

National Park Service
U.S. Department of the Interior



**BUFFALO NATIONAL RIVER
HARRISON, AR**

RUSH HISTORIC DISTRICT CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT

FINDING OF NO SIGNIFICANT IMPACT

INTRODUCTION

The National Park Service (NPS) is proposing to implement management actions at Rush Historic District (study area), a component of Buffalo National River (park), that focus on preserving the district's cultural landscape and historic structures. Rush Historic District's cultural landscape includes a wide range and large number of cultural landscape features. These include natural features such as Buffalo River and Clabber Creek; circulation features such as roads and trails; prehistoric and historic archaeological sites; and structures associated with townsites, mills, smelters, and mine and mine complexes. Selected management actions include:

- repairing contributing features and rehabilitating historic structures;
- vegetation clearing along roads, at spoils piles, and within domestic spaces;
- clearing vegetation from, stabilizing, and marking building ruins; and
- securing mine adits, portals, and entrances.

The actions will reveal the broad extent of the historic mining industry and associated community. As more of the historic mining landscape is revealed, more opportunities will be created to fully immerse visitors in the study area.

The NPS has completed a combined Cultural Landscape Report and Environmental Assessment (CLR/EA) to document and evaluate the cultural landscape and historic structures of Rush Historic District. The documentation served as a framework upon which alternatives were developed for the treatment and use of the cultural landscape and historic structures of Rush Historic District. The CLR will provide park managers with a comprehensive understanding of the physical evolution of the historic structures and landscapes and guidance for management of the resources.

In compliance with the National Environmental Policy Act of 1969 (NEPA), the NPS prepared the EA to examine alternative treatments and their associated environmental impacts. The treatment alternatives included the selected preservation alternative (Action Alternative 1), an alternative focused on rehabilitation (Action Alternative 2), and a no action alternative. The statements and conclusions reached in this finding of no significant impact (FONSI) are based on documentation and analysis provided in the CLR/EA and associated decision file. To the extent necessary, relevant sections of the CLR/EA are incorporated by reference below.

SELECTED ALTERNATIVE

Based on the analysis presented in the EA, NPS selected the preservation treatment (Action Alternative 1) as the NPS selected alternative because it best meets the purpose and need for the project as well as the project goals to:

- Summarize the prehistoric/historic activity in the region/study area to convey how it influenced today's physical landscape.
- Document the current physical conditions at Rush Historic District to identify ongoing resource threats and resulting impacts, such as invasive native and exotic plants, drainage and/or erosion, and deferred maintenance.
- Recommend methods for vegetation management to control or reestablish significant views.
- Identify opportunities for accommodating universally accessible visitor amenities such as parking, trails and walkways, comfort stations/shelters, and outdoor gathering spaces. Provide recommendations regarding human access to restricted resources. Identify future research potential with regards to history, mineralogy, archeology, etc.

The following highlights major elements of the selected alternative, while detailed description can be found in Chapter 6 of the CLR/EA.

The selected alternative focuses on preserving contributing features and rehabilitating the historic setting. This will provide an immersive visitor experience to improve understanding of the scale of the historic mining operations and the community that supported it. The broad extent of the historic mining landscape, primarily within Morning Star Community landscape character area will be revealed, including spaces and features of the mining industry and associated community.

This alternative will stabilize extant buildings. Extant ruins and foundations will be preserved in-situ and stabilized and repaired according to their condition. Circulation features and patterns, small scale features, and vegetation patterns will be repaired. In Morning Star Community landscape character area, footprints of some non-extant buildings and structures (some foundations remain) will be cleared of vegetation and marked. Additional vegetation clearing, thinning and pruning along roads, at spoils and tailings piles, and within some domestic spaces will be completed to repair spatial organization. Domestic spaces in House Row and at Rush Smelter and Morning Star Livery Barn ruins will be repaired. Mine adits, portals, and entrances will be secured. Select locations at portals will be cleared of vegetation and interpretation will be provided.

Existing visitor facilities will remain and be improved for universal accessibility. A trail extension will be added on Rush Mountain (Rush Mountain Trail), and improvements will be made to the day use facilities and parking at the confluence of Clabber Creek with Buffalo River.

ALTERNATIVES CONSIDERED

In addition to those for the selected alternative, the EA provides detailed descriptions and analyses of a no-action alternative and a preservation alternative (Action Alternative 1) (see EA Chapter 4).

The no action alternative would follow a preservation approach. This approach would include actions already identified and/or in-progress to stabilize and repair contributing features and essential spaces for

improved visitor contact and wayfinding. The no action alternative would include actions that the park would undertake as part of regular operations. Under the no action alternative, the present level of use, management, interpretation, maintenance and operations would continue. The no action alternative includes actions identified in the park’s 2008 Buffalo National River “Foundation for Planning and Management” and long range interpretive plan, and actions already identified and/or in-progress.

In addition to activities described under the no action alternative, Action alternative 2 would focus on repairing contributing features and rehabilitating the historic setting to the greatest extent possible. This alternative would reveal the broadest extent of the historic mining industry and associated community. As more of the historic mining landscape is revealed, more opportunities would be created to fully immerse visitors in the historic mining operations and community.

Building ruins would be cleared of vegetation, stabilized, and marked. Extant ruins and foundations would be preserved. Taylor-Medley General Store would be rehabilitated, and the front porch improved for access onto the porch only. Work would include rehabilitating the exterior façade including the roofing, wood siding, windows and doors. Structural work would stabilize the porch foundation and roof. Footprints of most non-extant buildings and structures, of which some foundations remain, would be cleared of vegetation and marked. Additional vegetation clearing, thinning and pruning along roads, at spoils piles, and within domestic spaces would assist in repairing spatial qualities. Mine adits, portals, and entrances would be secured. Many would be cleared of vegetation and repaired for limited visitor interpretation.

Existing visitor facilities would remain and be improved for universal accessibility. A trail extension would be added on Rush Mountain (Rush Mountain Trail), and improvements made to the day use facilities and parking at the confluence of Clabber Creek with Buffalo River.

Mitigation Measures

The selected alternative will implement several mitigation measures and best management practices to minimize the degree and/or severity of adverse effects on water resources; wildlife and species of concern; native vegetation; and cultural landscapes, historic structures, and archaeological resources and reduce the potential adverse effects of non-native ornamentals and invasive, exotic plant species on native vegetation and other park resources. The selected alternative incorporates the mitigation measures and best management practices listed in Appendix A of this document.

Significance Criteria Review

As defined in 40 CFR § 1508.27, NPS determined the significance of effects by examining ten criteria. A brief discussion explaining why the Selected Alternative will not have a significant effect on the human environment is given below for each criterion. Key areas in which impacts were evaluated in the CLR/EA include cultural landscapes, historic structures, archaeological resources, vegetation, water resources, and special status species.

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the NPS believes that, on balance, the effect will be beneficial.

Implementing the selected alternative, including mitigation measures, will result in both beneficial and adverse impacts. In general, the alternative provides beneficial effects on the cultural landscape and historic structures and no effect on archaeological resources. The alternative will have modest adverse effects on native vegetation due to disturbance and the potential for the establishment and spread of

invasive, exotic plant species. The alternative may affect but would not be likely to adversely affect several bat species. The alternative would have no effect on water resources or special status species of invertebrates, plants, or birds.

Rehabilitation activities included in the selected alternative will result in modest beneficial effects on historic structures by repairing and stabilizing structures and clearing vegetation. Modest beneficial effects on the cultural landscape will result from reestablishing relationships between roads and buildings visible during the period of significance.

Vegetation and ground disturbance associated with thinning vegetation on 16.55 acres of native vegetation will result in local, modest adverse effects on native vegetation. Ground-disturbing activities associated with construction and vegetation management could result in the establishment or spread of invasive exotic species and nonnative vegetation, a local, modest, adverse effect.

With mitigation and conservation measures, vegetation and ground disturbance and securing mine entrances, adits, and portals under the selected alternative will have no effect on special status species of invertebrates, plants, or birds and may affect but are not likely to adversely affect several bat species.

Water resources will not be affected by the selected alternative.

With the mitigation measures listed in Appendix A, overall, the selected alternative will have no more than modest adverse effects on native vegetation and no adverse effects on special status species, water resources, and archaeological resources. The alternative will have no more than modest beneficial effects on the cultural landscape and historic structures. For these reasons, the level of adverse and beneficial effects will not be significant.

(2) The degree to which the proposed action affects public health or safety.

The selected alternative will have a long-term, moderate beneficial effect on public health and safety by securing mine complex entrances, adits, and portals and by limiting visitor proximity to potentially hazardous rock faces.

Temporary facility, trail, and grounds closures will keep the public away from areas where potentially harmful construction and vegetation clearing activities are occurring. Because the public will not be exposed to construction activities, there will be no significant adverse effects on public health or safety.

(3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic river, or ecologically critical areas.

The selected alternative will have no effect on wild and scenic rivers, prime farmlands, or ecologically critical areas because they are not present in or near the project area. The Buffalo River adjacent to the project area is designated as Critical Habitat for the Rabbitsfoot Mussel (*Quadrula cylindrica cylindrica*). However, based on its evaluation of the duration and type of disturbance associated with the selected alternative, NPS determined that, with the mitigation and conservation measures described in the CLR/EA (attached as Appendix A), the selected alternative will have no effect on the rabbitsfoot.

The selected alternative will result in beneficial effects on historic structures and the cultural landscape in Rush Historic District. If potential adverse effects are encountered during implementation of the selected alternative, all activities will comply with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716, revised), and, if present, archeological resources near the project area will be identified and delineated for avoidance prior to project work.

Additional mitigation measures and best management practices will be used to avoid adverse impacts of the selected alternative on historic structures and the cultural landscape in the project area. Therefore, with the implementation of the mitigation measures, adverse effects will not be significant.

(4) The degree to which effects on the quality of the human environment are likely to be highly controversial.

Short-term adverse effects on the quality of the human environment will result during construction and vegetation removal but are not anticipated to affect the quality of the human environment over the long-term or at more than small levels. The selected alternative provides beneficial effects on visitor use and experience by more accurately representing conditions during the period of significance and improving visitor use of the Rush Historic District. No highly controversial issue was uncovered during agency and public scoping or during the comment period.

For these reasons, beneficial and adverse effects on the human environment are not likely to be highly controversial or significant.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The activities under the selected alternative will not result in highly uncertain effects or involve unique or unknown risks. Temporary facility, trail, and area closures will keep the public away from areas where potentially harmful construction activities are occurring. Therefore, effects or risks on the human environment will not be significant.

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The selected alternative is not a unique, precedent-setting action, does not include new or untested construction methods or materials, and is in keeping with similar actions implemented in other NPS parks. The selected alternative also does not predicate any future actions, whether with significant effects or not. Therefore, the selected alternative will not result in significant effects from a future action or establish a decision principal about future considerations.

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

Past, present, and reasonably foreseeable future actions will have no cumulative effects on cultural landscapes, historic structures, and archaeological resources; water resources; or special status species. There will be modest adverse consequences to native vegetation. As described under Criterion 3, with the implementation of mitigation measures to reduce adverse impacts, the level of cumulative adverse effects will not be significant.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places; or may cause loss or destruction of significant scientific, cultural, or historical resources.

The selected alternative will have modest beneficial effects on the cultural landscape and on historic structures. Effects on the cultural landscape will be beneficial over the long term by repairing contributing features, removing noncontributing features, and better representing conditions during the period of significance (1896-1932). To mitigate potential adverse impacts on historic properties, treatment activities

will be implemented in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716, revised). The NPS initiated consultation with the State Historic Preservation Office (SHPO) with a scoping letter sent on September 15, 2016. The SHPO also received a copy of the draft CLR/EA for review and comment. NPS will continue to engage with SHPO prior to and during implementation of the selected alternative. As also determined under criterion 3, with mitigation measures, adverse effects on historic structures and cultural landscapes will not be significant.

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

In consultation with US Fish and Wildlife Service (USFWS), NPS determined the following threatened or endangered species may be present in or affected by activities in Rush Historic District for at least some part of the year: Hell Creek Cave crayfish (*Cambarus zophonastes*), rabbitsfoot (*Quadrula cylindrica cylindrica*), snuffbox (*Epioblasma triquetra*), western fanshell (*Cyprogenia aberti*), gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and tricolored bat (*Perimyotis subflavus*). Additionally, bald eagle (*Haliaeetus leucocephalus*) and three state threatened plants - Alabama snow-wreath (*Neviusia alabamensis*), false gaura (*Stenosiphon linifolius*), and royal catchfly (*Silene regia*) – may occur in Rush Historic District.

Based on its evaluation of the likelihood of species being present and the seasonality, duration, and type of disturbance associated with the selected alternative, NPS determined that, with the mitigation and conservation measures described in the CLR/EA (attached as Appendix A), the selected alternative will have no effect on Hell Creek Cave crayfish, rabbitsfoot, snuffbox, western fanshell, Alabama snow-wreath, false gaura, royal catch fly, or bald eagle nor will it affect designated critical habitat for any species. NPS has further determined that the selected alternative may affect, but will not likely adversely affect gray bat, Indiana bat, northern long-eared bat, Ozark big-eared bat, and tricolored bat.

A letter seeking concurrence from the USFWS regarding this determination was sent on February 8, 2019. NPS will not proceed with any tree removals before receiving concurrence from the USFWS. NPS will continue to coordinate with USFWS to ensure the selected alternative will have no adverse effects on threatened and endangered species.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The selected alternative will not violate any Federal, State, or local laws or requirements imposed for the protection of the environment.

Decision and Finding of No Significant Impact

Based on the review of the facts and analysis in the CLR/EA, the NPS has selected Action Alternative 1 for implementing the CLR/EA at Rush Historic District in Buffalo National River. The selected alternative will not have a significant impact either by itself or in consideration of cumulative impacts. Accordingly, the requirements of NEPA, regulations promulgated by the CEQ, regulations promulgated by the Department of the Interior, and provisions of Director's Order 12 and the 2015 *National Park Service NEPA Handbook* have been fulfilled.


Rush Historic District Buffalo National River – Cultural Landscape Report and Environmental Assessment
Finding of No Significant Impacts

It is my determination that the selected alternative does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, in accordance with NEPA and CEQ regulations (40 CFR 1508 et. seq.), and environmental impact statement is not required and will not be prepared for implementation of the selected alternative.

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Rush Historic District Buffalo National River – Cultural Landscape Report and Environmental Assessment
Finding of No Significant Impacts

Recommended:  2-20-19
Mark Foust, Park Superintendent
Buffalo National River
Midwest Region
Date

Approved:  3.5.19
Patricia S. Trap, Acting Regional Director
Midwest Region
Date

- Appendix A** Mitigation Measures
- Appendix B** Non-Impairment Determination

APPENDIX A- MITIGATION MEASURES

The NPS places strong emphasis on protecting resources against potentially adverse impacts. Mitigation is used to avoid, prevent, or minimize adverse impacts during implementation of projects. The following mitigation measures will be implemented as part of the selected alternative. The NPS may need to obtain federal and state environmental permits and, as part of that process, additional mitigation measures could be required by other agencies. The NPS will implement an appropriate level of monitoring throughout project activities to ensure that protective measures are being properly implemented and are achieving their intended results.

General Measures

- The work area limits will be clearly defined, fenced, flagged, and delineated to keep ground disturbance to a minimum. No disturbance will occur beyond these limits other than protection measures for erosion/sediment control.
- All contractor employees and subcontractors will attend an orientation session(s) regarding park regulations focused on minimizing impacts on resources, human health and safety, and leave no trace measures.
- All tools, equipment, barricades, signs, surplus materials, and rubbish will be removed from the project area upon project completion. Construction debris will be hauled from the park to an appropriate disposal location.
- Staging, materials, and equipment will be in developed areas such as existing parking lots to the extent possible.

Cultural Landscapes, Historic Structures, and Archaeological Resources

- Unless they are part of the project, known historic sites and isolated occurrences will be avoided during construction.
- NPS cultural resources staff will be available during implementation to advise or take appropriate actions should any archeological resources be uncovered during implementation. Should any archeological resources be uncovered during implementation, as appropriate, work will be halted in the area and the NPS archeologist will be contacted immediately. The NPS archeologist will then conduct further compliance measures in accordance with 36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
- The park will ensure that all personnel who work on the project are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Personnel will also be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction. Equipment traffic will be minimized in the site. Equipment and materials staging areas will also avoid known archeological resources.

Water Resources

- If minor earthwork is necessary, standard erosion-control measures such as silt fencing will be used to minimize erosion and the introduction of sediments to aquatic habitat during and after construction.
- All vehicle and equipment fueling will occur more than 100 feet from any surface water in a location where a fuel spill will not be able to enter the water.
- A spill prevention and response plan that regulates the use of hazardous and toxic materials, such as fuels and lubricants for construction equipment, will be prepared.
- Disturbed areas will be reseeded as quickly as possible following the work.

Native Vegetation and Non-native Ornamental and Invasive, Exotic Species

- Non-invasive ornamental tree and shrub species will be used in cultural landscape treatments.
- Disturbance to vegetation will be avoided as much as possible and contained to as small a footprint as possible.
- Temporary barriers may be provided to protect existing trees, plants, and root zones not proposed for removal or thinning. Trees or other plants will not be removed, injured, or destroyed without prior approval.
- All equipment entering the park will be cleaned and pressure washed to remove foreign soil, vegetation, and other materials that may contain nonnative seeds or vegetation.
- All disturbed areas will be revegetated with native species. Revegetation plantings, if necessary, will use native species from genetic stocks originating in the park, if possible. Revegetation efforts will focus on recreating the natural spacing, abundance, and diversity of native plant species. All disturbed areas will be restored as nearly as possible to preconstruction conditions shortly after construction activities are completed.
- To minimize introduction of exotic plant species, no hay bales will be used for mulch. Hay often contains seed of undesirable or harmful invasive exotic plant species. Therefore, on a case-by-case basis, the following materials may be used for any erosion control that may be necessary: rice straw, straws determined by the NPS to be weed-free (e.g., barley straw or winter wheat straw), cereal grain straw that has been fumigated to kill weed seed, and wood excelsior bales.
- Non-native and invasive exotic plant infestations in restored areas will be treated on a yearly basis for a minimum of three years following project completion.

Wildlife and Species of Concern (Conservation Measures)

- Construction personnel will be instructed on appropriate behavior in the presence of wildlife and on proper storage and handling of food, garbage, and other attractants.
- Pre-project surveys will be performed to identify sensitive plant species, vegetation communities, and wildlife habitat. Treatment alternatives will be revised, if necessary, to avoid more than minimal impacts on wildlife and to avoid adverse effects on species of concern. Project plans will identify areas to avoid.

- Areas will be designated for stockpiling slash material.
- To reduce noise disturbance and limit impacts on breeding avian and mammalian species, all tree and shrub thinning and removal will be conducted from October 1 to March 1, where feasible.
- If tree and shrub thinning and removal must occur between March 1 and October 1, field surveys for migratory bird nests and cavities and bat roosts and nurseries will be conducted prior to vegetation-disturbing activities. Where active nests or nurseries are present, vegetation removal will not occur until after the young have fledged, and ground-disturbing activities will not occur within 100 feet until the young have fledged.

Public Health and Safety

- Signs, press releases, or other communication methods will be used to inform visitors about construction and any building or area closures or detours during construction.
- Appropriate barriers and barricades will be used to clearly delineate work areas and provide for safe visitor travel near construction areas.
- Emergency response protocols will be developed for implementation during construction. Construction activities will be conducted in accordance with established safety protocols.

APPENDIX B – NON-IMPAIRMENT DETERMINATION

Introduction

In addition to determining the environmental consequences of implementing the preferred and other alternatives, NPS *Management Policies 2006* (section 1.4) requires analysis of potential effects to determine whether or not selected alternatives would impair a park's resources and values.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of the park. That discretion is limited by the statutory requirement that the NPS must leave resources and values unimpaired unless a law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values (NPS *Management Policies 2006*). Whether an impact meets this definition depends on the particular resources that would 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, 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 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.

Impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

An impairment determination is not made for visitor use and experience, public health and safety, recreation resources, and transportation because impairment findings relate back to park resources and values, and these impact areas are not generally considered to be park resources or values according to the Organic Act and cannot be impaired in the same way that an action can impair park resources and values.

Impairment Determination

Based on the previously described guidelines and basis for determining impairment of park resources and values, a determination of impairment is made for each of the resource impact topics carried forward and

analyzed in the EA for the selected alternative. The EA contains detailed descriptions of the resources and environmental effects of the selected alternative, which are summarized below.

Cultural Landscapes, Historic Structures and Archaeological Resources

Standing structures and ruins are the most visible parts of the overall Buffalo National River cultural landscape and are scattered throughout its boundary. Settlement occurred along the river's length, in fertile tributary valleys, and along forested slopes. Structures or other remains are virtually everywhere, whether still in use as part of active farms or long abandoned.

Rush Historic District is a 1,300-acre former zinc mining district located on the Buffalo National River and two of its tributaries, Rush and Clabber creeks. It is a remnant industrial landscape containing the remains of open-pit and underground zinc mines, concentrating mills, worker housing, and other commercial establishments, in addition to numerous small-scale features that reflect mining community life. The study area's contributing resources have been listed on or determined eligible for the National Register of Historic Places.

The archeological resources at Buffalo National River encompass 12,000 years of human activity and include numerous prehistoric and historic archeological sites, including in the study area. In the study area, the Dirst site is a well-documented prehistoric archeological site located along the Buffalo River at its confluences with Rush and Clabber creeks. Recovered artifacts from stratified deposits date from Early Archaic to Early Mississippian, suggesting various series of use and occupation of the Dirst site from as early as 10,500 years ago to as recently as 840 years ago.

The cultural landscape and historic and prehistoric resources are integral parts of Buffalo National River and are considered significant park resources.

The selected alternative follows a rehabilitation approach. In addition to ongoing repair and improvement projects, additional actions will rehabilitate the historic mining setting to the greatest extent possible.

Under the selected alternative, extant buildings will be stabilized, circulation features and patterns, small scale features, and vegetation patterns will be repaired. Extant ruins and foundations will be preserved. In Morning Star Community landscape character area, footprints of some non-extant buildings and structures (some foundations remain) will be cleared of vegetation and marked. Vegetation clearing, thinning, and pruning will be completed along roads, at some spoils and tailings piles, and within some domestic spaces to assist in repairing spatial organization. Domestic spaces include those at House Row and at Morning Star Hotel, Mill and Mine Community. Mine adits, portals, and entrances will be secured. Select locations at portals will be cleared of vegetation and repaired for limited visitor interpretation.

The selected alternative will have modest beneficial effects on the cultural landscape by reestablishing relationships between roads and buildings visible during the period of significance. Effects on historic structures will be small and beneficial. There will be no adverse effects on archaeological resources. For these reasons, no impairment of cultural landscapes, historic structures, or archaeological resources will occur.

Native Vegetation

Many northern and southern ecosystems converge in Buffalo National River, as do some western and eastern species. This convergence results in around 56 vegetation association types, including some rare or uncommon types, in Buffalo National River. For this reason, vegetation management and preservation are priorities of Buffalo National River.

Vegetation communities in the study area closely reflect those in the remainder of Buffalo National River, with oak-dominated communities being most prevalent. Coniferous and mixed-coniferous forest and woodland communities are concentrated on south-facing slopes in the Rush Creek and Buffalo River valleys. Communities along Rush Creek and Buffalo River include Bottomland Hardwood Forest, Bottomland Shrubland, and Gravel Bar Sparse Vegetation. Most of the vegetation communities in the study area are common throughout Buffalo National River and elsewhere, although one of the Conifer Woodland sub-types, Ozark Ashe's Juniper Woodland, is considered globally rare but locally more common.

The park's native vegetation is an integral part of the national river established by the enabling legislation. As a biologic feature of the park's ecosystem and part of the park's scientifically recognized assemblage of flora and fauna, native vegetation is considered a significant park resource.

The selected alternative will include thinning and clearing trees, shrubs, and understory on about 16.55 acres of native vegetation that has encroached into historically cleared areas. This would represent 1.41% of the estimated 1,194 acres of vegetation in Rush Historic District. In addition to areas in which native vegetation will be removed or managed, there will be small areas of disturbance associated with other treatment elements, including repairing or stabilizing buildings and other structures.

With the mitigation measures that will be included, adverse effects on native vegetation would be modest and noticeable. Because adverse effects on native vegetation will be modest on a local level and the overall integrity of the park's native vegetation resource will not be affected, no impairment of native vegetation resources will occur.

Water Resources

The enabling legislation for Buffalo National River (16 U.S.C. § 460m-8 (1972)) describes the purpose of Buffalo National River as "conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations..." The Arkansas Department of Environmental Quality has designated Buffalo National River as "Extraordinary National Resource Waters." In keeping with the enabling legislation and state designation, maintaining Buffalo National River's ecological functions and values, including high water quality, is a primary influence on how NPS manages Buffalo National River and evaluates proposed activities that may affect the river.

In general, water quality monitoring results for Buffalo River at Rush Landing and Rush and Clabber creeks indicate water quality remains high and has not degraded to the degree seen in middle Buffalo River. Of concern in the study area is the potential to affect water quality through sediment loading and turbidity associated with runoff from road and trail surfaces, ditches, mine spoils, and soils exposed by ground-disturbing activities. Within the steep terrain of the study area, stormwater runoff from unpaved roads and cleared land carries both fine and coarse sediments to Buffalo National River. Increased turbidity results in an unnatural decrease in stream channel stability, increase in eroding stream banks, and degradation of aquatic habitat.

Under the selected alternative, some activities could expose soils to erosion and subsequent transport to surface waters. Any ground disturbing activities will include implementing best management practices to minimize soil erosion and sediment transport to surface waters. Best management practices, including those described as mitigation measures, such as installing silt fences and reseeding disturbed areas as soon as possible following the work, will be implemented. With best management practices and mitigation

measures, the selected alternative will have no discernable effect on water resources. For this reason, the selected alternative will not result in impairment of water resources or their associated values.

Special Status Species

Special status species include species listed as threatened or endangered under the Endangered Species Act and other species considered sensitive by the park, including species listed by the State of Arkansas that are either state threatened, endangered, or of special concern. The NPS is aware of federally endangered and threatened species that may be present in Rush Historic District, including Hell Creek Cave crayfish (*Cambarus zophonastes*), rabbitsfoot (*Quadrula cylindrica cylindrica*), snuffbox (*Epioblasma triquetra*), western fanshell (*Cyprogenia aberti*), gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and tricolored bat (*Perimyotis subflavus*). Additionally, bald eagle (*Haliaeetus leucocephalus*) and three state threatened plants - Alabama snow-wreath (*Neviusia alabamensis*), false gaura (*Stenosiphon linifolius*), and royal catchfly (*Silene regia*) – may occur in Rush Historic District.

The park's special status species are an integral part of the national river. As a biologic feature of the park's ecosystem and part of the park's scientifically recognized assemblage of flora and fauna, special status species are key to the natural integrity of the park, and are considered a significant park resource.

NPS determined that, with the mitigation and conservation measures described in the CLR/EA, the selected alternative will have no effect on Hell Creek Cave crayfish, rabbitsfoot, snuffbox, western fanshell, Alabama snow-wreath, false gaura, royal catch fly, or bald eagle nor will it affect designated critical habitat for any species. NPS has further determined that the selected alternative may affect, but will not likely adversely affect gray bat, Indiana bat, northern long-eared bat, Ozark big-eared bat, or tricolored bat. Because the selected alternative will not have substantial short term or long adverse effects, it will not result in an impairment of special status species resources or their associated values.

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 park resources and values from implementation of the selected alternative.

