



**National Park Service
U.S. Department of the Interior**

**Great Basin National Park
Regions 8, 9, 10 and 12**

FINDING OF NO SIGNIFICANT IMPACT Fire Management Plan

Recommended:

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Superintendent, Great Basin National Park

Date

Approved:

Frank Lands
Regional Director, Interior Regions 8, 9, 10 & 12

Date

1. Introduction

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) prepared an environmental assessment (EA) to examine alternative actions and environmental impacts associated with the Great Basin National Park (GRBA or park) Fire Management Plan (FMP) update. The purpose of the FMP update is to conform with current NPS policy; identify and prioritize fuels treatments; and promote a fire management strategy based on natural ecological processes and conditions characteristic of park ecosystems. The goals of the updated FMP are to protect life and property, prevent catastrophic wildfire, reduce fuels, restore plant communities to their natural range of variation, and increase ecological resistance and resilience.

This finding of no significant impact (FONSI) documents the decision of the National Park Service to select the preferred alternative (selected alternative) for the FMP update at GRBA. The statements and conclusions reached in this FONSI are based on documentation and analysis provided in the 2023 Great Basin National Park Fire Management Plan EA and associated decision file. To the extent necessary, relevant sections of the EA are incorporated by reference below.

2. Selected Alternative and Rationale for the Decision

Based on the analysis presented in the EA, the National Park Service selected Alternative 2, the NPS-preferred alternative.

Under the selected alternative, the updated Fire Management Plan alternative, fire suppression will be used to protect infrastructure, high visitor-use areas, and natural and cultural resources. Management of wildland fires will include resource benefit objectives and returning fire to its natural role on the landscape where identified risk is manageable and acceptable. Fuels will be reduced on approximately 21,024 acres in the next ten years, with re-treatments and additional projects identified after five years. Project level compliance will be required on all fuels reduction activities. Each fuels treatment will be subject to National Historic Preservation Act (NHPA) Section 106 compliance review including but not limited to cultural resource inventories and consultations with interested parties including area tribes, the general public, and the Nevada State Historic Preservation Office (SHPO). (EA pgs. 6-7).

Fuels reduction methods will include mechanical, manual, prescribed fire, herbicide, and revegetation. Some areas will be retreated over multiple years, as needed, to meet fuels and restoration objectives. Fuels reduction will be used to restore sagebrush, aspen, ponderosa pine, riparian, and wet meadow plant communities. Fuels treatments and managed wildfire for resource benefit will reduce wildland fire risk in the long term and allow more options for firefighting operations to suppress and control wildfires. Vegetation resistance and resilience will increase, and severity of wildfires will be lower due to fuels reduction treatments. (EA pg. 7).

Details of the proposed fire management treatments are provided in Appendix A of the EA (pgs. A-1 to A-18). Figure 1 shows the location of the proposed fuels treatments within Great Basin National Park. For maps showing the vegetation types to be treated within each treatment area, refer to Appendix A of the EA.

Rationale

Based on the analysis presented in the EA, the National Park Service selected Alternative 2 (Updated Fire Management Plan), the NPS-preferred alternative, because it best meets the project purpose and need, including:

- Updates the FMP to meet current NPS policy and standards.
- Improves ability to protect life and property by fuels management.
- Reduces risk of catastrophic wildfire.
- Enhances ability to restore plant communities to their nature range of variation.
- Increases ecological resistance and resilience.

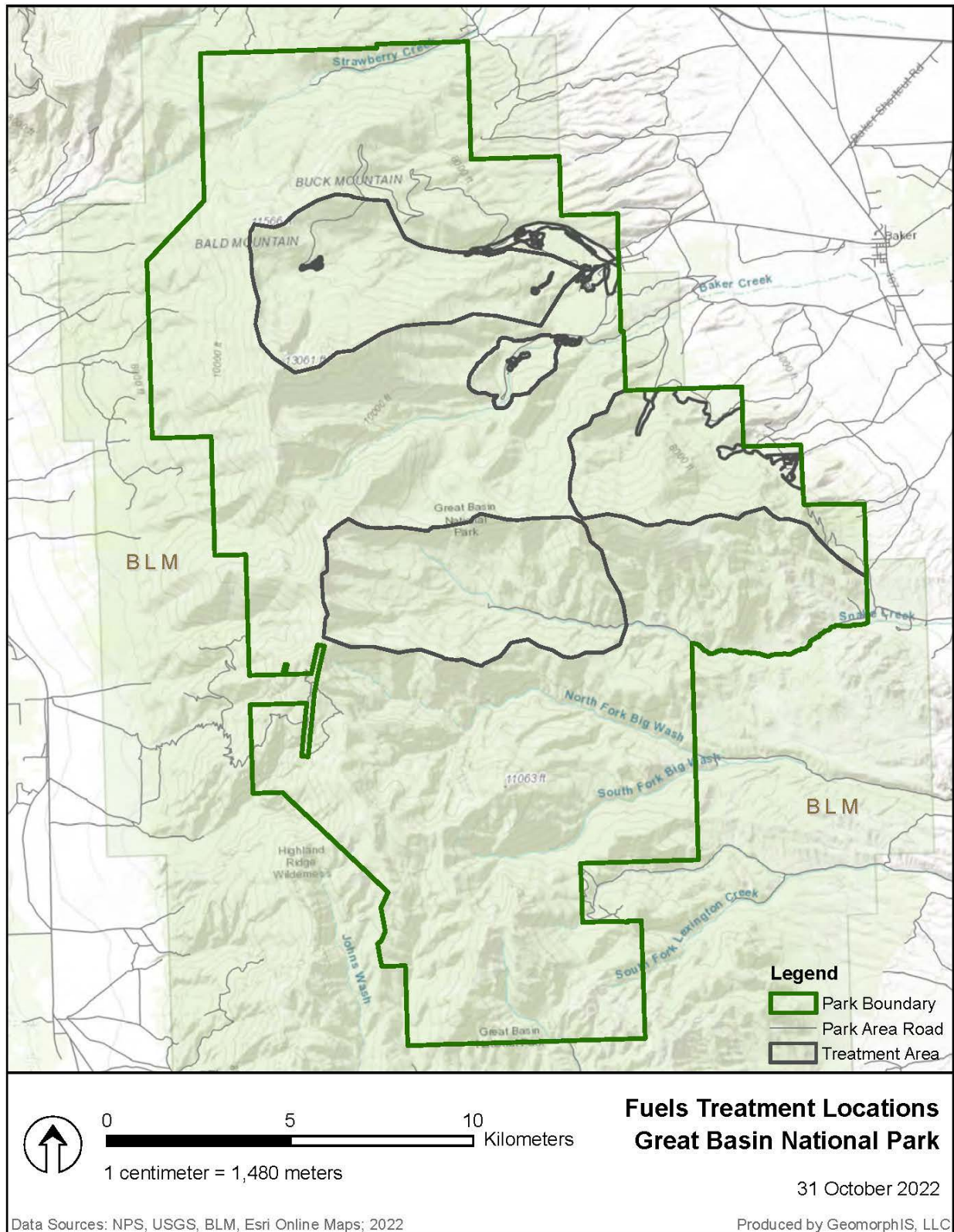


Figure 1. Location of proposed fuels treatments within Great Basin National Park. (EA, Appendix A, pg. A-5).

3. Mitigation Measures

The selected alternative incorporates the mitigation measures for each impact topic/resource in the Affected Environment and Impact Analysis section of the EA (pgs. 11-48). Mitigations and Best Management Practices (BMPs) are also listed in the EA (Appendix B). Changes and additions to BMPs are included in in this FONSI (Appendix A – Errata Indicating Text Changes to EA).

The NPS has the authority to require implementation of mitigation measures under the Organic Act, The Wilderness Act, The National Historic Preservation Act, 2006 NPS Management Policies, as well as under park-specific plans, and other applicable state and federal requirements.

4. Other Alternatives Considered

In addition to the selected alternative, the EA analyzed one other alternative and its impacts on the environment: Alternative 1 – No Action Alternative (EA pg. 6).

Alternative 1: No Action

Under the No Action Alternative (Alternative 1), fire management would continue under the 2004 Fire Management Plan (NPS 2004) which includes ongoing wildland fire suppression activities and limited mechanical and prescribed fire fuels treatments. Wildland fire for resource benefit and prescribed fire would be limited to areas of Fire Regime Condition Class 1 (FRCC 1), above 8,000 feet in elevation, and outside of the Wildland Urban Interface (WUI), sensitive watersheds, and infrastructure protection areas (NPS 2004). Areas meeting these criteria include less than 10,000 acres of the park. Additionally, the complexity of the 2004 FMP has effectively eliminated wildland and prescribed fire as fuels management tools. Mechanical treatments using chainsaws to remove conifers in sagebrush ecosystems would be limited to approximately 100 acres per year. Risk of high-severity wildfires that adversely impact park infrastructure and natural and cultural resources would remain high, due to limited fuels reduction work.

Suppression of wildfires would occur throughout the park, consistent with federal and NPS fire management policies. The objectives for managing wildfire are to suppress wildfires using minimum impact suppression tactics (MIST) to minimize resource loss and suppression impacts to resources and values. Fire suppression operations would have a higher risk level due to a lack of landscape-scale fuels treatments to utilize as control features, accumulation of fuels due to a century of fire exclusion, and increased aridity and temperatures due to a warming and drying climate.

5. Public Involvement/Agency Consultation

Public Involvement

The initial scoping period for the Proposed Action was from March 25, 2022 to April 25, 2022, and was announced via email, press release, and the NPS Planning, Environment & Public Comment (PEPC) website. A public (Zoom, online) meeting was held on March 30, 2022. Two members of the public participated in the online meeting. By the end of the comment period, five correspondents

provided comments via the PEPC website; no other correspondence (e.g., email, letter) was received). All public comments were reviewed and substantive comments were considered by the NPS Interdisciplinary Team (IDT) in development of the Draft EA.

The public comment period for the EA was from February 2, 2023 to March 4, 2023, and was announced via email, press release, and the NPS PEPC website. A digital version (PDF file) of the Draft EA was posted on the PEPC website for review and comment. An in-person public meeting was held at the GRBA Visitors Center in Baker on February 27, 2023. Ten members of the public attended the meeting.

Written comments were received from six correspondents: two individuals, one public interest group (Baker Area Citizens Advisory Board), and one local agency (White Pine County Board of County Commissioners). There were eleven substantive comments from the County Commissioners which were addressed by NPS (Appendix B of this FONSI). There was no media interest in the project.

Agency Coordination

Great Basin National Park consults with federally recognized tribes and the Nevada State Historic Preservation Office before making decisions or undertaking activities that may affect tribes or cultural resources. Consultation with the U.S. Fish and Wildlife Service was not required as GRBA has no species listed under the Endangered Species Act. For this FMP, informal outreach was initiated in February to March 2022, with a summary of the proposed action and an invitation to the public scoping meeting held April 2022.

National Historic Preservation Act Section 106 compliance consultation was conducted with Nevada SHPO and three federally recognized tribes (Confederated Tribes of Goshute, Duckwater Shoshone Tribe, and Ely Shoshone Tribe) in accordance with 36 CFR Section 800.8(a)(1). GRBA sent letters inviting tribes and SHPO to participate in the development of the FMP on February 1, 2022. To date, no input or concerns with the FMP have been received. The tribes and SHPO will be mailed a copy of the final FMP for their records, noting that individual fuels treatments will be subject to independent NHPA Section 106 compliance review including further consultation with their offices. If any tribe should identify resources that could be affected by proposed actions associated with the final FMP, GRBA will conduct follow-up consultation.

The Bureau of Land Management, U.S. Forest Service, and Nevada Department of Wildlife were contacted via initial public scoping and scoping for the Environmental Assessment. No comments were received from those agencies.

6. Finding of No Significant Impact

As described in the EA, the selected alternative has the potential for adverse impacts on air quality, invasive plant species, native vegetation, wildlife species of concern or their habitats, cultural resources, soils, water resources, wetlands, and wilderness eligibility. Mitigation measures for each impact topic/resource are provided in the Affected Environment and Impact Analysis section of the EA (pgs. 11-48). These are further supported by related BMPs in Appendix B of the EA, and in Appendix A of this FONSI. Application of the mitigation measures and BMPs will eliminate or reduce the potential adverse impact of the selected alternative treatments on park resources to less than significant.

Air Quality – The selected alternative will have short-term adverse effects to air quality. Smoke emissions from wildfires could occur at some level every year under this alternative. However, the fire management tools outlined under the selected alternative (e.g., prescribed fire) will allow for more control over when and where fires, and hence smoke events, will occur. Burns will be planned to coincide with periods of acceptable burn conditions and mixing heights. Smoke effects will be managed, monitored, and mitigated according to state requirements. Each wildland fire use and prescribed fire project will be implemented in compliance with the Nevada Smoke Management Plan and managed to maintain smoke emissions below the legal health thresholds. Reduction in fuels in conjunction with smoke compliance will result in an overall, cumulative, long-term, beneficial effect to local and regional air quality. (EA pgs. 36-37).

Invasive Plants – Treatments outlined in the selected alternative (prescribed fire, manual, mechanical, and revegetation) could introduce or spread invasive plants. If not mitigated, this will have long-term, adverse effects. However, the herbicide and revegetation treatments that will occur in conjunction with fuels treatments, will limit or eliminate impacts from invasive plants. The selected alternative will improve the condition of native vegetation, reduce fire intensity, and allow native vegetation to recover and outcompete invasive plants. Invasive plant survey and treatment actions outlined in the selected alternative, coupled with past and future survey and treatment efforts by the park and adjacent land managers, will have cumulative, long-term, beneficial effects by limiting the introduction and spread of invasive plants. (EA pgs. 37-38).

The Great Basin National Park Invasive Plant Management Plan (2013) will be followed. All applicable laws and label instructions will be followed to protect human health and safety and avoid negative impacts on native species. Any material or equipment brought from outside the local area will be free of soil and plant material that could contain invasive species. Only native plant materials will be used for revegetation treatments, and all seed and planting material will undergo and pass a recent purity test or be certified weed-free (EA pg. 38).

Native Vegetation – Under the selected alternative, prescribed fire and fuel reduction treatments will be purposely planned to benefit native vegetation and adverse effects will be mitigated. In the short term, prescribed fire and fuels management will have an adverse effect on native plants and wildlife habitat. However, burned vegetation will recover enhancing habitat and available forage. The selected alternative will have long-term beneficial effects by creating more varied patterns of

vegetation (increased heterogeneity), more resilient plant communities, and eliminate or prevent the accumulation of heavy fuels. This reduction in fuel density, fuel bed height, and ladder fuels will reduce fire intensity, spread rates, torching, and crown fires and have a long-term beneficial effect on native vegetation. Fuels reduction treatments will benefit native vegetation, particularly ponderosa pine, aspen, and mesic habitats. Treatments will also protect ancient bristlecone pine and ponderosa pine from high-intensity, catastrophic wildfire.

There are no federally threatened or endangered plant species known from GRBA; however, several populations of rare plants do occur. Implementation of the selected alternative could have long-term, adverse impacts on native vegetation through direct mortality or indirectly from impacts on seed banks or soil conditions. Known locations of rare plants will be avoided, if possible, and project implementation will occur when plants are dormant. NPS staff will survey treatment areas with known habitat for rare plants and protect them from disturbance (EA pgs. 38-41).

Wildlife Species of Concern or Their Habitats – The selected alternative targets specific vegetation communities that are important habitat for wildlife species of management concern. Proposed fuels treatments will alter vegetation structure and composition and increase resistance and resilience to wildfire and invasive plants. Under the selective alternative more areas will be protected from type conversions and ecological degradation of habitat, thus enriching wildlife diversity. Also, wildlife habitat, productivity, and resilience will be enhanced in a more expedited and extensive manner than under no action. Only select portions of Bonneville cutthroat trout (BCT) watersheds will be treated each year. Implementing the selected alternative in BCT watersheds will involve the use of mechanical, manual, and prescribed fire treatments. These treatments will produce minor, short-term increases in erosion throughout the treatment area thus increasing sedimentation in the stream. Unless pre-treatment bird clearance surveys are conducted by qualified staff, prescribed fire and tree cutting would be prohibited during the nesting season (1 April to 31 July for passerines and 1 March to 31 July for raptors). When identified, all raptor nests would be avoided by fuels treatments.

Mitigations for nesting birds will also protect tree roosting bats. Tree roosting bats are difficult to survey for and could be adversely affected by fuels treatments. However, tree roosting bats generally do not roost in pinyon pine and juniper trees and prefer older growth trees and snags that are not targeted by treatments. Large snags preferred by cavity nesting birds, raptors and tree roosting bats will be generally avoided by cutting operations but may be impacted during prescribed and wildland fire. To protect fisheries and cave endemic invertebrates, fire retardant will not be used within 300 feet of water sources and cave entrances. Mechanical treatments in riparian areas will not occur within 50 feet of streams to minimize riparian, fisheries, and sedimentation impacts. To avoid impacts during spawning, mechanical and/or prescribed fire treatments will not occur within 150 feet of a stream channel containing BCT from June 1 to August 31. Manual treatments, such as falling trees with chainsaws, are not subject to these restriction and can be conducted year-round at any distance from the stream. With the application of project mitigation measures and BMPs, the selective alternative will have a cumulative, long-term beneficial effect on wildlife species and habitats. (EA pgs. 41-42).

Cultural Resources – Under the selected alternative, fuels treatments will reduce the adverse effect of high-intensity fire on cultural resources significantly. By reducing heavy fuels around cultural resources and then conducting low-intensity prescribed burns, any wildfires that occur in the treatment areas will be less destructive to surface resources. Each individual fuels treatment project will be subject to National Register of Historic Places (NRHP) Section 106 compliance review including but not limited to cultural resource inventories and consultations with interested parties including area tribes, the general public, and the SHPO. Cultural resources that are determined eligible for listing in the NRHP, protected under Archaeological Resources Protection Act (ARPA), or protected under Native American Graves Protection and Repatriation Act (NAGPRA) within individual fuels treatment project areas will all be avoided by project actions that could adversely affect those resources. All eligible NRHP, ARPA, and NAGPRA resources will have a 66-foot buffer placed around their site boundaries, and proposed actions that could adversely affect those resources will not be allowed within the 66-foot buffers or the site boundaries. With the mitigation measures and BMPs in place, the selected alternative will have a cumulative, long-term beneficial effect on cultural resources. (EA pg. 43).

Soils – Soil chemistry and condition, erosion, and biotic soil crusts have been affected by historic grazing, logging, wildfire, pile burns, recreational use, and invasive annual grasses. Heavy fuel accumulations leave soils vulnerable to high intensity wildfire and post fire erosion. Mitigation measures and BMPs will be employed to protect soil resources, and revegetation treatments will be conducted as needed to stabilize soils. MIST tactics will be followed and all damage from fire suppression activities will be repaired or stabilized prior to personnel and equipment leaving the fire line. Prescribed fires will be planned to minimize adverse effects on biotic crusts, soil chemistry, and erosion. Hand lines for prescribed fires will be located in soils that could withstand disturbance and support vegetation after the fire whenever possible. The selected alternative will reduce fuels and fire intensity sufficiently to protect soils, with an overall long-term, beneficial effect on soils and erosion. (EA pg. 44).

Water Resources – Under the selected alternative, water quality will remain excellent in the park. Thinning and prescribed fires will reduce the intensity of fires, which will in turn help preserve more of the watershed and reduce the amount of nutrients and sediment entering water sources. This alternative could also help increase water quantity by removing vegetation and reducing evapotranspiration, which will in turn help buffer changes in water temperature during fire events by creating deeper pools and more refugia for aquatic organisms. The selected alternative will increase the quality and quantity of wetlands in the park, with long-term, beneficial effects to wetlands and help to offset some of the adverse effects of increasing temperatures and reduced precipitation. Overall the reduction in fuels, reduced risk of catastrophic fire, and BMPs under the selected alternative will have noticeable long term benefits to reducing cumulative effects on water resources. (EA pgs. 44-46).

Wetlands – Fuels reduction treatments, including conifer removal, and prescribed fire will have beneficial effects to wetlands. The fuels reduction treatments proposed in the selected alternative will reduce competition, maintain hydrological connectivity between wetlands and streams and increase

water availability. Control of invasive plants will preserve the native biodiversity of the wetland and limit competition between native and invasive species. GRBA wetlands have been severely impacted by drought, climate change, fire exclusion and conifer encroachment. Additionally, past land management actions, such as grazing, introduction of invasive plants, and water diversions, have negatively impacted GRBA wetlands and contributed to their degradation. Implementation of the selected alternative will increase the quality and quantity of wetlands in the park, with long-term, beneficial effects to wetlands and help to offset some of the adverse effects of increasing temperatures and reduced precipitation (EA pg. 46).

Restoration projects are identified as excepted actions in Section 4.2.1.9 of NPS Procedural Manual #77-1. Therefore, no additional compliance with Directors Order #77-1: Wetlands Protection or Wetland Statement of Findings is necessary (EA, pg. 25).

Wilderness Eligibility – Ecosystems in the Snake Range are adapted to frequent, low-intensity fires. Both fire suppression and unnaturally severe fires alter community composition and structure and adversely impact the natural quality of wilderness. Restoration of community composition and structure through fuel and vegetation treatments, and a greater role of fire as a natural landscape-level process, will benefit the natural quality of wilderness. There will be a decreased risk of high-severity wildfire which could prevent further degradation in the long term. Potential impacts to wilderness characteristics will be short-term and not preclude future inclusion in the National Wilderness Preservation System. (EA pgs. 46-47).

Furthermore, there will be no significant impacts on public health, public safety, or unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the Selected Alternative will not violate any federal, state, or local environmental protection law.

7. 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: Errata Indicating Text Changes to EA

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Errata Indicating Text Changes to EA

This appendix provides the National Park Service's (NPS) changes to the Great Basin National Park (GRBA or park), updated Fire Management Plan (FMP), Environmental Assessment (EA).

The errata contain corrections and minor revisions to the EA. Page numbers referenced pertain to the pages in the original EA. The edits and corrections in this errata do not result in any substantial modification being incorporated in the selected action, and it has been determined that the revisions do not require additional environmental analysis. This errata, when combined with the EA, comprises the only amendments deemed necessary for the purposes of completing compliance and documentation for the project.

Original text from the EA is included to provide context and to allow for comparison to the text change. Additions to the text are underlined; deleted text is shown in ~~strikeout~~.

Added Paragraph at End of Section 8 Consultation and Coordination. (EA pg. 49)

The NPS maintains a cooperative agreement with the BLM, Ely District, which provides a framework for wildland and prescribed fire operations between GRBA and the BLM. The cooperative agreement and other coordination between GRBA and BLM are described in detail in the FMP, and the agreement itself is attached to the FMP as an appendix.

Correction of Treatment Completion Date. (EA, Appendix A, pg. A-8)

The proposed action would treat aspen on approximately 17,939 acres of the park. Annual goals are to treat 1,000 to 2,000 acres of aspen per year, with all aspen in the park treated by ~~2045~~ 2033.

Correction of Treatment Slope Percentage. (EA, Appendix B, pg. B-7)

MECH 02 – Erosion Prevention

c. Mechanical equipment use off established roads will only be used where slopes are ~~30%~~ 40% or less, vegetation type indicates need for use, and where located more than 50 feet from streams and wetlands.

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Appendix B:
Response to Substantive Public Comments

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Response to Substantive Public Comments

This appendix provides the National Park Service's (NPS) response to public comments on the Great Basin National Park (GRBA or park), updated Fire Management Plan (FMP), Environmental Assessment (EA).

Many of the written responses to the EA expressed an opinion or preference; some were substantive. According to the NPS NEPA Handbook, pg. 65 (NPS 2015), substantive comments are those that:

- Question, with reasonable basis, the accuracy of information in the environmental analysis.
- Question, with reasonable basis, the adequacy of the environmental analysis.
- Present reasonable alternatives other than those presented in the environmental analysis.
- Cause changes or revisions in the proposal.

In other words, substantive comments raise, debate, or question a point of fact or analysis. Per the NPS NEPA Handbook, pg. 65, "comments that merely support or oppose a proposal or that merely agree or disagree with NPS policy are not considered substantive and do not require a formal response."

Comments from the White Pine County Board of County Commissioners

Comment: *Policy 15-2: Fire Management: Maintain local coordination between BLM, US Forest Service, Nevada Division of Forestry (NDF) and local volunteer fire departments to increase the effectiveness of fire suppression. The federal agencies need to take advantage of the skills and local knowledge of local residents. This is particularly important when using out-of-area fire crews for firefighting. White Pine County will aid in any way possible in suppression of wildfires that endanger the livelihoods and personal wellbeing of its citizens.*

Response: Wildfire suppression and response in the park are coordinated through an annual delegation of authority and Fire Management Operating plan with the Bureau of Land Management (BLM), Ely District office. This agreement allows local coordination and resource sharing through an interagency fire response to include the use of all available and qualified personnel.

Comment: *Mechanical Treatments - The County supports the use of chipping, mastication, and mechanical brush removal to increase efficiencies of treatments where necessary. The County would like further clarification as to where mechanical treatments are permitted considering that page 12 of the EA states that these treatments will occur on slopes less than 40 percent while Best Management Practice (BMP) MECH 02 c. in Appendix B states that mechanical treatments will occur on slopes less than 30 percent.*

Response: The potential locations of masticator use are given on EA (Appendix A. Figure A-1). Masticators could be used on slopes under 40% within these areas. The discrepancy between slopes has been fixed in the FONSI Errata, Appendix A, to show that BMPs for masticators are on slopes <40%.

Comment: *The County would encourage the NPS to coordinate with the Bureau of Land Management (BLM) Ely District. Specifically, the County would encourage NPS to review fuels treatments that are proposed under the South Spring and Hamblin Valley Restoration Project to see if proposed BLM treatments on the western flank of the Park could be extended into the Park to allow for efficiencies and synergies with these two similar efforts.*

Response: We agree that interagency treatments across administrative boundaries are important and should be pursued. GRBA was a cooperating agency in developing the "South Spring Valley and Hamblin Valley Watersheds Restoration Plan" and provided comments on the project. This document specifically mentions cross boundary projects on page 105, "Great Basin National Park would be consulted on any proposed treatments bordering the park. All opportunities would be explored to conduct joint restoration projects in units that border the park."

Comment: *Chemical Treatments: The County supports the use of chemical treatments to increase the success of revegetation efforts and to suppress invasive species. The County encourages coordination with the Tri-County Weed Program to design and apply herbicide treatments. Other resources like those offered by the Great Basin Agricultural Research Service (ARS) Rangeland Rehabilitation Lab, specifically Charlie Clements and Daniel Harmon should also be used in formulation of chemical application and protocol due to their extensive experience regarding similar treatments in Nevada*

Response: The park works closely with the Tri-County Weed Program as a member of the Snake Valley Community Weed Management Area. The park coordinates with NPS Integrated Pest Management coordinators and NPS Invasive Plant Management Teams (IPMT) to support invasive plant management on park lands.

Comment: *Revegetation: The County supports the practice of seeding treatment areas where natural seedbanks are depleted. As stated on page 10 of the EA it is acknowledged that resource recovery in high elevation sites is expected to be faster and more evident while drier hotter sites with lower elevations will likely take years or decades to recover. In these sites the County strongly recommends the use of all desirable, fire-resistant species to be used including those that are nonnative where native seedings have low likelihood of success. Additionally, the use of green strips is encouraged to act as a line of defense during fire. Again, consultation with the Tri-County Weed Program and ARS staff is highly encouraged when developing site specific seeding plans.*

Response: NPS policy requires the use of native plant materials on NPS lands (NPS Management Policies 2006, Section 4.4).

Comment: *General Comments - Regarding the Proposed Action and Proposed Fire Management Treatments in Appendix A: The County generally supports the NPS timeline to complete treatments within the Park. However, there is a discrepancy in the timeline regarding 17,939 acres of aspen treatments. Throughout the EA it is stated that 21,024 acres of treatments will occur over the next ten years, of which approximately 85 percent of the area is in aspen ecotypes. On page 8 of Appendix A it is stated that all aspen will be treated by the year 2045 which is out of the scope of this plan. The County encourages swift action as much as possible to address current fuel loading concerns and suggests that the timeline of aspen treatments in Appendix A be consistent with the Proposed Action..*

Response: The park proposes to treat 21,024 acres over the next 10 years. 17,939 of which are aspen. We agree that swift, aggressive action is needed to protect aspen in the South Snake Range.

Comment: *The County generally supports proposed actions to reduce fuels in Lehman Flat, Kiou Basin, and surrounding Infrastructure as described but would like more clarification regarding the removal of mountain mahogany. On page A-8 mahogany is listed as a target species for removal. Mahogany is not typically considered an invasive species in the Great Basin, provides valuable habitat for multiple species, and it is difficult to reestablish due to its slow growth. If mahogany is being removed due to its proximity to infrastructure or other sensitive areas, it should be stated in Appendix A.*

Response: Mountain mahogany is not being targeted for treatments at the stand level and we agree that they provide valuable habitat. However, individuals and small stands of mahogany may be removed or killed by prescribed fire when treating other vegetation types. Ultimately, fuels reduction treatments will benefit mahogany by reducing the probability of stand replacing fires. Mountain mahogany is a native species, but it does have the potential to encroach and negatively impact sagebrush and other mountain shrub communities. Mahogany also poses a fire risk when in proximity to infrastructure. Because of this, mountain mahogany is included on the list of target species and will be included in treatments as indicated by site conditions and project objectives.

Comment: *In addition, the County would encourage the NPS to explore if there are areas within the Park where pinyon and juniper has encroached into Mahogany stands. Restoration and protection of old-growth Mahogany stands by removing encroaching PJ and breaking up canopy fuels is something the County would support.*

Response: While mountain mahogany stands in the park are in excellent ecological condition, stands are at risk for replacement fires. There are areas of mountain sagebrush and mountain mahogany "savanna" that are being encroached by conifers. Overall fuels reduction will reduce the risk of catastrophic replacement fire and indirectly benefiting mahogany on the landscape.

Comment: *The County suggests using prescribed and/or targeted livestock grazing where appropriate under a well-developed grazing plan as an economic and scalable method of reducing*

fine fuel. As stated in the EA much of the Park is in a late seral phase, reintroduction of well-planned livestock grazing can help reset ecological stages.

Response: Cattle grazing ended in the park in 2000 and sheep grazing in 2008. Grazing is no longer permitted in the park and therefore will not be used as a management tool.

Comment: *It is unclear how extensive treatments in riparian areas will be or where they will occur. Treatments detailed in Appendix B focused on sagebrush, aspen, ponderosa pine, and the Baker Creek Prescribed Fire account for all 21,024 acres of proposed treatment without any acreage being allocated to riparian areas. The County recommends that more detail be included regarding planned riparian treatments.*

Response: Limited riparian treatments are proposed in the Baker Creek and Can Young Canyon areas. Each fuels treatment will undergo project specific compliance. More detail on riparian treatments will be provided when those projects are made available for public comment.

Comment: *Affected Environment and Environmental Effects - The County generally finds the analysis to be accurate and adequate. As previously stated, the County suggests adding analysis regarding the incorporation of nonnative, desirable plant materials to revegetate a site as well as the inclusion of green strips and livestock grazing to provide an all-tools approach to reintroduce natural ecosystem function.*

Response: Under park service policy (Management Policies 2006, Section 4.4, page 46), native plant materials are required for revegetation. The objective of green stripping, while not specifically mentioned, will be accomplished through fuels reduction and revegetation treatments that reduce woody vegetation and increase herbaceous vegetation. Grazing is not being considered as a management tool because it is not permitted on park lands.

Appendix C: A Non-Impairment Determination

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Appendix C. Non-Impairment Determination

This non-impairment determination is made for the National Park Service (NPS), Great Basin National Park (GRBA or park), updated Fire Management Plan (FMP).

NPS Management Policies 2006, section 1.4.4, explains the prohibition on impairment of park resources and values: “While Congress has given the Service 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 1916 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. The impairment of park resources and values may not be allowed by the Service unless directly and specifically provided for by the legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.”

What is Impairment?

NPS Management Policies 2006, section 1.4.5, “What Constitutes Impairment of Park Resources and Values,” and section 1.4.6, “What Constitutes Park Resources and Values,” provide an explanation of impairment. “Impairment is an impact that, in the professional judgment of the responsible NPS manager, will harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values.” Section 1.4.5 of NPS Management Policies 2006 states:

“An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute 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, or
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified as a goal in the park’s general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated. An impact that may but would not necessarily lead to impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.” Per section 1.4.6 of NPS Management Policies 2006, park resources and values at risk for being impaired include:

- “the park's scenery, natural and historic objects, and wildlife, and the processes and condition that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structure, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.”

Impairment Determination for the Selected Alternative

This determination on impairment has been prepared for the National Park Service selected alternative described in the finding of no significant impact. An impairment determination is made for all resource impact topics analyzed for the selected alternative. An impairment determination is not made for visitor use and experience because impairment findings relate back to park resources and values, and this impact topic is not generally considered to be a park resource or value according to the Organic Act and cannot be impaired in the same way that an action can impair park resources and values.

Based on the evaluation of potential impacts identified in the EA for Alternative 2 (updated FMP treatments), the topics evaluated for impairment include the following:

- Air Quality
- Invasive Plant Species
- Native Vegetation
- Wildlife Species of Concern or Their Habitats
- Cultural Resources
- Soils
- Water Resources
- Wetlands
- Wilderness Eligibility

Air Quality

The selected alternative, updated FMP treatments, will have short-term adverse effects to air quality. Smoke emissions from wildfires could occur at some level every year under this alternative and the effects of suppression activities will also be similar. However, the fire management tools outlined for the selected alternative (e.g., prescribed fire) will allow for more control over when and where fires, and hence smoke events, will occur. The selected alternative will keep air quality within established thresholds and will help protect park infrastructure from wildfire. More acres and a greater number of vegetation types will be treated under the selected alternative using the full range of treatment actions. The greater frequency and area of prescribed fire used on different vegetation types will increase the short-term, adverse effects of smoke on localized portions of the park, but will have a long-term beneficial effect by reducing the risk of catastrophic wildfire and large-scale smoke events. Fuels reduction treatments (e.g., conifer removal), controlling invasive annual grasses, and restoring native vegetation will also reduce the risk of unplanned fires and smoke. Implementation of the selected alternative will reduce the risk of catastrophic wildfires allowing for a long-term improvement in local and regional air quality. (EA pgs. 36-37). Overall, implementation of the selected alternative treatments will not result in impairment to the park's air quality.

Invasive Plants

Treatments outlined in the selected alternative (prescribed fire, manual, mechanical, and revegetation) could introduce or spread invasive plants. If not mitigated, this will result in long-term, adverse effects. However, the herbicide and revegetation treatments that will occur in conjunction with fuels treatments, will effectively limit or eliminate impacts from invasive plants. The selected alternative will improve the condition of native vegetation, reduce fire intensity, and allow native vegetation to recover and outcompete invasive plants. These effects will be beneficial, major, and long term. (EA pgs. 37-38). Consequently, implementation of the selected alternative treatments will not result in impairment to the park's control and management of invasive species.

Native Vegetation

Under the selected alternative, prescribed fire and fuel reduction treatments will be purposely planned to benefit native vegetation over several years and adverse effects will be mitigated. However, because of the greater area treated and wider range of treatment methods, the implementation of the selected alternative will have a cumulative, long-term beneficial effect on native vegetation, particularly ponderosa pine, aspen, and mesic habitats. Treatments outlined in the selected alternative will build on previous habitat restoration projects in GRBA and work by other federal agencies and private landowners to benefit native vegetation. (EA pgs. 38-40). The selected alternative will have long-term beneficial effects by creating more varied patterns of vegetation (increased heterogeneity), more resilient plant communities, and eliminate or prevent the accumulation of heavy fuels. This reduction in fuel density, fuel bed height, and ladder fuels will reduce fire intensity, spread rates, torching, and crown fires and have a long-term beneficial effect on native vegetation. (EA pgs. 38-41). The restoration of native vegetation conditions within GRBA will not result in impairment to the park's natural habitats or sensitive plant species.

Wildlife Species of Concern or Their Habitats

The selected alternative targets specific vegetation communities that are important habitat for wildlife species of management concern. Proposed fuels treatments will alter vegetation structure and composition and increase resistance and resilience to wildfire and invasive plants. This will have indirect, long-term, beneficial effects on sensitive wildlife by increasing habitat quality and quantity, which will lead to subsequent increases in abundance, survival, reproduction, and recruitment. Under the selected alternative, more areas will be protected from type conversions and ecological degradation of habitat, thus enriching wildlife diversity. To reduce the potential impact of treatments on Bonneville cutthroat trout (BCT), only select portions of BCT watersheds will be treated each year. Under the selected alternative, wildlife habitat, productivity, and resilience will be enhanced in a more expedited and extensive manner than the no action alternative. (EA pgs. 41-42). Consequently, implementation of the selected alternative treatments will not result in impairment to the park's wildlife species of concern or their habitats.

Cultural Resources

Implementation of the selected alternative treatments, by removing excess fuels, will reduce the adverse effect of high-intensity fire on cultural resources significantly. By reducing heavy fuels around cultural resources and then conducting low-intensity prescribed burns, any wildfires that occur in the treatment areas will be less destructive to surface resources. This alternative will have major long-term benefits to cultural resources by reducing large-scale catastrophic fires that could adversely impact cultural resources both directly and indirectly. Each individual fuels treatment project will be subject to National Register of Historic Places (NHPA) Section 106 compliance review including but not limited to cultural resource inventories and consultations with interested parties including area tribes, the general public, and the SHPO. Cultural resources that may be harmed by the fuel treatments will be avoided. (EA pg. 43). The requirement to review and inventory prospective treatment sites will likely identify and protect previously unknown sites and therefore will not result in impairment to the park's cultural resources.

Soils

Soil chemistry and condition, erosion, and biotic soil crusts have been affected by historic grazing, logging, wildfire, pile burns, recreational use, and invasive annual grasses. Grazing cessation has had beneficial, long-term (years to decades) effects on park soils. Heavy fuel accumulations leave soils vulnerable to high intensity wildfire and post-fire erosion. Implementation of the selected alternative will reduce fuels and fire intensity sufficiently to protect soils, with an overall long-term, beneficial effect on soils and erosion. Mitigation measures and best management practices (BMPs) will be employed to protect soil resources when mechanical treatments are used, and revegetation treatments will be conducted as needed to stabilize soils. MIST tactics will be followed and all damage from fire suppression activities will be repaired or stabilized prior to personnel and equipment leaving the fire line. Prescribed fires will be planned to minimize adverse effects on biotic crusts, soil chemistry, and erosion. Hand lines for prescribed fires will be located in soils that can withstand disturbance and support vegetation after the fire whenever possible. (EA pg. 44). Because mitigation and revegetation measures are built into the treatments, implementation of the selected alternative will not result in impairment to the park's soil resources.

Water Resources

Vegetation thinning and prescribed fires, conducted as part of the selected alternative, will reduce the intensity of future wildfires, which will in turn help preserve more of the park's watersheds and reduce the amount of nutrients and sediment entering water sources. The selected alternative could also help increase water quantity by removing vegetation and reducing evapotranspiration, which could in turn help buffer changes in water temperature during fire events by creating deeper pools and more refugia for aquatic organisms. These effects will be major, beneficial and long-term. The park's streams and subalpine lakes will benefit directly or indirectly from improved watershed conditions. While park water resources are cumulatively affected by several factors including climate change, aridification, fuels accumulation, evapotranspiration and park use of groundwater, associated changes to precipitation is the primary driving force affecting water quality and quantity. Warming temperatures, aridification, and decreasing snowpack are expected to change park hydrology and water resources. Other contributing factors such as fuels accumulation, evapotranspiration and park use of groundwater affect water resources but to a lesser extent than changes to precipitation. (EA pgs. 44-45). Overall the improved reduction in fuels, reduced risk of catastrophic fire, and application of BMPs under the selected alternative will have noticeable long-term benefits and will not result in impairment to the park's water resources.

Wetlands

Fuels reduction treatments and removing conifers, like white fir, juniper, and pinyon pine, with prescribed fire or mechanical treatments will have beneficial effects by restoring and maintaining wetlands and the ecosystem services they provide. The fuels reduction treatments in the selected alternative will reduce competition, maintain hydrological connectivity between wetlands and streams, and increase water availability. Control of invasive plants will preserve the native biodiversity of the wetland and limit competition between native and invasive species.

Implementation of the selected alternative will increase the quality and quantity of wetlands in the park, with long-term, beneficial effects to wetlands and help to offset some of the adverse effects of increasing temperatures and reduced precipitation. (EA pg. 46). Consequently, the selected alternative will not result in impairment to the park's wetlands.

Wilderness Eligibility

Ecosystems in the Snake Range are adapted to frequent, low-intensity fires. Both fire suppression and unnaturally severe fires will alter community composition and structure and adversely impact the natural quality of wilderness. Implementation of the selected alternative will assist to restore community composition and structure through fuel and vegetation treatments, and by the greater role of fire as a natural landscape-level process resulting in benefits to the natural quality of wilderness. Application of BMPs during fuels treatments and minimum impact suppression techniques (MIST) during fire suppression will avoid or minimize potential impacts to wildland areas. Any impacts will be short-term and not preclude future inclusion in the National Wilderness Preservation System. (EA pgs. 46-47). Therefore, implementation of the selected alternative will not result in impairment to the park land wilderness eligibility.

SUMMARY

The NPS has determined that implementation of the selected alternative will not constitute impairment of park resources. This conclusion is based on consideration of the park's purpose and significance, a thorough analysis of the environmental impacts described in the EA, comments provided by the public, and the professional judgment of the decision maker guided by the direction in NPS Management Policies (2006) and National Park Service NEPA Handbook (2015).

Appendix D:
Programmatic Minimum Requirements Analysis for Great
Basin National Park Fire Management Plan

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Programmatic Minimum Requirements Analysis for Great Basin National Park Fire Management Plan

Step 1: Determination of Necessity

Background:

National parks with burnable vegetation are required to have a fire management plan (FMP) that guides a program for the protection of park resources, the protection of public health and safety, and that provides for the safety of park visitors, employees, and developed facilities (NPS Reference Manual 18, Wildland Fire Management).

Great Basin National Park encompasses the entire elevational gradient of the South Snake Range, from desert scrub in the basin bottoms to alpine environments on the summits. The ecosystems of the Snake Range are fire adapted. Colonization and fire exclusion have interrupted natural fire regimes, allowing heavy fuels to accumulate and shifting vegetation from herbaceous, early successional communities to late successional, conifer dominated woodlands and forests. This fuel accumulation has shifted fire regimes from frequent, low-intensity fires to catastrophic, high-intensity fires, such as the Black and Strawberry Fires. Fire exclusion is causing a loss of ecosystem resilience and productivity and adversely impacting sagebrush, aspen, ponderosa pine, riparian, and wet meadow plant communities and threatening resources and visitor experience, recreation, water quality, and safety.

Great Basin National Park's current FMP was completed in 2004. Since 2004, NPS and Interagency fire policy changes have occurred, vegetation has changed, fire seasons are longer and more severe, and the climate is warmer and drier. The park has also completed many studies on fire effects and frequency using dendrochronology, landscape scale modeling, and satellite imagery. Therefore, the park is proposing to update the FMP to incorporate these new studies and reflect the most current fire management policy in the NPS.

This update is supported by direction in the park Foundation Document and Natural Resource Conservation Assessment. Changes in fire management are required:

- To meet current NPS policy and standards.
- To meet current Interagency Standards for Fire and Fire Aviation Operations
- Improve ability to protect life and property by fuels management.
- Reduce risk of catastrophic wildfire.
- Enhance ability to restore plant communities to their nature range of variation.
- Increase ecological resistance and resilience.

Options Outside of Wilderness

Most of the park is eligible for designation as wilderness (approximately 71,421 acres, or 93%). While some actions such as fire prevention and suppression can occur outside eligible wilderness, fire and fuels management are landscape scale processes. The FMP is designed to directly manage certain resources within the eligible wilderness and contains actions that must be implemented within eligible wilderness to meet natural resource and fire management objectives.

Necessity for Action

Protect public health and safety

Provisions for the protection of human life and safety are established in Guidance for Implementation of Federal Wildland Fire Management Policy (2009), the Interagency Standards for Fire and Fire Aviation Operations, Director's Order 18: Wildland Fire Management, NPS Reference Manual 18 Wildland Fire Management, and part 620 of the DOI Departmental Manual. These policies make firefighter and public safety the first priority in every fire management activity.

Preserve natural and cultural resources, including wilderness character:

The National Park Service was established to preserve "...unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations..." (54 U.S.C. § 100101) which necessarily includes managing fire. Fire policies direct agencies to use the full range of fire management activities to help achieve ecosystem sustainability, to integrate fire as a critical natural process, and to allow wildland fire as a natural ecological function as much as possible.

Great Basin ecosystems are fire adapted but have been impacted by changes wrought by fire exclusion and increased aridity and temperature. Actions included in an FMP are necessary to maintain or restore vegetation conditions, wildlife habitat and ecological processes to a natural range of variability within wilderness.

In the absence of an approved Fire Management Plan all wildfires must be suppressed by policy. The 2004 Fire Management Plan requires a suppression response except under a narrow range of situations which currently occurs on less than 10,000 acres of the park; this limits opportunities for untrammeled natural fire processes.

Step 2: Determination of the Minimum Requirement

Direction in Law and Policy

Section 4(d)(1) of Wilderness Act of 1964 allows "...such measures may be taken as may be necessary in the control of fire...subject to such conditions as the Secretary deems desirable" as provided for in. Congressional reports have clarified that these measures may include the use of mechanized equipment, the building of fire roads, fire towers, fire breaks or fire pre-suppression facilities and other techniques for fire control (House Report 95-540) as well as prescribed burning

(House Report 98-40), where necessary, and when implemented consistent with the preservation of wilderness character.

While National Park Service (NPS) policy requires units to respond to all wildland fires, the policy is broad and allows responses that can consist of monitoring from afar, up to and including aggressive suppression, based on sound risk analysis. Policy allows for managing natural fires for resource benefit objectives, in addition to suppression objectives, provided an approved FMP allows for such actions. NPS policy also allows, though does not require, fuels management activity within wilderness, if deemed necessary to restore or maintain natural conditions and/or processes. Local decisions concerning the appropriate level of wildfire response and other fire management actions are, by policy, required to be addressed through the land management planning process, which includes the development of an FMP for all areas having burnable vegetation.

Alternative 1 No Action – Continue implementation of the 2004 FMP

Description

Under the No Action Alternative (Alternative 1), fire management would continue under the 2004 FMP (NPS 2004) which includes ongoing wildland fire suppression activities and limited mechanical and prescribed fire fuels treatments.

Suppression of wildfires would occur throughout the park, consistent with federal and NPS fire management policies. The objectives for managing wildfire would include suppressing wildfires using minimum impact suppression tactics (MIST) to minimize resource loss and suppression impacts to resources and values. Fire suppression operations would have a higher risk level due to a lack of landscape-scale fuels treatments to utilize as control features, accumulation of fuels due to a century of fire exclusion, and increased aridity and temperatures due to a warming and drying climate.

Wildland fire for resource benefit and prescribed fire would be limited to areas of Fire Regime Condition Class 1 (FRCC 1), above 8,000 feet in elevation, and outside of the Wildland Urban Interface (WUI), sensitive watersheds, and infrastructure protection areas (NPS 2004). Areas meeting these criteria include less than 10,000 acres of the park. The complexity of these restrictions has effectively eliminated wildland and prescribed fire as fuels management tools. Mechanical treatments using chainsaws to remove conifers in sagebrush ecosystems would be limited to approximately 100 acres per year. Risk of high-severity wildfires that adversely impact park infrastructure and natural and cultural resources would remain high, due to limited fuels reduction work.

1. Wildfire Suppression

- 1.1. Methods and tools: aerial water and retardant drops; fire line construction (including scraping flammable materials to mineral soil, limbing trees, cutting vegetation, and falling snags) using bulldozers, hand tools, and motorized equipment (chainsaws, leaf blowers, string trimmers); use of portable pumps and hose lays; burn out operations including aerial ignition; delivery of personnel and equipment by aircraft, truck, or ATV/UTV; area closures; and mop-up.

- 1.2. Area, frequency, and duration: Could occur across entire eligible wilderness area. Average of 3 ignitions/year. Each event typically includes 1-5 days of active suppression activity, 1-2 weeks monitoring, 1-5 days of fireline rehabilitation per event.
2. Wildfire for Resource Benefit
 - 2.1. Methods and tools: same as for wildfire suppression.
 - 2.2. Unlikely to occur in wilderness do to complex and restrictive zoning.
3. Prescribed Fire
 - 3.1. Methods and tools: same as for wildfire suppression.
 - 3.2. Unlikely to occur in wilderness do to complex and restrictive zoning.
4. Manual treatments
 - 4.1. Methods and tools: Manual treatments would use the “lop and scatter” or “cut and leave” technique where trees are cut with chainsaws or other hand-held tools, and the resultant slash is scattered on the ground to maximize soil-biomass contact, improve water retention, promote herbaceous plant growth, and reduce erosion. Trees would be selected based on size and age class. Cut branches and slash may be piled or burned to reduce fire hazards and visual impacts. Each event may include the relocation, scattering, or piling of fire fuels, limbing trees, cutting vegetation. May be conducted separately or in conjunction with pile burning and/or prescribed fire.
 - 4.2. Area, frequency, and duration: Limited to approximately 100-200 acres per year, near infrastructure or at risk natural and cultural resources. Infrequent and short duration.
5. Mechanical treatments
 - 5.1. Not permitted under the 2004 FMP.
6. Chemical treatments
 - 6.1. Methods and tools: Chemical treatments using approved herbicides may be used in conjunction with manual and prescribed fire treatments and revegetation to control invasive plants. Chemical treatments on NPS lands would require approval by the NPS Regional or National Integrated Pest Management (IPM) Coordinator. Applications would be performed under the supervision of a certified pesticide applicator. All standard operating procedures including following herbicide product label instructions would be adhered to. Herbicide applications would be designed to minimize potential impacts to non-target plants and animals, while achieving project objectives. They would be applied using a variety of techniques including but not limited to spot, broadcast, drill and fill, and cut stump treatments following label-specified rates of application. Treatment objectives, site topography, target vegetation, weather conditions, and other factors would be considered prior to any chemical application. The appropriate application method would be determined by the target species, the herbicide being applied, and application site conditions. Proposed chemical treatments would fall under the Great Basin National Park Invasive Management Plan and EA (NPS 2013).
 - 6.2. Area, frequency, and duration: Limited to small areas of eligible wilderness (<200 acres/year). Treatments are Infrequent (1-2 times/year) and short duration (1-2 weeks/year).
7. Revegetation

- 7.1. Methods and tools: Revegetation would be applied by manual tools (e.g., hand seeders), aerial application of seed, and planting of trees, shrubs, grasses and forbs. Revegetation may be in conjunction with herbicide application for invasive plant species such as cheatgrass. Seeding may be preceded by or follow other treatment types. Seeding would be used in areas where the onsite seed bank is inadequate to ensure successful revegetation of the site after treatment. On NPS lands, seed mixes would be composed of native species. Locally adapted seed and plant material would be used whenever possible. Only seed that has undergone and passed recent purity and viability tests would be accepted. Species selection would be based on site potential as indicated by known species composition in the area and potential vegetative community components as indicated in USDA Ecological Site Descriptions (ESD).
- 7.2. Area, frequency, and duration: Limited to small areas of eligible wilderness (<200 acres/year). Infrequent (1-2 times/year) and short duration (1-2 weeks/year).
8. Biomass disposal
 - 8.1. Methods and tools: Prescribed fire (e.g., pile burning) may be used to eliminate biomass (slash) produced by manual fuel reduction projects and maintenance activities. Each circular pile measures approximately 10' diameter x 6' high. Typically conducted on snow and in varying locations from year to year to minimize impacts to underlying soils. Includes hand ignition (drip torch) and monitoring. Other methods of biomass disposal include lopping and scattering, chipping, and mastication. Larger woody materials may be removed by the public for firewood or piled and burned on site. Pile burning complexity would be reviewed by Lake Mead National Recreation Area (LAKE) Fire Management Officer (FMO) and the appropriate planning completed, including prescribed and smoke management plans as necessary. Qualified fire personnel would implement debris-burning projects. An appropriate burn plan would be completed based on review and complexity analysis by LAKE FMO (or delegate).
 - 8.2. Area, frequency, and duration: Limited to small areas of eligible wilderness (<200 acres/year). Infrequent (<1 occurrence/year) and short duration (1-2 weeks/year).

Wilderness Character Impacts

Untrammeled: Except under limited and rare circumstances, unplanned ignitions would be suppressed, negatively impacting this quality across the wilderness. Small scale (<200 acres) manual fuels treatments, chemical treatments, and revegetation activities could also negatively impact this quality. Under very rare circumstances, prescribed fire could be used, also negatively impacting this quality on a portion (<10,000 ac) of the wilderness.

Natural: The impacts of fire exclusion and increased aridity and temperature would continue to result in unnatural ecosystem changes across eligible wilderness. Fire and fuels treatments to address these impacts would be limited to a relatively small portion of eligible wilderness so impacts would be expected to become more widespread and severe. When fires occur, they would pose a risk of unnaturally severe and long-lasting impacts to vegetation, wildlife, and ecological processes.

Undeveloped: Negative impacts from motorized equipment (saws, pumps, leaf blower, string trimmer, chippers), motor vehicles (bulldozers, ATV/UTV, trucks), and aircraft landing (water or retardant drops, helicopter landings, sling loads) would occur during fire suppression and manual fuel reduction, and under very rare circumstances, wildfire beneficial use and prescribed fire.

Opportunities for solitude or primitive and unconfined recreation: Negative impacts to solitude from suppression and fuels treatment activities (sights and sounds of equipment, aircraft, etc.). Area closures during and after wildfires could limit access and negatively impact opportunities for unconfined recreation.

Other features of value: Other features of value would be at risk of damage from the effects of wildfire due to unnaturally high levels of fuels and higher fire intensity in their vicinity, which reduces firefighting effectiveness required for their protection, and requires more aggressive firefighting tactics to control fire spread. Aggressive wildfire suppression actions such as retardant drops, fire line construction and vegetation removal in the No Action alternative may directly damage these resources, or due to increased fuel loads, may be ineffective in providing protection.

Alternative 2 Updated Fire Management Plan

Description

Under this alternative, fire suppression would be used to protect infrastructure, high visitor-use areas, and natural and cultural resources. Response to wildland fires could include managing wildfires for resource benefit objectives and returning fire to its natural role on the landscape where identified risk is manageable and acceptable.

Fuels would be modified or reduced on approximately 21,024 acres in the next ten years, with re-treatments and additional projects identified after five years. Project level compliance would be required on all fuels reduction activities. Each fuels treatment would be subject to National Historic Preservation Act (NHPA) Section 106 compliance review including but not limited to cultural resource inventories and consultations with interested parties including area tribes, the general public, and the Nevada State Historic Preservation Office (SHPO). An MRA would be conducted on fuels treatments within eligible wilderness. Minimum Impact Strategies and Tactics (MIST) would be used for all wildland suppression activities (See NPS RM-18 - Chapter 2, Exhibit 2 for MIST standards. Fireline rehabilitation)

Fuels reduction methods would include mechanical, manual, prescribed fire, herbicide, and revegetation. Some areas would be retreated over multiple years, as needed, to meet fuels and restoration objectives. Fuels reduction would be used to restore sagebrush, aspen, ponderosa pine, riparian, and wet meadow plant communities. Fuels treatments and managed wildfire for resource benefit would reduce wildland fire risk in the long term and allow more options for firefighting operations to suppress and control wildfires. Vegetation resistance and resilience would increase, and severity of wildfires would be lower due to fuels reduction treatments.

Details of the proposed fire management treatments are provided in Appendix A of the EA. Figure 1 shows the location of the proposed fuels treatments within Great Basin National Park. For maps showing the vegetation types to be treated within each treatment area, refer to Appendix A of the EA.

1. Wildfire Suppression

- 1.1. Methods and tools: Methods and tools: aerial water and retardant drops; fire line construction (including scraping flammable materials to mineral soil, limbing trees, cutting vegetation, and falling snags) using bulldozers, hand tools, and motorized equipment (chainsaws, leaf blowers, string trimmers); use of portable pumps and hose lays; burn out operations including aerial ignition; delivery of personnel and equipment by aircraft; area closures; and mop-up.
 - 1.2. Area, frequency, and duration: All ignitions would be fully suppressed in Full Suppression Strategic Objective zone because of high visitor use and the density of infrastructure (3,115 acres). Ignitions outside of this area could also be suppressed. On average occurs 3 time/year. Typically 1-5 days of active suppression activity, 1-2 weeks monitoring, 1-5 days of fireline rehabilitation per event
2. Wildfire for Resource Benefit
 - 2.1. Methods and tools: Each event may include: Methods and tools: aerial water and retardant drops; fire line construction (including scraping flammable materials to mineral soil, limbing trees, cutting vegetation, and falling snags) using bulldozers, hand tools, and motorized equipment (chainsaws, leaf blowers, string trimmers); use of portable pumps and hose lays; burn out operations including aerial ignition; delivery of personnel and equipment by aircraft; area closures; and mop-up.
 - 2.2. Area, frequency, and duration: The primary goal in the Wildland Fire Resource Objective Strategic Objective zone is to protect life and property by actively returning fire to its natural role on the landscape. Fires in this zone, which covers the majority of the Park (74,012 acres), would be managed for resource benefit objectives, when risk is manageable and acceptable. On average could occur 1 time every 2 years. Typically events would last 1-5 weeks per occurrence, with 1-5 days of fireline rehabilitation.
3. Prescribed Fire
 - 3.1. Methods and tools: Although prescribed fire could be conducted at any time of the year, timing would include consideration of visitation, wildlife, nesting birds, and vegetation response. Using existing barriers to fire spread, where appropriate, is preferable to constructing fire line to mineral soil. To reduce cost and the spread of invasive plant species, fire lines would be constructed where needed but existing features such as roads, streams, trails and areas with sparse vegetation would be used as firebreaks or fire lines, where appropriate. Prescribed fire treatments would include broadcast burning, jackpot burning, and burning of hand or machine-stacked piles. Ignition techniques include hand, vehicle mounted, and aerial ignitions such as drip torch, propane torch, flares and flare launchers, hand throws (such as gel filled blivets), all-terrain vehicle/utility-terrain vehicle (ATV/UTV) torches, terra torch/power torch, helitorch, and plastic spheres and launchers (both aerial and ground based). Each project may include: fireline construction, tree limbing, snag cutting, placement of pumps, portable water reservoirs and hoselays, sprinklers, hand ignition (drip torch), monitoring, area closures.
 - 3.2. Area, frequency, and duration: Affected areas could exceed 5,000 acres per year, with up to 3 projects per year. Typical duration is preparation – 5 days, ignition – 1-2 days, burndown – 1-5 days, monitoring – 1-4 weeks.
4. Manual treatments
 - 4.1. Methods and tools: Each event may include the relocation, scattering, or piling of fire fuels, limbing trees, cutting vegetation. May be conducted separately or in conjunction with pile

burning and/or prescribed fire. Manual treatments would use the “lop and scatter” or “cut and leave” technique where trees are cut with chainsaws or other hand-held tools, and the resultant slash is scattered on the ground to maximize soil-biomass contact, improve water retention, promote herbaceous plant growth, and reduce erosion. Trees would be selected based on size and age class. Cut branches and slash may be piled or burned to reduce fire hazards and visual impacts and maintain prescribed fire treatment boundaries. Piles would avoid sensitive locations that would negatively impact natural/cultural resources, based on project-level surveys prior to project implementation. Manual treatments would be used in pinyon-juniper, sagebrush, ponderosa pine, mixed conifer, aspen, riparian, and meadow habitats where target vegetation is sparse and not overly dense. Stands with an intact, native understory would be targeted for treatment. Manual treatments would be used to construct fuel breaks by reducing vegetation using hand tools and chainsaws and would aid in prescribed fire treatments by acting as control lines. Manual treatments would also be used to prepare sites for prescribed fire where fuels are heavy and dense. Manual treatments would also aid broadcast or jackpot prescribed fire treatments. Manual treatments are highly selective and can be used in sensitive areas or areas inaccessible to vehicles.

- 4.2. Area, frequency, and duration: Affected area up to 500 acres/year. Typically 10-20 days per occurrence, up to 3 occurrences per year.

5. Mechanical Treatments

- 5.1. Methods and tools: Remove ladder fuels and redistribute concentrations of fuel. Each event may include the relocation, scattering, or piling of fire fuels, limbing trees, cutting vegetation. May be conducted separately or in conjunction with pile burning and/or prescribed fire. Mechanical treatments would be used in pinyon-juniper, sagebrush, ponderosa pine, mixed conifer, aspen, riparian, and meadow habitats where target vegetation is dense and fuels are heavy. Mechanical treatments may be used where prescribed fire is not an option to dispose of cut biomass due to risk of life, property, natural and cultural resources. Mechanical treatment would include tracked or wheeled chippers, masticator, or brush hogs that can cut standing or pre-cut vegetation and mulch the debris on site. The selection of a particular mechanical method would be based on the characteristics of the vegetation, seedbed preparation and revegetation needs, topography, soil characteristics, weather conditions, restrictions on off-road use, and cultural resource considerations. Like manual treatments, mechanical treatments can prepare sites for future reintroduction of fire. Mechanical treatments away from established roads would use tracked equipment to limit impacts to soils and would be limited to shallower slopes (<40%). Further restrictions on tracked vehicles may include sensitive soils, riparian areas, visitation, and soundscapes. All mechanical treatment project areas would be surveyed for cultural and natural resources before project implementation.

- 5.2. Area, frequency, and duration: Affected area up to 500 acres/year. Typically 10-20 days per occurrence, up to 3 occurrences per year.

6. Chemical treatments

- 6.1. Methods and tools: Chemical treatments using approved herbicides may be used in conjunction with manual, mechanical, seeding, and prescribed fire treatments to control invasive plants or woody vegetation. Chemical treatments on NPS lands would require approval by the NPS Regional or National Integrated Pest Management (IPM) Coordinator. Applications would be performed under the supervision of a certified pesticide applicator. All standard operating

procedures including following herbicide product label instructions would be adhered to. Herbicide applications would be designed to minimize potential impacts to non-target plants and animals, while achieving project objectives. They would be applied using a variety of techniques including but not limited to spot, broadcast, drill and fill, and cut stump treatments following label-specified rates of application. Treatment objectives, site topography, target vegetation, weather conditions, and other factors would be considered prior to any chemical application. The appropriate application method would be determined by the target species, the herbicide being applied, and application site conditions. Proposed chemical treatments would fall under the Great Basin National Park Invasive Management Plan and EA (NPS 2013).

- 6.2. Area, frequency, and duration: Affected area up to 500 acres/year. Typically 10-20 days per occurrence, up to 3 occurrences per year.

7. Revegetation

- 7.1. Methods and tools: Revegetation would be applied by a variety of methods, including manual (e.g., hand seeders) or mechanical seeding (e.g., rangeland drills, drag covering implements, and rubber tired cross-country seed applicators), aerial application of seed, and planting of trees, shrubs, grasses and forbs. Revegetation may be in conjunction with herbicide application for invasive plant species such as cheatgrass. Seeding may be preceded by or follow other treatment types. Seeding would be used in areas where the onsite seed bank is inadequate to ensure successful revegetation of the site after treatment. On NPS lands, seed mixes would be composed of native species. Locally adapted seed and plant material would be used whenever possible. Only seed that has undergone and passed recent purity and viability tests would be accepted. Species selection would be based on site potential as indicated by known species composition in the area and potential vegetative community components as indicated in USDA Ecological Site Descriptions (ESD).

- 7.2. Area, frequency, and duration: Affected area up to 500 acres/year. Typically 10-20 days per occurrence, up to 3 occurrences per year.

8. Biomass disposal

- 8.1. Methods and tools: Prescribed fire (e.g., pile burning) may be used to eliminate biomass (slash) produced by manual fuel reduction projects and maintenance activities. Each circular pile measures approximately 10' diameter x 6' high. Typically conducted on snow and in varying locations from year to year to minimize impacts to underlying soils. Includes hand ignition (drip torch) and monitoring. Other methods of biomass disposal include lopping and scattering, chipping, and mastication. Larger woody materials may be removed by the public for firewood or piled and burned on site. Pile burning complexity would be reviewed by Lake Mead National Recreation Area (LAKE) Fire Management Officer (FMO) and the appropriate planning completed, including prescribed and smoke management plans as necessary. Qualified fire personnel would implement debris-burning projects. An appropriate burn plan would be completed based on review and complexity analysis by LAKE FMO (or delegate).
- 8.2. Area, frequency, and duration: Typically, up to 1,000 piles occurrence. Average of 1 time/year. Duration of 2-5 days per occurrence for ignition, burndown 2-5 days per occurrence, monitoring and patrol 1-3 weeks per occurrence.

Wilderness Character Impacts

Untrammelled: A range of wildfire responses and pro-active fuels management actions would occur within eligible wilderness. The actions would occur over a period of 10 years and trammel eligible wilderness. The long-term result of the actions (20+ years) would allow decrease in aggressive management of naturally caused wildfires, potentially reducing future trammeling and restoring and perpetuating fire as a natural process.

Undeveloped: Negative impacts from motorized equipment (saws, pumps, leaf blower, string trimmer, chippers, range drills), motor vehicles (bulldozers, ATV/UTV, trucks, masticators), and aircraft landing (water or retardant drops, helicopter landings, sling loads) would occur during for fire suppression, wildfire for resource benefit, prescribed fire, manual fuel reduction, mechanical and chemical treatments, and revegetation.

Natural: Short and long term beneficial effects from restoring and maintaining natural vegetation structure and ecosystem function. Negative effects to plants and animals from planned activities would be limited by identifying mitigations and following best management practices through the planning process. The actions would also reduce the risk of future unnaturally high severity fire effects to the ecosystem.

Solitude or primitive & unconfined recreation: Negative impacts to solitude from suppression and fuels treatment activities (sights and sounds of equipment, aircraft, etc.) and area closures which would limit access to wilderness.

Other features of value: The risk to this quality from suppression activities or extreme fire behavior would be reduced due to ability to target these resources with treatments that would allow them to survive a fire event.

Determination of the minimum requirement

A history of fire exclusion coupled with increased aridity and temperatures has resulted in vegetation conditions susceptible to unnaturally high severity fire. The more time that passes before addressing these conditions, the greater the risk of unnaturally severe impacts which degrade wilderness character and threaten visitor and employee safety.

Alternative 2 would provide an expanded range of fuels and fire management methods which could be used over a greater area of the park than Alternative 1. Over the life of the plan, a greater number of interventions across a greater area would impact the untrammelled and undeveloped qualities of wilderness in order to restore and maintain natural conditions and reduce the future risk of unnaturally high severity fires and vegetation change. Restoring pre-suppression conditions would increase opportunities to manage natural ignitions with a less than full suppression strategy in the future and potentially reduce trammeling. While difficult to quantify, planned activities under Alternative 2 would have more opportunities to implement mitigations for impacts to wilderness character (particularly natural, opportunities for solitude or primitive and unconfined recreation, and other features of value qualities) relative to managing unplanned and severe wildfires which would

be expected to be more common under Alternative 1. Therefore, Alternative 2 best serves the overall goal of preserving wilderness character over for current and future generations.

Alternative 2 also provides a greater reduction in risk to park visitors and adjacent communities from uncontrollable fire events. Similarly, employee safety would be increased; while a greater volume of operations (e.g., fuels treatments) may slightly increase worker exposure to hazardous work environments in the short-term, it would reduce future fire severity and firefighter risk in the long-term.

The negative effects of planned and unplanned fire and fuels management activities would be partially mitigated by careful project timing and the use of minimum impact strategies and tactics. In addition, project-specific MRAs would be conducted for planned work in order to minimize the amount of 4(c) activity over the life of the plan.

Alternative 2 is determined to be the minimum requirement.