alternative, the burn would not occur and the potential of mortality on these special status plants would remain minimal.

3.9.3 Animals Affected Environment

The Special Status animal species lists for Luna County were compiled from: Biota Information System of New Mexico (BISON-M). <http://www.bison-m.org>

Known geographic distribution and habitat requirements were considered for each species in comparison with habitat types that occur in the Cooke’s Range. The results of this analysis are shown on the Table 3:

Table 3 Special Status Animal Species in Project Area

Special Status Wildlife Species			
	Conservation Status ¹		
<i>Mammals</i>	USFWS	State of NM	BLM
Townsend’s pale big-eared bat (<i>Corynorhinus townsendii</i>)	<i>SoC</i>	<i>Sen</i>	<i>Sen</i>
Fringed myotis bat (<i>Myotis thysanodes</i>)		<i>Sen</i>	<i>Sen</i>
Long-legged myotis bat (<i>Myotis volans</i>)	<i>SoC</i>	<i>Sen</i>	<i>Sen</i>
<i>Birds</i>			
Bald eagle (<i>Haliaeetus leucocephalus</i>)		<i>T</i>	
Peregrine falcon (<i>Falco peregrines</i>)	<i>SoC</i>	<i>T</i>	
Loggerhead shrike (<i>Lanius ludovicianus</i>)		<i>Sen</i>	<i>Sen</i>
Gray vireo (<i>Vireo vicinior</i>)		<i>T</i>	
<i>Reptiles</i>			
Texas horned lizard (<i>Phrynosoma cornutum</i>)			<i>Sen</i>
<i>Invertebrates</i>			
Cooke’s Peak Woodlandsnail (<i>Ashmunella macromphala</i>)	<i>SoC</i>	<i>T</i>	<i>Sen</i>
	¹ <i>Sen</i> : Sensitive Species; <i>T</i> : Threatened; <i>SoC</i> : Species of Concern		

Habitat descriptions for these special status wildlife species are available from the Bureau of Land Management, Las Cruces District Office upon request.

3.9.4 Environmental Impacts

3.9.4.1 Proposed Action

There is a negligible potential for smoke or fire to result in the mortality of Townsend’s big-eared bats (*Corynorhinus townsendii pallescens*), fringed myotis bats (*Myotis thysanodes*), and long legged myotis

bats (*Myotis volans*.) in day roosts due to smoke dispersal and the low potential for fire in rock and cliff habitat. Any mines that bats may inhabit would not be burned due to cultural reasons.

Prescribed burns would be conducted in the higher mountain areas, where bald eagles (*Haliaeetus leucocephalus*) may occur, however, there are no nesting bald eagles in the area and mainly migrates through the project area during the winter months. The proposed action would not occur during the time that bald eagles may be present and thus the proposed action would not affect the bald eagle.

Peregrine falcons (*Falco peregrinus*) may occasionally feed in this area however, they are rare to uncommon in Southern New Mexico. Peregrine falcons utilize cliff and ledge habitat for nesting; areas that the fire will most likely not carry. Peregrine falcons forage in large open areas not within the project area. Implementation of the proposed action therefore, is not anticipated to affect the peregrine falcon.

Loggerhead shrikes (*Lanius ludovicianus*) prefer open shrub and grasslands and are year-round residents of southern New Mexico. The quality of potential loggerhead shrike habitat within the project area is expected to increase over time as implementation of prescribed fire continues to restore grassland habitat. However, loggerhead shrike habitat within the burn area is marginal and it is not expected to be greatly affected by the proposed action. Some mortality to young shrikes may occur, however entire populations would not be affected.

Grey vireos (*Vireo vicinior*) prefer open woodlands of oak or juniper which occur in the project area, therefore some mortality to young shrikes may occur, however entire populations would not be affected.

Texas horned lizard (*Phrynosoma cornutum*) may experience mortality on an individual level but not on a population level. Texas horned lizards would avoid the fire below ground.

The Cooke's Peak Woodlandsnail (*Ashmunella macromphala*) is an endemic terrestrial snail species that is known to occur in two isolated locations in the Cooke's Range (Lang, B.K 2000). The snail inhabits steep talus slopes with little to no vegetation. However, the snails forage in leaf litter adjacent to the scree slopes. A single large fire can be detrimental to these isolated populations and can cause extirpation of the species. Therefore, mitigation measures to be taken during this project include avoidance of known locations and the forage areas adjacent to those locations. The timing of the burn would be during a time when the snails are in hibernation within the talus sprawl. The snails hibernate during cold and dry periods and are known to be active after the monsoon season starts. Also, the fire is designed to burn in a mosaic pattern with pockets of vegetation left untouched. This will provide a source of food for the snails.

3.9.4.2 No Action Alternative

Under the no action alternative, the Cooke's mountain range would remain unchanged. The potential for special status wildlife species that may occur in the burn area is low therefore impacts would be

minimal. The most desirable wildlife habitat available occurs outside of the planned treatment area and will carry the same impact as the no action alternative.

The greatest threat that would impact special status wildlife would be a high intensity catastrophic fire. A high intensity fire would severely damage vegetation as it would cause damage to plants in a manner that they may not recover. Any special status species that depend on the vegetation in the Cooke's range for either food or habitat would be negatively impacted. Wildlife habitat would be destroyed at a much larger scale and a faster moving fire could lead to greater mortality of wildlife species. In the case of the Cooke's Peak Woodlandsnail, there would be no control over what is burned and what is excluded from burning. The foraging areas adjacent to the rock slides that the snails inhabit would potentially be consumed and the food source for the snail would be lost.

3.10 Soils and Water Affected Environment

The primary soils in the proposed project area in Luna County consist of rough broken and rock land (RU), Lehman's very rocky loam (LD), Lehman's extremely rocky loam (LK), Luxor extremely stony sandy loam (LU), Mimbres and Verhalen soils (MR) and Nickel very gravelly sandy loam (NK). These soils are fully described by the Natural Resources Conservation Service (NRCS) on their Web site; <http://websoilsurvey.nrcs.usda.gov/app/>.

Drainages in the proposed action area consist of ephemeral and intermittent arroyos and channels that only flow during and immediately after precipitation events. There are no recognized impaired (USEPA 303d listed) streams. No specific surface water quality issues in the project area have been identified by the BLM. Several perennial and intermittent springs occur within or in the vicinity of the project area. These springs are fed by relatively small fractured bedrock aquifers that are recharged during rain events.

3.11 Environmental Effects

3.11.1 Proposed Action

Prescribed burning may increase the erosion potential until the perennial vegetation reestablishes. Extremely intense fires would cause a higher than desired mortality on all plant species, resulting in the exposure of excess amounts of bare ground over a longer period and, consequently, greater soil loss and declined infiltration rates. However, extremely intense burning would be avoided by burning within favorable prescriptions. Because fibrous rooted perennial grass species increase soil stability, soil erosion would be reduced below present levels when grasses become re-established.

Burning increases nutrient cycling by releasing nutrients that had been tied up in litter and plant material back into the soil. The reason that burned areas typically green-up earlier than unburned adjoining areas is that soil temperatures of burned areas are usually higher than those of adjoining unburned areas.

The competition for water and nutrients would be decreased after the prescribed burn. Grasses and herbaceous plant biomass would be reduced by the burn during the first year. An increase in ground cover (grasses and forbs) is expected by the second growing season. This ground cover would help minimize erosion and increase infiltration of surface water. Some soil microorganisms may be negatively impacted by the burn for the short-term.

Neither surface water nor ground water quality is expected to be negatively impacted by the proposed action. As grasses and forbs begin to re-establish, it is anticipated that water infiltration rates and soil moisture would increase. This should help surface and groundwater quantities by promoting groundwater recharge and improved spring water flows at the surface.

3.11.2 No Action Alternative

Under the no action alternative, soils would remain the same. Soil production and hydrologic processes would continue to function under the current conditions. Without prescribed burning, catastrophic fire could result which leads to greater soil loss.

3.12 Vegetation Affected Environment

The area of the proposed action is tree/shrub dominated with a grass understory historically this area was a grass-oak savannah with scattered communities of juniper. Trees commonly found are Piñon, one-seed juniper and alligator juniper, with mixed mountain shrubs such as scrub oak, live oak, mountain mahogany, Wright's silktassel, yucca, creosote, mesquite, sotol, beargrass and skunk bush. The grass species found in the project area include blue grama, tobosa, sideoats grama, little bluestem, foxtail, ricegrass, three awns and muhley's. There are also several species of cacti present in the project area including agave, cholla and prickly pear species.

There is a small stand (approximately 70 acres) of Arizona cypress (*Cupressus arizonica*) located approximately 2.5 miles north of Cooke's Peak. This relict conifer woodland has been known since 1954 (Little, 1970) and was once known as the only definite locality of the species in the state of New Mexico (Columbus, 1988). Although that is no longer believed to be the case, this grove of Arizona cypress is truly unique to the area.

3.13 Environmental Impacts

3.13.1 Proposed Action

With the proposed actions there would be some plant mortality but fire would help reduce litter residue, reduce competition, and release nutrition that would benefit and promote reestablishment of grasses and forbs. The proposed action would also help to provide for a more diverse age class of desirable shrubs such as mountain mahogany, which have currently climaxed with just mature age classes existing. The

proposed action would help to move the current vegetation into a community that more closely resembles what was historically common for the area. The area around the stand of Arizona cypress would need to be protected from the burn. The stand would be evaluated to determine if the area needs to be handlined or blacklined prior to burning.

3.13.2 No Action Alternative

Under the no action alternative, vegetative communities within the project area would continue to become more tree dominated, with the amounts of grass and forbs declining. If a fire were to occur naturally outside of a prescription, there is a chance that a high intensity catastrophic fire could occur. A high intensity fire would severely damage vegetation as it would cause damage to plants in a manner that they may not recover. With either of the two circumstances, vegetation would continue to transition to a tree/shrub dominated state with the grass understory continuing to decline.

3.14 Visual Resources Affected Environment

All areas of the proposed Cooke's Range prescribed burn are managed as VRM Class II which means that the areas should be managed to retain the existing character of the landscape. The level of change to the character of the landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

3.15 Environmental Effects

3.15.1 Proposed Action

There would be a change in the color and texture of areas within the proposed prescribed fire. Areas in the burn would be blackened and charred. The amount of vegetation would be reduced. This change would be noticeable to the casual observer, however, over time when regrowth occurs, this change would no longer be noticeable.

3.15.2 No Action Alternative

Visual resources would probably remain the same and would continue to be managed as a VRM class II without the proposed introduction of fire to the ecosystem. However, the increasing tree and shrub densities and continuity in the area would increase the potential for an unplanned catastrophic wildfire occurrence, which would burn much more intensely and destructively over larger areas of the landscape which would be noticeable to the observer for longer periods than the Proposed Action.

3.16 Wildlife Affected Environment

Wildlife habitat sites within the proposed project area are primarily mixed mountain shrub and piñon-juniper grass steppe. Mammal species occurring in the area include coyote, fox, bobcat, black bear, javelina, various ground squirrels and mice. Mule deer, Coues's white-tailed deer, and Rocky mountain elk are all known to frequent Cooke's Range. Reptiles known to inhabit Cooke's Range include whiptail lizards, collared lizards, gopher snakes and black-tailed, western diamondback, and mottled rock rattlesnakes. Mearns's or Montezuma quail, Gambel's quail, mourning and white-winged dove are upland birds known to inhabit Cooke's Range. A number of raptors also occur including golden eagles, red-tailed hawks, cooper's hawks, American kestrels, barn owls, and great horned owls. Cooke's Range contains habitat for numerous migratory birds such as canyon towhee, Northern flicker, western scrub jay, western kingbird, and Northern mockingbird.

3.17 Environmental Effects

3.17.1 Proposed Action

The application of prescribed fire would have immediate impacts in the form of displacement of many terrestrial species during the actual firing operations. If not conducted during a time period that considers migration, breeding, nesting, and fawning, prescribed fire could decrease the use of the area by wildlife. The impacts would still be short-term as there is similar adjacent habitat available. Wildlife would be temporarily displaced from the area during the burning and for a short time afterwards. Larger mammals such as coyotes and mule deer typically leave the treatment area before burning starts because of the increase in human presence on burn days. Direct kills of smaller mammals because of the proposed action would be low, although some could suffocate as a result of the smoke and heat. It may be possible that small mammal populations could decrease temporarily because of the loss of cover and the action would make them more susceptible to predation. The small mammal populations should recover to or above pre-treatment levels as the vegetation recovers.

Birds would be less directly affected by the proposed action, as they are more mobile. A burn that results in a mosaic of burned and unburned areas would benefit the greatest number of bird species by providing increased plant diversity and edge effect. Prescribed fire can ultimately benefit most ground nesting birds by increasing cover for ground nests which reduces nest predation. The proposed action could improve forage habitat by removing litter, which improves forage areas, and by increasing the composition of forbs, which would increase the quantity and quality of the forage. A negative impact would occur if the timing of the proposed action coincidences with nesting activities. There is the potential that nests would be destroyed during the proposed action; however, the adult birds should be able to escape and re-nest in unburned areas.

The potential for indirect impacts would be changes over time to habitat following treatment. As described in the impacts to soils and the impacts to vegetation, grass and forbs would increase in the species composition relative to shrubs. The diversity of desirable shrubs that occur in the Cooke's Range is high and shrub species that are important for wildlife habitat and forage exist, however due to fire suppression over time, the shrubs that are desirable to wildlife have become decadent and no longer are a valid food source for wildlife. A burn would remove the decadent parts of the shrub and lead to the establishment of new growth which in turn would benefit wildlife through the availability of an additional food source. Erosion would decrease and water infiltration would increase. An increase in grass cover and subsequent decrease in erosion would benefit habitat within the watershed.

3.17.2 No Action Alternative

The current situation would continue and no prescribed fire would be implemented to improve wildlife habitat. Under the no action alternative, the vegetative communities would continue the transition toward a shrub and tree dominated state. The grasses and forbs would continue to be suppressed by the woody vegetation. Wildlife populations that utilize these grasses and forbs for food and /or habitat would most likely decline or vacate the project area. The overcrowding by the woody vegetation would continue and most likely spread into areas that are not currently dominated by these woody species. Wildlife species such as mule deer and elk that must be able to have some openings in the canopy in order to spot an escape from predators would most likely move to other areas where the dense canopy is not present. These same species (deer and elk) utilize the smaller shrubs such as mountain mahogany, sumac and Manzanita as a food source. In the current state these shrubs have become decadent and thus less desirable as a food source. The Cooke's range prescribed fire is intended to reinvigorate the decadent shrubs and make them a much more desirable food source. Under the no action alternative, this would not occur.

If a fire were to occur naturally outside of a prescription, there is a chance that a high intensity catastrophic fire could occur. A high intensity fire would severely damage vegetation as it would cause damage to plants in a manner that they may not recover. With either of the two circumstances, vegetation would continue to transition to a tree/shrub dominated state with the grass understory continuing to decline. Wildlife habitat would be destroyed at a much larger scale and a faster moving fire could lead to greater mortality of wildlife species.

3.18 Wilderness/Special Management Areas Affected Environment

Most of the proposed project falls within the Cooke's Peak Wilderness Study Area (WSA). The WSA contains 19,608 acres. About 11,500 acres of this WSA would be directly affected by the prescribed burn. Management of WSAs is governed by the Interim Management Policy and Guidelines for Land Under Wilderness Review (BLM 1987).

3.19 Environmental Effects

3.19.1 Proposed Action

The proposed prescribed burn would have a direct impact on the wilderness character of the area as the burning is taking place. The proposed use of aerial ignition using a helicopter would create short-term disturbance of wildlife and humans using the area. The area of the proposed action would have to be closed to human entry during ignition phases of the project to protect human life. It is anticipated that within two years after the burn, most grasses and forbs will have returned to the burned areas. The only long-term noticeable effects of the proposed project would be blackened juniper, piñon and oak skeletons.

3.19.2 No Action Alternative

Wilderness characteristics would remain the same under this alternative.

3.20 Cumulative Impacts

A cumulative impact is defined in 40 CFR 1508.7 as:

“The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

The analysis of cumulative impacts focuses on the geographical area as illustrated on Map 1 (attached).

The Bureau of Land Management must address impacts from open-range livestock grazing from the last century. The impacts of past practices coupled with climatic conditions such as long-term drought periods has encouraged the encroachment of brush species such as piñon/juniper, creosote, mesquite, broom snakeweed, yucca and cactus species, saltcedar and other non-native plant species (noxious weeds) that increase when watershed conditions deteriorate. The suppression of wildfires has also contributed to the increase in brushy species and deterioration of rangeland and watershed health. On its own, these lands cannot revert back to the savanna ecosystems of the past without resource management actions to improve soil and vegetation resources.

Livestock grazing is expected to continue in the project area but allocation of forage resources above current uses would not occur. In the long term, the prescribed burning would occur in stages spanning several years to allow for project planning and optimum treatment prescriptions. This “staggering” of

site-specific burns reduces the amount of direct impacts to resources and buffers the cumulative impacts of repeated actions over the landscape. Individual treatments could range from 500 acres up to 6,000 acres or more in size, cumulatively adding up to potentially 15,000 acres or more being treated. The size and number of burns would be, in part, determined by funding, deferment capabilities, weather and the ability to efficiently implement control over the project. The degree of cumulative impacts would increase as the size of the individual treatments increases.

All authorized activities that occur on federal land can also take place on private and state lands. It is expected that the prescribed burns would occur on private and state lands through either private funding or through programs administered by the BLM and/or the National Resource Conservation Service (NRCS). The very nature of the proposed action is to improve the Cookes range watershed while limiting and reducing impacts to other resources and uses. By design, it is not a surface disturbing activity such as those associated with structural developments. Direct and indirect impacts of the proposed action to resources are adequately addressed above.

Improving the watershed within the project area has the effect of sustaining the viability and health of grass and shrublands in the long term, and countering other ongoing and foreseeable impacts generated by activities such as rights-of-ways, which tend to fragment habitat.

Overall, the cumulative impacts associated with the proposed action are not expected to be an additive negative impact to the environment but rather a beneficial additive impact to various resources over the entire landscape. In general, long term vegetation and soil health would benefit the watershed, the ecosystem and wildlife species dependent on this habitat

4 TRIBES, INDIVIDUALS, ORGANIZATIONS OR AGENCIES CONSULTED

Pat Mathis, Habitat Specialist – New Mexico Department of Game and Fish

Kevin Rodden, Ungulate Biologist – New Mexico Department of Game and Fish

Brian Lang, Invertebrate Specialist – New Mexico Department of Game and Fish

The public had the opportunity to contact the LCDO and provide input on this project. The project was listed on the New Mexico BLM Website NEPA Log:

http://www.blm.gov/nm/st/en/prog/planning/nepa_logs.html

5 LIST OF PREPARERS

Steve Bumgarner, Fire Management Officer - BLM

Tom Holcomb, Cultural Resource Specialist, BLM Las Cruces

Amelia J. Underwood, Rangeland Management Specialist – BLM

Steven Torrez, Wildlife Biologist– BLM

Ricky Cox, Fuels Specialist—BLM

Mike Bailey, Wilderness Specialist - BLM

6 REFERENCES

Columbus, J.T. 1988. Flora of Cooke’s Range, Southwestern New Mexico. A thesis submitted to the graduate school in partial fulfillment of the requirements for the degree of Master of Science. New Mexico State University. Las Cruces, New Mexico, USA.

Lang, B.K. 2000. Status and distribution of terrestrial snails of Southern New Mexico. New Mexico Department of Game and Fish. Completion Report project E-36 (1-5) submitted to U.S. Department of the Interior, Fish and Wildlife Service, Division of Federal Aid. Albuquerque, New Mexico, USA.

Little, E. L. 1970. Names of New World Cypresses (*Cupressus*). *Phytologia* 20: 429-445.

U.S. Department of the Interior, Bureau of Land Management, New Mexico State Office. 2004. Decision Record and Resource Management Plan Amendment For Fire and Fuels Management On Public Land in New Mexico and Texas.

U.S. Department of the Interior, Bureau of Land Management. 1991. Final Environmental Impact Statement, Vegetation Treatment of BLM Lands in Thirteen Western States.

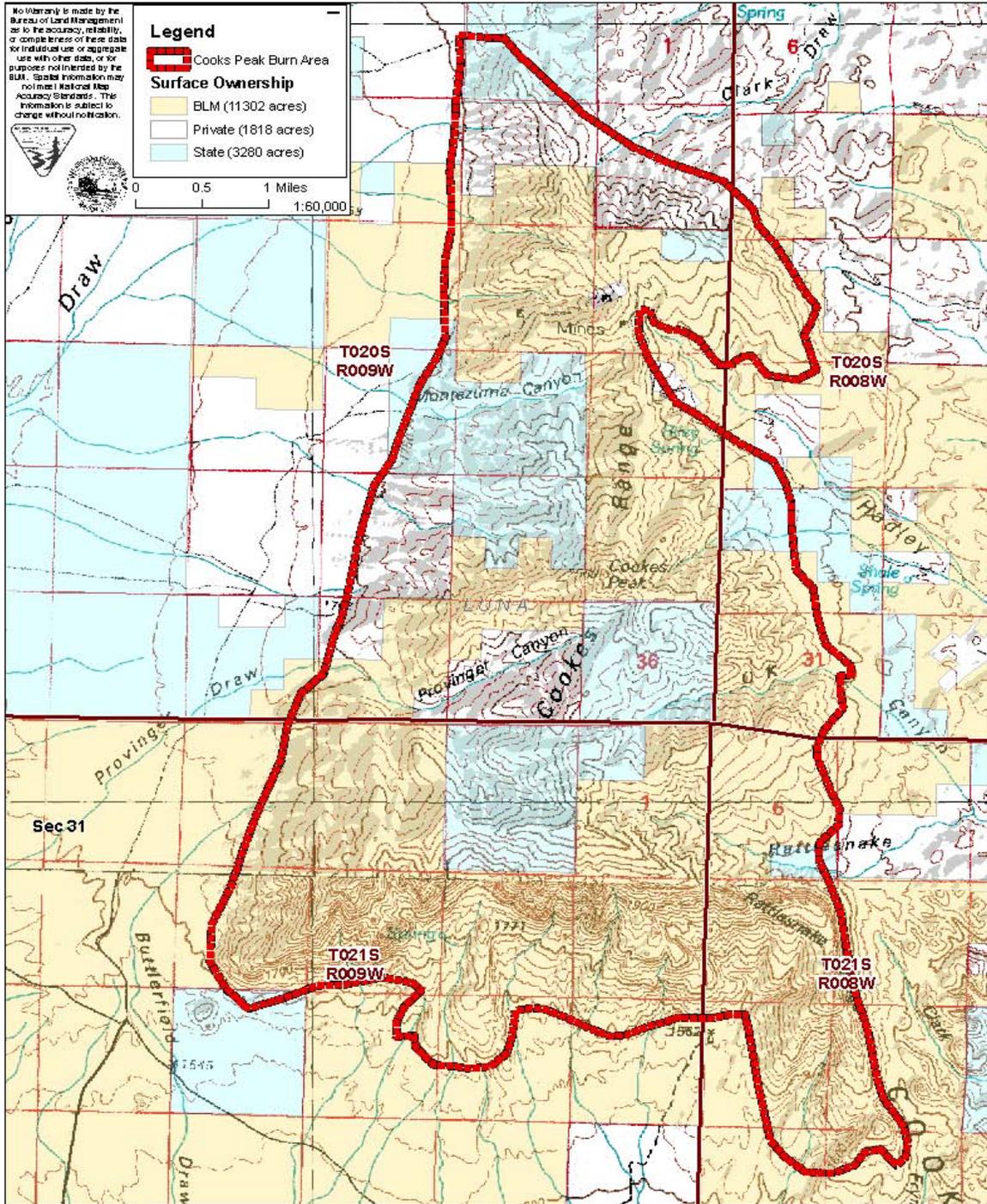
U.S. Department of the Interior, Bureau of Land Management. 2001. Record of Decision, New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.

U.S. Department of the Interior, Bureau of Land Management. 1992. Resource Management Plan Environmental Impact Statement & Mimbres Resource Area. Las Cruces, New Mexico: BLM, Las Cruces District Office.

U.S. Department of the Interior, Bureau of Land Management. 1988. New Mexico Statewide Wilderness Study, v. 4, Wilderness Analysis Report, Cooke’s Range WSA.

U.S. Department of the Interior, Bureau of Land Management. 1995. 8550-1-Interim Management Policy For Lands Under Wilderness Review.

COOKE'S RANGE RX



FINDING OF NO SIGNIFICANT IMPACT

Environmental Assessment

DOI-BLM-NM-L000-2011-0120-EA

COOKE'S RANGE WATERSHED PRESCRIBED BURN

Based on the analysis of potential environmental impacts contained in the (referenced or attached) environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that _____ will not have a significant effect on the human environment. An environmental impact statement is therefore not required.

Assistant District Manager