



National Park Service
U.S. Department of the Interior
Salinas Pueblo Missions National Monument

FINDING OF NO SIGNIFICANT IMPACT
Fire Management Plan

Recommended:

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Date

Approved:

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INTRODUCTION

In June 2016, the National Park Service (NPS) issued an environmental assessment (EA) describing the effects associated with revising and implementing the Fire Management Plan (FMP) for the Salinas Pueblo Missions National Monument (monument) to manage wildland fire and use prescribed fire.

The purpose of the federal action is to revise and update the FMP for the monument to comply with the NPS' wildland fire policy directives and Director's Order (DO) 18, Wildland Fire Management. DO 18 requires that parks "with burnable vegetation must have an approved Fire Management Plan that will address the need for adequate funding and staffing to support its fire management program" (NPS 2008a).

Fires have been prevented and suppressed for the last 70 to 90 years on most public lands throughout the western United States, which has greatly affected forest health and wildlife. Without the natural process of fire, southwestern forest and woodlands have become overstocked and vulnerable to drought, insects, and unwanted fire effects from severe wildfire. There is a need to restore these forest and woodland ecosystems within the monument using fire management tools that would re-establish the natural fire regime to benefit native plant and animal communities while at the same time protecting visitors, facilities, and cultural resources within and adjacent to the monument from severe wildfire. The monument has also identified the need to manage the landscape within the monument to better represent the historical landscape conditions from the time period the pueblos were active. In order to maintain the monument's ongoing fire management program and add new management tools, the FMP needs to be revised.

The statements and conclusions reached in this Finding of No Significant Impact (FONSI) are based on documentation and analysis provided in the EA and associated decision file. To the extent necessary, relevant sections of the EA are incorporated by reference below.

SELECTED ALTERNATIVE AND RATIONALE FOR THE DECISION

Based on the analysis presented in the EA, NPS selected Alternative B: Proposed Action (the NPS preferred alternative). The Selected Alternative will implement a revised FMP for the monument. The FMP will function at the programmatic level and accommodate changes in *federal wildland policy, guidance, and practices* from ongoing improvements in the science of wildland fire management. The FMP will provide a flexible range of options and activities that could be used to respond to changes in environmental conditions and the specific needs of fire management within the monument. All actions described in the Selected Alternative are consistent with the approved 1984 General Management Plan for the entire monument, related monument documents, and federal NPS policy. The Selected Alternative will allow for implementation of a suite of fire management activities, including wildfire suppression, fuels management (prescribed fire/mechanical treatments), and herbicide applications.

All fire management activities will be implemented using review and planning procedures in accordance with NPS DO 18 and its accompanying Reference Manual. Under the Selected Alternative, prescribed fire and mechanical treatments will be used in areas identified by the monument in the FMP's multi-year fuels treatment plan. Individual non-fire treatment or prescribed fire plans will be completed for each project. All proposed fire management activities will be consistent with the objectives identified in the FMP. Annual coordination with the interdisciplinary team, subject matter experts, and external stakeholders will provide valuable

input for adapting the fire management program as needed. The multi-year fuels treatment plan will be reviewed and updated annually in response to factors such as changing federal regulations and guidelines, fire effects monitoring results, lessons learned in the field, budgets, staffing needs, and administrative changes within and outside the NPS. Per NPS Reference Manual 18, updates and modifications to the multi-year fuels treatment plan may or may not be made annually, but the plan should be reviewed during the annual update to ensure that project prioritization and proposed implementation schedules are current and consistent with environmental compliance requirements.

Due to the programmatic nature of this Selected Alternative and related analysis in the EA, additional planning and environmental compliance will be required for all subsequent proposed site-specific actions, including suppression measures, prescribed burn plans, mechanical fuel treatments, and herbicide applications.

The following are the goals of the monument's FMP:

- Ensure firefighter and public safety.
- Reduce wildland fire hazard around developed areas and around identified cultural sites.
- Prevent human-caused wildland fires within the monument.
- Manage all wildland fires in a cost-effective manner, using an appropriate response.
- Use fire management treatments to restore and maintain both natural and cultural resources, as well as natural resource processes, where applicable. This includes managing the encroachment of piñon-juniper woodlands, maintaining open grassland, encouraging the growth of ponderosa pines, and controlling noxious and invasive species.
- Foster public awareness and support of the fire management program.
- Protect air quality related values across all affected airsheds in the area.
- Develop a body of scientific knowledge of the role of fire in ecosystems for the purpose of education and adaptive fire management. This includes the monitoring of first order fire effects and long-term ecological monitoring, as funding allows.
- Use fire management activities to restore the monument's cultural and historical landscape to the time period when the pueblos were active (A.D. 1300s–1670s) (e.g., managing the encroachment of piñon-juniper woodlands, maintaining open grassland, encouraging the growth of ponderosa pines, and controlling noxious and invasive species).

The following required actions/objectives would apply to all fire management activities under the Selected Alternative:

- Public and firefighter safety would be prioritized in every fire management activity.
- Minimum Impact Suppression Tactics (MIST) would be used throughout the monument.
- Minimum tool assessments (using the lowest impact equipment) and superintendent approval would be needed for certain fire activities in order to reduce impacts.
- Communities at risk would be protected in the wildland urban interface.
- Natural and cultural resources would be protected throughout the monument.
- Collaboration with agencies and stakeholders would be planned and implemented.

Minimum Impact Strategy and Tactics

Per NPS Reference Manual 18, "fire management requires the fire manager and firefighter to select management tactics commensurate with the fire's existing or potential behavior while causing the least possible impact on the resources being protected" (NPS 2014a:Chapter 2, pg. 1). MIST is the concept of using the minimum tool to safely and effectively accomplish a task (NPS 2014a). Adopting MIST also prioritizes firefighter safety above all other resources. MIST will be applied for all fire management activities within the monument. NPS Reference Manual 18 provides a detailed discussion of MIST in Chapter 2, page 1 (NPS 2014a:Exhibit 2). The application of MIST, in combination with the list of monument-specific mitigation measures will provide the measures necessary to protect monument resources during the application of fire and fuel management strategies discussed in detail below.

Fire Management Strategies

Fire Management Units

There are three noncontiguous Fire Management Units (FMUs) that together comprise the monument: Abó, Quarai, and Gran Quivira. All three units total 985.19 acres. The fire management activities completed under the Selected Alternative could occur within any of three FMUs. The Selected Alternative will allow for implementation of a suite of fire management activities, including wildfire suppression, fuels management (prescribed fire/mechanical treatments), and herbicide use.

Wildfire Suppression Strategies

A number of wildfire suppression strategies could be available to manage unplanned wildfire in the monument. Suppression activities will strive to minimize potential damage to natural and cultural resources and will take into consideration the threat to public safety (including firefighting personnel), economic expenditures, firefighting resources, and other fire priorities (local, regional, and national preparedness).

Full Suppression

More aggressive suppression activities (for example the use of aircraft, ground personnel, or heavy equipment in the direct control of active fire perimeter) could be used when human life and property, and/or critical cultural and natural resources, are threatened by fire. These could include direct attack or a combination of direct and indirect attack to establish anchor points at or near the flaming fire zone from which to extinguish the fire at its head or along its flanks. Full suppression strategies may require significant mop-up and patrol actions.

Confine and Contain

This suppression strategy uses indirect attack to create a fuel break around a wildfire and either allows the fire to burn up to the fuel break or to use firing devices to burn out fuel between the fuel break and the flaming fire zone. Confine and contain actions often use natural barriers where possible or could use mechanical/manually constructed lines. The use of natural barriers will potentially reduce impacts to natural and cultural resources from ground disturbance. Monitoring of fire behavior will be critical under a confine/contain strategy, and the response strategy could change in the event that objectives are no longer being met, potentially justifying a shift to a full suppression or point protection strategy. Mop-up and patrol activities are generally curtailed or limited to smaller portions of a burning/burned area than under full suppression. This is partially because these fires are larger and securing a perimeter can be accomplished without extinguishing all burning material.

Point Protection

This strategy may involve a variety of suppression tactical actions to prevent fire encroachment from threatening identified natural/cultural values at risk. Actions could include constructing fuel breaks or fire lines and burning them out, reducing fuel concentrations and modifying fuel continuity both vertically and horizontally, covering resources with material to shelter them from fire, and deploying water pumps and sprinkler systems. The monument will work with resource specialists to determine the location of critical resources requiring protection and or mitigated suppression actions.

Under the Selected Alternative, aerial resources may be used for all suppression strategies. This could involve aerial reconnaissance, detection, transportation of personnel and equipment, and fire control missions using retardant/bucket drops.

Under the Selected Alternative, the monument, fire managers, and incident commanders will monitor the conditions of a fire and determine if the response strategy selected needs to be revised.

Fuel Management Strategies

Fuel management strategies include the use of prescribed fire, mechanical fuel treatment, and herbicide applications as described in detail below.

Prescribed Fire

The monument has identified that prescribed fire may be a useful tool for the following uses:

- restoring natural ecological processes;
- protect natural and cultural resources;
- controlling the spread of invasive species; and
- managing cultural landscapes.

Prescribed fire will be planned and prioritized annually by the monument, before being used as a tool, and individual prescribed burn plans will be developed that adhere to the guidelines set forth in the FMP. Each prescribed burn plan will need to be approved by the monument superintendent. Treatment boundaries identified within the site-specific prescribed burn plan will correspond with existing features on the landscape, such as roads and waterways. Treatment unit boundaries could also be augmented by mechanical means to improve firefighter safety during fire operations by reducing fire intensity along the treatment edge, thereby creating areas where fire will be contained and controlled. Each prescribed fire will be managed and monitored by qualified personnel prior to and during all operations until the fire is declared to be extinguished. Each prescribed burn plan will specify ignition tools and patterns, which will be ground or aerially based and could include use of mixed gasoline and diesel fuel in drip torches, "fusees," flare fire from handheld pistols, gelled gasoline, and incendiary plastic spheres. This list does not preclude the use of new ignition tools developed during the life of the FMP. Prescribed burns that exceed the scope of the approved prescribed burn plan will be managed as wildfires.

The FMP interdisciplinary team have identified a prescribed fire acreage limit not to exceed 107 acres in a given year.

Mechanical Fuel Treatment

Mechanical or non-fire fuel reduction methods will be used as needed and where appropriate to prepare for prescribed burns, or to reduce the risk of wildfire spread. Mechanical fuel treatments (for example, mowing) along burn area boundaries and around sensitive resource areas (for example cultural resources or sensitive wildlife habitat) and monument facilities will be conducted to reduce hazardous fuels and provide a fire line to facilitate firefighting efforts. Mechanical fuel treatment will also be used to enhance prescribed fire in attaining FMP objectives. Not all fuels treatments will be followed by a prescribed fire, however, and not all prescribed fires will require mechanical fuels treatments beforehand. Thinning of vegetation will be accomplished using hand-operated power tools and hand tools, such as chainsaws or other cutting tools, and wheeled or tracked mechanized equipment such as tractors, masticators, and similar equipment to construct fire lines, create fuel breaks, thin fuels, and clear vegetation, including nonnative species. If heavy equipment is used, equipment with large tires or tracks resulting in less ground disturbance is preferred. Projects that require equipment with possible ground-disturbing effects will be planned and implemented with mitigation measures when resource conditions allow for reduced impacts to soil and vegetation.

Vegetation thinning will reduce the fuel load available to support either a prescribed fire or wildfire and prevent and/or reduce fire behavior and unwanted fire effects if a wildfire does occur. Fuel reduction could be used alone to reduce the intensity of a potential wildfire or it could be used prior to a prescribed burn to minimize the intensity and help maintain control of the fire. The need for using fuel reduction techniques will be determined in consultations between NPS resource management specialists and a fire management officer. Fuel reduction treatments could occur through several methods deemed appropriate by the NPS, including contract mechanisms with local youth or community groups. Useable fuel wood resulting from mechanical treatments could be made available to the community through nonprofit distribution centers, as conditions allow.

Herbicide Application

The presence and volume of non-native species throughout the monument creates an increased fire and fuel hazard. Non-native species infestations impact fuel loading and some species can alter the natural fire regime due to their seasonality and physiology. As a result treatment of non-native species is an important component of fire and fuel management.

Utilizing NPS and U.S. Environmental Protection Agency (EPA) approval processes, the monument will use the best available science to examine herbicide uses for risk versus benefit. Chemical herbicides will be used for treatment of species that are not effectively treated with mechanical methods or fire, or for large populations of invasive plants. Following chemical treatments these areas will be maintained using alternative methods such as reseeding or planting to enhance native vegetation biodiversity.

Herbicide use will follow NPS Management Policy 4.4.5 and 4.4.5.2 and DO 77-7. Requests for the use of pesticides will be submitted annually using the Pesticide Use Proposal System (PUPS) or the Pest Management Program Report (Form 10-21A). The designated monument integrated pest management coordinator will prepare the PUPS and submit it to the regional integrated pest management coordinator for review. Final approval for a PUPS will come only after regional- and/or national-level staff consider numerous factors such as the target use, location where the application would occur, potential for getting into surface water or groundwater, persistence in the ecosystem, impacts to sensitive plant and wildlife species and habitat, potential threatened and endangered species concerns, employee and public health

and safety concerns, and method of application (example, spot spraying). A product may be approved or not approved depending on the above factors and alternative treatment possibilities. An herbicide application map and record of treatment will be developed for each treatment area. A certified applicator will conduct or directly supervise application of restricted use pesticides.

Cooperation and Collaboration

Under the Selected Alternative, the NPS will establish a fire management interdisciplinary team consisting of subject matter experts from a variety of fields and divisions from within the monument and the NPS Intermountain Region. The interdisciplinary team will consist of, at a minimum, the fire management officer and the chief of resources and facility management (or their designee). The team will continue to coordinate during planning, implementation, and response operations. The interdisciplinary team will meet annually to review and update the FMP and multi-year fuels treatment plan, adding one additional out-year to the representative scope of work. The interdisciplinary team will determine whether impacts from the changes and actions proposed to the plan are within the scope of impacts analyzed in the EA or if supplemental compliance is required.

Rationale

Alternative B (the Recommended Preferred Alternative) was selected because it will provide a programmatic framework for the long-term use of fire in the monument, which will be effective in helping to:

- Ensure firefighter and public safety.
- Reduce wildland fire hazard around developed areas and around identified cultural sites.
- Prevent human-caused wildland fires within the monument.
- Manage all wildland fires in a cost-effective manner, using an appropriate response.
- Use fire management treatments to restore and maintain both natural and cultural resources, as well as natural resource processes, where applicable. This includes managing the encroachment of piñon-juniper woodlands, maintaining open grassland, encouraging the growth of ponderosa pines, and controlling noxious and invasive species.
- Foster public awareness and support of the fire management program.
- Protect air quality related values across all affected airsheds in the area.
- Develop a body of scientific knowledge of the role of fire in ecosystems for the purpose of education and adaptive fire management. This includes the monitoring of first order fire effects and long-term ecological monitoring, as funding allows.
- Use fire management activities to restore the monument's cultural and historical landscape to the time period when the pueblos were active (A.D. 1300s–1670s) (e.g., managing the encroachment of piñon-juniper woodlands, maintaining open grassland, encouraging the growth of ponderosa pines, and controlling noxious and invasive species.).

For these reasons, the Selected Alternative causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources.

MITIGATION MEASURES

The NPS places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To help ensure the protection of natural and cultural resources, protect the safety of firefighters and the public, and promote biodiversity and ecosystem health, the mitigation measures discussed below will be implemented as part of the Selected Alternative. A representative MIST list from the National Wildfire Coordinating Group (NWCG's) Incident Response Pocket Guide (2014) is provided in Appendix A. The application of MIST, in combination with the list of monument-specific mitigation measures listed below, will provide the measures necessary to protect monument resources during the application of fire and fuel management strategies.

The impact analyses in the "Environmental Consequences" section of the EA were performed assuming these mitigation measures will be implemented as part of the Selected Alternative. These practices and measures will be incorporated into the project implementation documents and plans.

General Measures

- All fire management related activities would be based on safety of personnel and the public as the highest priority.
- Dozers are allowed (following approval of superintendent) with a resource advisor on-site, if available when life or property is at risk.
- Low-level aircraft use, including application of fugitive retardant, would be employed only where appropriate pending evaluation of life and property risk balanced with evaluation of risk to cultural resources present, with approval of Superintendent or their designee.
- All fire suppression personnel operating within the FMUs would be briefed regarding known hazards, lookouts, communications, escape routes, safety zones, current and predicted weather, and current fire behavior by the incident commander or designee.
- Motorized equipment normally would not be used off of established roadways in the monument. However, because of rapid rates of spread and the emergency nature of fires near the boundary, off-road use of motorized equipment such as all-terrain vehicles and wildland engines may be authorized by the superintendent.
- All extended attack and project fire operations would have a monument employee designated and available to assist suppression operations as a resource advisor. If qualified employees are not available, a resource advisor would be ordered through the interagency dispatch system.

Air Quality

- The monument will apply best available management measures when mitigating for smoke impacts from prescribed fire, including caution signage in highway in the event that smoke obscures roadways.
- The monument will follow the New Mexico Smoke Management Regulations for smoke reductions (New Mexico Environment Department [NMED] 2005), as deemed appropriate.

- Prescriptions to meet specific vegetation management objectives will be developed for each prescribed burn unit. Variables considered in the prescription may include wind parameters and receptors, live and dead fuel moisture and fuel loading, temperature, firing methods, timing of burn seasonally, relative humidity, and dispersion.
- The prescribed burn plan will outline prescription windows for appropriate weather, fuel, fire behavior, fire management staffing, and social considerations.
- Monument staff will coordinate with adjacent agencies, landowners, and infrastructure owners/operators regarding prescribed fire planning to limit potential cumulative smoke impacts from simultaneous ignitions.
- Timing and methods of ignition on prescribed burns will be constantly assessed and reviewed by fire managers to minimize smoke impacts. Personnel will be trained in emission reduction techniques as outlined in the NWCG Smoke Management Guide (Hardy et al. 2001) and continuous monitoring will be required throughout the burn.
- Sensitive smoke receptors will be identified during planning. On the day of the burn, the burn boss will assess wind direction, transport winds, and dispersion prior to ignition. If plume trajectory maps reveal that sensitive smoke receptors would be impacted by the burn, the burn may be rescheduled.

Natural Resources

- All fire suppression activities will be monitored and work halted, when safe to do so, if previously unknown resources are located; newly discovered resources will be protected and recorded only if such action does not unduly endanger firefighter and public safety.
- As a matter of practice, burned areas will not be reseeded unless there are overriding concerns about establishment of invasive nonnative species. Any reseeding will be with native species and occur only with the superintendent's prior approval. An approved Burned Area Rehabilitation Plan will be implemented if fire funding is expended.
- Sensitive soils and young trees will be protected from potential fire damage through pre-treatment of surrounding fuels and construction of containment lines. When constructing containment lines, vegetation removal will be limited to the minimum width necessary for containment to protect natural and cultural values.
- Burning prescriptions to meet specific vegetation management objectives will be developed for each prescribed burn unit. Variables considered in the prescription may include wind parameters and receptors, live and dead fuel moisture and fuel loading, temperature, firing methods, timing of burn seasonally, relative humidity, etc.
- Monument resource specialists will be involved during and after wildfire and during prescribed burn planning to ensure that prescriptions and burn objectives do not conflict with objectives for the protection of sensitive vegetation and wildlife populations and habitat.
- No foam or retardant will be used for fire suppression near wetlands, seeps, or springs.
- Equipment operators will use MIST as they relate to life safety, soil and vegetation disturbance, compaction, and displacement.
- Wherever possible, natural features and existing human-made barriers will be used for containment lines to minimize additional disturbance to soils.

- The use of large mechanized equipment will require superintendent approval.
- Transport of fire personnel and equipment will use existing roads wherever possible.
- In the event of a wildfire, resource specialists will examine maps and information resources to advise the incident commander on potential effects of the fire.
- Aviation use will be carefully considered and impacts to wildlife mitigated through timing of operations, exclusion of low-level aviation use, or avoidance of certain areas of the monument.
- Fire effects monitoring on species and habitat will be used to inform multi-entry prescribed burning and maintenance activities.
- Fire management personnel will be briefed on potential resources of concern and their locations within a burn unit in order to facilitate avoidance of potentially sensitive resources.
- Mop-up methods will use minimal impact techniques to protect natural resources, including soils, water resources, vegetation, and wildlife.
- If a major wildfire occurs, the use of Burned Area Emergency Rehabilitation teams will be considered through consultation with the NPS regional office and monument resource specialists.
- All prescribed actions will comply with the 2010 memorandum of understanding between the U.S. Department of the Interior National Park Service and the U.S. Fish and Wildlife Service to promote the conservation of migratory birds, which meets the requirements under section 3 of Executive Order 13186 for protection of migratory birds.

Cultural Resources

- Protection mitigation measures for all identified historic properties either listed or eligible for listing on the National Register of Historic Places (government or privately owned) must be in place prior to any fuels reduction project and will be developed as part of the National Historic Preservation Act (NHPA) Section 106 process. Protection mitigation measures for suppression actions will be implemented as necessary using known cultural resources data and coordination with cultural resources staff present. In addition, the monument will comply with NHPA Section III.B.5.d by including all fire management activities in the Annual Report to the New Mexico State Historic Preservation Office (SHPO).
- Local cultural resource specialist or an assigned Resource Advisor (READ) will brief firefighters on sensitive cultural resources and oversee mitigation measures of sensitive resources as soon as practical/feasible.
- MIST will be employed to ensure protection of historic properties and features. A map of "special areas of concern" will be made readily available in the resource offices for use of suppression resources.
- The monument will locate, identify, and isolate (where feasible) cultural sites that are vulnerable to fire effects or suppression actions.
- Fire crews will be educated about the need to recognize and protect cultural resources by providing pre-incident briefings to crews by a cultural resource specialist meeting or

exceeding the Secretary of the Interior's minimum professional qualifications in archeology.

- Other mitigation measures will be used to protect cultural sites and features as necessary, such as covering stumps with dirt, and using MIST.
- Heavy fuels (logs, stumps, etc.) that cause long-duration heating will be removed only as necessary.
- The monument will use water and/or foam as much as possible rather than construction of a hand line to contain unplanned wildland fires to minimize the potential of disturbing cultural resources.
- Other tactics to be considered include blacklining around structures or features near wildland fires, treating structures with fire retardant foam, and establishing sprinkler systems on and around structures concurrent with wildland fire suppression activities.
- Fire retardant and helicopter bucket drops should avoid ruins or archaeological sites. Fugitive retardant will be used sparingly, with water bucket drops used preferentially.
- Following fire suppression activities, fire lines may be re-contoured and water barred using strategies that protect and do not cause further damage to cultural resources.
- All workers will be informed of penalties for illegally collecting artifacts or intentionally damaging any archeological or historic property in the vicinity.
- Vegetation of cultural significance in the interpretation of the historical landscape will be retained on all units, e.g., the fruit orchards at the Quarai FMU.
- If evidence of cultural resources is inadvertently discovered during fire management activities, work in the area will cease and qualified NPS personnel will assess the sites and recommend an appropriate course of action to the monument superintendent in consultation with the New Mexico SHPO.

Visitor Use and Experience

- Firefighter and public safety will be the highest priority in all fire management activities.
- The public will be notified of upcoming prescribed burning operations through press releases.
- Prescribed fire notifications and fire information may be posted at public locations, such as trailheads and visitor centers. Other agencies and the public will be notified by monument staff for all prescribed burns and wildfires, and particular attention will be placed on neighboring residents that might be impacted by smoke. For prescribed burns, the burn plan will contain a list of contacts.
- Fire management staff will work with protection staff and local agencies on mitigating smoke hazard.
- The monument's superintendent will be involved in initial planning to limit effects of prescribed fire smoke during holidays, special events, and busy visitation periods. Superintendent approval is required prior to ignition.
- Fire staff will coordinate closely with rangers to determine the location of visitors and use road/trail closures and restrictions to ensure prescribed fire or wildfire operations do not put visitors at risk.

- Visitors will be excluded from the immediate vicinity of the wildfire or prescribed burn when fire management activities are underway.
- Weather conditions will be closely monitored during the prescribed fire to ensure that any changing conditions do not suddenly put visitors at risk.
- Following a wildland fire and as burned areas are opened to visitors, signage will be used to inform visitors of the potential hazards (e.g., snags, stumps, and holes).

Herbicide Application

- All personnel handling herbicides will receive training in safe application methods. Personnel will abide by established personal protective equipment requirement and rules outlined in the product label. Job hazard analysis for herbicide application will be reviewed frequently with all applicators.
- All information and instructions on the herbicide label will be strictly followed. Herbicide containers will be properly labeled. Material Safety Data Sheets will be maintained for all chemicals.
- Personnel implementing herbicide application will hold a qualified state-approved applicator's license.
- If the label instructions for the herbicide and application method recommend limiting exposure to humans and pets, the area will be closed during treatment. Treatments will occur when the least number of visitors will be impacted by the closure.
- All herbicide mixing and loading of sprayers will occur in designated staging areas where there will be no impacts to native plant communities.
- To prevent drift, herbicide will not be applied during windy conditions or when rainfall is threatening.
- The NPS will use herbicides that do not have short- or long-term residual implications for soil, water, or humans, consistent with integrated pest management practices.

PUBLIC INVOLVEMENT/AGENCY CONSULTATION

Public, or external, scoping was conducted through the NPS Planning, Environment, and Public Comment (PEPC) website where a scoping notice and brochure were posted on January 8, 2016, to inform the public of the proposed project and scoping letters were sent to the monument's mailing list. During the scoping period, a public meeting was held (on January 22 2016) to solicit further input from the local community.

The public scoping period ended on February 5, 2016. Sixteen letters or comments from the public were received during the 30-day public scoping period, including comments collected at the public meeting. Public comments received during the scoping period related to 1) air quality and smoke concerns, 2) risk of escape of prescribed fire, 3) visual resource impacts from fire management activities, 4) impacts to vegetation and wildlife from proposed fire management activities, 5) noise associated with fire management activities, 6) impacts to water resources including acequias, 7) impacts to cultural resources from proposed fire management activities, 8) use of youth groups to assist with implementation of fuel reduction activities, 9) use of grazing to reduce the accumulation of fuels within the monument, 10) basis for historical landscape

reconstruction and period of reconstruction, and 11) impacts to paleontological resources from proposed fire management activities.

Letters were sent to Native American tribes on January 12, 2016, to inform them of the revised FMP/EA and to inquire whether affiliated tribes wanted to be involved in the environmental compliance process and the same tribes were invited to comment on the Draft EA. Two responses from tribes have been received. The Hopi Tribe requested to consult on the proposed project but provided no additional review comments on the Draft EA. The Kiowa Tribe of Oklahoma reviewed the Draft EA and notified the NPS that the proposed project location should have minimal potential to adversely affect any known archaeological, historical, or sacred Kiowa sites.

The Draft EA was released for public review on June 6, 2016. The availability of the EA was announced through press releases and through the PEPC at:
<http://parkplanning.nps.gov/SAPU>.

The letter from the Kiowa Tribe was the only comment received during the EA comment period. No substantive comments were received.

FINDING OF NO SIGNIFICANT IMPACT

As defined in 40 Code of Federal Regulations (CFR) 1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that on balance the effect will be beneficial.

The EA analyzed potential impacts of the actions on all topics identified during internal and public scoping. There were no significant impacts identified, either beneficial or adverse.

A revised FMP using prescribed fire and mechanical and herbicide treatments will result in short-term adverse impacts to air quality primarily in the form of smoke and particulate matter from both wildfire and prescribed burns. The duration of the impact will coincide with the duration of prescribed burn activities. Air quality impacts from wildfire have the potential to contribute more smoke for a longer duration to the surrounding communities due to the lack of control over atmospheric and drought conditions when wildfires begin. No more than 10% of the entire monument's acreage, or 107 acres, will undergo treatment by prescribed fire in any given year. Given that this acreage will likely be treated over a series of prescribed burn events and following smoke management mitigation measures, the smoke impacts for each burn will be short term, lasting the duration of the fire event. Fuels management and preparation of the treatment units for prescribed burning could also improve the effectiveness of a response to wildfire events, thereby resulting in beneficial impacts to regional air quality.

Under the Selected Alternative, disturbance associated with fire management activities, including vehicular and equipment access, construction of fire lines and fuel breaks, the loss of vegetation, and release of nutrients into the water, will adversely impact soils, water resources, and vegetation. These impacts are expected to be localized and short term, lasting the duration of the fire, with recovery expected within one to two growing seasons. Long-term beneficial impacts to these resources are expected to occur as the result of improved ecosystem functioning and reduced potential for wildfire. Under the Selected Alternative, the mitigation of fire behavior affected through the implementation of fuel treatments could reduce the adverse

impacts to soils, vegetation, and water resources associated with vegetation removal, soil erosion, runoff, stream turbidity, and altered water quality. Although prescribed burning, mechanical fuel reduction, and herbicide treatments will result in short-term adverse impacts to soils, vegetation, and water resources, fuel treatments will be applied in small (107 acres or less) localized areas across the three FMUs with, for example, no more than 10% of the entire monument's acreage, or 107 acres, undergoing treatment by broadcast prescribed fire in any given year; therefore, impacts to soils, vegetation, and water resources will be in small mosaics and not significant.

Impacts to wildlife include temporary disturbance, direct mortality due to fire, crushing and trampling, and loss of forage and cover for one to two growing seasons. Species in less mobile life stages (juvenile or nestling) and less mobile species (amphibians and reptiles) would be most impacted by prescribed burning or mechanical treatment. The NPS would propose small-scale treatment in a mosaic that would enable most species to avoid the disturbance. Some species that prefer dense vegetation or litter may be adversely impacted until vegetation cover is restored. Long-term impacts to wildlife include improved habitat quality and structure that will provide benefits to most species. Many species will benefit from diverse habitat structure created by multiple entry prescribed fire.

Impacts to cultural resources within the monument could occur from wildfire. Wildfire suppression techniques, such as the construction of fire lines and burnout operations, may cause direct impacts to buried artifacts due to soil disturbance, exposure, and compaction. Prescribed burn plans will include protective measures to avoid impacts to known cultural resources. Through proper mitigation and mechanical pre-treatment of heavy fuel loads, prescribed fire is intended to beneficially impact cultural resources through reducing the hazardous fuel loading and potential for more damaging wildfire in the future. Short-term adverse impacts to cultural landscapes will include unsightly burned and scorched vegetation and unvegetated areas from both prescribed burns and more intense unplanned wildland fires. The adverse impacts to vegetation will be expected to last one or two growing seasons, depending on the intensity of the fire event.

The removal of dense fuels under the Selected Alternative will result in beneficial impacts to paleontological resources due to lower potential losses from unpredictable and potentially severe unplanned ignitions. Adverse impacts to paleontological resources resulting from fire management actions and prescribed burning will be reduced through avoidance of those sites and the use of mitigation measures and involvement of NPS resource advisors. Greater protection of paleontological resources will be achieved through targeted fuel treatments around known sites.

Impacts to visitor use and experiences will occur from public closures or restricted access during prescribed burning activities. The duration of the impact will coincide with the duration of prescribed burn activities. The use of prescribed fire and its effects on vegetation may present an opportunity for education and interpretation of natural resource values and processes, which may result in a beneficial impact. Because fire management actions will be employed in a way to be sensitive to the cultural landscape of the monument, visitor experience is expected to improve in the long term, as many visitors are attracted by the monument's cultural setting.

The Selected Alternative will not result in any changes in land use. The situation of an escaped prescribed burn expanding onto private lands will be slight as a result of the small size of each prescribed burn and the conditions under which each prescribed burn will be allowed to occur, thereby avoiding adverse impacts to local residents and landowners.

Overall, implementation of the Selected Alternative will have beneficial, long-term impacts to natural and cultural resources. Implementation of the revised FMP to facilitate continued use of prescribed fire, as well as implementation of mechanical and herbicide treatments to reduce current fuel loads within the monument, will support resource management objectives at the monument.

The degree to which the Proposed Action affects public health and safety.

In accordance with NPS Management Policies (2006), the NPS will seek to provide a safe and healthy environment for visitors and employees. Due to the emphasis placed on safety in all federal fire management policies and the current monument practice of using available resources to notify the public of prescribed burns and wildfire, implementation of the Selected Alternative is not anticipated to impact public health and safety.

Unique characteristics of the area such as proximity to historic or cultural resources, wild and scenic rivers, ecologically critical areas, wetlands or floodplains, etc.

Wildfires have the potential to adversely affect both recorded and unrecorded cultural resources within the monument. Prior to initiating a prescribed fire, the NPS will develop a prescribed burn plan, which will include advanced coordination with cultural resource staff to identify sensitive cultural locations and protocols for burning near cultural resources. The possibility of disturbing unknown archeological sites, especially within the Gran Quivira FMU could occur because, as of 2014, none of the Gran Quivira site had been recently resurveyed for cultural resources. Should new archeological resources be identified during fire management activities, the monument's cultural resource specialist(s) will be contacted immediately, and the site(s) will be recorded, delineated, and protected, as necessary. Short-term adverse impacts to cultural landscapes will include unsightly burned and scorched vegetation and unvegetated areas from both prescribed burns and more intense unplanned wildland fires. The adverse impacts to vegetation will be expected to last one or two growing seasons, depending on the intensity of the fire event.

Abo and Quarai FMUs, located in the foothills of the Manzano Mountains, are the only two units where permanent surface water occurs. Under the Selected Alternative, the mitigation of fire behavior affected through the implementation of fuel treatments could reduce the adverse impacts to water resources associated with soil erosion, runoff, stream turbidity, and altered water quality. Although prescribed burning, mechanical fuel reduction, and herbicide treatments to address removal of invasive species in riparian areas will result in short-term adverse impacts to water resources, fuel treatments will be applied in small (typically 107 acres or less), localized areas across the three units; therefore, impacts to water resources will be in small mosaics and not likely to be significant. Through the use of mitigation measures, overall impacts to water resources as a result of the Selected Alternative are expected to be localized and short term and generate long-term benefits through improved ecosystem functioning and reduced potential for severe wildfire and unwanted fire effects.

Portions of the monument are considered a floodplain due to seasonal flooding and elevation in comparison to the adjacent waterways. However, the Selected Alternative will not result in any development or related adverse impacts to floodplains.

The Selected Alternative will not result in adverse impacts to wetlands regulated by Section 10 of the Rivers and Harbors Act, Section 404 of the Clean Water Act, Executive Order 11990

Protection of Wetlands, NPS DO 77-1 Wetland Protection and its accompanying Procedural Manual DO 77-1: Wetland Protection, and the NPS no net loss of wetlands goal.

The degree to which impacts are likely to be highly controversial.

The effects of the Selected Alternative on the quality of the human environment are not anticipated to be highly controversial. Internal and public scoping and comments on the proposal did not indicate any highly contentious issues and the environmental assessment did not identify significant impacts associated with the Selected Alternative.

The degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks.

No highly uncertain effects or unique or unknown risks are anticipated to occur with implementation of the Selected Alternative. The Selected Alternative involves the use of mitigation measures to minimize risks.

Whether the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future condition.

The activities identified in the Selected Alternative are widely accepted under federal fire management and NPS policies. Implementing the Selected Alternative neither establishes a NPS precedent for future actions with significant effects nor represents a decision in principle about a future condition.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

Cumulative effects were analyzed in the EA and no significant cumulative impacts were identified.

The degree to which the action may adversely affect historic properties in or eligible for listing on the National Register of Historic Places, or other significant scientific, archeological, or cultural resources.

Because of the application of MIST and other mitigation measures, the monument determined that there will be no adverse impacts to cultural resources in the project area. A detailed description of the cultural resources and cultural landscapes contained within the monument can be found in Section 3.7.1 of the EA. These cultural resources and landscapes will be heavily protected during any fire management activity, and no adverse effects to these structures will occur under the Selected Alternative. If evidence of cultural resources is inadvertently discovered during fire management activities, work in the area will cease and qualified NPS personnel will assess the sites and recommend an appropriate course of action to the monument superintendent in consultation with the New Mexico SHPO. In a letter dated September 7, 2016, the New Mexico SHPO concurred with the NPS's determination that implementation of the Selected Alternative would not cause adverse effects to historic properties.

The degree to which the action may adversely affect an endangered or threatened species or its habitat.

The NPS completed a biological assessment (BA) in support of the FMP EA for the project, using USFWS online resources to research federally listed threatened and endangered species that may be potentially impacted. The BA concluded that there will be "no effect" to any federally listed or proposed species or designated critical habitat from the Selected Alternative. Due to the "no effect" determination, this topic was dismissed from full analysis in the EA.

Whether the action threatens a violation of federal, state, or local law or requirements imposed for protection of the environment.

The Selected Alternative violates no federal, state, or local environmental protection plans.

CONCLUSION

As described above, the Selected Alternative does not constitute an action meeting the criteria that normally requires preparation of an environmental impact statement (EIS). The Selected Alternative will not have a significant effect on the human environment in accordance with Section 102(2)(c) of NEPA.

Based on the foregoing, it has been determined that an EIS is not required for this project and, thus, will not be prepared.

APPENDIX A: TEXT CHANGE ERRATA

Errata Sheets

Salinas Pueblo Missions National Monument

Environmental Assessment

Fire Management Plan

A number of text changes have been made to the EA to correct errors, provide clarification or context to the analysis of some resources, revise and add to sections under Issues Considered and Dismissed from Further Consideration, add mitigation measures for the protection of migratory birds, edit mitigation measures for protection of cultural resources, remove from the Proposed Action the use of biological control agents, and add additional cumulative impact analysis and conclusions for all resources.

Italicized and underlined text indicates the section in the EA that has been altered. Strike-out is used to show text that has been stricken; bold text is used to show new text.

Page 2, second paragraph, under 1.2. Purpose and Need for Action

In addition, the previous FMP was revised and approved for compliance with the National Environmental Policy Act of 1969 (NEPA) as a ~~categorically excluded action under 516 Departmental Manual 2, Appendix 1.12, which is no longer valid.~~ The previous FMP allowed for fuel reduction activities; however, due to the discontinuation of the categorical exclusion, the monument is limited to suppression only activities until a new environmental review is completed.

Page 6, under Wetlands in Issues Considered and Dismissed from Further Consideration

Added: **Wetlands and watersheds are routinely treated for invasive species mitigation and pesticide use is regulated by the NPS Intermountain Region's Integrated Pest Management (IPM) Program Coordinator, in compliance with the 1996 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 United States Code [USC] 136, et seq.) of the EPA. Thinning and maintenance of wetlands and watersheds are managed through collaboration with the New Mexico State Forestry Division under the *Forest and Watershed Health Plan*. The monument also collaborates with the Claunch-Pinto Soil and Water Conservation District (SWCD).**

Furthermore, the Proposed Action includes mitigation measures that would result in the avoidance of wetlands, including: 1) the protection of sensitive soils from construction of containment lines, 2) the involvement of monument resource specialists to ensure prescriptions and burn objectives do not conflict with protection of sensitive vegetation, and 3) no foam or retardant would be used for fire suppression near wetlands, seeps, or spring. (Section 2.3 of the Draft EA provides a full description of these mitigation measures.)

As a result, the resource topic was dismissed from further analysis.

Page 7, Section 1.4.2 Issues Considered and Dismissed from Further Consideration

Added the entire section below:

Indian Trust Resources and Sacred Sites

The U.S. Department of the Interior requires its bureaus to explicitly consider effects of its actions on Indian Trust resources in environmental documents. NPS EAs and EISs must include either analysis of impacts to Indian sacred sites or a specific dismissal of the issue from detailed analysis (*Environmental Compliance Memorandum [ECM] 97-2: Department Responsibilities for Indian Trust Resources and Indian Sacred Sites on Federal Lands, Part 1*). Furthermore, Executive Order 13007 provides that, to the extent practicable, permitted by applicable law, and not clearly inconsistent with essential agency functions, agencies are required to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of sites. The federal Indian Trust responsibility is legally enforceable obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the directives of federal laws with respect to Native American tribes.

There are no known Indian Trust resources located in the project area, meaning the lands composing the monument are not held in trust by the Secretary of the Interior for the benefit of American Indians due to their status as American Indians. Sacred sites are those specific, discrete, narrowly delineated locations on federal land that are identified by an Indian Tribe or Indian individual determined to be an appropriate authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion, provided the Tribe or appropriate authoritative representative of an Indian religion has informed the agency of the existence of such a site (ECM 97-2). As identified in Section 4 of the EA, 14 Native American tribes were contacted about the proposed project in January 2016. As of June 2017, two responses from tribes have been received. Neither letter specifically identifies discrete sacred sites within the monument. Nor has the park been informed at any time in the past of sacred sites meeting the above definition being located within the monument. However, the monument protects important prehistoric Indian pueblo sites, which hold cultural significance to several Native American tribes. Potential impacts to archeological sites from the Proposed Action are discussed in detail in Section 3.7 of the EA. For the above reasons, the issue of Indian Trust Resources and Sacred Sites was dismissed from further analysis.

Page 9, under 2.2. Alternative B: Proposed Action, following bulleted list

Added: Per NPS Reference Manual 18, “fire management requires the fire manager and firefighter to select management tactics commensurate with the fire’s existing or potential behavior while causing the least possible impact on the resources being protected” (NPS 2014a:Chapter 2, pg. 1). Minimum Impact Strategy and Tactics (MIST) is the concept of using the minimum tool to safely and effectively accomplish a task (NPS 2014a). Adopting MIST also prioritizes firefighter safety above all other resources. MIST will be applied for all fire management activities within the monument. NPS Reference Manual 18 provides a detailed discussion of MIST in Chapter 2, page 1 (NPS 2014a:Exhibit 2).

Page 15, paragraph 2, under 2.2.2. Fire Management Strategies

More aggressive suppression activities (**for example, the use of aircraft, ground personnel, or heavy equipment in the direct control of active fire perimeter**) could be used when human life and property, and/or critical cultural and natural resources, are threatened by fire.

Page 16, 4th paragraph, under 2.2.3. Fuel Management Strategies

Thinning of vegetation would be accomplished using hand-operated power tools and hand tools, such as chainsaws or other cutting tools, ~~whenever possible. Although hand tools are the preferred method for mechanical treatments, in some instances and wheeled or tracked mechanized equipment such as tractors, masticators, and similar equipment~~ **to construct firelines, create fuel breaks, thin fuels, and clear vegetation, including nonnative species.** ~~If heavy equipment that uses large tires or large tracks resulting in less ground disturbance would be selected, is used, equipment with large tires or tracks resulting in less ground disturbance is preferred.~~

Page 17, 5th paragraph, under 2.2.3. Fuel Management Strategies

Biological control was dismissed as an action considered under the Proposed Action because it was not raised during internal scoping, was not bought up by the public during public scoping, and was not identified as a tool that is useful to the monument. See Section 2.4 Alternatives Considered but Dismissed from Detailed Analysis for more detail.

Herbicide Application and Biological Control

The presence and volume of nonnative species throughout the monument creates an increased fire and fuel hazard. Nonnative species infestations impact fuel loading and some species can alter the natural fire regime due to their seasonality and physiology. As a result, treatment of nonnative species is an important component of fire and fuel management.

Using NPS and U.S. Environmental Protection Agency (EPA) approval processes, the monument would use the best available science to examine proposed herbicide uses for risk versus benefit. Chemical herbicides could be used for treatment of species that are not effectively treated with mechanical methods or fire, or for large populations of invasive plants. Following chemical treatments these areas could be maintained using alternative methods such as reseeding or planting to enhance native vegetation biodiversity.

Herbicide use would follow NPS Management Policy 4.4.5 and 4.4.5.2 and DO 77-7. Requests for the use of pesticides would be submitted annually using the Pesticide Use Proposal System (PUPS) or the Pest Management Program Report (Form 10-21A). The designated monument integrated pest management coordinator would prepare the PUPS and submit it to the regional integrated pest management coordinator for review. Final approval for a PUPS would come only after regional- and/or national-level staff consider numerous factors such as the target use, location where the application would occur, potential for getting into surface water or groundwater, persistence in the ecosystem, impacts to sensitive plant and wildlife species and habitat, potential threatened and endangered species concerns, employee and public health and safety concerns, and method of application (example, spot spraying). A product may be approved or not approved depending on the above factors and alternative treatment

possibilities. An herbicide application map and record of treatment would be developed for each treatment area. A certified applicator would conduct or directly supervise application of restricted use pesticides.

~~This alternative also allows for the use of biological control, which involves the release of host-specific predators or pathogens that suppress the invasive plant populations. Biological control methods also include targeted grazing by managed livestock. Biological control agents are not always capable of fully eradicating an invasive plant population; however, biological control can be a useful tool in reducing the initial size or density of an invasive plant population, making other treatments more effective. All biological control methods would be approved by the U.S. Department of Agriculture Animal and Plant Health Inspection Service and evaluated to ensure they do not impact non-target plant species.~~

Page 20, last bullet under 2.3.3. Natural Resources

Added: **All prescribed actions will comply with the 2010 memorandum of understanding between the NPS and the U.S. Fish and Wildlife Service to promote the conservation of migratory birds, which meets the requirements under Section 3 of Executive Order 13186 for protection of migratory birds.**

Page 20, first bullet under 2.3.4. Cultural Resources

~~The park will submit the Environmental Assessment and the revised Fire Management Plan to the New Mexico State Historic Preservation Officer (NMSHPO) and the affiliated Tribal Historic Preservation Officers (THPO), under the provisions of the NPS agency-wide Programmatic Agreement with the National Conference of Historic Preservation Officers (NCHPO) and the Advisory Council for Historic Preservation (ACHP).~~

Page 20, second bullet under 2.3.4. Cultural Resources

Resource Advisor (READ)

Page 21, at end of bulleted list under 2.3.4. Cultural Resources

Added: **If evidence of cultural resources is inadvertently discovered during fire management activities, work in the area will cease and qualified NPS personnel will assess the sites and recommend an appropriate course of action to the monument superintendent in consultation with the New Mexico SHPO.**

Page 22, after Section 2.3 Mitigation Measures, add Section 2.4 Alternatives Considered but Dismissed from Detailed Analysis

Added: **Additional strategies to reduce fuels in the monument were considered during the development of the alternatives, including the use of biological control. Biological control involves the release of host-specific predators or pathogens that suppress invasive plant populations. Biological control methods also include targeted grazing by managed livestock, which was the primary method of biological control preliminarily considered by the monument. This alternative was considered but dismissed from detailed analysis because it was not raised during internal scoping, was not brought up during public scoping, and is not considered technically feasible to implement at the monument at this time. The monument does not have sufficient fencing, corrals, or other**

related infrastructure to manage grazing animals within specific areas of the monument. It would be difficult to control grazing livestock within designated treatment areas to avoid adverse impacts to other resources, such as cultural resource sites. The NPS may reconsider this alternative for the monument in the future if the use of grazing animals becomes technically viable. Therefore, the use biological control as part of the FMP was not considered in the EA.

Page 24, following Section 3.1. Climate Change, add Section 3.1.1 Fire History

Added: **Salinas Pueblo Missions' fire history has not been well documented, but corresponds to that established for neighboring fire management organizations (NPS 2005). A recent analysis of fire history completed as part of the *Community Wildfire Protection Plan for the Claunh-Pinto Soil and Water Conservation District* (SWCA 2016), of which the monument is part, showed that wildfire occurrence on adjacent U.S. Forest Service (USFS), Bureau of Land Management (BLM), and private lands has increased over the past 15 years, a situation that is most likely the result of increased numbers of human ignitions but may also be a result of fuel build-ups, changes in climate, and forest disease outbreaks.**

Human-caused fires account for almost 46% of the wildfires recorded from 1970 to 2016 within the Claunh-Pinto SWCD (SWCA 2016). Approximately 71% of the human-caused fires within that time period have taken place within the last 15 years. Although the majority of fires take place during the summer months, the recent increase in the number of human-caused ignitions has resulted in an increase in fires throughout the year.

Approximately 90% of the fires that were ignited within the region were usually smaller than 10 acres in size; however, 50 wildfires larger than 10 acres and 20 fires larger than 100 acres have occurred during the period of record (1970–2016) (SWCA 2016). A total of eight fires on record grew to greater than 1,000 acres and burned for multiple days. All of those fires were human caused, except for the Big Springs fire, which was started by a lightning strike and burned 5,478 acres in June 2008.

Page 26, under 3.3.1 Affected Environment for Air Resources

Added to the end of the first paragraph: **Generally, the NPS defines an airshed as a geographic area that, because of topography, meteorology, and/or climate, is frequently affected by the same air mass (NPS, 2013).**

Page 27, under 3.3 Air Resources – Alternative A: No Action Cumulative Impacts

The geographic extent for analysis of cumulative impacts on air resources is the local airshed. The temporal scope of the cumulative impacts to air resources is the expected duration of the fire event, which would last anywhere from 1 or 2 days for prescribed burns to several months for large, intense wildfires. Table 3.1 on page 25 of the EA lists past, present, and reasonably foreseeable future actions that may contribute to cumulative impacts to resources analyzed in this EA. Three actions, the Cibola National Forest Plan Revision, the operation of the PG Enterprise Gravel Quarry, and operation of the JPR Gravel Quarry, have impacted and could impact air resources within the local airshed during the same time as FMP activities.

The Cibola National Forest Plan Revision is currently underway and would direct management on nearby USFS lands for the next 20 or more years. The plan is anticipated to consider resource management activities that would contribute beneficial impacts to

the nearby landscape and local airshed. For example, fire management activities and vegetation treatments may be identified for USFS lands that have medium to high risk of wildfire. The plan revision is expected to contribute long-term beneficial impacts to the local airshed. The two operating gravel quarries could contribute short-term adverse impacts to air resources during times of heavy gravel mining activities and windy conditions. These impacts include contribution of particulate matter to the air, as well as reduced visibility, and they would be short term, lasting the duration of 4 to 8 hours, and localized. Additionally, short-term, adverse impacts to air resources would occur if planned or unplanned ignitions occur on lands outside the park within the airshed. The planned and unplanned ignitions would result in localized contributions of smoke to the local airshed and reduced visibility. Overall, these actions would contribute short-term adverse impacts and long-term beneficial impacts to air resources.

Impacts to air quality resulting from the No Action Alternative would result in very small, if any, contributions of emissions to the local airshed through unplanned ignitions within the monument. A few unplanned ignitions may occur; however, those impacts would likely result in localized contributions of smoke to the local airshed and reduced visibility (an AQRV). The duration of the impact would coincide with the duration of the unplanned ignition. Lack of control over atmospheric and drought conditions when unplanned wildland fires begin increase their potential to contribute emissions to the local airshed. Impacts from the No Action Alternative plus impacts from the past, present, and reasonably foreseeable future actions described above would result in short-term adverse cumulative impacts and long-term beneficial cumulative impacts to air resources. The incremental impacts of the No Action Alternative would contribute slightly to, but would not substantially change, the impacts that are already occurring.

Page 28, under 3.3 Air Resources – Alternative B: FMP Revision (Preferred Alternative)
– Cumulative Impacts

The geographic and temporal scope of the cumulative impacts analysis for air resources are described under the No Action Alternative. Similarly, the past, present, and reasonably foreseeable future actions that may impact air resources are described under the No Action Alternative. As stated above, the past, present, and reasonably foreseeable actions would contribute short-term adverse impacts and long-term beneficial impacts to air resources.

Impacts to air resources from the Proposed Action would include contributions of smoke and particulate matter to the local airshed when prescribed burns occur within the monument. The impacts to air resources would be temporary and would not contribute any incremental impacts to the resource over the long term since the duration of the impact would coincide with the duration of prescribed burn activities, a period of 1-2 days. The application of the New Mexico Smoke Management Program's Guidance Document (NMED 2005) would reduce the intensity and duration of those contributions. The Proposed Action would contribute greater air quality emissions to the airshed than the No Action Alternative because more frequent burning would occur as prescribed burns under the Proposed Action. Impacts from the Proposed Action plus impacts from the past, present, and reasonably foreseeable future actions described above would result in short-term adverse cumulative impacts and long-term beneficial cumulative impacts to air resources. The incremental impacts of the Proposed Action would contribute slightly to, but would not substantially change, the impacts that are already occurring within the airshed.

Page 31, under 3.4 Soil and Water Resources – Alternative A: No Action Cumulative Impacts

The geographic extent for analysis of cumulative impacts on soil and water resources is the Estancia Basin. The temporal scope of impacts on soil and water resources is the duration of impacts resulting from mechanical and prescribed burn treatments implemented under the plan, which would be for one to two growing seasons following treatment. Table 3.1 on page 25 of the EA lists past, present, and reasonably foreseeable future actions that may contribute to cumulative impacts to resources analyzed in this EA. Past, present, and reasonably foreseeable future projects that could impact soil and water resources include the two separate quarry development sites adjacent to Abo, development of the Sun Zia transmission line and Western Spirit transmission line, the Cibola National Forest Plan Revision, and associated soil disturbance and development and continued operation and maintenance of adjacent wind farms.

Infrastructure developments, such as the transmission lines and wind farms referenced above, contribute to a reduction in productive soil in the region as a result of soil disturbance, mixing of soil horizons, and compaction, and continued development would be expected to contribute short-term adverse impacts to soils and water resources from construction and earthmoving activities and long-term adverse impacts related to the further loss of productive soils. Short and long term adverse impacts to water resources include increased sediments infiltrating waterways, as well as industrial contaminants, such as fuels, oils, and metallic pollution. Actions proposed under the revised Cibola National Forest Plan could include additional fuel treatments that would temporarily impact soil and water resources. These temporary impacts would be largely restricted to ash residue decomposing within the soils or entering waterways. These short-term fuel treatments would provide long-term benefits to soils through improved ecosystem functioning and improved resilience to catastrophic wildfire. Overall, these actions would contribute short- and long-term adverse impacts and long-term beneficial impacts to soil and water resources.

The No Action Alternative would contribute short- to long-term negligible adverse impacts to soil and water resources as a result of increased potential for severe wildfire and unwanted fire effects. Impacts from the No Action Alternative plus impacts from the past, present, and reasonably foreseeable future actions described above would result in short-term and long-term adverse cumulative impacts and long-term beneficial cumulative impacts to soil and water resources. The incremental impacts of the No Action Alternative would contribute slightly to, but would not substantially change, the impacts that are already occurring in the Estancia Basin.

Page 33, under 3.4 Soil and Water Resources – Alternative B: FMP Revision (Preferred Alternative) Cumulative Impacts

The geographic and temporal scope of the cumulative impacts analysis for soil and water resources are described under the No Action Alternative. Similarly, the past, present, and reasonably foreseeable future actions that may impact soil and water resources are described under the No Action Alternative. As stated above, the past, present, and reasonably foreseeable actions would contribute short-term and long-term adverse impacts and long-term beneficial impacts to soil and water resources.

Adverse impacts to soil resources from the Proposed Action would include exposure of soil to increased heating and drying, erosion, compaction, and loss of organic matter in discrete locations within the monument where prescribed burning would occur. Adverse impacts to water resources would include increased erosion and sedimentation of water bodies. These adverse impacts to soil and water resources would be short term, with most adverse impacts lasting for no more than two growing seasons. The application of MIST measures would reduce the intensity and duration of the adverse impacts. Long-term beneficial impacts would occur from the Proposed Action through improved soil productivity and restored riparian areas. Impacts from the Proposed Action plus impacts from the past, present, and reasonably foreseeable future actions described above would result in short-term adverse cumulative impacts and long-term beneficial cumulative impacts to soil and water resources. The incremental impacts of the Proposed Action would contribute slightly to, but would not substantially change, the impacts that are already occurring within the Estancia Basin.

Page 36, under 3.5 Vegetation, Including Non-Native Species – Alternative A: No Action Cumulative Impacts

The geographic extent for the analysis of cumulative impacts on vegetation is the Estancia Basin. The temporal scope of cumulative impacts on vegetation are one to two growing seasons following the action. Table 3.1 on page 25 of the EA lists past, present, and reasonably foreseeable future actions that may contribute to cumulative impacts to resources analyzed in this EA. Past, present, and reasonably foreseeable future projects that could impact vegetation include the two separate quarry development sites adjacent to Abo, development of the Sun Zia transmission line and Western Spirit transmission lines, the Cibola National Forest Plan Revision, and associated vegetation disturbance and development and continued operation and maintenance of adjacent wind farms.

Permanent vegetation removal and disturbance as a result of adjacent quarry activities, wind farm development and operation, and transmission line development would adversely impact native vegetation in the analysis area. These actions result in vegetation loss as a result of project construction and could contribute to spread of nonnative species from increased vehicular movement throughout the analysis area. The Cibola National Forest Plan Revision would identify vegetation management programs that would have adverse and beneficial short- and long-term impacts on native vegetation. Additionally, short- and long-term adverse impacts to vegetation would occur if wildfires occur on lands outside the monument. The planned and unplanned ignitions would result in loss of vegetation, with those impacts ranging from short-term (one to two growing seasons) to permanent loss of some vegetative communities, depending on the size and intensity of the wildfire. Overall, these actions would contribute short- and long-term impacts, which could be both adverse and beneficial to vegetation.

Impacts to vegetation would occur under the No Action Alternative in the form of temporary, localized removal or disturbance of vegetation as a result of an unplanned ignition on the monument with potential spread to adjacent properties. Impacts from the No Action Alternative plus impacts from the past, present, and reasonably foreseeable future actions described above would result in short- and long-term cumulative impacts, which would be both adverse and beneficial to vegetation. The incremental impacts of the No Action Alternative would contribute slightly to, but would not substantially change, the impacts that are already occurring in the Estancia Basin.

Page 37, under 3.5 Vegetation, Including Non-Native Species – Alternative B: FMP Revision (Preferred Alternative) Cumulative Impacts

The geographic and temporal scope of the cumulative impacts analysis for vegetation are described under the No Action Alternative. Similarly, the past, present, and reasonably foreseeable future actions that may impact vegetation are described under the No Action Alternative. As stated above, the past, present, and reasonably foreseeable actions would contribute adverse and beneficial impacts over the short and long term to vegetation.

The Proposed Action would cause short-term loss of individuals and communities of plants for up to two growing seasons post-treatment or longer depending on the species and the intent of the treatment. For example, non-native vegetation treated under the Proposed Action may be permanently removed. The application of MIST measures would reduce the intensity and duration of the adverse impacts. The use of planned fuel treatments on the monument, including mechanical treatments, managed prescribed fire, and herbicide treatment, would result in beneficial impacts to vegetation communities through maintaining ecological function and native species. In the long term, the reduction of hazardous fuels would lower the potential for a larger more destructive wildfire that would have longer term adverse impacts to vegetation over a larger area. Impacts from the Proposed Action plus impacts from the past, present, and reasonably foreseeable future actions described above would result in short-term adverse and beneficial cumulative impacts and long-term adverse and beneficial cumulative impacts to vegetation. The beneficial cumulative impacts on vegetation would last for many years post treatment as a result of improved ecosystem functioning, resiliency and reduced potential for severe wildfire and unwanted fire effects. The incremental impacts of the Proposed Action would contribute slightly to, but would not substantially change, the impacts that are already occurring within the Estancia Basin.

Page 40, under 3.6 Wildlife – Alternative A: No Action Cumulative Impacts

The geographic extent for the analysis of cumulative impacts on wildlife is the Estancia Basin. The temporal scope of cumulative impacts on wildlife are one to two growing seasons following the action. Table 3.1 on page 25 of the EA lists past, present, and reasonably foreseeable future actions that may contribute to cumulative impacts to resources analyzed in this EA. Past, present, and reasonably foreseeable future projects that may affect wildlife include forest and fire management actions occurring on adjacent USFS lands as part of the Cibola National Forest Plan Revision, disturbance as a result of adjacent quarry activities, disturbance as a result of wind farm development and operation, and disturbance as a result of Sun Zia transmission line and Western Spirit transmission line development.

Permanent vegetation removal and ground disturbance as a result of adjacent quarry activities, wind farm development and operation, and transmission line development could adversely impact wildlife in the analysis area. These actions would reduce available wildlife habitat and fragment remaining habitat. Most wildlife can easily move away from impact sources and can occupy adjacent habitat during the disturbance and until habitat is restored. Non-mobile species, such as young individuals, would have the greatest impact, but due to the mosaic nature of the disturbance surviving individuals from adjacent areas would repopulate disturbed areas overtime. Impacts to wildlife from these development activities would be long term and adverse. Impacts of USFS forest

management activity related to the Cibola National Forest Plan Revision would be species specific. Forest management activities would adversely impact some forest-dependent species in the short term due to treatment-related disturbance; however, vegetation restoration programs would restore native habitat and have lasting positive impacts for wildlife by improving habitat quality. Overall, these actions would contribute short-term and long-term impacts, which would be both adverse and beneficial to wildlife.

Impacts to wildlife would occur under the No Action Alternative in the form of temporary, localized removal or disturbance of habitat as a result of an unplanned ignition on the monument. Ongoing build-up of hazardous fuels would continue to degrade habitat quality within the monument over the long term and increase the potential for larger more devastating wildfire. Impacts from the No Action Alternative plus impacts from the past, present, and reasonably foreseeable future actions described above would result in short- and long-term cumulative impacts, which would be both adverse and beneficial to wildlife. The incremental impacts of the No Action Alternative would contribute slightly to, but would not substantially change, the impacts that are already occurring in the Estancia Basin.

Page 42, under 3.6 Wildlife – Alternative B: FMP Revision (Preferred Alternative)
Cumulative Impacts

The geographic and temporal scope of the cumulative impacts analysis for wildlife are described under the No Action Alternative. Similarly, the past, present, and reasonably foreseeable future actions that may impact wildlife are described under the No Action Alternative. As stated above, the past, present, and reasonably foreseeable actions would contribute adverse and beneficial impacts to wildlife over the short and long term.

The Proposed Action would cause temporary displacement of species during and after prescribed burns and mechanical treatments. Adverse impacts are expected to be short term, lasting one or two growing seasons post treatment. The application of MIST measures would reduce the intensity and duration of the adverse impacts. The use of planned fuel treatments on the monument, including mechanical treatments, managed prescribed fire, and herbicide treatment, would result in beneficial impacts to wildlife because habitat would be improved and new growth would provide increased forage. The Proposed Action would contribute negligible short-term adverse impacts to wildlife when added to past, present, and foreseeable actions, typically for one to two growing seasons. In the long term, the Proposed Action would provide beneficial cumulative impacts to wildlife through improvements to habitat quality and productivity. The incremental impacts of the Proposed Action would contribute slightly to, but would not substantially change, the impacts that are already occurring within the Estancia Basin.

Page 47, under 3.7 Cultural Resources, Including Pre-contact and Historic Resources, Museum Collections, and Cultural Landscapes – Alternative A: No Action Cumulative Impacts

The geographic extent for the analysis of cumulative impacts on cultural resources is the viewshed, or the expanse of all lands that can be viewed from the monument units. The temporal scope of cumulative impacts on cultural resources is the duration of the impacts that would coincide with the duration the fire management activity would be visible on the landscape, which is estimated to be approximately one to two growing

seasons for prescribed fire. Table 3.1 on page 25 of the EA lists past, present, and reasonably foreseeable future actions that may contribute to cumulative impacts to resources analyzed in this EA. No past, present, or reasonably foreseeable future projects have been identified as potentially impacting cultural resources or museum collections. Past, present, and reasonably foreseeable future projects that are or will adversely impact cultural landscapes are the Western Spirit transmission line, Sun Zia transmission line, High Lonesome Wind Farm, and El Cabo Wind Farm, since they are visible from any of the three monument FMUs.

Portions of the transmission lines will be visible, and the wind farms are visible, from one or more of the monument FMUs, the impacts to cultural landscapes would be long term and adverse, as the wind turbines and transmission lines would be permanent fixtures on the landscape that are not consistent with the monument's historical context.

Under the No Action Alternative, increased vegetation density in the absence of active vegetation maintenance would encroach on cultural landscapes and views, resulting in long-term adverse impacts to cultural landscapes because increased vegetation density would change the historic character of the views and vistas. Impacts from the No Action Alternative plus impacts from the past, present, and reasonably foreseeable future actions described above would result in long-term adverse cumulative impacts to cultural landscapes. The incremental impacts of the No Action Alternative would contribute slightly to, but would not substantially change, the impacts that are already occurring within the monument's viewshed.

Page 48, under 3.7 Cultural Resources, Including Pre-contact and Historic Resources, Museum Collections, and Cultural Landscapes – Alternative B: FMP Revision (Preferred Alternative) Cumulative Impacts

The geographic and temporal scope of the cumulative impacts analysis for cultural resources, museum collections, and cultural landscapes are described under the No Action Alternative. Similarly, the past, present, and reasonably foreseeable future actions that may impact cultural resources, museum collections, and cultural landscapes are described under the No Action Alternative. No cumulative impacts have been identified for cultural resources and museum collections. As stated above, the past, present, and reasonably foreseeable actions will contribute long-term adverse cumulative impacts to cultural landscapes.

Impacts to cultural landscapes under the Proposed Action would be long term and beneficial because brushy, nonnative vegetation would be removed by prescribed fire, mechanical, and herbicide treatments, resulting in open areas and viewsheds consistent with the cultural landscape. Short-term adverse impacts would include unsightly burned and scorched vegetation and unvegetated areas from both prescribed burns and more intense unplanned wildland fires. The adverse impacts to vegetation would be expected to last one or two growing seasons, depending on the intensity of the fire event. The Proposed Action would therefore contribute negligible adverse impacts when added to past, present, and foreseeable actions, but would provide beneficial impacts by restoring viewsheds and cultural landscapes. The incremental impacts of the Proposed Action would contribute slightly to, but would not substantially change, the impacts that are already occurring within the viewshed.

Page 50, under 3.8 Paleontological Resources – Alternative A: No Action Cumulative Impacts

The geographic extent for the analysis of cumulative impacts on paleontological resources is the Estancia Basin. The temporal scope of cumulative impacts on paleontological resources is the expected duration of the FMP, approximately 10 years. Table 3.1 on page 25 of the EA lists past, present, and reasonably foreseeable future actions that may contribute to cumulative impacts to resources analyzed in this EA. The Estancia Basin area is known to be rich in paleontological resources. Past, present, and reasonably foreseeable future projects that could impact paleontological resources are the PG Enterprise Gravel Quarry, JPR Gravel Quarry, Western Spirit transmission line, Sun Zia transmission line, High Lonesome Wind Farm, and El Cabo Wind Farm.

Past, present, and foreseeable actions could adversely impact paleontological resources as a result of ground disturbance from ongoing quarrying activities at the gravel pits located west of Abo and ground disturbance to soils and geology resulting from development and operation of the transmission line and wind farm projects. These actions all involve disturbing geologic features, which may contain fossils and other paleontological features. Where paleontological resources have been documented, impacts of any future actions are likely to be mitigated or disturbance of the fossil resource avoided, but for yet to be discovered fossil remains these present and foreseeable actions could result in the permanent damage or loss of paleontological resources. Overall, these actions would contribute permanent adverse impacts to paleontological resources, if avoidance and mitigation measures are not established to protect paleontological resources prior to ground-disturbing activities.

Under the No Action Alternative, the build-up of hazardous fuels could lead to a wildfire within the monument, which could result in adverse impacts to fossils that may be in contact with fuels. In addition, unknown paleontological resources would be damaged or destroyed by wildfire suppression activities. This would result in permanent adverse impacts to paleontological resources. Impacts from the No Action Alternative plus impacts from the past, present, and reasonably foreseeable future actions described above would result in permanent adverse cumulative impacts to paleontological resources. The incremental impacts of the No Action Alternative would contribute slightly to, but would not substantially change, the impacts that are already occurring within the Estancia Basin.

Page 51, under Section 3.8 Paleontological Resources – Alternative B: FMP Revision (Preferred Alternative) Cumulative Impacts

The geographic and temporal scope of the cumulative impacts analysis for paleontological resources are described under the No Action Alternative. Similarly, the past, present, and reasonably foreseeable future actions that may impact paleontological resources are described under the No Action Alternative. As stated above, the past, present, and reasonably foreseeable actions would contribute long-term adverse cumulative impacts to paleontological resources.

Under the Proposed Action, fire behavior would be mitigated through the proactive measures of prescribed fire and mechanical and herbicide treatments. Under a reduced fire behavior scenario, suppression actions are expected to be reduced in intensity and would avoid known paleontological resource sites. Prescribed fire and mechanical and

herbicide treatments will also be implemented to avoid known paleontological resource sites. Unknown resources would be unlikely to be negatively impacted due to the use of less intensive fire. When combined with past, present and foreseeable actions, the Proposed Action would avoid adverse impacts to paleontological resources, but would provide beneficial impacts by removing root structures growing into paleontological resources through targeted fuel treatments around known sites. The incremental impacts of the Proposed Action would contribute slightly to, but would not substantially change, the impacts that are already occurring within the Estancia Basin.

Page 52, under 3.9 Visitor Use and Experience – Alternative A: No Action Cumulative Impacts

The geographic extent for the analysis of cumulative impacts on visitor use and experience is the monument viewshed, meaning the expanse of all lands that can be viewed from the monument units. The temporal scope of cumulative impacts on visitor use and experience is the duration of the impacts which would coincide with the duration of prescribed burn or mechanical treatment activities, a period of 1 to 2 days when considering impacts to visitation and approximately 1 to 2 growing seasons when considering the visual impacts from fire management activities, such as prescribed fire. Table 3.1 on page 25 of the EA lists past, present, and reasonably foreseeable future actions that may contribute to cumulative impacts to resources analyzed in this EA. Past, present, and reasonably foreseeable future projects that could impact visitor use and experience are the Cibola National Forest Plan Revision, Western Spirit transmission line, Sun Zia transmission line, High Lonesome Wind Farm, and El Cabo Wind Farm.

Forest management actions proposed under the Cibola National Forest Plan Revision could cause short-term adverse impacts to visitor use and experience by contributing reduced visibility from smoke, visual impacts of burned and charred forest, and adverse impacts to natural resources and wildlife that might impact visitor interactions with wildlife. Long-term beneficial impacts from the Cibola National Forest Plan Revision would include restored native habitat and forest communities thereby providing beneficial impacts to visitor use and experience within the viewshed of the monument. Any portions of the transmission lines or wind farms that are visible from one or more of the monument FMUs would cause adverse impacts to visitor use and experience, as the wind turbines and transmission lines would be permanent fixtures on the landscape that are not consistent with the monument's historical context. Overall, these actions would contribute short- and long-term impacts, which would be both adverse and beneficial to visitor use and experience.

Impacts to visitor use and experience would occur under the No Action Alternative in the form of temporary, localized degradation of air quality if a wildland fire occurs at the monument such as within other public lands near the monument. Impacts from the No Action Alternative plus impacts from the past, present, and reasonably foreseeable future actions described above would result in short- and long-term adverse and beneficial cumulative impacts to visitor use and experience. The incremental impacts of the No Action Alternative would contribute slightly to, but would not substantially change, the impacts that are already occurring within the viewshed of the monument.

Page 53, under 3.9 Visitor Use and Experience – Alternative B: FMP Revision
(Preferred Alternative) Cumulative Impacts

The geographic and temporal scope of the cumulative impacts analysis for visitor use and experience are described under the No Action Alternative. Similarly, the past, present, and reasonably foreseeable future actions that may impact visitor use and experience are described under the No Action Alternative. As stated above, the past, present, and reasonably foreseeable actions would contribute short- and long-term adverse and beneficial cumulative impacts to visitor use and experience.

The Proposed Action would contribute smoke and particulate matter to the air when prescribed burns occur. This would result in short-term reduced visibility in and near the monument and adverse impacts to visitor use and experience during the duration of the fire event. Additionally, short-term adverse impacts would include unsightly burned and scorched vegetation and unvegetated areas from both prescribed burns and more intense unplanned wildland fires. The adverse impacts to vegetation would be expected to last one or two growing seasons, depending on the intensity of the fire event. In the long-term, the Proposed Action would result in beneficial impacts to visitor use and experience because brushy, nonnative vegetation would be removed by prescribed fire, mechanical, and herbicide treatments, resulting in open areas and view-sheds. These modified view-sheds will enhance the visitor's sense of the historic landscapes and culture of the indigenous people that occupied these landscapes. The Proposed Action would contribute negligible short-term adverse impacts to visitor use and experience when added to past, present, and foreseeable actions, but would provide beneficial impacts by reducing adverse effects of unplanned ignitions that impact the experience of users on the monument and adjacent public lands. The Proposed Action would also provide beneficial impacts by restoring viewsheds and enhancing visitor use and experience. The incremental impacts of the Proposed Action would contribute slightly to, but would not substantially change, the impacts that are already occurring within the viewshed.

Page 55, under 3.10 Land Use – Alternative A: No Action Cumulative Impacts

The geographic extent for the analysis of cumulative impacts on land use is the Estancia Basin. The temporal scope of cumulative impacts on land use is the life of the FMP, which is estimated at 10 years until the next revision. Table 3.1 on page 25 of the EA lists past, present, and reasonably foreseeable future actions that may contribute to cumulative impacts to resources analyzed in this EA. Past, present, and reasonably foreseeable future projects that could impact land use are the Cibola National Forest Plan Revision, High Lonesome Wind Farm, and El Cabo Wind Farm.

Impacts to land use would occur from the Cibola National Forest Plan Revision as a result of fire management activities that are implemented by the USFS under the plan. Adverse impacts to neighboring landowners would occur if smoke plumes were to compromise air quality in the immediate area. Adverse impacts to local land use will include deforestation, sterilization of soils, contamination of waterways from burned material, as well as flooding and erosion. Long-term beneficial impacts to land use, such as the restoration of a healthy forest ecosystem and more water for farming and ranching, would occur from the Cibola National Forest Plan Revision as forest restoration treatments were implemented and contributed to the reduction of risk for high intensity wildfires. Unplanned ignitions on any land outside the monument could

result in adverse impacts to land use in the form of burned land or structures and long-term impacts to vegetation growth due to sterilization of soils and flooding. The wind farm developments would contribute adverse and beneficial impacts to land use. The wind farms would convert the discrete portions of the Estancia Basin from an agricultural and pastoral land use to an industrial land use, which could be considered either adverse or beneficial depending on a landowner's perspective. Overall, these actions would contribute short- and long-term impacts, which would be both adverse and beneficial to land use.

Impacts to local landowners and residents would occur under the No Action Alternative in the form of temporary, localized degradation of air quality and noise conditions if a wildland fire occurs at the monument, or within other public lands near the monument. Impacts to local land use would be the same as above for unplanned ignitions, but also from potential suppression techniques, such as chemical air drops, which could contaminate lands. Impacts from the No Action Alternative plus impacts from the past, present, and reasonably foreseeable future actions described above would result in short- and long-term adverse and beneficial cumulative impacts to land use. The incremental impacts of the No Action Alternative would contribute slightly to, but would not substantially change, the impacts that are already occurring within the Estancia Basin.

Page 56, under 3.10 Land Use – Alternative B: FMP Revision (Preferred Alternative)
Cumulative Impacts

The geographic and temporal scope of the cumulative impacts analysis for land use are described under the No Action Alternative. Similarly, the past, present, and reasonably foreseeable future actions that may impact land use are described under the No Action Alternative. As stated above, the past, present, and reasonably foreseeable actions would contribute short- and long-term impacts, which would be both adverse and beneficial to land use.

The Proposed Action would contribute smoke and particulate matter to the airshed when prescribed burns occur. The application of the New Mexico Smoke Management Program's Guidance Document (NMED 2005) would reduce the intensity and duration of those contributions from prescribed fire, especially if all jurisdictions implement the state's guidance. Short-term increased noise from fire management equipment could be heard by local residents depending on the location of the wildland fire events. The duration of the adverse impacts to land use would be short term, coinciding with the duration of fire management activities. Over the long term, the Proposed Action would result in beneficial impacts to land use because brushy, nonnative vegetation would be removed by prescribed fire, mechanical, and herbicide treatments, resulting in a reduced risk of high-intensity wildfire. The Proposed Action would contribute negligible short-term adverse impacts to land use when added to past, present, and foreseeable actions, but would provide beneficial impacts by reducing adverse effects of unplanned ignitions that impact adjacent land uses on public and private lands. The incremental impacts of the Proposed Action would contribute slightly to, but would not substantially change, the impacts that are already occurring within the Estancia Basin.

Page 62. References and Literature Cited

National Park Service (2013). *Air Quality Glossary*. Available at: <http://www.nature.nps.gov/air/aqbasics/glossary.cfm>.

SWCA Environmental Consultants (SWCA). 2016. *Claunch-Pinto Soil and Water Conservation District Community Wildfire Protection Plan*. Albuquerque: SWCA Environmental Consultants.

APPENDIX B: NON-IMPAIRMENT DETERMINATION

By enacting the NPS Organic Act of 1916 (Organic Act), Congress directed the U.S. Department of the Interior and the NPS to manage units "to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (54 USC 100101). NPS Management Policies (2006), Section 1.4.4, explain the prohibition on impairment of park resources and values:

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

An action constitutes impairment when its impacts "harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values" (NPS 2006: Section 1.4.5). To determine impairment, the NPS must evaluate the "particular resources and values that will be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts. An impact on any park resource or value may constitute impairment, but an impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance" (NPS 2006:Section 1.4.5).

Fundamental resources and values for the monument are identified in the enabling legislation for the park, the Foundation for Planning and Management Statement, and the Long Range Interpretive Plan. Based on a review of these documents, the fundamental resources and values for the monument are the archaeological resources of Abo, Quarai, and Gran Quivira; the preserved cultural landscape of the three units; the continuing cultural connections with the surrounding Hispanic and pueblo communities; and the scholarly research and museum and archival collections. Resources that were carried forward for detailed analysis in the EA and are considered necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, are key to the natural or cultural integrity of the park, and/or are identified as a goal in relevant NPS planning documents include air resources; soil and water resources; vegetation; wildlife; cultural resources, including pre-contact and historic resources, museum collections, and cultural landscapes; and paleontological resources. Accordingly, a non-impairment determination is made for each of these resources. Non-impairment determinations are not necessary for human health and safety or visitor use and experience because impairment findings relate back to park resources and values, and these impact topics are not generally considered park resources or values according to the Organic Act.

This non-impairment determination has been prepared for the Selected Alternative, as described in the FONSI for the monument's EA.

Air Resources

The Selected Alternative will result in short-term adverse impacts to local air quality primarily in the form of smoke and particulate matter from planned and unplanned ignitions. Impacts from unplanned ignitions will be short term, infrequent, and unpredictable. Smoke impacts from unplanned ignitions have the potential to contribute more smoke to the surrounding communities due to the lack of control over atmospheric conditions when unplanned wildland fires begin. Impacts from prescribed burns will be from smoke particulates and fumes entering the airshed, and will only last a few days with no lasting effect to the area on air quality standards, due to the implementation of the Interagency Prescribed Fire Planning and Implementation Procedures Guide (Product Management System [PMS] 484) (NWCG 2014). The prescribed fire plan will follow the PMS 484 prescribed fire plan template (PMS 484 - Appendix A) to include a go/no go checklist, complexity analysis, site description, map, personnel and equipment to be used, desirable weather conditions, desired fire behavior factors, and emergency protocol. Additionally, prescribed fire plans will follow the New Mexico Smoke Management Program's Guidance Document (NMED 2005).

Wildland fire management actions may require the use of mechanical equipment, such as mowers, engines, pumps, all-terrain vehicles, and bulldozers that would result in exhaust emissions that may include NO_x and SO₂, which are criteria pollutants. These emissions would be intermittent and temporary, lasting only for the duration of fire management events. Emissions from the use of mechanical equipment would be small relative to the emissions generated by unplanned or planned ignitions.

The Selected Action will not result in impairment of air quality within or adjacent to the monument because adverse impacts will be short term, associated with the duration unplanned ignitions. Planned ignitions will be managed to minimize adverse impacts to air quality.

Soil and Water Resources

Adverse impacts, such as loss of ground cover and exposure of soils to wind and water erosion, may be long-term in the event of severe fire that could not be quickly suppressed. Under the Selected Alternative, the mitigation of fire behavior affected through the implementation of fuel treatments could reduce adverse impacts to soils and water resources associated with soil erosion, runoff, stream turbidity, and altered water quality. Although prescribed burning, mechanical fuel reduction, and targeted herbicide treatment will result in short-term (one year or less) adverse impacts, such as destabilized soils or mildly contaminated water, to soils and water resources, no more than 10% of the monument's acreage, or 107 acres, will undergo treatment by prescribed fire in any given year. Therefore, impacts to soils and water resources will occur in discrete, isolated patches. Overall impacts to soils and water resources as a result of the Selected Alternative are expected to be localized and short term, and generate long-term benefits through improved ecosystem functioning and reduced potential for wildfire. The Selected Alternative will not result in impairment of soil and water resources at the monument because hydrologic conditions and overall soil productivity are expected to be maintained, and possibly enhanced, as fire management activities improve ecosystem functioning and reduce potential for wildfire and unwanted fire effects. Equally, herbicides will be selected based on the rate at which they degrade to ensure they do not persist in the environment or bio-accumulate (Tatum 2004).

Vegetation

Native vegetation communities in the monument are currently threatened by invasion of nonnative species and buildup of dense stands of trees and understory vegetation that contributes to fuel loading. Targeted herbicide treatment will be heavily controlled and managed and procedures and guidelines followed to minimize adverse impacts to non-target vegetation and wildlife. Prescribed fire will reduce fuel loading and mitigate fire behavior to improve suppression effectiveness given an unplanned ignition in the monument. No more than 10% of the monument's acreage, or 107 acres, will undergo treatment by prescribed fire in any given year under the Selected Alternative. Impacts from any management action (prescribed fire, mechanical treatment, and targeted herbicide application) will be limited to selected trees, and grass and brush cover. Although the loss of selected trees will be permanent, most other impacts will be short term and adverse during the treatment process, but will last for no more than two growing seasons as the area is naturally restored. All vegetation affected is common in the park. Beneficial impacts to plant productivity and ecological function will occur over the long term. Given the above impacts, the Selected Alternative will not result in impairment of vegetation resources at the monument.

Wildlife

Fire management activities under the Selected Alternative will be managed in a way to optimize benefits to wildlife and their habitats and minimize adverse impacts.

The Selected Alternative will result in short-term adverse impacts to wildlife during fire management activities. Suppression activities related to unplanned ignitions will last the duration of the wildfire event, but most wildlife species will be able to escape the area and utilize adjacent habitat. Species in less mobile life stages (juvenile or nestling) and less mobile species (small mammals, amphibians, and reptiles) are expected to be most impacted by fire. However, most species evolved in the presence of fire and have behavioral and other adaptations making populations resilient to fire. Under the Selected Alternative, no more than 10% of the monument's acreage, or 107 acres, will undergo treatment by prescribed fire in any given year, meaning that suitable and available habitat for many wildlife species will persist in other areas of the monument during prescribed burn events. Foraging opportunities may decrease for some species during the disturbance event, but may increase following fire. The intensity of the impact to wildlife from unplanned ignitions is expected to be reduced by implementation of fuel reduction activities (prescribed fire, mechanical treatment, and targeted herbicide application) under the Selected Alternative. Targeted herbicide treatment will be heavily controlled and managed and procedures and guidelines followed to minimize adverse impacts to non-target vegetation and wildlife. Herbicides will be specifically selected to focus on the biochemical processes unique to plants, thus have low levels of direct toxicity or risk to wildlife. Equally, herbicides will be selected based on the rate at which they degrade to ensure they do not persist in the environment or bio-accumulate (Tatum 2004). Further, over the long term, improvements to vegetation is expected to result in improved ecosystem functioning and increased habitat diversity. Under the Selected Alternative, the monument will implement prescribed burns, allowing for control of the fire location, season, and intensity. In this way, wildlife species can be deliberately avoided and impacts to such resources will not be impaired.

Cultural Resources, Including Pre-Contact and Historical Resources, Cultural Landscape, Museum and Archival Collections, and Continuing Cultural Connections

The Selected Alternative will result in both adverse and beneficial impacts to pre-contact and historic period cultural resources and cultural landscapes within the monument. Unplanned ignitions have the potential to cause damage or loss of the pre-contact archeological and historic artifacts and cultural landscapes of Abo, Quarai, and Gran Quivira, as a result of vegetation removal, increased soil erosion, and heating. Suppression actions related to the unplanned ignitions, could result in disturbance, exposure, or compaction of these artifacts, with unknown artifacts being at greatest risk since mitigation measures will not be applied specifically to avoid artifacts because their locations are unknown. These impacts will result in minor, such as temporary scorching, to irreparable damage, such as fractured and shattered lithics and pottery shards. Mitigation measures applied for other known resources may have a beneficial impact to unknown resources. However, under the reduced fire behavior scenario of the Selected Alternative, suppression actions are expected to be reduced in intensity and suppression is more likely to be successful with reduced duration of the fire event. Low intensity, fast-moving fire, will not heat the artifacts long or hot enough to cause damage. These lower intensity ground fires will help maintain more open cultural landscapes and historic view-sheds. In addition, the fire management activities under the Selected Alternative will be planned and designed to complement cultural landscape objectives. Impacts to cultural resources and cultural landscapes under the Selected Alternative will be long term and beneficial due to minimizing the potential for future severe wildland fires as the amount of acres restored increases and brush density decreases. Short-term adverse impacts will include unsightly burned and scorched vegetation and unvegetated areas from prescribed burns. The adverse impacts to vegetation are expected to last one or two growing seasons, depending on the intensity of the fire event. Through removal of dense fuels and vegetation, long-term benefits to cultural resources will occur due to lower potential losses from unpredictable and potentially severe unplanned ignitions. Adverse impacts to cultural resources resulting from fire management actions will be reduced through the use of mitigation measures and involvement of cultural resource advisors.

The Selected Alternative will result in beneficial impacts to museum and archival collections and continuing cultural connections. The Selected Alternative will result in beneficial impacts to museum and archival collections because defensible space will be created and maintained around the monument's visitor centers. Mechanical fuel reduction treatments could be carried out to reduce fuel loading around the visitor centers that house the museum and archival collections. Mitigation of fire behavior through the use of mechanical fuel reduction will reduce the likelihood of an unplanned ignition consuming or damaging museum collections stored on-site.

The monument's Foundation Document (NPS 2014b:9) defines continuing cultural connections as follows:

Salinas Pueblos Missions National Monument is deeply rooted in the surrounding Hispanic and pueblo communities. The monument fosters strong ties with these people whose ancestry connects to the monument and dates back centuries. Through its various relationships and partnerships, the monument plays a pivotal role in the preservation of the interconnected landscape, as well as regional education and interpretive efforts. The preservation of monument lands and structures is strengthened by these ongoing cultural connections.

The revision of the FMP will beneficially impact the monument's ability to uphold the fundamental value of continuing cultural connections because the FMP would include opportunities for the NPS to interact with the local community, such as publishing public notifications prior to implementing fire management activities and coordination with the local community. The NEPA process summarized in this document also provided two opportunities for public notification and input about the FMP revision, once during the public scoping period (discussed in Section 1.3.2 of the Draft EA and the *Public Involvement/Agency Consultation* section of the FONSI) and a second time during the Draft EA public review period (discussed in the *Public Involvement/Agency Consultation* section of the FONSI). Finally, implementation of the FMP will allow the NPS to manage resources within the monument consistent with the monument's purpose and significance. The resource management tools provided in the FMP will support the NPS with protecting monument lands and structures.

The Selected Alternative will not result in impairment of cultural resources within the monument because mitigation measures will be followed during fire management activities and long-term benefits will be realized through improved defensible space around historic structures, museum collections, recorded archeological sites, and known artifacts.

Paleontological Resources

Prescribed fire and mechanical and herbicide treatments will be implemented to avoid known paleontological resource sites. Unplanned ignitions have the potential to cause damage or loss of fossil remains as a result of surface and subsurface heating and NPS actions taken to suppress these unplanned ignitions could result in disturbance, exposure, or damage of fossil remains. However, with regard to known paleontological resources, suppression actions will be managed in a way that protects those resources. Mitigation measures applied for known resources may have a beneficial impact to unknown resources.

Under the Selected Alternative, fire behavior will be reduced through the proactive measures of prescribed fire and mechanical and herbicide treatments. Through removal of dense fuels and vegetation, long-term benefits to paleontological resources will occur due to lower potential losses from unpredictable and potentially severe unplanned ignitions. Greater protection of paleontological resources will be achieved through targeted fuel treatments around known sites. The Selected Alternative will not result in impairment of paleontological resources within the monument because mitigation measures will be followed during fire management activities and long-term benefits will be realized through improved defensible space around sensitive resource areas.

Mitigation measures applied for other known resources may have a beneficial impact to unknown resources. Under the Selected Alternative, fire behavior will be reduced through the proactive measures of prescribed fire and mechanical and herbicide treatments. Through removal of dense fuels and vegetation, long-term benefits to paleontological resources will occur due to lower potential losses from unpredictable and potentially severe unplanned ignitions. Adverse impacts to known paleontological resources resulting from fire management actions will be reduced through avoidance of those sites and the use of mitigation measures and involvement of NPS resource advisors. Greater protection of paleontological resources will be achieved through targeted fuel treatments around known sites. The Selected Alternative will not result in impairment of paleontological resources within the monument because mitigation measures will be followed during fire management activities and long-term benefits will be realized through improved defensible space around sensitive resource areas.

Conclusion

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the superintendent's professional judgment that there will be no impairment of monument resources and values from implementation of the Selected Alternative.