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U.S. Department of the Interior
Bureau of Land Management

Proposed Sabinoso Wilderness Management Plan
and
Environmental Assessment

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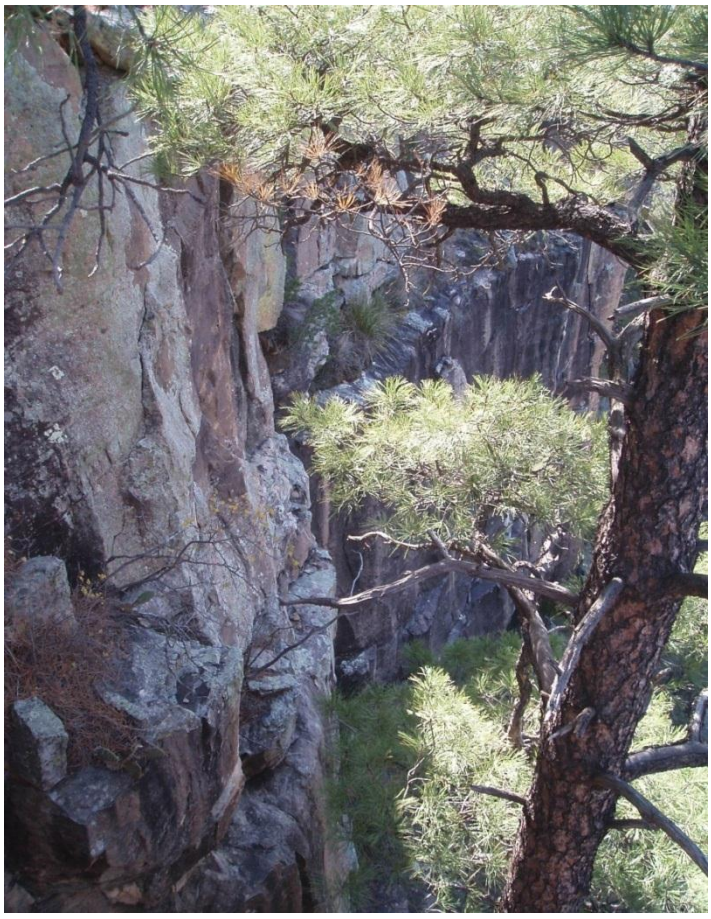

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Proposed Sabinoso Wilderness Management Plan

INTRODUCTION

The United States Congress established the National Wilderness Preservation System to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States. Wilderness designation is intended to preserve and protect certain lands in their natural state. Only Congress, with Presidential approval, may designate areas as wilderness. The Wilderness Act of 1964 defines wilderness characteristics, the uses of wilderness, and the activities prohibited within wilderness. Wilderness areas provide a contrast to lands where human activities dominate the landscape. Wilderness areas are managed for the use and enjoyment of the American people in a manner that will leave them unimpaired for future use and enjoyment as wilderness, for their protection, for the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness. Wilderness character is summarized as:

- Untrammeled (unhindered and free from modern human control or manipulation)
- Where outstanding opportunities for solitude or a primitive and unconfined type of recreation exist
- Undeveloped (is essentially without permanent improvement and modern occupation)
- Natural (retaining a primeval character and influence and affected primarily by the forces of nature)

Background

Once a Wilderness Study Area, and located in one of the most remote areas of New Mexico, the Sabinoso Wilderness was designated by Congress and included in the National Wilderness Preservation System with the Omnibus Public Lands Management Act of 2009 (Section G, P.L. 111-11). The 16,030-acre Sabinoso Wilderness is located in portions of T.16 N, R. 22 and 23 E. and T. 17 N., R. 23 and 24 E., within San Miguel County, approximately 8 miles northeast of Trujillo, 20 miles northwest of Conchas Reservoir, and between the Cañon Largo and Lagartija Creek which flow into the Canadian River. See location map: Sabinoso Wilderness.

Structure near west rim of Cañon Largo

Situated near the banks of the Canadian River is the quiet village of Sabinoso about an hour's drive east of Las Vegas, just outside the wilderness boundary. The village is known to date back to 1890 when a post office opened (Laumbach 2010). Settled primarily by Hispanic ranchers who acquired land through the Homestead Act of 1862, few structures remain except the church, post office and some residences (ibid.). Few descendants of the original ranchers have remained. Many left as a result of the Great Depression, drought, and World War II. Today, the only human activity that occurs in the wilderness is livestock grazing. Hunting opportunities are rarely fulfilled due to limited public access (New Mexico Department of Game and Fish 2012).

Sabinoso Wilderness is rugged and rocky, high, and dry. Part of the Canadian Escarpment, the Wilderness is composed of rock from the Triassic, Jurassic, and Cretaceous periods of the Mesozoic Era (Sealey 2010). It's a prominent feature on the landscape rising sharply from the surrounding plains with several high, narrow shelves dropping into deep cañones. Elevation changes from 4,520 to 6,150 feet above sea level, most of which climbs dramatically up the cañones from terraced slopes to sheer cliff walls and finally to the rim of the mesa top. Colors and textures in this pattern are viewed as green and vegetated or red and rocky on the sloped levels with smooth bands of reddish-rust and light grey and buff showing up on cliffs and capping the rim. Water is scarce but may be found seasonally in pools along ephemeral streambeds (tinajas), springs near Largartija Creek and Cañon Vivian, earthen stock tanks, and playa lakes. Occurring primarily in spring and summer, annual precipitation ranges between 14 and 18 inches and drains into Cañones, Olguin, Silva, Muerto, Vivian, Agapito and finally Largo outside the wilderness boundary. Sabinoso Wilderness is located in the Pecos-Canadian Plains and Valleys Land Cover Class from the 2004 USGS National Gap Analysis Program. It is vegetated primarily by piñon-juniper woodlands, and isolated stands of ponderosa pine. Shrubs and grasses include wavy leaf oak, shinnery oak, mesquite, mountain mahogany, berberis, rubber rabbitbrush, cholla, blue grama, hairy grama, sideoats grama, little bluestem, sand dropseed, and alkali sacaton.

Riparian habitat along ephemeral streams consists of scattered cottonwoods with pools often partially surrounded by rushes, grasses and forbs. Riparian habitat, mesa top savanna, and forest and cliff habitat support a variety of birds, mammals, reptiles, amphibians and invertebrates, including wild turkey, turkey vulture, black bear, mule deer, red fox, coyote, plain's leopard frog, American bullfrog, Woodhouse's toad, red spotted toad, and northern crayfish, to name a few (New Mexico Department of Game and Fish 2012, Torres 2010, Besser et al. 2012). Fish species have not been detected within the Wilderness boundary due to the lack of perennial streams or lakes.

The geologic units of Sabinoso Wilderness are rated as a Class 4b on the Potential Fossil Yield Classification system used by the BLM (Sealey 2010). A Class 4b is a High rating for the occurrence of significant fossils. The geology includes the Chinle Group of Late Triassic age, the Entrada Formation of Middle Jurassic age, the upper Summerville Formation of Middle Jurassic age, the Morrison Formation of Late Jurassic age, and the Mesa Rica Sandstone of Early Cretaceous age (ibid.).

The potential for recreation is low due to the remoteness to population centers, limited access, rough topography, limited water, and limited trails. The Wilderness is completely surrounded by private property and there is no public access. Consequently, visitor use consists only of guests of private landowners, including hunters who may be able to get permission from a private landowner. The Bureau of Land Management (BLM) pursues the acquisition of land for public access from willing sellers as opportunities arise. Two routes exist that may offer potential as recreation trails from the southeastern and southwestern boundaries. County roads that approach the boundary of the wilderness are C51A off of NM Highway 104 toward the southwestern boundary and C55A from NM Highway 419 to Sabinoso village and Cañon Largo. One private inholding of 320 acres is located in the south central portion of the wilderness.

There are seven grazing leases with a total of 10 grazing allotments within the Sabinoso Wilderness. Due to lack of water, cattle are rarely grazed except in the southern portion of the Wilderness. Developments include fences and stock tanks.

The Wilderness has not been systematically surveyed for cultural resources. However, artifacts have been found within and adjacent to the boundary. In addition, the archaeological record of northeastern New Mexico suggests that the Wilderness contains a high density of sites from the prehistoric Paleo-Indian period through the historical period of homesteading and ranching. "A number of cultural resources sites have been found within the area. The majority of these localities are associated with homesteading which occurred within the region in the mid-1800s" (BLM 1980). As a result of a trespass investigation in 2012, several additional pre-historic lithic scatter and hearths as well as late 19th century and early 20th century homestead sites were found within the Wilderness. Most of the artifacts were found in a linear configuration along Largo Canyon Road which is thought to be a pre-historic trail and then used as a wagon "road by the U.S. Army to connect Fort Union to Fort Bascom" (Laumbauch 2010:5). "The road proceeded down Largo Canyon to the Canadian River and then paralleled the west bank of the river. In 1863, a temporary military post was established along this route near where it exits at the mouth of Largo Canyon. The post was staffed by two regiments of New Mexico Volunteers and was established as a deterrent to Comanche raiding of the Sabinoso and lower Mora River settlements that included Largo Plaza and Ancon at the mouth of Largo Canyon" (Dicks, Anderson, Martinez 2012).

Current Situation and Assumptions

The current situation and assumptions of changes expected to occur during the 10-year life of the plan are considered before developing management actions for the plan objectives.

1) Foreseeable future land use of adjacent private land is livestock grazing, small scale agriculture, light residential development, and undeveloped land.

2) Sabinoso Wilderness is included in the Sabinoso Area of Critical Environmental Concern, (ACEC) and the Sabinoso SRMA. The ACEC land surrounding the Wilderness will be managed according to prescriptions allocated in the 2012 Taos Resource Management Plan. Scenic values are identified as the relevant and important values of the ACEC. The Sabinoso Special Recreation Management Area will be managed for primitive recreation and wilderness characteristics. Rights-of-way are excluded. Private and state land may be acquired through exchange or purchase.

3) Public access will continue to be limited by the landownership pattern surrounding the designated Wilderness. Therefore, visitor use will continue to be limited until BLM acquires land or easements adjacent to the wilderness boundary. If BLM is able to acquire public access, visitor use will be concentrated to that part of the Wilderness.

4) Where BLM acquires access, visitor use will not be dispersed. Consequently, natural resources may need to be protected from concentration of visitors and impacts such as trampling. A new trail might be needed that can direct use appropriately within the wilderness if existing routes are not adequate to protect wilderness characteristics.

5) The potential for recreation is low due to remoteness to population centers. Visitors are most likely to come from the direction of Las Vegas, New Mexico, which is about an hour's drive. Rough topography, limited water, and limited trails may also discourage all but the most determined hunters and wilderness enthusiasts. Even if public access becomes available,

recreation activities are likely to be short trips; primarily hiking, hunting, and camping. Visitors may discover the wilderness through BLM maps and website pages, as well as newspaper and magazine articles, guidebooks published by independent sources, and by word of mouth.

6) Hunting tags are issued for wild turkey and mule deer by New Mexico Department of Game and Fish. Sabinoso is located within Game Management Unit 42. Hunters who have drawn a tag for this unit must request access from a private landowner, which leads to low use levels. However, if BLM is successful in acquiring public access, no longer needing to request access from a private landowner, will result in an increase of hunting activity in the Wilderness.

7) Some existing routes within the wilderness may offer potential as recreation trails from the southeastern and southwestern boundaries. County roads that approach the boundary of the wilderness are C51A off of NM Highway 104 toward the southwestern boundary and C55A from NM Highway 419 to Sabinoso village and Cañon Largo. If and when public access is acquired, a project plan and environmental assessment will need to be conducted to evaluate the potential for parking and trails associated with the access point.

8) Livestock grazing within 10 allotments will continue. Grazing will continue to be focused in the southern portion of the wilderness where water is more routinely available for cattle. Any maintenance necessary will occur according to an approved Range Improvement Maintenance Plan.

9) Preserving the natural appearance of the wilderness, will require limited management actions. A few unused routes and installations exist within the wilderness area which will require some one-time work to remove or rehabilitate. There is very little human activity besides ranching adjacent to the wilderness boundary; therefore, the wilderness is not expected to be affected much by the sights and sounds of human activity.

10) Limited management actions that could affect the untrammeled quality of the Wilderness may be needed to protect naturalness, such as removal of noxious weeds.

11) Other than a small occurrence of musk thistle within a stock tank on Route D, noxious weeds are not known to occur in the Sabinoso Wilderness. New introductions of noxious weeds are possible and need to be monitored for and addressed early to prevent widespread infestation.

12) The Sabinoso Wilderness is composed of vegetative communities which include ponderosa-pinyon-juniper woodlands, and pinyon-juniper savannahs. These ecosystems are considered to be fire dependent, where fire is a natural process that maintains the vegetation patterns. The wilderness contains some vegetation communities that are considered to be at historical (pre-settlement) conditions, in which fire should be allowed to continue in its natural role. The Wilderness also contains areas of vegetation in moderate departure from historical conditions, which are somewhat overgrown and have abnormally high fuel loads. Wildland fire could bring those vegetation communities closer to historical reference conditions and into a more natural state.

The likelihood of a fire carrying through the entire wilderness is low, due to rock cliffs and canyons that act as natural barriers to the spread of fire. However, because of dense canopy cover and the presence of ladder fuels in some areas, wildfire could exhibit isolated stand replacement characteristics in areas where fuel loading, topography, and weather conditions will allow fire to spread.

Fire management for this area is guided by the Farmington District Fire Management Plan (USDI) which serves as a primary reference for managers when making decisions pertaining to wildland fire. The fire management plan contains specific directions and prescriptive criteria for wildland fire and fuels management. The fire management plan will be revised, as needed, to incorporate direction from the Sabinoso Wilderness Management Plan so that it remains a current source of information for fire managers.

13) Inventory, monitoring, or research projects may be periodically proposed within the Wilderness. Most proposals will likely add to the understanding of the wilderness resource and help improve wilderness management. However, all proposals will need to be reviewed before approval to assure the work is compatible with preservation of the wilderness resource and not more suitable outside wilderness.

14) Because the area is so remote and isolated, and access has historically been difficult, wildlife surveys and inventories have been limited. Due to the recent wilderness designation, increased attention on wildlife surveys has occurred. These surveys may reveal more important wildlife populations and/or habitat than what is currently known or outlined in this plan. For example, a recent field trip and inventory of amphibians revealed more species of frogs in this Wilderness than any other site in the Taos Field Office planning area. Therefore, while there are no current wildlife populations highlighted in this management plan, the possibility exists of populations being discovered which will require special management.

15) As of the publication of this management plan, there are no known populations of BLM sensitive species or federally listed (threatened or endangered) species. However, if new special status species are identified in the future, and as additional wildlife surveys occur, it is possible a population of special status species would be identified in the Wilderness. If that is the case, BLM Manual 6340, BLM Manual 6840 and the Endangered Species Act, as amended, and any other applicable management plans approved by the RMP, would guide the management and conservation of those species and its habitat to ensure conservation, protection, and enhancement to delist those species in the future.

WILDERNESS MANAGEMENT

Goals

1. To provide for the long-term protection and preservation of the area's wilderness character under a principle of non-degradation. The area's natural condition, opportunities for solitude, opportunities for primitive and unconfined types of recreation, and any ecological, geological, or other features of scientific, educational, scenic, or historical value present will be managed so that they will remain unimpaired.

2. To manage the Wilderness for the use and enjoyment of visitors in a manner that will leave the area unimpaired for future use and enjoyment as wilderness. The wilderness resource will be

dominant in all management decisions where a choice must be made between preservation of wilderness character and visitor use.

3. To manage the Wilderness using the minimum tool, equipment, or structure necessary to successfully, safely, and economically accomplish the objective. The chosen tool, equipment, or structure would be the one that least degrades wilderness values, temporarily or permanently. Management will seek to preserve spontaneity of use and as much freedom from regulation possible.

4. To manage non-conforming but accepted uses permitted by the Wilderness Act and subsequent laws in a manner that will prevent unnecessary or undue degradation of the area's wilderness character. Non-conforming uses are the exception rather than the rule; therefore, emphasis is placed on maintaining wilderness character.

Objectives

- Acquire land adjacent to the wilderness to provide access for primitive and unconfined recreation.
- Designate only existing trails unless a new trail is needed to protect resources.
- Provide outstanding opportunities for primitive recreation with minimal supporting actions. However, monitor amount of visitor use and indicators such as type and amount of user created facilities, which may trigger the need for management action. Use monitoring indicators from *Keeping it Wild: An Interagency Strategy to Monitor Trends in Wilderness Character* and *Measuring Attributes of Wilderness Character: BLM Implementation Guide*.
- Provide for the use and enjoyment of the Wilderness in such a way that protects natural conditions through minimal regulation of visitor activities.
- Develop recreation facilities only for the purpose of protecting natural resources and wilderness values.
- Provide offsite interpretation of geology, paleontology, history, and archaeology of the Wilderness.
- Maintain or enhance the natural appearance of the Wilderness by removing unnecessary facilities and minimizing or restoring human caused surface disturbances.
- Manage for healthy, native vegetation with the least amount of trammeling actions necessary.
- Allow wild fire to serve its natural role in the Wilderness.
- Reduce the risks and consequences of wildfire escaping from the Wilderness.
- Use Minimal Impact Suppression Tactics. Use motor vehicles for suppression only when necessary to protect human life or property.
- Conduct post fire restoration of suppression activities.

- Actively survey for archeological and paleontological resources.

Arroyo in NE tip of wilderness

Management Actions

Wilderness and Recreation

Access

Current, there is currently no public access to Sabinoso Wilderness. The BLM will pursue acquisitions and easement opportunities as they may become available in the future. The 2012 Taos RMP states, "Areas within or adjacent to the Sabinoso Wilderness/ACEC are designated as an acquisition zone. The BLM may acquire about 9,240 acres of private lands by purchase or exchange, and about 2,700 acres of State lands by exchange, if available." To follow is the criteria in order of importance for identification of potential access points.

a) Access from a state or county travel route.
b) Access to an existing route within the Wilderness which might be converted to a trail.
c) Favorable topography for entry by foot and/or horse travel.
d) New road construction not needed or only minor road construction needed.
e) Proximity to perennial sources of water within five miles.

Listed below are the top three access points into Sabinoso Wilderness in order of priority based on the criteria listed above. Any potential acquisitions and/or easements would be evaluated against these criteria. Most other areas along the Wilderness boundary pose topographical challenges to gaining access. Refer to the location map. If land adjacent to the Wilderness boundary is acquired, potential routes and potential parking would require additional analysis.

1) T. 16 N., R. 22 E., S. 26 SE 1/4, S. 25 SW 1/4 & W1/2 of SE1/4 in addition to the in-holding at T.16N, R. 23 E., S.17, 20 and 21 (about 320 acres). Meets all criteria. Accesses route 3 from NM Highway 104 and County Road 51A.

2) T. 16 N., R. 23 E., S. 28 N1/2 and S. 29, W1/4 of N 1/2 - May meet all criteria. Access to Route D from NM Highway 419. However, access to route D depends on access across the in-holding

and must tie into route 3 to access other areas of the Wilderness by a travel route. Visitors could travel cross country but this has some potential for visitor use impacts and the eventual creation of another trail.

3) T. 17 N., R. 24 E., S. 8, S. 7, S.18, T. 17 N., R 23 E., S. 13, S. 14, S. 22, S. 28 - Meets most criteria. Access to the Largo Canon from NM Highway 419 and County Road 55A. There is not an existing travel route adjacent to this property. Some road or trail construction may be needed. There are many side cañones to the mesa top which may provide reasonable access.

Northern cliff walls of Cañon Silva

Routes and Trails

If public access is acquired adjacent to the Wilderness boundary in the future, trails may be needed but must be the minimum necessary to preserve wilderness character. An analysis on future trails or trailheads would require Minimum Requirements Decision Guide and National Environmental Policy Act analysis. The following criteria would meet recreation demand and protect resources:

- result in minimum impact on wilderness character
- if possible, result in no new surface disturbance
- provide access to the mesa top
- be proximate within five miles to seasonal water sources

All routes presently existing in the wilderness are two track routes (former vehicle routes). They all begin or terminate at private or state land. Specific trail designations would be the result of private or state land acquisition. Routes that begin or terminate from land that could rank high according to the acquisition criteria listed in the section above are: D, DA, 3, and A. Portions of these existing two track routes as well as route 4 may become designated as trail and marked on the ground and on maps. The management goal for these routes would be 24" or less in width. Where possible, natural restoration would be allowed for modification of a two-track to a single track trail. Management activity may occur to facilitate vegetative cover, or to correct accelerated erosion.

Two-track routes D, DA, parts of 3 and 3A, 4 and 4A may periodically be used by motor vehicles to transport equipment in the event that a stock tank needs to be maintained. All such events require BLM approval. (See *Range Improvement Maintenance* under *Livestock Grazing* below.) These routes may also be used by motor vehicles in the event of an emergency.

A section of a two-track route 3 would provide inholding access and would not be reclaimed or rehabilitated so long as the potential for the inholding owner to acquire legal use of it exists. The

abandoned bulldozer on Route A and the Jeep off of Route 5 in Cañon del Muerto would be removed in pieces by sky crane as funding becomes available. See map: Sabinoso Wilderness Naturalness and Developments.

Visitor Use

Recreation activities would be managed accordingly:

- There would be no restrictions on group size until monitoring indicates a need for control to maintain solitude or naturalness.
- Visitors will be encouraged to stay on trails.
- Feed for horses must be certified weed free.
- Camping and hunting are allowed.
- Campfires would be allowed except during any seasonal fire restrictions.

Playa lake near Agapito Cañon

Special Recreation Permits

Commercial services would not be provided except for educational trips for Leave No Trace ethics and for people with disabilities. Refer to Appendix A, Commercial Service Needs Assessment.

Interpretation

The following tables provide interpretive program guidance on topics, themes, and media for the supplemental values of paleontological and cultural resources.

Paleo Overarching Theme: Formations within Sabinoso Wilderness cover three periods in geologic history representing changes in the earth's surface, global climate change, and the rise and fall of dinosaurs.

Theme: 1	**During the Triassic the Earth's land mass was concentrated in one super continent.**
Sub-theme Examples: The super continent splits at the seams. Plate tectonics, rifting, and ocean flooding.	
Theme: 2	**Dinosaurs and conifers dominated the Jurassic period on a subtropical Earth.**
Sub-theme Examples:	

The ocean is a major source of Earth's energy balancing heat and hydrology. Global climate changed from hot and dry to warm and humid. Scientists use fossil evidence and taxonomy to sort through history. Did birds evolve from dinosaurs? Is the modern sparrow related to dinosaurs?

Theme 3:	**Massive undersea rifting and uplifting occurred during the Cretaceous period.**
Sub-theme Examples: High sea levels submerged one third of the Earth's surface. The cretaceous is named for chalk deposits from shells of marine invertebrates. Bees and flowering plants co-evolved during the Cretaceous period.	

Media Prescriptions	
Location:	Media:
Wilderness.net	web
www.blm.gov/nm	web
BLM New Mexico State Office	brochure
Taos Field Office	brochure

View across Largo to Sabinoso

Cultural Topic Areas:

Topic: 1	**History of the Village of Sabinoso**
Related topics: Church and acequia	
Topic: 2	**Historic and prehistoric travel routes, purposes and destinations**
Related topics: What are the connections between regions and people over time? Expeditions onto the plains Trade practices	
Topic: 3	**Who settled in the area and why?**
Related topics: Compare with relevant New Mexico and U.S. history. Land grants Arrival of U.S. troops	

The Homestead Act World War II	
Media Prescriptions	
Location: Wilderness.net www.blm.gov/nm BLM New Mexico State Office BLM Taos Field Office	Media: Web and brochure

Signs and Marketing

Sabinoso Wilderness and Sabinoso Special Recreation Management Area are managed for a primitive and undeveloped setting in the RMP. These areas are managed to provide opportunities for solitude and exploration. Signs directing visitors to the Wilderness will be low key and targeted to those who are seeking Sabinoso Wilderness out of their own interest. The Wilderness will not be actively marketed. However, once a member of the public inquires about the wilderness at a BLM office or website or at Wilderness.net, they will have opportunities to orient themselves to the location of and information about Sabinoso Wilderness.

If public access is acquired and/or a trailhead is built, signs directing visitors to the wilderness will be needed. Rather than install directional signs on state or interstate highways, the public will have access to a location map from a BLM office or website. Orientation to the Wilderness on location maps would be illustrated primarily from Las Vegas, New Mexico. Once the visitor has reached a county road, signs indicating the direction to the wilderness, a hiker symbol, or intersection signs may be installed with an easement from San Miguel County. A small wilderness entry sign may be installed at the Wilderness boundary within a potential trailhead parking area. The sign should meet the BLM National Sign standard for National Landscape Conservation System signs. A two or three panel kiosk structure (in compliance with Taos Field Office signs standards) could be installed to provide specific regulations, trail and area maps, and Leave No Trace ethics. Interpretive material should be provided primarily off site by brochure, BLM offices, BLM websites and Wilderness.net. Every effort should be made to keep the number of signs to a minimum. Any trail intersections should be marked either with rock cairns or wood signs with round posts and routed lettering to maintain an undeveloped, rustic, and primitive setting.

Wilderness Quality Monitoring

Monitoring will occur annually according to Keeping *It Wild: An Interagency Strategy to Monitor Trends in Wilderness Character* and the *BLM Implementation Guide for Measuring Attributes of Wilderness Character.* Agencies included in the strategy are the U.S. Forest Service, the BLM, U.S. Fish and Wildlife Service, the National Park Service and the U.S. Geological Survey. It guides monitoring for the untrammeled, natural, undeveloped, solitude, and primitive and unconfined recreation qualities of designated wilderness. The strategy provides indicators and measures that may be used to consistently and accurately collect data over time. Specific measures may be chosen which are relevant and cost effective for the unique circumstances of each wilderness. The strategy also provides accountability in preserving wilderness character. Trend data may be synthesized to assess wilderness character for an individual wilderness, for an agency, or across the National Wilderness Preservation System.

To provide for proper range management, protection, and to assist in the administration of the public lands, the BLM requires reasonable access. This requirement would be made a term and condition of the grazing permit or lease.

Fire

Wildland fire is desired within the planning area to restore historic fire regimes and pre-settlement vegetative conditions while maintaining the wild and natural character of the wilderness. Desired vegetation communities is a mosaic pattern of ponderosa-pinyon-juniper woodlands, pinyon-juniper savannahs, and grasslands across the planning area. The majority of the wilderness area is currently classified as Fire Regime Condition Class 2 where vegetative conditions are considered to be in moderate departure from historic pre-settlement natural conditions.

In general, natural wildland fire ignitions will be managed to achieve resource benefits within the Sabinoso Wilderness area by restoring and maintaining the area to a low range of variability from historic/natural fire conditions and vegetation characteristics which is classified as a Fire Regime Condition Class 1. Natural ignitions will be allowed to burn in areas where resource benefits are being met to serve their natural role within the Wilderness area. While the BLM is required to suppress human caused ignitions, there are many benefits that could be gained across multiple resources by allowing natural ignitions to burn in this fire dependent ecosystem. A detailed discussion on trigger points, objectives, and discretionary guidance for wildland fire management within the planning area is available in the Farmington District Fire Management Plan (USDI 2010). The Guidance for the Implementation of Federal Wildland Fire Management Policy (NWCG 2009) allows the BLM to manage wildland fires for multiple objectives. This means that multiple management strategies can be used on the same fire such as allowing one side of the fire to burn to benefit resources while suppressing another side of the fire that may threaten values at risk.

Exotic and Invasive Plants

The monitoring and treatment of exotic and invasive plants within the Wilderness will follow the guidelines set forth in the Taos Field Office Programmatic Treatment Plan for the Rapid Response to Weeds. This plan allows for the treatment of exotic and invasive plants that are found in small concentrations (usually smaller than 25 acres). The plan calls for an integrated management system with the following control methods to be considered for the rapid response and treatment: herbicides, manual controls, prescribed fire, or mechanical controls.

The level of treatment intensity and the minimum tool necessary will be determined prior to site specific weed treatment activities. Treatment intensity will be prioritized in the following order: Level 1) Hand grubbing with or without hand tools if plants will not re-sprout and where infestations are a size manageable by small hand crews (this may occur concurrent with monitoring); Level 2) Herbicides applied by backpack or horse pack spraying equipment, in accordance with a site specific pesticide use proposal. This treatment intensity level may include the use of hand tools to cut plants down prior to treatment; Level 3) biological control agents approved by the Animal and Plant Health Inspection Service (APHIS) where infestations are of such size that eradication is not feasible; and, Level 4) Herbicides applied with and/or in conjunction with motorized equipment, used in accordance with a site specific Pesticide Use Proposal. This treatment level will only be used where the infestation is such a size that treatment intensity levels 1 and 2 are impractical and secondary impacts from the control activity are minor and easily rehabilitated. This treatment intensity level may include cutting plants down prior to treatment, but not include driving ground vehicles into the Wilderness. Reseeding after treatment activities with native species will be incorporated where on-site seed sources are not adequate for natural recruitment.

Cultural and Paleontological Resources

The following actions would be implemented for cultural and paleontological resources.

1. Complete surveys for cultural and paleontological resources.
2. Acquire and evaluate the archaeological record for the area.
3. Acquire and evaluate the homestead records of the area.
4. Provide interpretive material for these resources offsite on BLM and Wilderness.net websites.

Livestock Grazing

Each actively grazed allotment is managed by specific terms and conditions tied to a separately prepared Allotment Management Plan (refer to Table 1 in section 3.3 for more information). Routine maintenance of livestock improvements and livestock management will need to occur within the Wilderness and will be accomplished through the *Range Improvement Maintenance Plan* protocol set forth below.

Range Improvement and Maintenance Plan

Actual authorization for the use of motorized equipment, motor vehicles, or other forms of mechanical transport will be granted in a letter of authorization. Authorization will be on an as needed basis (for example, if stock tanks are silted or fences require replacement).

The letter of authorization will include the approved access route and a timeframe in which to complete the maintenance. The grazing lessee is required to notify the Field Manager upon completion of the maintenance. The BLM will perform periodic inspections to ensure compliance with this plan. Grazing lessees will be required to provide reasonable access to the BLM through their adjacent private or leased lands to allow for inspections and monitoring.

The use of motorized equipment and motor vehicles for permitted maintenance will be limited to dry weather/ground conditions, frozen and/or snow covered ground during the winter.

Grazing leases for each lessee, within the Wilderness, will be amended by adding terms and conditions to the lease which will specify that the use of motorized vehicles, motorized equipment and other forms of mechanical transport are subject to the provisions of this Plan and that the lessee shall provide reasonable access to the BLM across adjacent private and leased lands for inspections of range improvements and protection of rangeland resources. Any proposals for additional improvements or maintenance not specified in this Wilderness plan will require a separate analysis. To provide for proper range management, protection, and to assist in the administration of the public lands, the BLM requires reasonable access for agency personnel conducting official duties. This requirement would be made a term and condition of the grazing permit or lease.

Guidelines for Specific Activities

<u>Emergencies</u>

The use of motorized equipment, motor vehicles, or other forms of mechanical transport in emergencies, such as rescuing sick/injured animals is permissible. The grazing lessee will notify the Field Manager as soon as the emergency occurs or within 48 hours following the emergency. This privilege is to be exercised only in true emergencies and should not be abused. Each emergency will be reviewed and evaluated by the Field Manager to assure that there was in fact an emergency and determine if there was

surface disturbance sufficient to warrant rehabilitation. Rehabilitation of impacts caused by emergency access will be required.

Fences

Fence repairs will generally be accomplished without the aid of motorized equipment, motor vehicles, or other forms of mechanical transport. It is estimated that once every 10 to 15 years a major fence repair will be required on each fence project. Use of a motor vehicle may be allowed to carry fence materials and tools needed for major fence repair. Some fences cannot be fully accessed by an existing vehicle route. Therefore, fence materials and tools may be transported along an agreed upon route to dispersal points and transported by non-motorized or non-mechanical means to sites of the fence maintenance. The approved access route and dispersal points will be identified through NEPA analysis tiered to this plan and authorized in a letter from the Field Manager. Where motorized vehicles are used, they will be authorized for a limited number of trips (usually not to exceed two). The BLM will perform an on-site pre-maintenance conference and flag the perimeter of the work area to ensure all work remains within the previously disturbed area. BLM will flag access routes.

Retention Dams

Normal maintenance of earthen retention dams, i.e., dirt tanks, will require the use of motorized earth moving equipment, such as backhoes, bulldozers, and/or front end loaders. Normal maintenance for these structures is anticipated to be needed every 20 to 25 years, but may be needed more frequently based on climatic conditions. Maintenance may occur to retain the same capacity for which the structure was originally authorized.

The equipment is authorized to make one trip into the area and is allowed to stay at the work site for 5-10 days to complete the maintenance activity. Where feasible, supplies and personnel will be moved to the worksite by foot or horseback. Where not feasible, an ATV, UTV or similar light vehicle may be authorized for access. In such cases, access will be identified so as to avoid establishing a visible track in the Wilderness. This may entail changing the access route over the duration of the work so as to avoid multiple passes and repeated impacts to the same vegetation. Specific access provisions will be analyzed in a site specific NEPA document tiered to this plan.

Prior to retention dam maintenance, the following guidelines shall be applied:

- Assess for aquatic species.

- Monitor structure condition and maintain structure to provide water for fauna in the Wilderness. Monitoring and maintenance will reduce the chance of failure that could result in significant soil erosion leading to gullies. Refer to Range Improvement Plan for further guidance.

Where dams are located directly adjacent to existing two track routes, equipment may be trailered or "walked" along the routes through the Wilderness in particular route D, DA, 4, 4A, and part of routes 3 and 3A south of the inholding. Refer to "Sabinoso Wilderness Naturalness and Developments" map. However, if routes have naturally reclaimed with vegetation or maintenance requires use of other routes or moving cross country, equipment must be "walked" to and from the site along a route identified and designated by the BLM, which will require additional site specific analysis.

All borrow areas used in repairing the structure must be below the dam high water mark. Excess silt will be placed on the dam, or spread below the high water line within the dam so as to minimize visual impact. If silt from the tank cannot be placed on the dam or spread below the high water line, site specific NEPA analysis will be tiered to this plan to identify the disposal of the silt. Reservoirs dug into existing playas will require further NEPA analysis tiered to this this plan to assess impacts to aquatic species. The BLM will perform an on-site pre-maintenance conference with the equipment operator and flag the perimeter of the work area to ensure all work remains within the previously disturbed area. BLM will flag access routes.

Feeding of Supplements

Salt, minerals, protein blocks or cubes, and vitamins are examples of supplements. The placement of supplements must be accomplished on horseback or foot. All feed and hay for horses must be certified weed free.

Monitoring and Inspections

Range studies, range improvement inspections, moving livestock, and general allotment inspections performed by the BLM or the grazing lessee in the Wilderness must be accomplished by non-motorized/non-mechanical means. The BLM will monitor each permitted maintenance action to evaluate the effectiveness of the required stipulations. Stipulations will be reviewed and revised to meet changing environmental conditions and ensure progressive natural rehabilitation of the access routes. Photo points have been and will be established in key locations along existing routes authorized for access in maintenance of range improvements. The photo points provide a reference to evaluate vegetative change resulting from the use of motorized vehicles/equipment for the maintenance actions. As a result of the expected low frequency of use and stipulations governing use, all access routes are expected to rehabilitate by natural processes. However, monitoring will be used to identify areas where natural processes are not proceeding as expected and rehabilitation will be required.

Soils

Monitoring of soil condition should continue in conjunction with normal range condition assessments. To maintain rangeland condition, vegetation treatments should be considered where soil conditions do not meet BLM standards (USDI-BLM 2001). Subsequent environmental analysis for vegetative treatments will be required. See section 1.3.3 for specific information on how vegetation treatments will be implemented.

Riparian Resources

Monitoring of riparian zones should continue. Vegetation treatments should be considered where conditions warrant to maintain proper functioning condition (i.e., treatment of non-native vegetation, see Section 2.1.3). Subsequent environmental analysis for vegetative treatments would be required.

Plan Implementation Sequence

Management of Sabinoso Wilderness will be carried out in accordance with this plan under the direction of the BLM Taos Field Office. Four types of management activities may occur: 1) ongoing activities carried out through the life of the plan; 2) activities that will be implemented as special projects at the beginning of the plan; 3) management activities triggered by changes in conditions as detected through monitoring; and 4) activities that may be proposed in the future for which general guidance exists in the plan, or that may not be addressed in the plan.

1) Ongoing activities
   - Seek opportunities to provide public access
   - Wilderness monitoring

2) Special projects
   - Rehabilitation
     - Former vehicle routes
     - Remove abandoned vehicles
     - Remove noxious weeds
- Write and publish supplemental rules for all visitor use standards
- Provide off site interpretation of resources
- Provide vehicle parking and trailhead development adjacent to Wilderness (will require a project plan)
- Trail designation and marking of trails
- Additional signing of Wilderness boundary as necessary

3) Changing conditions
   - Rehabilitation
     - New visitor impacts
     - Trail maintenance
     - Management of social conditions
     - Nonnative plant control

4) Potential future proposals
   - Trail development (will require a project plan)
   - Wildlife projects
   - Research on natural resources
   - Property acquisition

Actions that propose prohibited uses, such as motorized equipment, in Section 4(c) of the Wilderness Act of 1964 and are not fully described and analyzed in the plan or other actions that are not adequately described and analyzed require a separate environmental assessment.

Plan Evaluation

The plan will be revised when the management actions prescribed no longer meet the wilderness management objectives, or when a change in the existing situation warrants revised management. The need for revision will be reviewed every 10 years as funding and staffing capabilities are available. If the decision is made to revise the plan, it will be accomplished with public participation. (Minor revision such as typographical or cartographical errors will be made by inserting an errata sheet.)

Environmental Assessment

DOI-BLM-NM-FO20-2012-0003

1 Introduction

This environmental assessment evaluates the potential impacts of implementing the proposed Sabinoso Wilderness Management Plan, described in detail above.

1.1 Purpose and Need for Action

Sabinoso Wilderness, designated in March 2009, is managed according to the Wilderness Act of 1964 and the Omnibus Public land Management Act of 2009. The Taos Field Office needs to complete a Wilderness management plan in compliance with Manual 8561, Wilderness Management Plans, and Manual 6340 Management of Designated Wilderness to protect Wilderness character. Monitoring in Sabinoso Wilderness is also required according to *Keeping It Wild: An Interagency Strategy to Monitor Trends in Wilderness Character* and *Measuring Attributes of Wilderness Character: BLM Implementation Guide.* The purpose of the plan is to lay out guidance for the management of resources and resources uses within the Wilderness such as recreation access and communication, Wilderness qualities, vegetation, cultural and paleontological resources, livestock grazing, and fire management.

Sabinoso Wilderness is completely surrounded by private property. Currently, there is no public access for the use and enjoyment of the Wilderness for recreation. Furthermore, criteria should be established that can determine whether trails are designated and/or built and the best location for them. Direction is necessary for the management of future potential visitors and to determine whether commercial services are needed for realizing recreation or other Wilderness purposes. A basic communication and information strategy should be developed for the public wishing to obtain information or access to the Wilderness. The plan should also provide guidance for dealing with existing routes and other disturbances to the undeveloped quality of Wilderness.

1.2 Land Use Plan Conformance

The proposed action and alternatives are in conformance with the Taos Resource Management Plan (RMP) approved in May of 2012. The Wilderness management plan would meet the goals and objectives for designated Wilderness as presented under section 2.2.10.6 of the RMP. The 16,030-acre Sabinoso Wilderness will be managed under guidelines in the Wilderness Act of 1964, the enabling legislation, regulations for Wilderness management at 43 CFR 6300, and BLM Manuals 6340 and 8561.

1.3 Wilderness-Specific Issues

BLM resource specialists worked on an interdisciplinary basis in 2010 to share information and identify management issues of the Sabinoso Wilderness. Recreation and Range program staff conducted field inventories in 2010 and 2011. Meetings were hosted for grazing permittees to solicit comments, issues, and feedback in 2010, 2011 and 2012. A letter was sent to grazing permittees in 2012 inviting them to participate in the preparation of the Wilderness Management Plan. They were asked to complete a questionnaire indicating what access and/or maintenance of stock developments they may need. There was only one response to the questionnaire. Issues identified to date include lack of public access for

recreation, management of trespass, intrusions to naturalness, and livestock grazing. Issues are organized and presented below:

1. OPPORTUNITIES FOR SOLITUDE AND PRIMITIVE AND UNCONFINED RECREATION

Where are appropriate access points?
What type of trail system would meet recreation demand and protect the resource?
How should visitor use be managed?
How should Special Recreation Permits be managed?
What interpretive themes will be shared with the public?

2. PROTECTING AND ENHANCING THE UNDEVELOPED AND NATURAL APPEARANCE OF THE WILDERNESS

Will surface disturbances, including former vehicle routes be restored?
Will abandoned vehicles be removed?

3. PRESERVING THE NATURALNESS AND PRIMEVAL CHARACTER AND INFLUENCE OF THE WILDERNESS

How will fire be managed to achieve a natural condition while preserving wildness?
How will exotic and invasive plant species be managed?
How will Wilderness quality be monitored?
How will BLM access the Wilderness to conduct monitoring and inspection?

4. MANAGING SUPPLEMENTAL VALUES OF THE WILDERNESS

What management actions are required for Cultural and Paleontological Resources?
How will the relevant and important scenic value in the Area of Critical Environmental Concern be protected?

5. MANAGING SPECIAL NON-WILDERNESS LAND USES ALLOWED BY THE WILDERENESS ACT

How will livestock grazing and grazing facilities, including retention dams, be managed inside the Wilderness?

2 Description of Alternatives

2.1 Alternative A: Proposed Action – Sabinoso Wilderness Management Pan

The *Goals*, *Objectives*, and *Management Actions* proposed under the Sabinoso Wilderness Management Plan are described in detail above, pages 5 through 16. These actions, collectively, are the BLM's Proposed Action.

2.2 Alternative B: No Action

Under the No Action Alternative, Sabinoso Wilderness would still be protected under the Wilderness Act of 1964. Only a few specific management actions would be applied, such as Fire Management, management of soils, and Wilderness monitoring. The No Action alternative is described as follows:

2.2.1 Wilderness and Recreation

Access

Acquisition of land adjacent to the Wilderness boundary would not be pursued and parking would not be provided.

Routes and Trails

New trails would not be provided. Existing routes would not be marked or shown on maps.

Visitor Use

There would be no restrictions on recreation use with the exception of seasonal fire restrictions on campfires.

Special Recreation Permits

Special Recreation Permits would be evaluated and analyzed on a case by case basis.

Interpretation

No interpretive resources would be provided.

Existing Routes

Abandoned vehicles would not be removed. Specific routes would not be marked as trails and all existing routes, with the exception of Route A, would be included on visitor maps.

Monitoring Wilderness Character

Same as the Proposed Action.

2.2.2 Fire

Under a No Action Alternative, the management of wildland fire would be dictated by parameters set forth in the Taos Resource Management Plan and the Farmington District Fire Management Plan. These parameters would allow fire to play its natural role in the ecosystem based on predetermined ecological considerations and the presence of values at risk.

2.2.3 Livestock Grazing

Without the Wilderness plan, maintenance of range improvements will require individual environmental assessments to address Wilderness issues.

2.2.4 Exotic and invasive plants

Same as the Proposed Action.

2.2.5 Cultural and Paleontological Resources

No management actions would be taken to research and interpret cultural or paleontological resources.

2.2.6 Soils

Same as the Proposed Action.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

Alternative A, the Proposed Action, was developed by an interdisciplinary team of resource specialists and incorporates measures designed to mitigate or resolve relevant issues. Various other management options were considered in the development of the Proposed Action but were dismissed from detailed analysis. Such options or alternatives were dismissed for reasons described below:

Furthermore, the alternatives analyzed in detail are limited since the Wilderness Act of 1964 and associated regulations establish tight parameters for the management of these designations. In addition, the recently completed Taos Resource Management Plan, discussed in section 1.2, provides further direction on management decisions included in the Wilderness plan. While these provisions establish the limited framework for the Proposed Action, further environmental review will be necessary to consider future on-the-ground projects, providing the opportunity to evaluate site-specific alternatives as the Wilderness plan is implemented.

Access and Trails

Three specific potential access areas were considered based on topography, existing routes within the Wilderness, access from a state or county road, proximity to perennial water sources, and potential road construction needs. Although BLM would consider any potential acquisition from a willing seller, it's impossible to analyze additional potential access points without knowing what land may be available in the future. Potential access points are too speculative to warrant detailed analysis at this time.

Special Recreation Permits

The need for Special Recreation Permits (SRPs) is discussed in Appendix A: Commercial Services Needs Assessment. Section 4(c) of the Wilderness Act prohibits commercial enterprises within wilderness. However, Section 4 (d)(6) establishes a special provision allowing for commercial services to the extent necessary for activities which are proper for realizing recreational or other wilderness purposes. This assessment established the narrow extent to which guiding and outfitting may be necessary and appropriate within the Sabinoso Wilderness. Therefore, no other SRP opportunities are analyzed.

Fire Management

Wilderness is defined in the Wilderness Act of 1964 as an area to remain untrammeled - where man is a visitor who does not remain, undeveloped - retaining its primeval character and influence, for its naturalness – affected primarily by the forces of nature, and for opportunities for solitude and unconfined

recreation. Wilderness may also contain ecological, geological, or other features of scientific, educational, scenic, or historical values.

Pre-settlement vegetative conditions and the role fire would play in the absence of modern human mechanical intervention is desired in Sabinoso Wilderness. This condition is desired to protect and enhance naturalness of Sabinoso Wilderness as described in the Wildness Act. BLM resource specialists considered the potential need to use prescribed fire or vegetative thinning as a management tool to aid in bringing back a more natural fire regime. Manipulating the environment and taking a management action might be appropriate if the Fire Regime Condition Class (FRCC) was trending too quickly toward more extreme unnatural ecological conditions. Since the vast majority of the Sabinoso Wilderness currently falls within an FRCC 2 (see section 3.2), or moderate departure from a natural fire regime, it was determined that the current balance of naturalness is more acceptable at this time than taking action to manipulate the environment. In other words, Sabinoso Wilderness naturalness is not likely to be unduly compromised or susceptible to catastrophic fire, but its untrammeled character would be reduced by taking action to manipulate vegetation and undertake a human ignition. Furthermore, the Proposed Action allows for a natural ignition to burn to achieve wilderness resource benefits.

Chapter 3: Affected Environment

3.1 Wilderness and Recreation

Wilderness

Wilderness characteristics within the 16,030-acre area are described under five categories: 1) untrammeled 2) natural and primeval character 3) undeveloped 4) outstanding opportunities for solitude or a primitive unconfined form of recreation, and 5) other wilderness features.

There are areas of vegetation in the Wilderness that are in moderate departure from historic conditions, which are somewhat overgrown and have augmented fuel loading levels. This situation could have occurred from an absence of fire. The vegetation pattern could have been influenced by livestock grazing which would be considered a trammeling action. This is the only human action that occurred in the past that would have manipulated plants, animals, pathogens, soil, water, or fire. The natural and primeval character of the Wilderness is mostly preserved with the exception of some non-native species. There are feral cattle that pass through the Wilderness and a small patch of musk thistle. The Wilderness is substantially undeveloped; however, there are some known livestock developments and routes. There is one mapped allotment fence of .7 miles, 13 dams (stock ponds), an inholding of 320 acres, and 45.7 miles of former vehicle routes. There are no user created or managed facilities at this time and there are no additional management controls on recreation. Only seasonal state fire restrictions and camping length of stay could confine the recreation opportunity. Outstanding opportunities for solitude are present throughout the Wilderness because of topographic relief, dense vegetation, and access that is limited to foot and horse travel. Outstanding recreation opportunities for unconfined hiking, hunting, exploration, and scenery are present throughout the Wilderness. The rugged topography and lack of water present a challenge for building outdoor skills, exploration, and adventure. Additional wilderness features of the Sabinoso Wilderness are archeological and paleontological resources.

Recreation

The management prescription for the Sabinoso Special Recreation Management Area is to provide access to a Primitive setting with opportunities to experience solitude and exploration. The only visitor use information currently provided are basic maps located on both the New Mexico BLM website and Wilderness.net.

Sabinoso Wilderness is remote from the sights and sounds of human activity. It takes about one hour to drive east to the Wilderness from Las Vegas, New Mexico. The area is sparsely populated and there are few developments, however, the small size of the Wilderness means that developments and county roads are visible from within the Wilderness. The Wilderness is completely surrounded by private property and there is no public access. Consequently, visitor use consists only of guests of private landowners, including hunters who may be able to get permission from a private landowner. Because of this remoteness, it offers premier opportunities for solitude and isolation in the area.

The potential for recreation is also low because of remoteness to population centers, limited access, rough topography, limited water and limited trails. Two routes exist that may offer potential as recreation trails from the southeastern and southwestern boundaries. County roads that approach the boundary of the Wilderness are C51A off of NM Highway 104 toward the southwestern boundary and C55A from NM Highway 419 to Sabinoso village and Cañon Largo.

The primary recreation activity in Sabinoso Wilderness is hunting. The Wilderness is located within Game Management Unit 42 of the New Mexico Department of Game and Fish. Mule deer is a big game species in the unit and healthy populations are generally found on private lands. Currently, 150 licenses are available to be drawn for the fall season; however, these are usually not filled because of limited public access. Another fairly popular species is turkey and up to two permits per person can be obtained over the counter. Barbary sheep no longer exist in the Wilderness but may still be found and hunted within the Canadian drainage and Mills Canyon.

3.2 Fire Management

The Sabinoso Wilderness contains vegetation that is typical of Southwestern fire dependent ecosystems. Although fire has not played a significant role in this ecosystem in recent years, the potential does exist for fire to become re-established in this ecosystem and function as a normal disturbance regime. Between 2009 and 2012 there was one known naturally caused fire within the Wilderness area that totaled 10 acres, and there were no human caused fires.

The majority of vegetation in the Wilderness area has been affected since pre-settlement conditions to some degree by fire exclusion or through other disturbances such as post settlement grazing. These changes since historic vegetation conditions are explained through Fire Regime Condition Classes. Fire Regime Condition Class is a measurement and classification of the degree of departure from natural fire regimes. There are three condition classes that allow for the delineation of degrees of departure from natural fire regimes. A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Brown 1995). This departure results in changes to one or more of the following ecological components: vegetation characteristics, such as species composition, structural stages, stand age, canopy closure, and mosaic pattern; fuel composition; fire frequency, severity, and pattern; and other associated disturbances e.g. insect and disease mortality, grazing, and drought. There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes. The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the

central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy et al. 2001, Schmidt et al. 2002). The central tendency is a composite estimate of vegetation characteristics, such as species composition, structural stages, stand age, canopy closure, and mosaic pattern; fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural historical range of variability, while moderate and high departures are outside the historic range of variability.

The following table identifies acreage totals for each Fire Regime Condition Class within the Sabinoso Wilderness. These numbers were derived by analyzing Fire Regime Condition Class layers from landfire in using ArcGIS. See the attached Fire Regime Condition Class map.

Fire Regime Condition Class	Acres
FRCC 1	1419 ac.
FRCC 2	13,586 ac.
FRCC 3	1023 ac.

3.3 Livestock Grazing

Livestock grazing has occurred for centuries within the Wilderness area. Currently, there are seven grazing leases with a total of 10 grazing allotments within the Sabinoso Wilderness (see Table 1 below). The portions of the Wilderness that are not under an allotment total 2,617 acres. At the present time, cattle are rarely grazed except in the southern portion because of the lack of water. Mapped developments include one mapped allotment fence of .7 miles and 13 dams (or stock ponds) spread throughout the Wilderness.

Table 1: Allotments within the Sabinoso Wilderness Area

Allotment Number	Allotment Name	Livestock Type	Livestock Number	Season of Use	Acres within the Wilderness
00735	Rimrock	Cattle	73	03/01 - 02/28	4,156
00736	Cañon	Cattle	14	03/01 - 02/28	1,085
00771	Lagartija Creek	Cattle	75	10/01 - 02/28	1,824
00788	Barbary	Cattle	1	03/01 - 02/28	240
00812	Sabinoso Squeeze	Cattle	20	06/15 - 02/28	1,675
00902	Arroyo del Mesteno	Cattle	8	03/01 - 02/28	638
00938	Lagartija Bench	Cattle	35	01/01 - 02/28	594
00949	Cañon Sabinoso	Cattle	1	03/01 - 02/28	1,273
00952	Cañon Olguin	Cattle	26	07/15 - 12/15	1,056
00976	Ibex	Cattle	25	11/10 - 05/10	872

3.4 ACEC Values

Scenic

The relevant and important value for the Sabinoso ACEC is scenic. The scenic resources in the Sabinoso ACEC are managed to meet Visual Resource Management (VRM) Class I Objectives. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

The Sabinoso ACEC is the definitive exception to an otherwise unremarkable area of southwestern table land and flat or rolling plains and mesas broken by the occasional rim rock escarpment leading into a canyon. In the Wilderness, multiple fingers of mesa jut out over wide, deeply cut canyons and ox bows of a meandering river below. Vibrant green piñon and ponderosa are a striking contrast to the buff and red hued exposed rock. This country is wild and remote with no visible evidence of humans. Except for grazing permittees and hunters, this area has very few viewers because of limited and difficult access. However, public interest in scenery is high. The Canadian escarpment and Wilderness are visible to travelers along NM Highway 419.

3.5 Riparian Resources

There are small drainages within a multitude of canyons throughout the Wilderness area. Inside many of them are small pools of standing water (tinajas), depending on amounts of local precipitation and runoff. The vegetation in these areas is supported primarily by sub-surface soil moisture; therefore, there is not an abundant amount of riparian-obligate vegetation in these sites. There are isolated stands of very large and old cottonwood trees; however, there is limited species composition or structure for other kinds of riparian dependent vegetation along these canyon bottoms. Regardless of the limited riparian zones, there are more and varied species of wildlife in these areas, as observed recently (August 2012) by BLM and there are more species of frogs in the Sabinoso Wilderness area than any other locale in the Taos Field Office planning area. Therefore, monitoring, protection and enhancement of these limited and rare sources for water and riparian vegetation are critical for wildlife and ecosystem function in this very arid landscape.

3.6 Air Resources

Air Quality

Air resources indicators can be both monitored (measured by an instrument) and modeled (estimated through use of a computer-based air quality model). Monitoring is used to measure actual values in a specific place at a specific time, while modeling is used to estimate values in areas without monitoring and to estimate potential future concentrations. The U.S. Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality nationwide, including six "criteria" air pollutants. These criteria pollutants include carbon monoxide, nitrogen dioxide, ozone, particulate matter (PM10 & PM2.5), sulfur dioxide, and lead. EPA has established National Ambient Air Quality Standards (Air Quality Standards) for criteria air pollutants. The Air Quality Standards are protective of human health and the environment. EPA has approved New Mexico's State Implementation Plan and the State enforces State and Federal air quality regulations on all public and private lands within the State, except for tribal lands, and within Bernalillo County. Currently, there are no violations of any Air Quality Standards in the Sabinoso Wilderness.

The Sabinoso Wilderness area is considered a Class II air quality area by the EPA. There are three classifications of areas that attain national ambient air quality standards, Class I, Class II and Class III. Congress established certain national parks and Wilderness areas as mandatory Class I areas where only a small amount of air quality degradation is allowed. All other areas of the U.S. are designated as Class II, which allow a moderate amount of air quality degradation. No areas of the U.S. have been designated Class III, which would allow more air quality degradation. Because of the remote nature of the area, primary sources of air pollution will be air pollution transported from urban areas but also dust from blowing wind on disturbed or exposed soil, exhaust emissions from motorized equipment, and smoke from wildland fire.

There is no air quality monitoring sites in the area. This is typical of remote, rural areas lacking significant industrial development. The Sabinoso Wilderness is in San Miguel County. This county has minimal industrial development compared to other counties in the state. For example, 97 percent of the nitrogen dioxide emissions in the county result from mobile source emissions (cars, trucks, and trains), while the county's nitrogen dioxide emissions are just 2 percent of the total nitrogen dioxide emissions in the State of New Mexico. Similarly, particulate matter emissions in San Miguel County are just 2 percent of the total State emissions of particulate matter. Ninety nine percent of the particulate emissions in San Miguel County are from windblown dust (U.S. EPA, 2011). In general, air quality in the area should be good to excellent on most days.

Climate Summary

There are no climate stations within the Sabinoso Wilderness. Three climate stations were identified at the following locations near the Wilderness area: Conchas Dam (22 miles south), Valmora (24 miles northeast), and Las Vegas Airport (35 miles east). Table 2 shows a summary of monthly data for temperature and precipitation from those three stations from 1981 to 2010 (WRCC 2012).

Table 2: Monthly Climate Summary

1981-2010 Monthly Climate Summary														
Parameter	Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	Conchas	53.1	57.9	64.8	72.5	81.9	90.8	94	91.7	85	74.4	61	53.1	73.5
	Valmora	49.2	52.6	58	65.3	73.8	82.2	85.3	83.3	78	68.7	57.2	50	67.2
	Las Vegas Airport	46.2	49.9	55.8	63.6	72.3	80.4	83.4	81.3	75.7	66.2	53.7	47	64.8
Average Min. Temperature (F)	Conchas	24.3	28.4	35.4	43.3	52.9	61.5	66	64.5	57.4	45.6	33.2	25.8	45
	Valmora	14	17.5	22.8	30.1	38.8	47.1	52.8	51.5	44	32.5	21.8	15.6	32.4
	Las Vegas Airport	19.5	22.5	27.1	33.7	42.1	49.7	53.9	53	46.9	36.8	26.6	20.1	36.1
Average Total Precipitation (in.)	Conchas	0.46	0.45	0.87	0.89	1.61	2.16	2.66	2.91	1.68	1.22	0.67	0.5	16.07
	Valmora	0.57	0.48	0.85	0.92	1.78	2.14	3.09	3.2	2	1.28	0.53	0.6	17.42
	Las Vegas Airport	0.41	0.45	0.82	0.9	1.76	2.4	3.3	3.59	2.17	1.19	0.7	0.53	18.21

Average minimum and maximum temperatures are highest at Conchas Dam, which is farthest south and east of the stations analyzed. Highest average monthly maximum and minimum temperatures occur in July for all three stations. Lowest average monthly maximum and minimum temperatures occur in January - except at Conchas Dam, where December and January tie for lowest average monthly maximum temperature. Maximum average monthly precipitation occurs in August and precipitation is highest for May through October, indicating that rainfall is the dominant precipitation type. Snowfall was not recorded at Valmora or Conchas Dam during the 1981-2010 period of record.

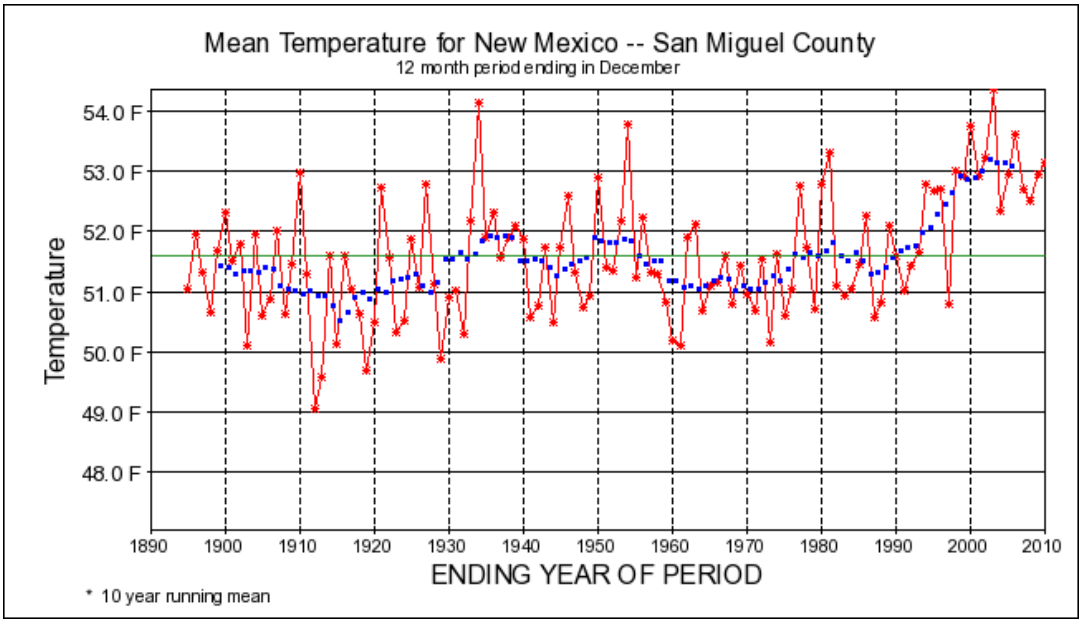

Figure 1: San Miguel County Average Annual temperature, 1890's to 2010.

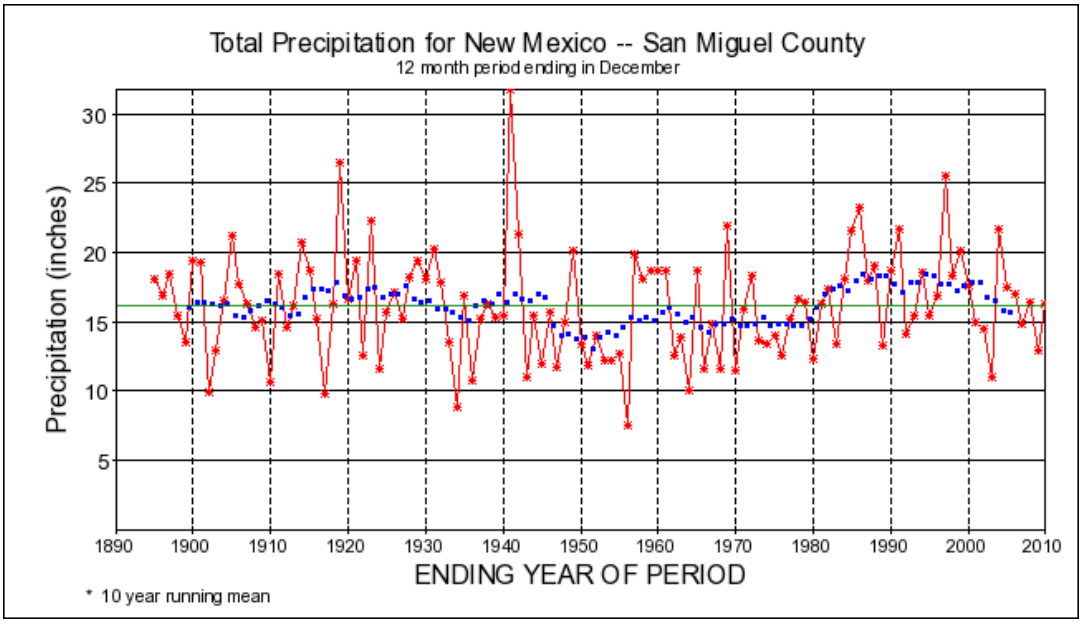

Figure 2: San Miguel County Average Annual precipitation, 1890's to 2010.

Figures 1 and 2 show changes in temperature and precipitation for San Miguel County (WRCC 2007). The dotted blue line is the 10-year running mean and the straight green line is the mean for the period of record. Note that the temperature and precipitation vary quite a bit from year to year over the period of record. With regard to climate change, the temperature over the last 15 years has increased by greater than 1°F over the mean for the entire record as indicated by the 10-year running mean. However, a 1°F decline in temperature can be noted between 1910 and 1920. The precipitation figure does not indicate any major departure from the mean for the record, though the 10 year running mean indicated slightly higher than average precipitation from 1980 to 2001.

Globally, means surface temperatures have increased about 1.4 degrees F (0.8 C) since 1880 (Goddard Institute for Space Studies, 2013). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere in future years. Without additional meteorological monitoring and modeling systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions; what is known is that increasing concentrations of greenhouse gases are likely to accelerate the rate of climate change.

Greenhouse gases that are included in the U.S. Greenhouse Gas Inventory are: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Carbon dioxide and methane are typically emitted from combustion activities or are directly emitted into the atmosphere. Ongoing scientific research has identified the potential impacts of greenhouse gas emissions (including carbon dioxide, methane, nitrous oxide, and several trace gasses) on global climate. Through complex interactions on regional and global scales, these greenhouse gas emissions cause a net warming effect of the atmosphere (which makes surface temperatures suitable for life on Earth), primarily by decreasing the amount of heat energy radiated by the Earth back into space. Although greenhouse gas levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources have caused carbon dioxide concentrations to increase dramatically, and are likely to contribute to overall climatic changes. Increasing carbon dioxide concentrations may also lead to preferential fertilization and growth of specific plant species.

In 2007, the Intergovernmental Panel on Climate Change predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels (Intergovernmental Panel on Climate Chage, 2007). The National Academy of Sciences supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions (National Academy of Sciences, 2006). Computer model predictions indicate that increases in temperature will not be equally distributed but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures are more likely than increases in daily maximum temperatures. It is not, however, possible at this time to predict with any certainty the causal connection of site-specific emissions from sources to impacts on the global/regional climate relative to the proposed lease parcels and subsequent actions of oil and gas development.

Average annual temperatures have risen across New Mexico and the southwestern U.S. since the early 20th century. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95 percent of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state. Recurrent research has indicated that predicting the future effects of climate change and subsequent challenges of managing resources in the Southwest is not feasible at this time (Intergovernmental Panel on Climate Chage, 2007) (Climate Change Science Program, 2008). However, it has been noted that forests at higher elevations in New Mexico, for example, have been exposed to warmer and drier conditions over a 10-year period. Should the trend continue, the habitats and identified drought sensitive species in these forested areas and higher elevations may also be affected by climate change (Gori, 2008).

A number of activities contribute to the phenomenon of climate change, including emissions of greenhouse gases (especially carbon dioxide and methane) from fossil fuel development, large wildfires, activities using combustion engines, changes to the natural carbon cycle, and changes to radioactive forces and reflectivity (albedo). It is important to note that greenhouse gases will have a sustained climatic impact over different temporal scales because of their differences in global warming potential and lifespans in the atmosphere.

3.7 Soils

A total of 10 soil types were identified within the boundaries of the Sabinoso Wilderness Area. Table 3 lists the soils, total acreage and percent of total acreage within the Wilderness (NRCS). Eighty percent of the soils associations are classified as steep or very steep. Ninety six percent of soils groups in the Wilderness are associated with rock outcrop. These associations indicate that the bulk of the Wilderness area is rugged and provides limited soil development for vegetation growth. However, elevation and aspect allow for diverse plant assemblages along rock outcrops from bottom to top (personal observation, Gustina 2012). Other soil associations include various textures of loam. Predominant use class was wildlife habitat and Livestock rangeland.

Rangeland health assessments (see section 3.3 above for an outline of allotments) of the area from 2000 to 2009 indicated that soil condition for most of the areas within the Wilderness rated no less than Slightly to Moderately impaired, indicating good condition. However, a very small area in allotment 902 at the northeast end of the Wilderness, near the Canadian River, had seven of nine soil indicators in the Moderate to Extreme and Extreme Impaired categories due to the presence of rills, pedestals, bare ground and gullies, indicating poor condition. The cause of these indicators was identified as poor vegetative cover (Taos Field Office).

Given the large area of land with good soil condition (identified as None to Slight or Slight to Moderate in range health assessments), soils in the Wilderness appear to be in good functional condition.

3.8 Water Resources

Watershed

The Sabinoso Wilderness covers parts of 4 HUC 12 digit watersheds. The majority of the Wilderness covers are contained within the Outlet Cañon Largo (110800030604) and Lagartija Creek subwatersheds (110800030605). The northeast corner is within the Mora River-Canadian River subwatershed (110800030610) and a very small portion of the southwest corner is in the Headwaters Trementina Creek subwatershed (110800050406).

Table 3: Soils within Sabinoso Wilderness Boundary

Name	Acres total	% Total	% Slope	Inches to restrictive	Drainage	Soils	Use
Badlands	28	0.2	1 to 65	0 to 3		Bedrock	Wildlife Habitat
Bernal-Rock outcrop association, gently sloping	8	0.0	3 to 5	8 to 20	Well Drained	Loam/Sandy Clay Loam	Livestock and Wildlife
Lacita-San Jose association, gently sloping	31	0.2	0 to 3	> 80	Well Drained	Silty Clay Loam/Sandy Loam	Livestock and Wildlife
La Lande-Redona association, undulating	164	0.9	3 to 7	> 80	Well Drained	Loam/Sandy Loam/Clay Loam	Livestock and Wildlife
Latom-Newkirk-Rock outcrop association, rolling	667	3.6	1 to 15	4 to 20	Well Drained	Bedrock/Sandy Loam/Fine Sandy Loam	Livestock and Wildlife
Newkirk-Walkon-Conchas association, undulating	489	2.6	1 to 10	8 to 40	Well Drained	Loam/Sandy Loam	Livestock and Wildlife
Rock outcrop-Torriorthents complex, very steep	9120	49.0	15 to 99	0 to 60	Well Drained	Bedrock/ Gravelly & Sandy Loam	Wildlife Habitat
Tuloso-Rock outcrop-Sombordoro association, steep	3142	16.9	5 to 35	0 to 20	Well Drained	Bedrock/Stony Loam/Stony Clay	Livestock, Wildlife, Woodland
Tuloso-Sombordoro-rock outcrop complex moderately sloping	2418	13.0	0 to 15	0 to 20	Well Drained	Bedrock/ Stony Loam/Stony Clay	Livestock and Wildlife
Ustorthents-rock outcrop complex, very steep	2564	13.8	15 to 99	0 to 80	Well Drained	Bedrock/ Gravelly Loam	Wildlife Habitat

Water

There are no perennial surface waters identified in the Sabinoso Wilderness. The Canadian River is a perennial stream that flows adjacent to the northeast boundary of the Wilderness. There are also reports of springs occurring along the north boundary adjacent to Cañon Largo. No other information is available on their existence.

The primary surface water features in the Sabinoso Wilderness are ephemeral channels. Ephemeral channels include those drainages that are not under the influence of groundwater but may flow during certain precipitation events. Ephemeral channels originating within the Wilderness boundary include those that flow directly into the Canadian River in the northeast boundary, those that flow into the Cañon Largo (an ephemeral tributary of the Canadian River) on the north boundary, and a number that drain south and east to Lagartija Creek - another ephemeral drainage to the Canadian River. Since these channels are connected directly or indirectly to the Canadian River, they can impact surface water quality.

Ephemeral channels with pools are important habitat for breeding amphibians. Pools that dry every one or two years eliminate predation by fish and may increase breeding success of amphibian species (Hecnar and M'Closkey, 1997). Ephemeral pools add important non-breeding habitat allowing for cover and potential escape from terrestrial predators.

The Sabinoso Wilderness includes 13 earthen stock tanks that were developed for grazing purposes. Frequency and duration of inundation has not been documented. However, summer monsoon rains likely are a major source of water for these and snowmelt water may provide spring flooding. Although the tanks have not been adequately surveyed, they provide potential habitat for amphibian species which have been detected in similar stock tanks in other areas of the Taos Field Office planning area (Besser *et al.* 2012).

Rangeland health assessments (see Range section for outline of allotments) of the area from 2000 to 2009 indicated that hydrologic functions for areas within the Wilderness rated no less than Slightly to Moderately impaired, indicating good condition. However, a very small area in allotment 902 at the northeast end of the Wilderness, near the Canadian River, had 9 of 11 hydrology indicators in the Moderate to Extreme and Extreme categories due to the presence of rills, pedestals, bare ground and gullies, indicating poor condition. The cause of these indicators was identified as poor vegetative cover.

Given the large area of land with good hydrologic function (identified as None to Slight or Slight to Moderate in range assessments), the Wilderness is not currently contributing to water quality impairments in any watershed.

Chapter 4: Environmental Effects

4.1 Direct and Indirect Effects

4.1.1 Alternative A: Proposed Action

4.1.1.1 Wilderness and Recreation

Wilderness

Untrammeled. Trammeling would be those actions having the effect of controlling or manipulating the ecosystem. There are no management activities proposed that would manipulate fire, wildlife, or plant communities, with the exception of the removal of exotic and invasive plants.

Naturalness and primeval character. Designation of trails would be expected to better direct visitors to prevent undue trampling of vegetation and may decrease the likelihood of foot worn paths developing over time. The Proposed Action includes removal of exotic and invasive species, providing for undesignated two-track routes to reclaim and allowing fire to play its ecological role in Sabinoso Wilderness. These activities could restore naturalness within the Wilderness and enable the ecological

community to be free from effects of modern civilization. For example, allowing fires to burn within the Wilderness could promote natural succession and regeneration of native flora in the historic land cover. Livestock grazing is permitted to continue in the Wilderness where grazing permits or leases were established prior to designation under Section 4(d)(4)(2) of the Wilderness Act.

Undeveloped. Under this alternative, the Wilderness may have 13.2 miles of trail (that are existing two-track routes) designated within it. The ultimate goal would be for single track trail to replace the two track leading to less development in the Wilderness. This trail system is the minimum necessary to provide for recreational opportunities while protecting natural resources. The majority of visitors would be directed to these trails.

The removal of two abandoned vehicles with motorized aircraft would negatively impact the undeveloped quality in the short-term; however, the evidence of modern human occupation would not remain in the long-term.

Outstanding opportunities for solitude or a primitive and unconfined form of recreation. New public access where there was previously none could diminish the quality of solitude, however, this effect would be localized and would not be a change so as to eliminate the outstanding opportunities for solitude since the remoteness of this Wilderness is not conducive to large numbers of visitors at one time. With public access made available, the opportunity for the public to use the area and recreate would be present.

Currently, there are no management controls proposed or anticipated that would confine recreation.

Recreation

Although visitation is expected to be low because of the physical challenges, such as distance from population, lack of water, and steep topography, providing public access (by potential land acquisitions) would satisfy the public purposes of recreation listed in Section 4(b) of the Wilderness Act of 1964. Public access as well as marked and mapped trails would benefit recreation users by identifying access to the mesa top where they may continue cross country into the rest of the Sabinoso Wilderness.

The public would benefit from interpretation of cultural and paleontological resources which could be accessed from websites.

There could be both positive and negative effects on recreation from allowing a naturally occurring fire to burn in the Sabinoso Wilderness. A survey was conducted in the Boundary Waters Canoe Area Wilderness in 2010 to help understand visitor perceptions of wildland fire and possible results on recreation experiences. Respondents indicated that although they may plan their trip through the burned area in order to view regrowth, succession of plant species, and exposed bedrock and other topographic features, their choice of campsites and most of the their time would be spent outside of the burn (Schroeder and Schneider 2010). Furthermore, survey participants expressed their appreciation of fire and wilderness as a ‘dynamic’ and ‘creative’ ‘system’ as well as an increased sense of responsibility to be careful with campfires (ibid.).

There would not be an opportunity to pursue commercial guiding because such guiding is not necessary to realize the public purposes of Sabinoso Wilderness. (See discussion in Appendix A: Commercial Services Needs Assessment.) Although commercial guides in Sabinoso may be convenient to some visitors of the Wilderness, it is not necessary to realize opportunities for solitude or a primitive and unconfined form of recreation.

4.1.1.2 Fire Management

The management of wildland fire in the ecosystem will be conducted in accordance with the Guidance for Implementation of Federal Wildland Fire Management Policy (2009). This policy allows for fire to be managed for multiple benefits while maintaining the general strategy of allowing fire to play its natural role in the Wilderness area. Portions of fires that are at risk of escaping the Wilderness boundary or those threatening private property, infrastructure, or other values may be suppressed. When a suppression strategy is utilized in the Wilderness area, minimum impact suppression strategies will be employed in order to maintain the value of wildness. By allowing fire to play its natural role in the Wilderness area, it is expected that fire condition classes will trend towards their natural historic state over time.

The general strategy for natural ignitions occurring within the Wilderness area will be to manage fire for multiple objectives which will include restoring fire to its historic role in the fire dependent ecosystem to reach its historic natural condition. By generally allowing wildland fires to burn naturally, the wildness of the Wilderness area will be preserved as much as possible. The use of Minimum Impact Suppression Tactics will also reinforce naturalness because of the limited visual impacts. Post-fire rehabilitation and Emergency Stabilization or Burned Area Rehabilitation will be used where necessary to maintain naturalness and ecological integrity of burned areas and those areas impacted by suppression activities when deemed necessary by fire managers.

4.1.1.3 Livestock Grazing

Grazing lessees will be required to sign a new grazing lease after the adoption of the Wilderness plan. No substantial changes will be made to grazing leases under the Proposed Action with the exception of a term and condition in the grazing leases requiring adherence to this Wilderness plan, especially for maintenance of range improvements. Grazing lessees may have to find alternate methods of managing livestock without the use of mechanized equipment. It is expected this will not be a great impact because of the terrain, vegetation, and limited number of routes in the Wilderness. The new grazing leases will show current livestock numbers and grazing season but will have the aforementioned added term and conditions.

If fire occurs within a grazing allotment, the lessee will have to rest the burned portion of the allotment for two years or until vegetative conditions are conducive to grazing again. Fire in the long-term is beneficial to livestock grazing because of the increase availability of nutrients in early seral species, such as grasses.

4.1.1.4 ACEC Values

Scenic Resources

One element of the Proposed Action that may impact scenic resources is fire management. A natural ignition or wildfire could have short-term contrasts to the existing line, color, and texture of vegetation. However, fire plays a natural role in the ecology in the Sabinoso Wilderness. The results of a wildfire are expected to look natural and be consistent with the ecological community. Any necessary suppression activities are anticipated to be of low disturbance to soil and vegetation as well as mitigated after a potential fire. This should meet VRM Class I objectives over the long-term.

Public perception of different forest management practices can vary according to subjective expectations within and across cultures. A positive or negative reaction to any particular treatment could be related to the following factors: forest condition in which a technique is being compared (managed vs. unmanaged, old growth, stand type or rotation), professional background (forester vs. biologist), awareness of the

benefits of various management practices, management designation (national park or wilderness vs. commercial range or timberland), gender, and culture or country (Ribe 1989).

In general, there is a dislike of the effects of some management treatments, such as slash, burned over areas, clear cuts, and over thinning (ibid). However, short-term visual contrasts from a naturally occurring fire in a wilderness area meet management objectives and may be publicly acceptable. In a 2010 study in the Boundary Waters Canoe Area Wilderness one respondent described burned areas as "not very pretty;" however, another said "nature's not always going to be pretty, but it's always going to be awesome" (Schroeder and Schneider 2010). The Pacific Southwest Research Station conducted a survey by telephone in 2003 asking residents of Arizona, California, Colorado, and New Mexico their opinions about management options in National Forests. While 80 percent of New Mexico respondents agreed that "Views along the road and on trails are less scenic following a fire," 85 percent agreed that "Fire is a natural ecosystem process," and 63.3 percent agreed that "We probably have to let some fires burn but must protect residences" (Winter 2003).

4.1.1.5 Riparian Resources

Increased use of the Wilderness area by the public could result in increased disturbance in highly sought after riparian zones that are of limited availability in the area. Inadvertent introduction of weeds brought in by the public could increase occurrence of non-native vegetation in these areas. However, because of the minimum number of visitors expected, it is unlikely there would be significant impacts to riparian vegetation or large increases of weedy species brought into the area. Monitoring of riparian zones would inform management decisions on impacts to these areas and what, if any, protection, remediation and/or restoration would be required.

4.1.1.6 Air Resources

Impacts to air quality and climate in the Sabinoso Wilderness would primarily result from fire management and travel management decisions. Wildland fire may result in short-term air quality impairment but may improve air quality over the long-term by creating healthy vegetation and soils that can more readily resist future wildfires. Travel management decisions would result in short-term impacts from vehicle travel on unimproved dirt roads. Increased use of the Wilderness area by the public would potentially result in greater emissions from dirt roads. However, these increases are expected to be *de minimus* because of the small numbers of visitors expected in the area.

Fire Management Decisions

Several criteria pollutants are of particular concern during wildland fire events, chiefly particulate matter and carbon monoxide. Particulate matter produced in prescribed burns is predominantly PM2.5. The generation of increased particulates is especially noticeable during high intensity, catastrophic wildland fires. Wildland fire also contributes to the release of greenhouse gases (carbon dioxide and methane) and may reduce or eliminate a carbon sink.

Short-term air quality impacts from wildland fire include a general increase in particulates, carbon dioxide, and ozone precursor emissions in burn areas and those locations immediately downwind. The magnitude of pollutant increase is directly dependent on the size, extent, and fuel type of the fire. The type and amount of air pollutants released from burning wildland vegetation varies with type of fuel, moisture content, temperature of the fire, and the amount of smoldering occurring after the fire. In some circumstances, wildland fire may significantly increase ozone and particulate matter concentrations. It is not likely that ozone concentrations in the Wilderness area could be increased substantially enough to cause violation or exceedance of the Federal standards for ozone and particulate matter.

Long-term, direct air quality impacts from wildland fire include a general increase in airborne particulates from the burn site as a result of ash dispersion and transport, which may contribute to regional haze and reducing visibility.

Indirect adverse impacts to air quality from wildland fire (short-term and long-term) may include an increase in airborne particulates from the burn site as a result of wind-based erosion of burned areas.

The BLM's fire management policy is consistent with the New Mexico Environment Department's Smoke Management Program. Specific policies, rules, and procedures are implemented by the BLM to minimize the air quality impacts and impacts to regional haze for fire events. Additional restrictions on wildland fire for resource benefit treatments during certain conditions would also apply. All of these restrictions could impact the size and/or timing of fire management activities.

Travel Management Decisions

Increased travel to BLM lands in the Sabinoso Wilderness would adversely impact air quality through increased vehicle emissions in areas open to travel and where travel is limited to existing roads, primitive roads, and trails. Emissions of particulate matter, hazardous air pollutants, carbon dioxide, nitrogen oxide, and volatile organic compounds are of particular concern with increased vehicular travel on dirt roads.

4.1.1.7 Soils

New access points may increase public use resulting in trampling of vegetation and increased bare soils. Trail designations and properly designed trails, will help to direct visitation and minimize the impact to soils. There are no current soil condition problems, and the impact from visitor use would be *de minimus* because of the small numbers of visitors expected.

Wildfires that are allowed to burn could impact soils both directly and indirectly. A direct impact would be soils that may be damaged by high intensity heat that could reduce water infiltration capability. An indirect impact would be loss of vegetation cover that protects soils from erosion. However, fire is considered a natural process in western landscapes and actual impacts cannot be predicted prior to a given event.

4.1.1.8 Water Resources

Monitoring indicates no major deterioration in the state of hydrologic conditions at present. Both surface drainage and aquifer recharge could be affected if hydrologic conditions–including upland soils and vegetation–are not maintained at or improved from the present level of function. However, plan implementation is expected to allow for maintenance or improvement of water resource conditions by limiting unnatural intrusions, allowing for natural rehabilitation of existing intrusions, and providing criteria for minimum tool analysis.

Possible impacts to soils outlined in Section 4.1.1.7, including wildland fire, can affect water resources through reduced water infiltration resulting in increased water runoff and soil erosion. However, impacts to soils that could affect water resources are identified as *de minimus* or because of natural processes.

4.1.2 Alternative B: No Action

4.1.2.1 Wilderness and Recreation

Wilderness

Evidence of modern human occupation would remain without removal of the two abandoned motorized vehicles. This would remain a negative impact to the Undeveloped Quality of Wilderness.

Recreation

Recreation opportunities are virtually impossible in Sabinoso Wilderness without public access. Without acquiring public access to the Wilderness, the public purpose of recreation listed in Section 4(b) of the Wilderness Act of 1964 would not be met. Without marked trails and maps, recreation opportunities would be limited to only those with the technical abilities to navigate through the steep topography of the Canadian Escarpment. Information available about the Wilderness would be limited to basic resource descriptions and general location maps.

Opportunities to enhance visitor experiences and increase public understanding of fire and ecological succession could be lost if a focus is not made to let fire play a natural role in the Wilderness.

4.1.2.2 Fire Management

Under a No Action alternative, wildland fire suppression activities would continue to be dictated by the Guidance for Implementation of Federal Wildland Fire Management Policy (2010). A No Action Alternative would result in suppression of wildland fires which would tend to have a degrading effect on ecosystem health because of Fire Regime Condition Classes trending towards the absence of fire playing its natural role in the ecosystem and an increased risk of catastrophic wildland fire.

4.1.2.3 Livestock Grazing

In regard to livestock grazing there would be no impact on current operations. In regard to maintenance of range improvements, all proposed actions would require site specific NEPA documents.

4.1.2.4 ACEC Values

There would be no positive or negative affects to scenic values from the No Action alternative, as they would continue to receive protective management under the Taos RMP.

4.1.2.5 Riparian Resources

There would be no positive or negative affects to riparian resources from the No Action alternative, as they would continue to receive protective management under the Taos RMP.

4.1.2.6 Air Resources

Same as Proposed Action.

4.1.2.7 Soils

Same as Proposed Action.

4.1.2.8 Water Resources

Same as Proposed Action.

4.2 Cumulative Effects Analysis

A cumulative impact, as defined in 40 CFR 1508.7, is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other action.

4.2.1 Cumulative Actions

4.2.1.1 Past and Present Actions

Livestock grazing has occurred for centuries within the Wilderness area. Currently, there are seven grazing leases with a total of 10 grazing allotments within the Sabinoso Wilderness. Prior to Wilderness designation in 2009, the area was managed as the Sabinoso Wilderness Study Area. A fence and trail trespass occurred near Cañon Agapito within the Wilderness in July of 2012.

4.2.1.2 Reasonably Foreseeable Actions

Reasonably foreseeable actions are potential adjacent land acquisitions—since such an acquisition is being actively pursued by the BLM—and trailhead development outside the Wilderness boundary. Restoration of fencing and trail trespass on the Wilderness may include fence removal and vegetative rehabilitation and closure of trail.

In 2007, the Intergovernmental Panel on Climate Change predicted that by the year 2100, global average surface temperatures would increase 1.1 to 6.4°C above 1980 to 1999 levels. The National Academy of Sciences (2006) supports these predictions but has acknowledged that there are uncertainties regarding how climate change may affect different regions.

4.2.2 Cumulative Effects

4.2.2.1 Wilderness and Recreation

Wilderness

Trespass fencing and trail work would be removed and closed to mitigate trammeling actions and developments in the Wilderness. Potential adjacent development of a trailhead would increase visitor use and may decrease solitude.

Recreation

Potential development of an adjacent trailhead would enable public access and provide for the public purpose of recreation as stated in the Wilderness Act.

4.2.2.2 Fire Management

Past actions such as cattle grazing and fire suppression, which have occurred within what is now the Wilderness area, have resulted in increased and more continuous fuel loading of grass, brush, and tree species. While the Wilderness area is considered a fire dependent ecosystem, if a wildland fire is allowed

to burn these past actions may result in more widespread wildland fire activity then may have been previously experienced in the absence of these past actions. The general strategy of allowing a wildland fire to burn in its natural state will trend towards the restoration of the ecosystem to a fire dependent state. However, this ecological restoration may come as a result of more intense fire behavior and which could be exacerbated by climate change predictions.

4.2.2.3 Livestock Grazing

Land acquisitions, trailheads or trails would not affect livestock grazing as long as fences or cattle guards are included in the planning and assessment process. Climate change has the ability to shift vegetation patterns, and coupled with livestock grazing, the shifts may be exacerbated. These shifts should be made evident by the allotment monitoring protocols and will be addressed if and when they occur.

4.2.2.4 ACEC Values

Potential development of an adjacent trailhead would be visible from within part of the Wilderness. Trailhead design must meet VRM Class I objectives.

4.2.2.5 Riparian Resources

Riparian resources have experienced degradation due to past and present grazing of domestic livestock. However, future management under this plan will protect and enhance riparian zones by minimizing impacts because of the land uses such as grazing and recreation, including addressing any non-native vegetation that may exist or occur, resulting in a healthy functioning riparian ecosystem within its capacity given hydrology and climatic conditions.

4.2.2.6 Air Resource

In 2007, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.1 to 6.4°C above 1980 to 1999 levels. The National Academy of Sciences (2006) supports these predictions but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures.

If the current higher temperature trend (Figure 1) continues with no increase in precipitation, the Wilderness would experience a drying climate as higher temperatures increase evaporation and transpiration rates that would not be offset by increases in precipitation.

4.2.2.7 Soils

A drier climate would directly affect soil moisture, which would impact vegetation and soil condition.

4.2.2.8 Water Resource

A drier climate would directly affect hydrology including frequency and duration of surface flows and recharge of groundwater aquifer.

Chapter 5: Consultation and Coordination

5.1 Summary of Consultation and Coordination

New Mexico Department of Game and Fish

Scott Draney, Habitat Specialist
Eric Fry, Fish Biologist
Ryan Walker, NE Area Game Manager

5.2 Summary of Public Participation

Public participation to date has included brief presentations and solicitation of comments and concerns in annual meetings for grazing lessees. All other scoping has been among BLM resource staff to conduct inventories, monitoring and to identify resource issues. This work is briefly described in section 1.3 of the Environmental Assessment.

5.2.1 Public Comments Analysis

(To be completed following the public review and comment period for this environmental assessment.)

5.3 List of Preparers

Tami Torres	Outdoor Recreation Planner
Patricio Martinez	Geographic Information System Specialist
Jacob Young	Range Management Specialist
Derek Trauntvein	Range Management Specialist
Peter Hoagland	Forester
Greg Gustina	Fish Biologist
Valerie Williams	Wildlife Biologist
Ryan Besser	Biological Technician, Fisheries
Brad Higdon	Planning and Environmental Coordinator

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Appendix A Commercial Services Needs Assessment

Section 4(c) of the Wilderness Act prohibits commercial enterprises within wilderness. However, Section 4 (d)(6) establishes a special provision allowing for commercial services to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of wilderness areas. The following assessment establishes the extent to which commercial guiding and outfitting may be necessary and appropriate within the Sabinoso Wilderness.

The main destination in this wilderness area is the mesa top which is within a day hike from the base of the escarpment. Although, there are limited locations where the terrain allows it, hiking to the top generally does not require special skill beyond the ability to navigate. Day and overnight hiking requires skill in orienteering, travel over uneven terrain, or camping skill. The dry environment, especially in summer, demands a greater skill level than some other locations. However, once public access is established, opportunities to follow marked trails will be available in the Sabinoso Wilderness and BLM maps will provide information to visitors. Commercially guided hiking trips are not necessary to realize the Wilderness purposes of the Sabinoso Wilderness as marked trails and maps will make this wilderness accessible to most hiking visitors.

In large wilderness areas, overnight horse pack trips can be of great assistance to visitors in realizing the recreational and wilderness opportunities of an area. Overnight horse packing, because it requires experience and specialized equipment, is often not available to some visitors without the aid of a guide. However, the small size of the Sabinoso Wilderness and the limited trail system proposed is not conducive to overnight horse pack trips. Single day horseback riding may also assist visitors in realizing recreational and wilderness opportunities, though short day rides are frequently more focused on the experience of being on a horse than experiencing the wilderness. Permitting horseback riding trips would likely cater to visitors who would not otherwise have come to the Sabinoso Wilderness, and whose riding experience could have been easily accommodated in another location. Guided and outfitted horseback trips may provide a convenience to visitors, but nonetheless are not necessary to realize the wilderness purposes of the Sabinoso Wilderness. Once public access is established, visitors may take horses in the Sabinoso Wilderness without a guide.

Sabinoso Wilderness lies within Game Unit 42 of the New Mexico Department of Game and Fish. The vast majority of the hunting on this unit is on private land. The Sabinoso Wilderness portion of this unit is not rated high for big game. Although hunting is allowed within the wilderness, hunting either big or small game found in the Sabinoso Wilderness is not an activity requiring specialized skills which would necessitate the support of a guide. Those seeking a guided hunt in Unit 42 have opportunities for this activity on private lands outside the wilderness. Hunting guides are not necessary for realizing recreational or other wilderness purposes of the Sabinoso Wilderness. Once public access is established, hunters may enjoy self-supported hunting trips in the Wilderness.

Some educational organizations are known to have general interest in leading students and/or people with disabilities into wilderness areas for education about wildland values, Leave No Trace and outdoor ethics, or environmental education. Some students or people with disabilities lack the knowledge or equipment in visiting the wilderness environment, or simply need assistance in order to visit. Commercial outfitters who provide education about wildland values, Leave No Trace and outdoor ethics, or environmental education and assist students or people with disabilities to visit and practice these skills are proper for realizing the recreational or other wilderness purposes of wilderness areas. Such use is expected to be infrequent and not regularly scheduled. The infrequency and irregularity of an occasional educational trip would provide little conflict with other users, and the educational component would create a direct benefit to wilderness stewardship.

Appendix B Fire Suppression Guidelines

- A qualified Resource Advisor will be notified and/or will respond to all fires occurring in or threatening the wilderness.
- Use of motorized vehicles will only be allowed in wilderness if the fire is threatening human life or property or wilderness characteristics. The District Manager must approve the use of motorized vehicles in all cases.
- Helibases, staging areas, and fire camps will be located outside of the wilderness, unless authorized by the District Manager.
- Air resources (helicopters and single engine air tankers) will be included in the WILDCAD system for all wilderness fire suppression activities.
- Use of retardant must be approved by the Incident Commander.
- Helicopter landings will be kept to a minimum and with the approval of the Resource Advisor.
- All fire suppression activities will use Minimum Impact Suppression Techniques at all times.
- Crews may use conventional hand tools and, with approval from the Resource Advisor, may conservatively use chainsaws for fire line construction. Chainsaw use and line width should be kept to a minimum. Stumps will be cut flush to ground level. Use of existing natural barriers, minimum scratch line, and cold trailing is encouraged, where feasible. Fire line construction will be rehabilitated back to the natural contour.
- A Leave No Trace policy will be used in the wilderness. All evidence of human activity must be removed to the maximum extent possible.
- Noxious weeds will be controlled through the following guidelines:
    - Engines, crew carriers, overhead vehicles, and helitack/helicopter support vehicles coming from off district will, upon check-in and prior to proceeding to the incident, be washed down at a government or commercial facility if they were not cleaned at release from the previous assignment, or are coming from a known area infested with noxious weeds.
    - The wash down will concentrate on the undercarriage, with special emphasis on axles, frame, cross members, motor mounts, and on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse disposed of in a waste receptacle.
    - Portable equipment used on an incident (including but not limited to pumps, hose, fittings, water storage items, tents, tarps, helicopter support equipment, fold-a-tanks and free-standing tanks) will be cleaned of plant debris prior to being used on the incident.
    - During initial briefings, wash downs will be mentioned and facilities made available for oncoming crews.
    - Upon leaving an incident, all vehicles will follow the wash down procedures above. Vehicles will be cleared of wash down procedures during checkout and crew evaluations.