Executive Summary

As the first national river in American history, Buffalo National River protects one of the remaining free-flowing rivers, stretching 132 miles east to west, and 95,730 acres of land, encompassing unique karst topography, hardwood forest, grassy meadows, and towering limestone cliffs. On November 10, 1978, Congress designated 36,000 acres of the park as wilderness, the highest level of protection afforded to federal land under the 1964 Wilderness Act. In order to preserve wilderness and uphold the legislative mandate, an evaluation of current conditions and a plan for monitoring long-term trends are essential.

The approach follows wilderness character monitoring developed by an interagency team, representing the National Park Service, U.S. Forest Service, U.S. Fish & Wildlife Service, and the Bureau of Land Management. This national strategy is described in the 2008 “Keeping it Wild: An Interagency Strategy to Monitor Trends in Wilderness Character across the National Preservation System.”

This document provides a current wilderness character and baseline assessment of Buffalo National River Wilderness. Field surveys, historic planning efforts, park management policies, and documented uses are incorporated into this comprehensive guide for managers and future planning efforts. Additionally, comments from Buffalo National River park staff, other National Park Service staff, and other federal agencies have been integrated, as appropriate, in this guide.

First, a brief review of relevant legislation and park management policies identify the fundamental resources of Buffalo National River Wilderness. Second, the wilderness character narrative provides an assessment of past management decisions as they affect the qualities of wilderness character. Third, a suite of potential indicators and measures are proposed in order to conduct a wilderness character baseline assessment. Fourth, existing administrative guidance is described, followed by an account of planning needs to be addressed.

In effect, this document contains the core elements pertinent to the development of a Wilderness Stewardship Plan for Buffalo National River.
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Basic Wilderness Information

History of Land Status and Legislation
The preservation of Buffalo River and the surrounding region developed over time. Arkansas State Parks Commission established the Buffalo River State Park, now known as Buffalo Point, in 1938 and Lost Valley State Park in 1966. The state of Arkansas operated Buffalo River State Park until 1973, when it was transferred to the federal government as part of the newly established Buffalo National River.

As pressures to harness hydroelectric energy increased, Army Corps of Engineers included Buffalo River in its planning for a system of dams on the White River. Arkansas conservation groups and advocates for a free-flowing stream rose as opponents to damming the river. In the late 1950's the National Park Service (NPS) conducted a nationwide inventory of undeveloped streams to identify those for potential designation as parks. As water-resource developments progressed and values such as those at Buffalo River became scarce, a NPS study determined it as nationally significant. An Act of Congress (Public Law 92-237) and approval from President Richard Nixon authorized the Buffalo National River on March 1, 1972, giving means of preserving the area.

The national river’s enabling legislation specified that “a wilderness designation is to be made for sections of the area.” In 1974, a Wilderness Study Environmental Assessment examined the national river for its wilderness suitability. A considerable portion of the national river was deemed unsuitable for wilderness designation due to its narrow configuration and incompatible uses as provided for in the act establishing Buffalo National River and by the Master Plan. The wilderness study of the entire Buffalo National River identified three areas (Upper Buffalo, Ponca, and Lower Buffalo) for possible wilderness designation and explored seven alternative proposals.

A wilderness recommendation was made in the Final Environmental Statement on October 1978. In the Upper Buffalo River area 840 acres were recommended for wilderness designation and 1,360 acres as potential wilderness additions. In the Ponca area 4,382 acres were recommended for wilderness designation and 6,918 acres as potential wilderness additions. In the Lower Buffalo area 5,307 acres are recommended for wilderness designation and 17,193 acres as potential wilderness additions. Pertaining to the Lower Buffalo area, the river corridor
was not designated wilderness in order to allow traditional use of specified motors on boats and is part of the obligation to provide varied recreational opportunities in the national river.

The Wilderness Act states only federally owned land may be designated as wilderness. At the time of the study, majority of the land in the three study areas were held in non-federal ownership and some of the lands within the study areas were subject to use and occupancy. A minimum of 25 years would be required to extinguish all non-federal rights and nonconforming uses, at which time, all of the lands within the three study areas would qualify for wilderness designation. Therefore, 10,529 acres of federal land were recommended for immediate wilderness designation and 25,471 acres were recommended as potential wilderness additions.

On November 10, 1978, Public Law 95-625 established the Buffalo National River Wilderness Areas, totaling 36,000 acres in three separate wilderness units: Upper Buffalo Wilderness (2,200 acres), Ponca Wilderness (11,300 acres), and Lower Buffalo Wilderness (22,500 acres). Of the 36,000 acre total, 10,529 acres were designated wilderness and 25,471 acres are classified as potentially wilderness additions. This distinction varies on a tract by tract basis. Lands which were privately owned or had Reservations of Use and Occupancy, as of November 1978, were classified as potential wilderness additions.

Public Law 95-625 aims for all non-federal interests in potential wilderness additions to be acquired by the NPS and for all conflicting uses to be eliminated, which had largely been accomplished by 1989. This process anticipated completion upon publication of a notice by the Secretary of the Interior to that effect in the Federal Register. A request for such a notice was submitted in 1992. In the meantime, the NPS managed the potential wilderness additions as designated wilderness. Non-conforming uses in potential wilderness additions ceased in 2003.

The 1964 Wilderness Act directs administering agencies to foremost preserve the wilderness character of an area (Section 2a). Though no wilderness stewardship plan yet exists for Buffalo National River Wilderness, the 1994 Wilderness and Backcountry Management Plan laid a foundation for current managers to build upon.

Current Land Status, Boundary Descriptions, and Map
Since 1978, all of potential wilderness additions have gained wilderness designation due to the cease of nonconforming uses and acquisition of Reservation of Use and Occupancy land. At 36,000 acres, designated wilderness accounts for approximately 38 percent of Buffalo National River. “Wilderness” designation is the highest level of protection afforded to federal lands, which emphasizes the unique ecological and cultural significance of this landscape.

The wilderness boundary comprises three units: Upper Buffalo, Ponca, and Lower Buffalo. For the purpose of this document, these three units will be discussed individually, to capture
variation, as appropriate. Additionally, “Buffalo National River Wilderness” or “wilderness” refers to all three units.

Upper Buffalo unit is located the westernmost portion of the National River. To the south, Upper Buffalo unit adjoins the Upper Buffalo Wilderness Area administered by the U.S. Forest Service (USFS), where 16 miles of the river and the headwaters reside; and to the north, the historic Boxley Valley. Ponca unit is located to the northeast of Lost Valley with highway route 43 running adjacent to the western boundary. Lower Buffalo unit surrounds the lower river as it converges with the White River. Lower Buffalo unit adjoins the USFS Leatherwood Wilderness to the east.

As directed in the enabling legislation, the river corridor within Upper Buffalo and Ponca units are designated wilderness, whereas in Lower Buffalo unit the river corridor is not. The Boy Scouts of America owns 184.5 acres within the boundaries (but on the perimeter) of the Ponca unit, but the National Park Service acquired a scenic easement. The House committee’s report (12536) stated that, “The committee agreed to exclude from potential wilderness addition, at this time, that acreage owned by the Boy Scouts on the same side of the river where wilderness is designated.” Since lands with non-federal interests are ineligible for wilderness designation and Congress has made specific provisions, this land will remain a potential wilderness addition unless a “willing seller” exchange or purchase agreeable to the owners is negotiated.
Buffalo National River Wilderness, Northwest Arkansas: Reference Map

LEGEND
- Buffalo River
- NPS Wilderness
- NPS Park Boundary
- Leatherwood (Forest Service)
- Upper Buffalo Wilderness (Forest Service)
- Gene Rush WMA (AG&FC)
- Loafer's Glory WMA (AG&FC)

Lower Buffalo unit (22,500 acres)

Ponca unit (11,300 acres)

Upper Buffalo unit (2,200 acres)
Park Purpose, Significance, and Fundamental Resources and Values

Buffalo National River was included in the National Park System in 1972 “for the purpose of conserving and interpreting an area containing unique scenery 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.” Additionally, the enabling legislation highlights fishing and hunting opportunities as an integral part of the Buffalo River.

U.S. House of Representatives Committee Report (1972) described the justification for the establishment of Buffalo National River: “...It is not one single quality, but the combination of its size, its completeness, its wild qualities, and its associated natural, scenic, and historical resources that make the Buffalo worthy of national recognition.”

Buffalo National River is an exceptional example of a free-flowing Ozark mountain river. It is the only river protected for its entire length within the Ozark Plateau. As a dynamic river ecosystem, Buffalo River is important for scientific discoveries and advances in ecosystem management and restoration. The park is at the convergence of northern and southern ecosystems, the joining of western and eastern species, a rich blend of botanical communities, and abundance of fire-adapted habitats creates an ecosystem recognized locally, nationally, and globally as unique.

The park also contains a dense array of karst features, including over 360 caves and thousands of sinkholes, sinking streams, springs, and other natural features related to karst processes. In several places, the entire river runs underground for significant distances. Outstanding examples of faulting, landslides, ore mineralization, and world renowned fossil deposits have formed during its long geologic history.

The park embraces the overall story of Ozarks settlement and history from the first prehistoric inhabitants as early as 12,000 years ago to today’s living rural community of Boxley Valley. At least 10 Native American groups settled in the area: Absentee Shawnee, Eastern Shawnee, the Shawnee, Caddo Indian, Osage, Quapaw tribe, Tunica-Biloxi, Cherokee Nation, United Keetoowah Band of Cherokee, and Wichita and affiliated tribes. The outstanding cultural landscape provides opportunities to study and interpret cultural, environmental, technological, and social adaptations.

The park provides the public with an exceptional setting for recreational opportunities to experience Buffalo National River’s waterfalls, limestone bluffs, clear water, wooded canyons, and wilderness unequalled in this part of the country.
Relationship to Other Plans
The forthcoming Wilderness Stewardship Plan will provide managers with a practical framework, rooted in the Wilderness Act. Ultimately, the Wilderness Stewardship Plan should outline desired future conditions for the wilderness and strategies for reaching those goals, while also helping to meet the objectives of other park management plans when possible. Aspects of existing plans that are relevant to wilderness are described here.

Final Master Plan: The present Final Master Plan (1977) recognizes that in addition to developing and managing the area for public use, “perhaps more important is the need to preserve the near-natural environment of the area.” Considering the Final Master Plan preceded the formal designation of wilderness, management goals and objectives specific to wilderness are limited.

General Management Plan: Buffalo National River has been developing the park’s first General Management Plan (GMP). Currently, the process has been halted due to national funding constraints. There is no defined date when the GMP process will resume. At this time, the park envisions the Wilderness Stewardship Plan to be included within the GMP, but also serve as a stand-alone stewardship plan.

Wilderness and Backcountry Management Plan: Although there has not been a previous Wilderness Stewardship Plan, Buffalo National River has completed a Wilderness and Backcountry Management Plan. Management objectives primarily focused on recreational and visitor issues, in order to provide a broad range of experiences ranging from semi-primitive to wilderness settings. The Wilderness Stewardship Plan will incorporate non-recreational issues (i.e., goals for wildlife, vegetation, historical resources), and supersede the previous plan in order to provide a more comprehensive management strategy.

Resource Management Plan: The 1982 Resource Management Plan (RMP) describes a comprehensive resource management, monitoring, and research program for the park’s natural and cultural resources. The plan identifies the resource related activities that are on-going in the form of management action or research as well as problems that need management action or research initiated in the future. The plan encourages the preparation of action plans dealing with specific resource problems that would be included in the appendix. RMP identified a need to develop and implement a wilderness management plan for the three units.

Fire Management Plan: Last revised in March 2003, the Fire Management Plan (FMP) outlines four primary goals and is an addendum to Buffalo National River’s Resource Management Plan. Four Fire Management Units have been identified including Unit I Wilderness, further divided into three sub-units overlapping with the three wilderness units. The goals and objectives specific to Unit I Wilderness directly influence wilderness character. Furthermore, fire
management approach incorporates considerations that reflect wilderness values, such as limiting mechanized equipment use to cases of life protection and with prior authorization. This leaves potential for integrating concepts and strategies that will preserve wilderness character.

**Water Resources Management Plan:** The 2004 Water Resources Management Plan (WRMP) serves to better understand the water and water-dependent resources of Buffalo National River and provides a means to better protect those resources. The WRMP identifies four broad goals, virtually all of which are complementary to the protection of wilderness. Such goals include assessing water condition in specific areas relative to sensitive floral and faunal communities, assess the potential for adverse impacts to aquatic resources, and monitor, inventory, research, and mitigate activities required to perpetuate park natural resources and natural processes. Currently, monitoring and research activities related to water resources are minimal within wilderness boundaries. There are water-quality monitoring sites in sections of the river entering and leaving the river corridors within wilderness. The WRMP does not specifically address wilderness, but rather focuses on watershed-wide issues. The forthcoming Wilderness Stewardship Plan can provide guidance for water resources management and activities within wilderness, as to uphold the goals and objectives of both plans.

**Wilderness Character Narrative**

The 1964 Wilderness Act mandates the “preservation of wilderness character.” The “Keeping it Wild” publication\(^1\) derived four tangible qualities of wilderness directly from this legal description in order to support wilderness stewardship: untrammeled, natural, undeveloped, and opportunities for solitude or primitive and unconfined recreation. In addition to these four tangible qualities, there are also important intangible aspects of wilderness character that would be difficult or even impossible to quantify or monitor.

As the federal agency charged with administration of Buffalo National River Wilderness, the National Park Service must observe, monitor, and evaluate the condition of each of these qualities within wilderness. Through their actions, managers must strive to preserve wilderness character of Buffalo National River Wilderness. The following wilderness character narrative serves as an overview of the current conditions of Buffalo National River Wilderness. It seeks to improve future decision-making and assist the agency in adhering to 1964 Wilderness Act. By doing so, the character of Buffalo National River Wilderness can be enhanced and preserved at the exceptional level expected of the National Wilderness Preservation System.

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Overview of Buffalo National River Wilderness Character

Buffalo River meanders 151 river miles from its headwaters in Boston Mountains through the heart of the Ozarks in northwestern Arkansas to its confluence with the White River. As one of the last remaining free-flowing rivers in the nation, the lower 135 miles are protected under National Park Service management. Buffalo National River Wilderness encompasses portions of Buffalo River that has carved its path through an ancient seabed, revealing cuts of sandstone, limestone, and dolomite towering as high as 440 feet above the water. Ridges, bluffs, hillsides, and valleys provide a variety of habitats supporting over 1500 plant species, 54 mammal species, 250 birds species, and 59 fish species, along with a multitude of reptiles, amphibians, and invertebrates.

Buffalo National River has a rich cultural history, encompassing prehistoric times, the first European and American settlements in the late 1820s, and the mining era through the late 1880s and early 1900s. Many cultural sites exist in wilderness, ranging from bluff shelters once occupied by Archaic Period Indians to 1970’s homesteads. Human occupation changed significantly with establishment of the park in 1972, with residences being limited to a few park housing units and designation of Boxley Valley as a living cultural zone. The geography, ecology, and culture of the park draws visitors to engage in recreational activities, such as canoeing, kayaking, hiking, horseback riding, fishing, hunting, wildlife viewing, and cultural exploration. Upper and Lower Buffalo units are most primitive, while Ponca unit receives the majority of wilderness visitation due to popularized features and greater accessibility.

Description of the Untrammeled Quality

According to the 1964 Wilderness Act, the “untrammeled” quality of wilderness is achieved “where man himself is a visitor who does not remain,” and where an environment “generally appears to have been affected primarily by the forces of nature.” This quality stresses a freedom from modern human control or manipulation and is compromised even when the wilderness is “manipulated” to sustain or improve another wilderness quality (such as the use of herbicides to rid the landscape of invasive weeds). Any human action that alters the wilderness is considered trammeling, which makes restraint a necessary tool in wilderness management.

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2 Boxley Valley has been designated as a historic district with archaeological and cultural resources but is to remain in private use, thereby retaining the rural agricultural setting. Park managers have worked and continue to cooperate with landowners and farmers in the valley.
management. In the words of Roderick Nash, author of *Wilderness and the American mind*, “when we protect wilderness we deliberately withhold our power to change the landscape.”

Buffalo National River Wilderness is part of the larger Ozark Highlands, extending from Arkansas north into Missouri and west into Oklahoma that encompasses a series of heavily eroded plateaus. The rocks of the Buffalo River are entirely sedimentary, laid down in an ancient marine basin and low-lying landscape. Over its 300-million-year history, it was variously uplifted and eroded and then again submerged below the sea to receive more deposits. Natural processes have dramatically created and shaped the some of the most notable features of Buffalo National River Wilderness, including massive cliffs, waterfalls, and the river valley.

Buffalo National River Wilderness is currently managed with limited actions, both authorized and unauthorized, that manipulate wilderness. A plan to restore native vegetation community structure utilizing prescribed fire has been implemented in the Lower Buffalo unit. Wildland fire may be suppressed using a confinement strategy as per the Wildland Fire Decision Support System (WFDSS). Both fire prescription and fire suppression are forms of trammeling.

Limited management actions have been taken to mitigate the impacts of non-native invasive species. Currently, invasive plant species are not actively managed, though a plan is in development. One active effort to control invasive fauna species, however, is the eradication of feral hogs (*Sus scrofa*) through baiting and shooting, which has occurred over the past 25 years. However, this species remains a problem. The widely invasive zebra mussel (*Dreissena polymorpha*) has not yet been observed in Buffalo National River, though a Zebra Mussel Management Plan is currently in development as a precautionary measure. Re-introduction of previously extirpated species serves to increase the natural quality, but requires trammeling. The Rocky Mountain elk (*Cervus elaphus nelsoni*) was introduced to the Buffalo River in 1981 to replace the extirpated eastern elk (*Cervus elaphus canadensis*), and elk herds are presently transitory throughout wilderness.

Although outside wilderness boundaries, there is a stocking program in effect for the native channel catfish (*Ictalurus punctatus*). This species has been unable to reproduce successfully due to cold water releases from Bull Shoals Reservoir, which was constructed downriver of the Buffalo in the 1950s, preventing natural catfish migration and spawning in the Buffalo River. A
stocking program for the freshwater drum (*Aplodinotus grunniens*) another native species that has suffered due to dam construction, remains in the planning phase.

**Description of the Natural Quality**

Wilderness is required to remain “natural.” The 1964 Wilderness Act states that wilderness should be “protected and managed so as to preserve its natural conditions.” This quality calls for the protection of native species communities and the structure and function of ecological systems within wilderness, and should be managed so they are substantially free from the effects of modern civilization.

From the Rocky Mountains to the west and the Appalachians to the east, the land slopes almost imperceptibly from each direction. In the eastern part of this area the land elevates in only one place- the Ozark Mountains, which includes the Buffalo National River. This landscape provides refuge for plants and animals, and has come to support an interesting diversity of life missing in the surrounding flatlands.

Buffalo National River is a free-flowing river with karst topography, consisting of springs, caves, sinking streams, and sinkholes. As stated in Buffalo’s Fire Management Plan (2003), the geology and hydrology of the river are “unique because of a combination of factors such as karst geomorphology, steep topography, shallow soils, and highly interactive ground/surface water.”

There are two federally-listed endangered species in Buffalo National River Wilderness: Indiana bat (*Myotis sodalis*) and grey bat (*Myotis grisescens*). Arkansas Natural Heritage Commission noted additional species of management concern at the state and global levels. Cave obligate harvestman (*Crosbyella distincta*) is critically imperiled at the global level, while springtail (*Arrhopalites clarus*) and isopod (*Caecidotea stiladactyla*) are critically imperiled at the state level. Ringed salamander (*Ambystoma annulatum*), grotto salamander (*Eurycea spelaea*), wood frog (*Rana sylvatica*), Swainson’s warbler (*Limnothlypis swainsonii*), and Ozark chinquapin (*Castanea pumila var. ozarkensis*), among other species, are considered vulnerable in the state of Arkansas.

Buffalo River watershed extends well beyond the park boundary and therefore activities and conditions external to park jurisdiction impact the water quality within the park and wilderness boundaries. Water quality of Buffalo River has been compromised by watershed-wide non-point source pollution, primarily agriculture, municipal waste management, and recreational
activities, related to improper disposal of human waste. Other sources of decreasing water quality include trail and bank erosion, gravel mining outside the park, influx of fecal contaminants from external agricultural sites following precipitation events, and groundwater pollution permeating the river’s karst. Storm runoff from roads and trails has also led to an increase in river turbidity, particularly when roads/trails intersect a drainage path and become new drainage channels.

Human-made rock vanes present at Steel Creek and Kyles Landing, which are intended to protect stream banks and other sensitive sites, occur immediately outside wilderness. These rock vanes affect the river channel, including upstream and downstream. Changes include the alteration of river hydrology, sediment transportation, and natural lateral migration of the river.

There are numerous invasive species within wilderness, which include feral hog (Sus scrofa domestica), Asian clam (Corbicula fluminea), and a great variety of invasive plant species, including but not limited to tree of heaven (Ailanthus altissima), Chinese lespedea (Lespedeza cuneata), Japanese stiltgrass (Microstegium vimineum), and garlic mustard (Alliaria petiolata). Invasive zebra mussel (Dreissena polymorpha) has not yet arrived in Buffalo River but is a serious cause for concern.

No native species have gone locally extinct since wilderness designation, but species such as the freshwater drum (Aplodinotus grunniens) and American eel (Anguilla rostrata) were functionally extirpated, meaning there are no longer any reproducing populations, with the construction of the Bull Shoals Reservoir in the 1950s.

Land within wilderness, recently acquired through expiration of Use and Occupancy leases, are ineligible for current wilderness designation due to nonconforming uses. Removal of non-historic structures and man-made improvements on the land are currently being undertaken, with long-term goal to restore the natural ecosystem.

Buffalo National River Wilderness is a designated Class II airshed, while Upper Buffalo Wilderness managed by the Forest Service is a Class I airshed. Since Upper Buffalo Wilderness administered by the Forest Service adjoins Upper Buffalo unit managed by National Park Service, prescribed burns within this area require closer attention to smoke management.

Since 1982, National Trends Network, the federal entity in the National Atmospheric Deposition Program, has been monitoring and collecting atmospheric deposition data at Buffalo Point. For the past three years, weather conditions have been documented using automated samplers

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3 Class 1 airshed is an area of particular aesthetic quality, such as the Grand Canyon, where visibility increases the aesthetic nature of the area.
4 NTN measures free acidity, conductance, calcium, magnesium, sodium, potassium, sulfate, nitrate, chloride, and ammonium
directly adjacent to Ponca unit. The primary purpose of this data collection is to monitor fire conditions. Visibility data was formerly collected at Buffalo Point, but this monitoring ceased in 1990 due to funding constraints. Data on particulates was collected with the State’s assistance until late 1990s, after which this effort was discontinued. There is no record of ozone concentration data collection.

Description of the Undeveloped Quality

The 1964 Wilderness Act defines wilderness as an “area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation,” and with “the imprint of man’s work substantially unnoticeable.” The Act further states “there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation.” Any sign of modern human presence in the wilderness degrades the undeveloped quality.

Buffalo River is esteemed regionally and is considered nationally unique because it is undammed, and its banks have not been extensively developed. Additionally, no permanent administrative structures or facilities exist in wilderness. Geographic isolation has kept intense development at bay and fostered a unique culture to the area.

In efforts to provide accessibility, trailhead parking areas exist immediately outside wilderness in Upper and Lower Districts. Currently, no paved roads cross into wilderness, though Route 43 runs adjacent to the boundary of Ponca unit. Lower Buffalo unit has two road easements, which are rarely if ever used. Developed campsites are nonexistent in wilderness; however, social campsites have been established by repeated visitor use. These campsites generally consist of cleared vegetation, bare soil, and fire rings.

Although maintained trails have trail markers, a consistent park-wide trail marking system does not exist, including in wilderness. In regards to wilderness, directional posts and tree blazes, intended to guide visitors to proper trails, are only present in Ponca unit.

Motorized equipment is seldom utilized in trail and river maintenance within wilderness. Minimum Requirements are followed in the decision of whether such equipment is necessary and appropriate. This is not the case in the Ponca unit river corridor, when chainsaw use often occurs to remove “hazard trees”. Motorized transportation, including helicopters, motor vehicles, and/or motorized boats, are used in wilderness in emergency situations that threaten “life or limb.” There are no special flight restrictions (other than 500-foot rule prescribed by the FAA) over wilderness and low-level flights may also occur as part of ongoing cannabis detection program. Motorboat with engines over 10 hp are not allowed in the section of the river that passes through Lower Buffalo unit except for administrative purposes, such as search and
rescue. There has been unauthorized use of ATVs and motor vehicles documented in wilderness.

Archaeological sites are inadequately documented, and an unknown number are being lost due to stream bank erosion. An additional management concern is looting and damage to existing cultural resources that has been caused by park users.

Inventory of cultural resources within wilderness has been minimal when compared to non-wilderness areas of Buffalo National River. In 2004, a limited Cultural Resource Inventory was conducted in Lower Buffalo unit in preparation for a prescribed burn, but data were of limited use. A 5-year archaeological survey for all of Buffalo National River commences in 2011 to develop an accurate account of the park’s cultural resources. This survey will involve mapping and recording of prehistoric and historic structures, use areas, and other sites of archaeological significance.

Wilderness contains a substantial number of historic sites from the mining period of the late 1800s and early 1900s. Abandoned roads, mine portals, milling sites, and old schools and stores exist within wilderness. Lower Buffalo unit is estimated to have roughly 100 abandoned mines, while mines exist to a lesser extent within Ponca and Upper Buffalo units. Silver Hollow, Red Cloud, Lonnie Boy, Edith, and Bennett mines have a chain-link fencing perimeter to deter public access for safety reasons. Although the historical resources do not degrade the undeveloped quality, park-built chain-link fencing does.

Human occupation of the Buffalo in prehistoric and historic times is also indicated by the presence of bluff shelters, fire rings, tool preparation sites, cemeteries, fences, wells (hand-dug and drilled), livestock dipping vats, utility corridors, and farmlands. It is estimated that 10 cemeteries exist within Lower Buffalo unit. There is also evidence of past human use of caves within wilderness, of which approximately 50% have some form of historic or non-historic wall art. Lower Buffalo unit alone has at least 100 caves.

There are routine site condition assessments (SCAs) of designated historic sites within wilderness and the List of Classified Structures (LCS) is evaluated yearly. A current management concern is determining how many and which historic sites should be maintained. A number of these sites are actively monitored and/or rehabilitated, including Cold Springs School (listed in the National Register of Historic Places), Pickle Edgmon barn (a contributing structure to the Boxley historic district), Laffoon Cemetery, and Eva Barnes (Granny) Henderson house.
Description of the Opportunities for Solitude or Primitive and Unconfined Recreation Quality

According to the Wilderness Act, wilderness has “outstanding opportunities for solitude or a primitive and unconfined type of recreation.” This quality is about the opportunity for visitors to experience wilderness; it is not directly about visitor experience per se. Factors that reduce these opportunities, and therefore degrade this quality, include visitor encounters, signs of modern civilization, recreation facilities, and management restrictions on visitor behavior.

Upper and Lower Buffalo units are visited less frequently than Ponca unit and possess greater opportunity for solitude. According to the Trails Illustrated Map, Upper Buffalo unit has 1.2 miles of unmaintained primitive trails. Lower Buffalo unit has a 46-mile network of trails and primitive routes, which are mostly old road beds. Some of these routes, including Cow Creek-Cook Hollow Trail, receive limited maintenance by the Park.

Ponca unit has an extensive trail system of approximately 56.3 miles, of that 11.9 mi hiking only and 44.4 mi hiking and horseback riding. These trails are either designated or recognized primitive trails. Despite presence of designated trails, visitors are allowed to leave these trails, which potentially increase their opportunity for an unconfined type of recreation. Social trails, defined as unofficial avenues that have been developed by visitors to access areas of interest, have been formed in wilderness, but are especially apparent in Ponca unit, which has an estimated 51.7 miles.

Socially-established campsites are permitted on gravel and sand bars and in areas that are naturally devoid of significant vegetative ground cover, and are more than 100 feet from the river. Currently, there is no permitting system for camping in the wilderness, though it may be considered in the future. Temporary traditional hunting camps are established during hunting season in the Lower Buffalo unit.

While visitor use varies by season and fluctuating river levels, overall visitor use in the Ponca unit is much higher than in the Upper and Lower Buffalo units. Popular scenic points (such as Hemmed-in-Hollow, Big Bluff, and Indian Creek), well-known commercial services, and higher levels of accessibility are responsible for this trend.

The soundscape of wilderness is degraded in locations in close proximity to roads and bridges, where motorized vehicles can be heard. This is a particular concern within Upper Buffalo and Ponca units. Additionally, overflights related to fire, cannabis detection, and commercial/private/military use further degrades this quality. A railroad passing through Buffalo City, motorized boats, and sawmills account for most noise pollution and impacts in

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5 National Geographic Society. (2009) Trails Illustrated map: Buffalo National River, Arkansas, USA
Lower Buffalo unit. There are numerous visual impairments both inside and outside wilderness that can be seen from within wilderness that negatively impact the viewshed. Tilting Rock radio repeater in Lower Buffalo unit is well above tree line and can be easily viewed by visitors. Other visual impairments include the railroad and town at Buffalo City and structures in Cloudland. Visitors to Ponca unit can see the Compton Repeater and Microwave Tower from certain locations. Limited light pollution also occurs in Ponca and Lower Buffalo units due to their proximity to human settlements, but a spectrum of other fantastic opportunities to view the night sky exists elsewhere throughout wilderness.

**Wilderness Character Monitoring**

The Wilderness Act (Section 7) requires the Secretaries of Agriculture and Interior to jointly report on the status of the National Wilderness Preservation System including descriptions of the areas, regulations in effect, and other pertinent information, together with any recommendations. This mandate necessitates individual wildernesses to monitor and assess wilderness character and report to the national level. With the aim to perform a proper assessment, baseline conditions must be set as a reference point against which change over time is measured and evaluated. Ideally, all baseline data would have been collected at time of designation. However, few existing wildernesses actually have this information. Therefore data from the initial condition assessment may be substituted.

In order to identify trends in the wilderness resource, to evaluate the success of management strategies, and guide future strategies, a rigorous monitoring program for Buffalo National River Wilderness is essential. The approach will follow the national strategy for wilderness character monitoring described in the “Keeping it Wild” publication.

Some recommendations in the framework need to be adjusted for park-specific concerns, needs, and abilities. The park’s wilderness interdisciplinary team reviewed the measures described in “Keeping it Wild” and ongoing park research studies, and then developed the following list of potential measures for use in Buffalo National River Wilderness. This list may be revised during the development of the Wilderness Stewardship Plan. The final suite of indicators and measures is likely to be a shorter list so that no single park division or employee is excessively burdened.

**Indicators, Measures, and Data Sources**

This monitoring framework is based on hierarchically dividing wilderness character into successively finer elements (qualities of wilderness, monitoring questions, indicators, and measures). Data sources are identified for each measure.
Untrammeled Quality

Under this quality, actions are the “unit of analysis” or the information that is recorded for assessing trends. An “action” is defined for this monitoring as an act or a series of acts that are purposefully taken to manipulate the biophysical environment. The purpose of monitoring the untrammeled quality is to track the intentionality of a decision to take an action rather than track the consequence of that decision. The management reason to take the action should be recorded in order to provide information for future managers to discern what the park identifies as an important action.

<table>
<thead>
<tr>
<th>Monitoring Question</th>
<th>Indicator</th>
<th>Measure</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the trends in actions that control or manipulate the “earth and its community of life” inside wilderness?</td>
<td>Actions authorized by the Federal land manager that manipulate the biophysical environment</td>
<td>1-1. Number of authorized actions to manage flora, fauna, insects, disease, soil, or water per year</td>
<td>RM, CD Scott</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-2. Number of suppression response(s) to wildland fire starts per year</td>
<td>FMO</td>
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<tr>
<td></td>
<td></td>
<td>1-3. Number of prescribed fires per year</td>
<td>FMO</td>
</tr>
<tr>
<td>Actions not authorized by the Federal land manager that manipulate the biophysical environment</td>
<td>1-4. Number of unauthorized actions that manipulate flora, fauna, insects, disease, soil, water, or fire per year</td>
<td>FMO</td>
<td></td>
</tr>
</tbody>
</table>

**1-1. Number of authorized actions to manage vegetation, wildlife, insects, disease, soil, or water:** The intent of this quality is to track large-scale or significant actions, therefore small scale actions such as removing a hazard tree would not be included. A broad-scale aerial seeding project would be monitored but the sprinkling of seed for campsite rehabilitation would not. Actions taken or authorized by a State or Federal agency will be tracked. For example, spraying herbicide to control invasive plants or removal of feral hogs will be considered an action. Park management will need to establish general rules for counting and reporting the
number of actions. For example, removing feral hog(s) at a single location would count as one action. Removing feral hog(s) and another invasive animal species at a single location would count as multiple actions.

1-2. **Number of suppression response(s) to wildland fire starts:** According to the Fire Management Plan, a wildland fire is defined as any fire ignition that is not agency planned and initiated. Records are kept annually by the Fire Management Officer.

1-3. **Number of prescribed fires:** A prescribed fire is an agency planned and initiated fire. Records are kept annually by the Fire Management Officer.

1-4. **Number of unauthorized actions that manipulate vegetation, wildlife, insects, disease, soil, water, or fire:** Unauthorized actions would include the number of visitor-ignited fires, number of illegal timber/vegetation harvest incidents, or number of illegal species takings/poaching incidents. Records are kept by the Upper and Lower District Rangers in the form of citations for known unauthorized activity.

**Natural Quality**
While the untrammeled quality monitors the actions that manipulate or control wilderness ecological systems, the natural quality tracks the effects of these and other actions on the community of life in wilderness.

### Natural Quality

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<tr>
<th>Monitoring Question</th>
<th>Indicator</th>
<th>Measure</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the trends in terrestrial, aquatic, and atmospheric natural resources inside wilderness?</td>
<td>Plant and animal species and communities</td>
<td>2-1. Number of native species listed as threatened and endangered, sensitive, or of concern</td>
<td>RM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2-2. Number of native species extirpated or functionally extirpated</td>
<td>RM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2-3. Number of non-native species</td>
<td>RM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2-4. Abundance and distribution of invasive non-native species every five years</td>
<td>RM</td>
</tr>
<tr>
<td>Physical resources</td>
<td>2-5. Visibility based on average deciview and sum of anthropogenic fine nitrate and sulfate</td>
<td>National IMPROVE data</td>
<td></td>
</tr>
</tbody>
</table>
2-6. Ozone air pollution based on concentration of N100 episodic and W126 chronic ozone exposure affecting sensitive plants

2-7. Acid deposition based on concentration of sulfur and nitrogen in wet deposition

2-8. Concentration of fecal coliform bacteria per year

<table>
<thead>
<tr>
<th>What are the trends in terrestrial, aquatic, and atmospheric natural processes inside wilderness?</th>
<th>Biophysical processes</th>
<th>2-9. Departure from natural fire regimes averaged over the wilderness every five years</th>
</tr>
</thead>
<tbody>
<tr>
<td>National EPA AIRS data</td>
<td>National CASTNET data</td>
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<tr>
<td>National NADP/NTN data</td>
<td>RM, Faron Usrey</td>
<td></td>
</tr>
<tr>
<td>FMO (LANDFIRE)</td>
<td></td>
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</tr>
</tbody>
</table>

2-1. **Number of native species listed as threatened and endangered, sensitive, or of concern:** Lists of threatened, endangered, and/or sensitive species can be found from Federal, State or other partner agencies. Additionally, any species of concern specific to the wilderness can be included as appropriate. This measure includes fauna and flora species, as appropriate.

2-2. **Number of native species extirpated or functionally extirpated:** This measure assesses trends based on the known history of an area from the time of European contact to the present day. If species that were extirpated before wilderness designation are restored to a wilderness, this would be seen as an improvement to the natural quality. The final environmental statement of the proposed Master Plan (1975) stated the timber wolf and mountain lion to have been extirpated from region. Eastern elk has been functionally extirpated. A complete list should be compiled. This measure includes fauna and flora species.

2-3. **Number of non-native species:** This measure is the simple total number of fauna and flora non-native species that occur within wilderness. Non-native species are defined as species that occur in an area by modern human influence. For this measure, we are concerned with what is non-native to the wilderness area. A species may be native to one part of wilderness and not other parts. Other species that are counted as non-native in the context of this monitoring include domestic livestock such as cattle, horses, and sheep that are present in wilderness by permit, or species that have become established, such as mustangs and burros.

2-4. **Abundance and distribution of invasive non-native species:** This measure will serve as a placeholder for when the data will be collected in the future. Invasive species are commonly defined as “an alien species whose introduction does or is likely to cause
economic or environmental harm or harm to human health”. Local staff would determine which species are considered invasive, and these species would not be included in the previous measure.

2-5. **Visibility based on average deciview and sum of anthropogenic fine nitrate and sulfate:** Deciview is a cumulative haziness index used to express light extinction or more simply, it is the visibility a wilderness visitor would experience. These data are available nationally from the IMPROVE (Interagency Monitoring of Protected Visual Environments) database.

2-6. **Ozone air pollution based on concentration of N100 episodic and W126 chronic ozone exposure affecting sensitive plants:** Ozone and its precursor emissions (i.e. nitrogen oxide and volatile organic compounds) can travel long distances, resulting in elevated ozone levels in wilderness. These data are available nationally from either the Environmental Protection Agency’s AIRS (Aerometric Information Retrieval System) or CASTNET (Clean Air Status and Trends Network) databases.

2-7. **Acid deposition based on concentration of sulfur and nitrogen in wet deposition:** The concentration of sulfur and nitrogen in rain and snow is a major contributor to acid deposition, adversely affecting algae, aquatic invertebrates, amphibians, fish, soil microorganisms, plants, and trees. The park will utilize data collected by the NADP/NTN (National Atmospheric Deposition Program/National Trend Network) at the Buffalo Point monitoring station.

2-8. **Concentration of fecal coliform bacteria:** The park has been collecting this data at monitoring locations outside of wilderness. The park can decide whether gathering water samples within wilderness without any monitoring installations is feasible. Another alternative is to utilize data collected at monitoring stations immediately outside of wilderness as a proxy for this measure.

2-9. **Departure from natural fire regimes averaged over the wilderness:** The park will utilize LANDFIRE program for this measure. The natural quality is degraded if departure from natural fire regimes increases.

**Undeveloped Quality**

Under this quality, non-recreational developments such as administrative sites, stock fencing, or fixed instrumentation sites are included. Cultural or heritage resources are included under this quality rather than one of the other qualities because they primarily represent human relationships with the land prior to modern wilderness designation.
**UNDEVELOPED QUALITY**  
Wilderness retains its primeval character and influence, and is essentially without permanent improvement or modern human occupation

<table>
<thead>
<tr>
<th>Monitoring Question</th>
<th>Indicator</th>
<th>Measure</th>
<th>Data Sources</th>
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<tbody>
<tr>
<td>What are the trends in non-recreational development inside wilderness?</td>
<td>Non-recreational structures, installations, and developments</td>
<td>3-1. Number of authorized physical development every five years</td>
<td>RM/Facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-2. Number of non-recreational structures and man-made improvements removed every five years</td>
<td>Facilities, Randy</td>
</tr>
<tr>
<td>What are the trends in mechanization inside wilderness?</td>
<td>Use of motor vehicles, motorized equipment, or mechanical transport</td>
<td>3-3. Type and amount of administrative and non-emergency use of motor vehicle, motorized equipment, or mechanical transport per year</td>
<td>Ranger</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-4. Type and amount of emergency use of motor vehicle, motorized equipment, or mechanical transport per year</td>
<td>FMO, Tony Collins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-5. Type and amount of motor vehicle, motorized equipment, or mechanical transport use not authorized by the Federal land manager per year</td>
<td>Ranger</td>
</tr>
<tr>
<td>What are the trends in cultural resources inside wilderness?</td>
<td>Loss of statutorily protected cultural resources</td>
<td>3-6. Number/severity of disturbance to archeological sites or resources listed on NRHP</td>
<td>Cultural Resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-7. Percent of wilderness area for which a cultural/archaeological resources assessment has not been completed</td>
<td>Cultural Resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-8. Percent of eligible structures not yet evaluated for Historic Places or the NPS List of Classified Structures</td>
<td>Cultural Resources</td>
</tr>
</tbody>
</table>
3-1. **Number of authorized physical development**: (i.e. monitoring/research installations, fences, mine/cave gates, or any structure excluding bathrooms). Here, physical development associated with recreation will not be counted because all recreational developments are captured in opportunities for solitude quality. Currently, there are no bathrooms within wilderness. Historical and cultural physical development(s) are included within this measure.

3-2. **Number of non-recreational structures and man-made improvements removed**: This measure captures the amount of man-made improvements removed.

3-3. **Type and amount of administrative and non-emergency use of motor vehicle, motorized equipment, or mechanical transport**: Motor vehicles include any land, water, or air vehicles that are gas or electric powered, including motor boats, aircraft, or snowmobiles. Motorized equipment includes any machines or tools that use a motor or engine, such as chain saws or generators. Mechanical transport includes the use of any contrivance for moving people or material in or over land, water, or air, having moving parts or providing a mechanical advantage to the user and powered by a living or nonliving power source. Canoes, rafts, or similar primitive devices may have moving parts but do not provide mechanical advantage, and therefore are not considered mechanical transport.

3-4. **Type and amount of emergency use of motor vehicle, motorized equipment, or mechanical transport**: See measure 3-3.

3-5. **Type and amount of motor vehicle, motorized equipment, or mechanical transport use not authorized by the Federal land manager**: See measure 3-3.

3-6. **Number/severity of disturbance to archeological sites or resources listed on NRHP**: This measure includes prehistoric and historic Native American sites, historic mining sites, roads, settlements, cemeteries, farmsteads, and other historic assets.

3-7. **Percent of wilderness area for which a cultural/archaeological resources assessment has not been completed**: An inventory of cultural/archaeological resources has not yet been completed for wilderness. The value for this measure will begin with 100% of the wilderness not having a cultural/archaeological resources assessment completed. As cultural/archaeological resources are assessed within wilderness, the value will decrease signifying an improvement to the undeveloped quality.

3-8. **Percent of eligible structures not yet evaluated for Historic Places or the NPS List of Classified Structures**: This measure (as well as 3-7) would provide some information on the trends in the preservation and degradation of cultural/archaeological resources within wilderness since there is currently no inventory of these resources.
Opportunities for Solitude or Primitive and Unconfined Recreation Quality

Recreation-focused developments such as trails, campsites, shelters, or toilets are included under the solitude or primitive and unconfined recreation quality because of the strong connection to recreational experiences. The distinction between non-recreational and recreational physical development is also made to avoid double-counting recreational developments under both qualities.

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<tr>
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<th>Measure</th>
<th>Data Sources</th>
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<tbody>
<tr>
<td>What are the trends in outstanding opportunities for solitude inside wilderness?</td>
<td>Remoteness from sights and sounds of people inside the wilderness</td>
<td>4-1. Number of encounters per year</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>4-2. Number and condition of socially established campsites</td>
<td></td>
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<td></td>
<td></td>
<td>4-3. Number of canoes on the river within wilderness per year</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>4-4. Area of wilderness affected by access or travel routes that are inside the wilderness</td>
<td>Facilities (GIS)</td>
</tr>
<tr>
<td></td>
<td>Remoteness from occupied and modified areas outside the wilderness</td>
<td>4-5. Area of wilderness affected by access or travel routes that are adjacent to the wilderness</td>
<td>GIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-6. Night sky visibility averaged over the wilderness</td>
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<td></td>
<td></td>
<td>4-7. Number of overflight(s) per year</td>
<td>External agencies</td>
</tr>
<tr>
<td>What are the trends in outstanding opportunities for primitive and unconfined</td>
<td>Facilities that decrease self-reliant recreation</td>
<td>4-8. Miles of maintained trails</td>
<td>Facilities</td>
</tr>
<tr>
<td>opportunities for primitive and unconfined</td>
<td></td>
<td>4-9. Number of informational and/or directional signs</td>
<td>Facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-10. Type and number of user-created recreation facilities</td>
<td>Rangers/RM/Lands</td>
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4-1. **Number of encounters**: Encounter is defined as the instance when a person or group becomes aware of the presence of another person or group within the wilderness. This definition is purposefully vague in order to capture the range of possible options for what “counts” as an encounter. The park should establish the methodology according to the specific management questions. University of Idaho has produced a comprehensive guide (A Guide to Monitoring Encounters in Wilderness).

4-2. **Number and condition of socially established campsites**: The park has conducted a Backcountry Campsite Inventory in 1991. It is encouraged to revisit the methodology and conduct a similar inventory relevant to wilderness stewardship.

4-3. **Number of canoes on the river within wilderness per year**: This includes private and commercial canoes. Commercial services receipts for canoes will be utilized to extrapolate the number of canoes on the river at any given day. See Chuck Bitting for more information.

4-4. **Area of wilderness affected by access or travel routes that are inside the wilderness**: The access or travel routes within wilderness will be buffered in order to estimate the area of wilderness affected. The buffer will be a reasonable estimation of how far away access or travel routes impact surrounding areas. The calculation will be performed using geospatial analysis.

4-5. **Area of wilderness affected by access or travel routes that are adjacent to the wilderness**: This measure focuses on access or travel routes external to wilderness. It will follow a similar calculation as 4-4.

4-6. **Night sky visibility averaged over the wilderness**: The park aims at incorporating night sky monitoring in the near future.

4-7. **Number of overflight(s) per year**: Overflights include emergency, fire, military, commercial, private and others. The aim of this measure is to capture the impacts to the soundscape.

4-8. **Length of maintained trails**: This measure aims to quantify the facilities that decrease self-reliance.

4-9. **Number of informational and/or directional signs**: This measure aims to quantify the facilities that decrease self-reliance. An example of an informational sign is a sign stating “Granny Henderson”. The purpose of an informational sign is to make the visitor aware of a unique feature of area. Directional signs are signs providing basic information of the trail including the mileage and direction.
4-10. **Type and number of user-created recreation facilities:** This measure would be composed of facilities built or installed by users for recreational purposes, including shelters, trails and trail markings, bridges, or semi-permanent long-term or seasonal use camps. This is not an extensive list, but serves as examples.

4-11. **Number of, type, and extent of management restrictions:** This measure would be composed of the number of restrictions and the extent of the area within wilderness affected by the restriction. Examples of such restrictions include prohibited or limited use of campfires, restrictions on cross-country travel, river use restrictions, closed mines/caves/trails, required use of designated campsites, restrictions on stock use, and requiring permits for wilderness visits.

**Baseline Conditions Assessment**

The indicators and measures outlines in the previous section have been evaluated by the Wilderness Interagency Team. In the next stages of the planning process, Buffalo National River will conduct a final review of these measures. Although this is the latest list of measures, adjustments may be made where necessary and appropriate. After the park refines the measures and collects data, a baseline assessment will be conducted using the Wilderness Character Database.
Administrative Guidance

Minimum Requirements Analysis

Buffalo National River will apply the minimum requirement concept to wilderness stewardship planning, as well as to all other administrative and research activities affecting wilderness. As stated in 2006 NPS Management Policies, this process is “used to determine if administrative actions, projects, or programs undertaken by the Service or its agents and affecting wilderness character, resources, or the visitor experience are necessary, and if so how to minimize impacts.”

The concept of minimum requirements comes from Section 4(c) of 1964 Wilderness Act. Wilderness managers may authorize generally prohibited activities or uses if they are deemed necessary to meet the minimum requirements for the administration of an area and where those methods are determined to be a minimum tool or activity for the project. The use of motorized equipment and the establishment of management facilities are specifically prohibited when other reasonable alternatives are available. The minimum requirement process will not be used to permit roads or commercial enterprises within wilderness unless these are authorized by specific legislation.

The process of authorizing such activities will be documented on Minimum Requirement Analysis (MRA) worksheets, which is endorsed by the Arthur Carhart National Wilderness Training Center. The minimum requirement concept is to be applied as a two-step process that documents: (1) A determination as to whether or not a proposed management action is appropriate or necessary for the administration of the area as wilderness, and does not pose a significant impact to the wilderness resources and character; and (2) If the project is appropriate or necessary in wilderness, the selection of the management method (tool) that causes the least amount of impact to the physical resources and experiential qualities (character) of wilderness.

Buffalo National River has not consistently utilized MRA for administrative and research decisions. Currently, the park has not identified a lead staff member to assume the responsibilities associated with the minimum requirement process. This provides necessary guidance on establishing a minimum requirement process and responsibilities to park staff. Buffalo National River will require the project supervisor to complete MRA worksheets and submit to the Wilderness Interdisciplinary Team (or Wilderness Coordinator) for evaluation (See Appendix C). The Wilderness Interdisciplinary Team and project supervisor are encouraged to complete two free, online training courses created by the Arthur Carhart National Wilderness Training Center: The Wilderness Act of 1964 and Minimum Requirements Analysis. These courses, available from Wilderness.net, are meant to increase awareness of the requirements.
of working in wilderness and expedite the review process. This is a one-time requirement for an individual.

Final copy of Minimum Requirements Analysis Guide is located at N:\Resource Management\Wilderness.

**Leave No Trace**

Leave No Trace guidelines are supported by park staff for all wilderness users, but there is currently little active promotion of Leave No Trace by the park. As a result, proper disposal of human waste is becoming a major management concern, and trash is consistently found at socially-established campsites and along the river and trails.

Leave No Trace (LNT) is a national and international program designed to assist outdoor enthusiasts in making decisions that maintain safety and minimize degradation to natural and cultural resources. The program educates recreationalists about the nature of their impacts as well as techniques to prevent and minimize such impacts. It is the standard philosophy and method that is actively promoted by the U.S. Forest Service and supported by the National Park Service.

Buffalo National River will begin LNT education in the park and in the wilderness. This can be accomplished by providing educational literature at visitor centers and park website; by printing LNT principles on trailhead signs; and by direct outreach to visitors, researchers, and park employees alike. All users of the wilderness should be strongly encouraged to follow the LNT ethic. Additionally, park staff can enroll in courses administered by LNT certified instructors. More information can be found at the official website (www.lnt.org).

**Wilderness Planning Needs**

**Wilderness Interdisciplinary Team**

The role of the Wilderness Interdisciplinary Team must be explicitly defined. During the initial stages of this process, the team represented wilderness advocates within the park and park staff from all the park divisions. This was appropriate as the process required input from all the divisions in order to develop the wilderness character narrative and monitoring measures.

The team functioned solely as a feedback provider and not as active collaborators moving the process forward. The next phase of this process requires the latter. The wilderness stewardship planning process will require a wilderness coordinator or a small group of park employees that are knowledgeable of (or willing to learn about) wilderness concepts including the national framework described in “Keeping it Wild.” Free online courses on wilderness concepts and resources located in N:\Resource Management\Wilderness can provide the support
needed. This will enable efficient and effective use of time and resources to coordinate the next stage of the planning process: (1) internal and external education and (2) data collection to establish the baseline conditions assessment.

**Internal Education**

In order to build support for the concept of wilderness management, the logical starting point is educating park staff about the need for and ramifications of aligning management decisions with consideration of the Wilderness Act. In many ways, park staff serves as important “ambassadors” for the park in their day-to-day activities. It is essential that all park employees have a working knowledge of the management requirements of wilderness.

Currently, park staff does not have adequate information and knowledge of wilderness. The Wilderness Coordinator (or park staff with an in-depth knowledge of wilderness) can facilitate training and workshops for park employees. Additionally, the Wilderness Coordinator and Interpretation park staff should collaborate on informational brochures for park staff. Wilderness topics and issues should be a part of the annual seasonal training sessions and seasonal handbooks.

Along with broad wilderness concepts, education and tools should be tailored to the goals of each park division. For example, maintenance division should be provided with information on minimum requirement and LNT ethics since they directly impact wilderness during trail maintenance operations. Informed and knowledgeable park staff can provide consistency and develop a common language related to wilderness throughout the park. Potentially, wilderness stewardship can transcend any one division and become a holistic approach, as each park staff and/or division evaluates the impacts of management decisions to wilderness character.

**External Education and Public Relations**

Since the term “wilderness” has been a hot-button topic in the past, the park should develop an education and outreach program to inform the local public, which are the predominate visitors, as well as preparing visitors before they make their visit. The education and outreach program should tailor strategies to two broad goals: wilderness character of Buffalo National River and the values of wilderness; and eventually engaging the public in the Wilderness Stewardship Planning process.

Educational programs, media presentations, and printed brochures at park visitor centers can educate visitors on the concepts of wilderness and the values of wilderness at Buffalo National River. Tyler Bend Visitor Center is located in the middle district, which does not have any wilderness within its jurisdiction. Since it is the only visitor center opened year-round to the public, Tyler Bend should include information and displays on wilderness.
The park website should develop content regarding wilderness (i.e. wilderness history, concepts, Leave No Trace ethics). Wilderness inherently requires both a level of self-reliance and good judgment to negotiate without incident. Information about the conditions of the wilderness, including unmarked trails and lack of cell phone service, can enable visitors to plan and prepare ahead for their trip. Initial content and products have been developed using references from Shenandoah National Park and Fire Island National Seashore. This includes web content, site bulletin, and wilderness posters (See Appendix D). Original versions can be located N:\Resource Management\Wilderness\01 BUFF Wilderness Stewardship Plan Progress\06 Educational Outreach. Other resources can be found at Wilderness.net toolboxes.

Additionally, Buffalo National River has support from organizations such as Buffalo River Partners and the Ozark Society. These organizations can provide capacity to collect necessary data and also disseminate wilderness information through appropriate programs. The Boy Scouts of America can also engage in data collection. One potential project is to conduct a campsite inventory using the 1991 Backcountry Campsite Inventory as a guide.

A partnership with commercial services regarding Leave No Trace ethics provides an additional avenue to educate visitors. Currently, commercial services are required to provide mesh bags for trash, but there is opportunity to generate awareness about visitor impacts and how best to minimize degradation to resources.

**Recreation Management**

Horseback use has been a traditional use within the park and wilderness. The park should increase outreach and education efforts to stock users regarding environmentally conscious practices. Information about the detrimental impacts of their animals on wilderness should be effectively communicated. For example, stock animals should not be fed non-native foods before entering the wilderness in order to decrease the chance of exotic plant introductions. Certified weed seed free feed is available commercially, and it should be fed to the animals at least three days in advance for any wilderness trip. Animals should travel in single file and avoid steep slopes and soft ground in order to minimize damage on trails. Recommendations such as these could be described in park literature, and backcountry rangers could help encourage these principles upon meeting stock users in the field.

Horse only, horse and hiking, and hiking only trails have been designated in high-use areas like the Ponca unit. Routine maintenance of horse trails are predominantly performed by user groups. User groups do not always seek approval prior to maintenance. Park management should provide guidance and identify appropriate maintenance techniques to ensure the preservation of wilderness character.
Within the river corridor of Lower Buffalo unit, motors with equal to or less than 10 horsepower (hp) are allowed. There have been incidents of visitors utilizing greater than 10 hp motors. Park rangers should continue to enforce the motor hp limit and also maintain records of violation incidents in order to measure long-term trends. Additionally, the park should continue to adhere to the same motor hp limitations.

Recently, guided commercial services have been offered within wilderness including guided hiking, guided camping, and guided rappelling. The park should consider the impacts to wilderness character. For example, guided recreation decreases self-reliance within wilderness and may introduce higher levels of visitor use in certain areas. Also, the operators of these commercial services should be aware of wilderness concepts, be able to educate visitors, and practice Leave No Trace ethics.

**Trail System**

Buffalo National River has recently completed a park-wide inventory of existing trails including park-recognized trails as well as socially established trails. The results from this trail inventory can be utilized to identify areas of extensive social trails and other under-utilized areas. Additionally, findings will enable the park to protect resources, disperse visitation and inform future trail management within wilderness.

According to the Trail Plan (last revised 1987), trail markers for wilderness “will be limited to the minimum necessary for the safety of park visitors, such as basic directional signs at trail intersections, and they will be small and rustic in design.” Additionally, tree blazes, rock cairns, or other symbols using native material will be used if feasible.

The Wilderness and Backcountry Management Plan outlines two kinds of trails: narrow footpaths designed and constructed for hiking as part of the park wide trail system and a network of road traces, some of which have been re-cleared of vegetation. Additionally, the plan includes guidelines such as trails will not be constructed or maintained (including signing) in Class 1 zone and no new trails in Class 2 zone. Current trail maintenance has compromised these guidelines within wilderness in order to provide visitor safety (specifically in the Ponca unit).
Trail markers in the Ponca unit are conspicuous in design and redundant when placed within a few feet from old trail markers (See figure to the right, yellow arrow identifies directional post). As an alternative, simple directional posts at trail intersections and important junctures can provide basic information to guide visitors and also harmonize well with the surroundings.

Trailheads leading into Upper Buffalo and Ponca units have information alerting visitors they are entering wilderness. The bulletin at Lower Buffalo unit has been vandalized and has not been replaced since. These bulletin boards should be placed at trailheads leading into wilderness. Additionally, non-intrusive and simple posts should be considered on trails, as many trails traverse through non-wilderness and wilderness boundaries.

Log piles from previous trail maintenance should be removed, dispersed, or burned in order to decrease the obvious appearance of human manipulation of the environment.

The park performs trail maintenance with cross-cut saws and primitive tools. Mechanized equipment and motorized vehicles are utilized only in approved circumstances, though Minimum Requirement Analysis worksheets are not consistently recorded and maintained.

**Minimum Requirement**

Buffalo National River needs to establish an official process for Minimum Requirements Analysis. The park has several records of Minimum Requirements Analysis worksheets, primarily concerned with emergency situations (i.e. ice storm damage). Past practices may have been limited to emergency situations and not extended to all administrative and research activities that may affect wilderness.

**Research**

Buffalo National River should publicize research needs to encourage projects that can benefit the administration. By actively seeking research institutions known for relevant studies would benefit the park. The park’s research needs are currently posted online at the NPS Research Permit and Reporting System (http://science.nature.nps.gov). Research preferences were last updated on March 2001, listing the following as priorities: fire ecology; land use/land cover; and water quality. All research activity requires a minimum requirement analysis.
Appendices

Appendix A: 1964 Wilderness Act and Enabling Legislation

WILDERNESS ACT
Public Law 88-577 (16 U.S. C. 1131-1136)
88th Congress, Second Session
September 3, 1964

AN ACT
To establish a National Wilderness Preservation System for the permanent good of the whole people, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled.

Short Title
Section 1. This Act may be cited as the "Wilderness Act."

WILDERNESS SYSTEM ESTABLISHED STATEMENT OF POLICY
Section 2. (a) In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this Act or by a subsequent Act.

(b) The inclusion of an area in the National Wilderness Preservation System notwithstanding, the area shall continue to be managed by the Department and agency having jurisdiction thereover immediately before its inclusion in the National Wilderness Preservation System unless otherwise provided by Act of Congress. No appropriation shall be available for the payment of expenses or salaries for the administration of the National Wilderness Preservation System as a separate unit nor shall any appropriations be available for additional personnel stated as being required solely for the purpose of managing or administering areas solely because they are included within the National Wilderness Preservation System.

DEFINITION OF WILDERNESS
(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

NATIONAL WILDERNESS PRESERVATION SYSTEM - EXTENT OF SYSTEM
Section 3. (a) All areas within the national forests classified at least 30 days before September 3, 1964 by the Secretary of Agriculture or the Chief of the Forest Service as "wilderness", "wild", or "canoe" are hereby designated as wilderness areas. The Secretary of Agriculture shall -
(1) Within one year after September 3, 1964, file a map and legal description of each wilderness area with the Interior and Insular Affairs Committees of the United States Senate and the House of Representatives, and such descriptions shall have the same force and effect as if included in this Act: Provided, however, That correction of clerical and typographical errors in such legal descriptions and maps may be made.

(2) Maintain, available to the public, records pertaining to said wilderness areas, including maps and legal descriptions, copies of regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications. Maps, legal descriptions, and regulations pertaining to wilderness areas within their respective jurisdictions also shall be available to the public in the offices of regional foresters, national forest supervisors, and forest rangers.

Classification. (b) The Secretary of Agriculture shall, within ten years after September 3, 1964, review, as to its suitability or nonsuitability for preservation as wilderness, each area in the national forests classified on September 3, 1964 by the Secretary of Agriculture or the Chief of the Forest Service as "primitive" and report his findings to the President.

President's recommendation to Congress. The President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as "wilderness" or other reclassification of each area on which review has been completed, together with maps and a definition of boundaries. Such advice shall be given with respect to not less than one-third of all the areas now classified as "primitive" within three years after September 3, 1964, not less than two-thirds within seven years after September 3, 1964, and the remaining areas within ten years after September 3, 1964.

Congressional approval. Each recommendation of the President for designation as "wilderness" shall become effective only if so provided by an Act of Congress. Areas classified as "primitive" on September 3, 1964 shall continue to be administered under the rules and regulations affecting such areas on September 3, 1964 until Congress has determined otherwise. Any such area may be increased in size by the President at the time he submits his recommendations to the Congress by not more than five thousand acres with no more than one thousand two hundred and eighty acres of such increase in any one compact unit; if it is proposed to increase the size of any such area by more than five thousand acres or by more than one thousand two hundred and eighty acres in any one compact unit the increase in size shall not become effective until acted upon by Congress. Nothing herein contained shall limit the President in proposing, as part of his recommendations to Congress, the alteration of existing boundaries of primitive areas or recommending the addition of any contiguous area of national forest lands predominantly of wilderness value. Notwithstanding any other provisions of this Act, the Secretary of Agriculture may complete his review and delete such area as may be necessary, but not to exceed seven thousand acres, from the southern tip of the Gore Range-Eagles Nest Primitive Area, Colorado, if the Secretary determines that such action is in the public interest.

Report to President. (c) Within ten years after September 3, 1964 the Secretary of the Interior shall review every roadless area of five thousand contiguous acres or more in the national parks, monuments and other units of the national park system and every such area of, and every roadless island within the national wildlife refuges and game ranges, under his jurisdiction on September 3, 1964 and shall report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness.

President's recommendation to Congress. The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendation with respect to the designation as wilderness of each such area or island on which review has been completed, together with a map thereof and a definition of its boundaries. Such advice shall be given with respect to not less than one-third of the areas and islands to be reviewed under this subsection within three years after September 3, 1964, not less than two-thirds within seven years of September 3, 1964 and the remainder within ten years of September 3, 1964.

Congressional approval. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress. Nothing contained herein shall, by implication or otherwise, be construed to lessen the present statutory authority of the
Secretary of the Interior with respect to the maintenance of roadless areas within units of the national park system.

Suitability. (d)(1) The Secretary of Agriculture and the Secretary of the Interior shall, prior to submitting any recommendations to the President with respect to the suitability of any area for preservation as wilderness -

Publication in Federal Register. (A) give such public notice of the proposed action as they deem appropriate, including publication in the Federal Register and in a newspaper having general circulation in the area or areas in the vicinity of the affected land;

Hearings. (B) hold a public hearing or hearings at a location or locations convenient to the area affected. The hearings shall be announced through such means as the respective Secretaries involved deem appropriate, including notices in the Federal Register and in newspapers of general circulation in the area; Provided, That if the lands involved are located in more than one State, at least one hearing shall be held in each State in which a portion of the land lies;

(C) at least thirty days before the date of a hearing advise the Governor of each State and the governing board of each county, or in Alaska the borough, in which the lands are located, and Federal departments and agencies concerned, and invite such officials and Federal agencies to submit their views on the proposed action at the hearing or by no later than thirty days following the date of the hearing.

Any views submitted to the appropriate Secretary under the provisions of (1) of this subsection with respect to any area shall be included with any recommendations to the President and to Congress with respect to such area.

Proposed modification. (e) Any modification or adjustment of boundaries of any wilderness area shall be recommended by the appropriate Secretary after public notice of such proposal and public hearing or hearings as provided in subsection (d) of this section. The proposed modification or adjustment shall then be recommended with map and description thereof to the President. The President shall advise the United States Senate and the House of Representatives of his recommendations with respect to such modification or adjustment and such recommendations shall become effective only in the same manner as provided for in subsections (b) and (c) of this section.

USE OF WILDERNESS AREAS

Section 4.(a) The purposes of this Act are hereby declared to be within and supplemental to the purposes for which national forests and units of the national park and national wildlife refuge systems are established and administered and -

(1) Nothing in this Act shall be deemed to be in interference with the purpose for which national forests are established as set forth in the Act of June 4, 1897 (30 Stat. 11), and the Multiple-Use Sustained-Yield Act of June 12, 1960 (74 Stat. 215) (16 U.S.C. 528-531).

(2) Nothing in this Act shall modify the restrictions and provisions of the Shipstead-Nolan Act (Public Law 539, Seventy-first Congress, July 10, 1930; 46 Stat. 1020), the Thye-Blatnik Act (Public Law 733, Eighty-first Congress, June 22, 1948; 62 Stat. 568), and the Humphrey-Blatnik-Andersen Act (Public Law 607, Eighty-Fourth Congress, June 22, 1956; 70 Stat. 326), as applying to the Superior National Forest or the regulations of the Secretary of Agriculture.

(3) Nothing in this Act shall modify the statutory authority under which units of the national park system are created. Further, the designation of any area of any park, monument, or other unit of the national park system as a wilderness area pursuant to this Act shall in no manner lower the standards evolved for the use and preservation of such park, monument, or other unit of the national park system in accordance with sections 1, 2, 3, and 4 of this title, the statutory authority under which the area was created, or any other Act of Congress which might pertain to or affect such area, including, but not limited to, the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C. 432 et seq.); section 3(2) of the Federal Power Act (16 U.S.C. 796(2)); and the Act of August 21, 1935 (49 Stat. 666; 16 U.S.C. 461 et seq.).

(b) Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this
Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

PROHIBITION OF CERTAIN USES
(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

SPECIAL PROVISIONS
(d) The following special provisions are hereby made:
(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable. In addition, such measures may be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.
(2) Nothing in this Act shall prevent within national forest wilderness areas any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if such activity is carried on in a manner compatible with the preservation of the wilderness environment. Furthermore, in accordance with such program as the Secretary of the Interior shall develop and conduct in consultation with the Secretary of Agriculture, such areas shall be surveyed on a planned, recurring basis consistent with the concept of wilderness preservation by the United States Geological Survey and the United States Bureau of Mines to determine the mineral values, if any, that may be present; and the results of such surveys shall be made available to the public and submitted to the President and Congress.
Mineral leases, claims, etc. (3) Notwithstanding any other provisions of this Act, until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall, to the extent as applicable prior to September 3, 1964, extend to those national forest lands designated by this Act as “wilderness areas”; subject, however, to such reasonable regulations governing ingress and egress as may be prescribed by the Secretary of Agriculture consistent with the use of the land for mineral location and development and exploration, drilling, and production, and use of land for transmission lines, waterlines, telephone lines, or facilities necessary in exploring, drilling, producing, mining, and processing operations, including where essential the use of mechanized ground or air equipment and restoration as near as practicable of the surface of the land disturbed in performing prospecting, location, and, in oil and gas leasing, discovery work, exploration, drilling, and production, as soon as they have served their purpose. Mining locations lying within the boundaries of said wilderness areas shall be held and used solely for mining or processing operations and uses reasonably incident thereto; and hereafter, subject to valid existing rights, all patents issued under the mining laws of the United States affecting national forest lands designated by this Act as wilderness areas shall convey title to the mineral deposits within the claim, together with the right to cut and use so much of the mature timber therefrom as may be needed in the extraction, removal, and beneficiation of the mineral deposits, if needed timber is not otherwise reasonably available, and if the timber is cut under sound principles of forest management as defined by the national forest rules and regulations, but each such patent shall reserve to the United States all title in or to the surface of the lands and products thereof, and no use of the surface of the claim or the resources therefrom not reasonably required for carrying on mining or prospecting shall be allowed except as otherwise expressly provided in this Act: Provided, That, unless hereafter specifically authorized, no patent within wilderness areas designated by this Act shall issue after December 31, 1983, except for the valid claims existing on or before December 31, 1983. Mining claims located after September 3, 1964, within the boundaries of wilderness areas designated by this Act shall create no rights in excess of those rights which may be patented under the provisions of this subsection. Mineral leases, permits, and licenses covering lands within national forest wilderness areas designated by this Act shall contain such reasonable stipulations as may
be prescribed by the Secretary of Agriculture for the protection of the wilderness character of
the land consistent with the use of the land for the purposes for which they are leased,
permitted, or licensed. Subject to valid rights then existing, effective January 1, 1964, the
minerals in lands designated by this Act as wilderness areas are withdrawn from all forms of
appropriation under the mining laws and from disposition under all laws pertaining to mineral
leasing and all amendments thereto.

Water resources and grazing. (4) Within wilderness areas in the national forests
designated by this Act, (1) the President may, within a specific area and in accordance
with such regulations as he may deem desirable, authorize prospecting for water resources,
the establishment and maintenance of reservoirs, water-conservation works, power projects,
transmission lines, and other facilities needed in the public interest, including the road
construction and maintenance essential to development and use thereof, upon his
determination that such use or uses in the specific area will better serve the interests of the
United States and the people thereof than will its denial; and (2) the grazing of livestock,
where established prior to September 3, 1964, shall be permitted to continue subject to such
reasonable regulations as are deemed necessary by the Secretary of Agriculture.

(5) Other provisions of this Act to the contrary notwithstanding, the management of the
Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and
Caribou Roadless Areas, in the Superior National Forest, Minnesota, shall be in accordance
with regulations established by the Secretary of Agriculture in accordance with the general
purpose of maintaining, without unnecessary restrictions on other uses, including that of
timber, the primitive character of the area, particularly in the vicinity of lakes, streams, and
portages. Provided, That nothing in this Act shall preclude the continuance within the area
of any already established use of motorboats.

(6) Commercial services may be performed within the wilderness areas designated by this Act
to the extent necessary for activities which are proper for realizing the recreational or
other wilderness purposes of the areas.

(7) Nothing in this Act shall constitute an express or implied claim or denial on the part of
the Federal Government as to exemption from State water laws.

(8) Nothing in this Act shall be construed as affecting the jurisdiction or responsibilities
of the several States with respect to wildlife and fish in the national forests.

STATE AND PRIVATE LANDS WITHIN WILDERNESS AREAS

Section 5.(a) In any case where State -owned or privately owned land is completely
surrounded by national forest lands within areas designated by this Act as wilderness,
such State or private owner shall be given such rights as may be necessary to assure
adequate access to such State -owned or privately owned land by such State or private owner
and their successors in interest, or the State -owned land or privately owned land shall be
exchanged for federally owned land in the same State of approximately equal value under
authorities available to the Secretary of Agriculture:

Transfers, restriction. Provided, however, That the United States shall not transfer to a
State or private owner any mineral interests unless the State or private owner relinquishes or
causes to be relinquished to the United States the mineral interest in the surrounded land.

(b) In any case where valid mining claims or other valid occupancies are wholly within a
designated national forest wilderness area, the Secretary of Agriculture shall, by reasonable
regulations consistent with the preservation of the area as wilderness, permit ingress and
egress to such surrounded areas by means which have been or are being customarily enjoyed
with respect to other such areas similarly situated.

Acquisition. (c) Subject to the appropriation of funds by Congress, the Secretary of
Agriculture is authorized to acquire privately owned land within the perimeter of any area
designated by this Act as wilderness if (1) the owner concurs in such acquisition or (2)
the acquisition is specifically authorized by Congress.

GIFTS, BEQUESTS, AND CONTRIBUTIONS

Section 6.(a) The Secretary of Agriculture may accept gifts or bequests of land within
wilderness areas designated by this Act for preservation as wilderness. The Secretary of
Agriculture may also accept gifts or bequests of land adjacent to wilderness areas designated
by this Act for preservation as wilderness if he has given sixty days advance notice
thereof to the President of the Senate and the Speaker of the House of Representatives. Land
accepted by the Secretary of Agriculture under this section shall be come part of the wilderness area involved. Regulations with regard to any such land may be in accordance with such agreements, consistent with the policy of this Act, as are made at the time of such gift, or such conditions, consistent with such policy, as may be included in, and accepted with, such bequest.

(b) Authorization to accept private contributions and gifts The Secretary of Agriculture or the Secretary of the Interior is authorized to accept private contributions and gifts to be used to further the purposes of this Act.

ANNUAL REPORTS
Section 7. At the opening of each session of Congress, the Secretaries of Agriculture and Interior shall jointly report to the President for transmission to Congress on the status of the wilderness system, including a list and descriptions of the areas in the system, regulations in effect, and other pertinent information, together with any recommendations they may care to make.

APPROVED SEPTEMBER 3, 1964.

Legislative History:

House Reports: No 1538 accompanying H.R. 9070 (Committee on Interior & Insular Affairs) and No. 1829 (Committee of Conference).

Senate report: No. 109 (Committee on Interior & Insular Affairs), Congressional Record: Vol. 109 (1963):

• April 4, 8, considered in Senate.
• April 9, considered and passed Senate.
• July 30, considered and passed House, amended, in lieu of H.R. 9070
• August 20, House and Senate agreed to conference report.
PUBLIC LAW 95–625—NOV. 10, 1978  
92 STAT. 3467

Public Law 95–625
95th Congress

An Act

To authorize additional appropriations for the acquisition of lands and interests in lands within the Sawtooth National Recreation Area in Idaho.

Nov. 10, 1978  
[S. 791]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE AND TABLE OF CONTENTS

SECTION 1. This Act may be cited as the “National Parks and Recreation Act of 1978”.

16 USC 1 note.

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TITLE II—ACQUISITION CEILING INCREASES

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PUBLIC LAW 95–625—NOV. 10, 1978
92 STAT. 3489

shore and, in addition, the waters surrounding said area to distances of one thousand feet in the Atlantic Ocean and up to four thousand feet in Great South Bay and Moriches Bay and, in addition, mainland terminal and headquarters sites, not to exceed a total of twelve acres, on the Patchogue River within Suffolk County, New York, all as delineated on a map identified as 'Fire Island National Seashore', numbered OGP–0004, dated May 1978. The Secretary shall publish said map in the Federal Register, and it may also be examined in the offices of the Department of the Interior.

(b) Section 2 of such Act is amended by adding the following new subsection at the end thereof:

"(g) The authority of the Secretary to condemn undeveloped tracts within the Dune District as depicted on map entitled 'Fire Island National Seashore' numbered OGP–0004 dated May, 1978, is suspended so long as the owner or owners of the undeveloped property therein maintain the property in its natural state. Undeveloped property within the Dune District that is acquired by the Secretary shall remain in its natural state."

(c) Section 7(b) of such Act is amended by striking the phrase "Brookhaven town park at", and inserting in lieu thereof: "Ocean Ridge portion of".

(d) Section 10 of such Act is amended by striking "$18,000,000", and inserting in lieu thereof "$23,000,000".

CUMBERLAND ISLAND NATIONAL SEASHORE

SEC. 323. Section 1 of the Act of October 23, 1972 (86 Stat. 1066), is amended by changing the phrase "numbered CUIS–40,000B, and dated June 1971", to read "numbered CUIS 40,000D, and dated January 1978,"

TITLE IV—WILDERNESS

DESIGNATION OF AREAS

SEC. 401. The following lands are hereby designated as wilderness in accordance with section 3(c) of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1132(c)), and shall be administered by the Secretary in accordance with the applicable provisions of the Wilderness Act:

(1) Buffalo National River, Arkansas, wilderness comprising approximately ten thousand five hundred and twenty-nine acres and potential wilderness additions comprising approximately twenty-five thousand four hundred and seventy-one acres depicted on a map entitled "Wilderness Plan, Buffalo National River, Arkansas", numbered 173–20,036–B and dated March 1975, to be known as the Buffalo National River Wilderness.

(2) Carlsbad Caverns National Park, New Mexico, wilderness comprising approximately thirty-three thousand one hundred and twenty-five acres and potential wilderness additions comprising approximately three hundred and twenty acres, depicted on a map entitled "Wilderness Plan, Carlsbad Caverns National Park, New Mexico," numbered 130–20,006–B and dated January 1978, to be known as the Carlsbad Caverns Wilderness. By January 1, 1980, the Secretary shall review the remainder of the park and shall report to the President, in accordance with section 3 (c) and (d) of the Wilderness Act (78 Stat. 891; 16 U.S.C. 1132 (c) and (d)), his recommendations as to the suitability or nonsuitability of any additional areas within the park for preservation as wilder-
ness, and any designation of such areas as wilderness shall be accomplished in accordance with said subsections of the Wilderness Act.

(3) Everglades National Park, Florida, wilderness comprising approximately one million two hundred and ninety-six thousand five hundred acres and potential wilderness additions comprising approximately eighty-one thousand nine hundred acres, depicted on a map entitled “Wilderness Plan, Everglades National Park, Florida”, numbered 160–20,011 and dated June 1974, to be known as the Everglades Wilderness.

(4) Guadalupe Mountains National Park, Texas, wilderness comprising approximately forty-six thousand eight hundred and fifty acres, depicted on a map entitled “Wilderness Plan, Guadalupe Mountains National Park, Texas”, numbered 166–20,096–B and dated July 1972, to be known as the Guadalupe Mountains Wilderness.

(5) Gulf Islands National Seashore, Florida, and Mississippi, wilderness comprising approximately one thousand eight hundred acres and potential wilderness additions comprising approximately two thousand eight hundred acres, depicted on a map entitled “Wilderness Plan, Gulf Islands National Seashore, Mississippi, Florida”, numbered 635–20,018–A and dated March 1977, to be known as the Gulf Islands Wilderness.

(6) Hawaii Volcanoes National Park, Hawaii, wilderness comprising approximately one hundred and twenty-three thousand one hundred acres and potential wilderness additions comprising approximately seven thousand eight hundred and fifty acres, depicted on a map entitled “Wilderness Plan, Hawaii Volcanoes National Park, Hawaii”, numbered 124–20,020 and dated April 1974, to be known as the Hawaii Volcanoes Wilderness.

(7) Organ Pipe Cactus National Monument, Arizona, wilderness comprising approximately three hundred and twelve thousand six hundred acres and potential wilderness additions comprising approximately one thousand two hundred and forty acres, depicted on a map entitled “Wilderness Plan, Organ Pipe Cactus National Monument, Arizona”, numbered 157–20,001–B and dated October 1978, to be known as the Organ Pipe Cactus Wilderness.


MAP AND DESCRIPTION

SEC. 402. A map and description of the boundaries of the areas designated in this title shall be on file and available for public inspection in the office of the Director of the National Park Service, Department of the Interior, and in the Office of the Superintendent of each area designated in this title. As soon as practicable after this Act takes effect, maps of the wilderness areas and descriptions of their boundaries shall be filed with the Committee on Interior and Insular Affairs of the House of Representatives and the Committee on Energy and Natural Resources of the United States Senate, and such maps and descriptions shall have the same force and effect as if included in this Act: Provided, That correction of clerical and typographical errors in such maps and descriptions may be made.
PUBLIC LAW 95–625—NOV. 10, 1978

CESSION OF CERTAIN USES

Sec. 403. Any lands which represent potential wilderness additions in this title, upon publication in the Federal Register of a notice by the Secretary that all uses therein prohibited by the Wilderness Act have ceased, shall thereby be designated wilderness. Lands designated as potential wilderness additions shall be managed by the Secretary insofar as practicable as wilderness until such time as said lands are designated as wilderness.

ADMINISTRATION

Sec. 404. The areas designated by this Act as wilderness shall be administered by the Secretary of the Interior in accordance with the applicable provisions of the Wilderness Act governing areas designated by that Act as wilderness, except that any reference in such provisions to the effective date of the Wilderness Act shall be deemed to be a reference to the effective date of this Act, and, where appropriate, any reference to the Secretary of Agriculture shall be deemed to be a reference to the Secretary of the Interior.

SAVINGS PROVISIONS

Sec. 405. Nothing in this title shall be construed to diminish the authority of the Coast Guard, pursuant to sections 2 and 81 of title 14, United States Code, and title 1 of the Ports and Waterways Safety Act of 1972 (33 U.S.C. 1221), or the Federal Aviation Administration to use the areas designated wilderness by this Act within the Everglades National Park, Florida; and the Gulf Islands National Seashore, Florida and Mississippi, for navigational and maritime safety purposes.

TITLE V—ESTABLISHMENT OF NEW AREAS AND ADDITIONS TO NATIONAL TRAILS SYSTEM

Subtitle A—Parks, Seashores, Etc.

GUAM NATIONAL SEASHORE

Sec. 501. (a) The Secretary through the Director of the National Park Service, shall revise and update the National Park Service study of the Guam National Seashore and, after consultation with the Secretary of the Department of Defense and the Governor of Guam, shall transmit the revised study within two years to the Committee on Energy and Natural Resources of the Senate and the Committee on Interior and Insular Affairs of the House of Representatives including his recommendations and a series of options for congressional consideration each of which—

(1) will encompass the area from Ajayan Bay to Nimitz Beach including Cocos and Anac Islands and extending inland as far as the Fena Valley Reservoir and Mount Sabaluan, and

(2) if implemented, will afford protection to the natural and historic resources of the area as well as providing visitor access and interpretive services.

(b) The Secretary, and the Secretary of the Department of Defense, shall take such actions as they may deem appropriate within their existing authorities to protect the resource values of the submerged lands within the area of the study referred to in subsection (a) of this section.
Appendix B: Methods for Developing Wilderness Narrative, Indicators, and Measures

Methods for Developing Wilderness Character Narrative
The descriptions of the four qualities of Buffalo National River Wilderness are based on information from park staff as well as observational studies during the summer and fall season of 2010. A temporary wilderness stewardship fellow, Monica Patel, examined the condition of the wilderness by hiking in most of the major regions. Study areas included: Hemmed-in Hollow, Sneeds Creek, Steel Creek, Compton, Toney Bend, Rush Landing, Cow Creek, and Turkey Mountain. During the wilderness character narrative process, all hikes were completed between September and mid-November. During this period, river levels were low and floatability was restricted to Middle and Lower Districts of the park; therefore experiencing the Ponca unit river corridor was not feasible. Additionally, information from the following literature and management documents were incorporated:

- Wilderness Study (1974)
- Final Environmental Statement Proposed Master Plan (1975)
- Final Master Plan (1975)
- Final Master Plan (1977)
- Final Environmental Statement Wilderness Recommendation (1978)
- Resources Management Plan (1982)
- Trails Plan (1986)
- Wilderness and Backcountry Management Plan (1994)

The Wilderness Interdisciplinary Team provided feedback from the different park divisions including trail maintenance, protection, interpretation, natural resources, and fire management. Additionally, introductory wilderness concepts and progress reports were presented during two Squad meetings.
Methods for Developing Indicators and Measures

Potential measures that were considered but not ultimately chosen are summarized below. Note that the list of recommended measures is still under review. Additional measures may be dropped.

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</tr>
<tr>
<td>Number of lakes and other water bodies stocked with fish*</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Number of water quality samples taken, per year</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Number of hazard trees removed per year</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Number of feral hog removed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of trail rehabilitated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of unauthorized timber and/or plant harvest events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of illegal species takings/poaching incidents</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Natural Quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of acres of authorized</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

* denotes recommended measures cited in *Keeping it Wild*
<table>
<thead>
<tr>
<th>Dropped Measure</th>
<th>Reason why measure was dropped</th>
</tr>
</thead>
<tbody>
<tr>
<td>active grazing allotments and number of animal unit months (AUMs) of actual use inside within wilderness*</td>
<td>Data not available/quality of available data poor</td>
</tr>
<tr>
<td>Change in demography or composition of communities*</td>
<td>X</td>
</tr>
<tr>
<td>Extent and magnitude of change in water quality*</td>
<td>X</td>
</tr>
<tr>
<td>Extent and magnitude of human-caused stream bank erosion*</td>
<td>X</td>
</tr>
<tr>
<td>Extent and magnitude of disturbance or loss of soil or soil crusts</td>
<td>X</td>
</tr>
<tr>
<td>Cubic meters of bank erosion hazard index model</td>
<td>X</td>
</tr>
<tr>
<td>Acres of deforestation within watershed per year</td>
<td>X</td>
</tr>
<tr>
<td>Volume of sediment from trail river crossings every 5 years</td>
<td></td>
</tr>
<tr>
<td>Extent and magnitude of global climate change*</td>
<td>X</td>
</tr>
<tr>
<td>Area and magnitude for pathways for movement of non-native species into the wilderness*</td>
<td>X</td>
</tr>
</tbody>
</table>
### Dropped Measure

<table>
<thead>
<tr>
<th>Dropped Measure</th>
<th>Reason why measure was dropped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area and magnitude of loss of connectivity with the surrounding landscape*</td>
<td>Data not available/quality of available data poor, Low relevance to assessing wilderness character, Insufficient conceptual development of measure</td>
</tr>
<tr>
<td>Extent, magnitude, and frequency of severe weather events (i.e. floods, ice storms)</td>
<td>Low relevance to assessing wilderness character, Insufficient conceptual development of measure</td>
</tr>
</tbody>
</table>

**Notes:** Not a good measure for ascertaining extent and magnitude of global climate change

### Undeveloped Quality

<table>
<thead>
<tr>
<th>Undeveloped Quality</th>
<th>Reason why measure was dropped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area and existing or potential impact of inholdings*</td>
<td>X</td>
</tr>
<tr>
<td>Number of new monitoring or research installations</td>
<td>X</td>
</tr>
<tr>
<td>Number of structures</td>
<td>X</td>
</tr>
<tr>
<td>Number of other permanent installations</td>
<td>X</td>
</tr>
<tr>
<td>Number of unauthorized user-created physical development (not for recreational purposes)</td>
<td>X</td>
</tr>
</tbody>
</table>

**Notes:**
- There are 2-3 road easements in LB unit, total <5 acres (is not significant enough to include)
- This type of development occurs primarily for recreational purposes

### Solitude or Primitive and Unconfined Type of Recreation

<table>
<thead>
<tr>
<th>Solitude or Primitive and Unconfined Type of Recreation</th>
<th>Reason why measure was dropped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of visitor use</td>
<td>X</td>
</tr>
<tr>
<td>Number of overnight visitors</td>
<td>X</td>
</tr>
<tr>
<td>Percent of wilderness boundary abutting private property</td>
<td>X</td>
</tr>
</tbody>
</table>

**Notes:**
- Difficult to measure without permitting system.
- Park would not be able to take any action to minimize this impact
<table>
<thead>
<tr>
<th>Dropped Measure</th>
<th>Reason why measure was dropped</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of motorboats in river corridor of LB unit</td>
<td>Data not available/quality of available data poor</td>
<td>Does not capture the general impact on sound-scape</td>
</tr>
<tr>
<td>Average traffic frequency of train at Buffalo City</td>
<td></td>
<td>Does not capture the general impact on sound-scape</td>
</tr>
<tr>
<td>Length of social trails</td>
<td>X</td>
<td>Difficult to measure</td>
</tr>
<tr>
<td>Type of restriction(s) on cross-country travel</td>
<td></td>
<td>Incorporated into 4-19</td>
</tr>
<tr>
<td>Maximum number of days overnight camping is prohibited</td>
<td></td>
<td>Incorporated into 4-19</td>
</tr>
<tr>
<td>Type of hunting restrictions</td>
<td></td>
<td>Incorporated into 4-19</td>
</tr>
<tr>
<td>Type of river use restrictions</td>
<td></td>
<td>Incorporated into 4-19</td>
</tr>
</tbody>
</table>
Appendix C: Minimum Requirements Analysis Form

Introduction

More than 100 million acres of Federal land are managed as wilderness, a Congressional mandate that began with the passage of the Wilderness Act in 1964. In partnership with the public, wilderness managers have a responsibility to preserve and protect wilderness values.

Simply designating a wilderness does not assure its preservation. Careful management is needed to minimize the impacts from human activities in wilderness, including grazing, access to private lands, mining, management of fish and wildlife, fire and recreation. These activities have the potential to negatively impact the values that we are charged with protecting.

This guide is provided to assist managers in making appropriate decisions about their administrative actions in wilderness. The guidance comes from the Wilderness Act, agency policies, and the experience of 35 years of wilderness management. The wilderness resource is fragile and can be lost through the erosion from seemingly inconsequential decisions.

From Legislative Mandate to Agency Policy

A clear understanding and appreciation of the purposes and definitions contained in the 1964 Wilderness Act are necessary before considering appropriate management actions in wilderness.

The purpose of the Act is stated in Section 2 (a), “to secure for the American people of present and future generations the benefits of an enduring resource of wilderness.”

Section 4 (c) of the Act prohibits certain activities in wilderness by the public and, at the same time, allows the agencies to engage in those activities in some situations. Section 4 (c) states:

“except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the
health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.”

In the above language, Congress acknowledged that even though certain activities are prohibited, there are times when exceptions to these prohibitions will need to be made for administration of the area. However, from the regulations, special orders, and internal agency policy contained in Appendix A of this guide, it is clear that the wilderness management agencies should not view the language in Section 4 (c) as blanket approval to conduct projects or allow activities without an analysis of (1) whether the project or activity is necessary to meet the minimum requirements for the administration of the area, and (2) which tool or method should be used to complete the project that results in the least impact to the physical resource or wilderness values.

Agency employees entrusted with management of wilderness should set the highest standard possible when reviewing management practices in wilderness. Wilderness is intended to be managed differently from other public lands and this difference needs to be demonstrated to the public.

A Word About Traditional/Primitive Tools and Mechanical Transport

There isn’t an all encompassing definition of traditional or primitive tools, but generally defined they include a variety of non-motorized devices such as hand saws, axes, shovels, and certain tools that give a mechanical advantage such as wedges, block and tackles, and winches. The Wilderness Act prohibits the use of motorized equipment and mechanical transport, but not mechanized equipment. Technological advances have improved the efficiency and function of traditional tools over the years. These improvements don’t eliminate them from consideration as traditional tools. The defining characteristic of traditional or primitive tools is the reliance on human or animal power.

Mechanical transport includes travel within the wilderness by motorized vehicle of any kind. It also includes mechanical devices that provide transportation such as bicycles.

The use of traditional tools has been a cornerstone of wilderness management philosophy since 1964. As a result, certain skills that almost certainly would have vanished, have been kept alive. So few opportunities still exist to perpetuate these skills that are an important cultural tradition in our country. This is one of the benefits of wilderness.

How to Use This Guide

This guide has been developed to help provide consistency to the way project proposals in wilderness are evaluated and to ensure that we constantly strive to maintain or improve wilderness character through the decisions that are made. The information in this guide needs to be accompanied by a clear understanding of wilderness values and the ability to translate that understanding to a variety of complex and/or difficult projects in wilderness.
The guide is not a NEPA document, decision document or policy, but rather a series of self-explanatory worksheets designed to assist in thinking through and/or documenting your analysis. The worksheets include a two step minimum requirements analysis: first, to determine if the project or activity proposed is the minimum necessary for administration of the area for the purpose of the Act, and second, to determine which tool(s) will have the least impact to the wilderness resource. The worksheets lead the wilderness manager through a series of questions to provoke thought and understanding about the necessity of the proposed project and the most appropriate tools to use.

The minimum requirements analysis is provided to stretch our imaginations for the least impactive way of administering the wilderness. The wilderness manager may authorize any of the generally prohibited activities or uses listed in Sec. 4(c) of the Wilderness Act if they are determined to be the minimum necessary to do the job and meet wilderness management objectives.

When deciding what projects or activities to undertake and tools to use, follow these steps:

1. Complete a minimum requirement analysis, Step 1 of the worksheets, for all proposed projects or activities. This step should not be used to justify use of motorized equipment or mechanical transport, but rather, to scrutinize the project or activity and make the best decision for wilderness in the long term.

2. Complete a “minimum tool” analysis for the project. This analysis can follow the attached worksheet or, if not, should at least address the same points. If the analysis shows a justifiable need for motorized equipment, it is important to have this analysis in writing to provide to the official(s) who can authorize the use of mechanical transport or motorized equipment in wilderness. For some units, this analysis may become an integral part of an environmental analysis required to document a decision to use motorized equipment.

Ongoing management practices, especially if they involve mechanical transport, motorized equipment, or structures, should be reviewed to determine if they are still necessary or the best way to complete the task at hand.

How Does the Minimum Requirements Analysis Tie to NEPA?

The minimum requirement analysis is intended to assist you in making a decision and the worksheets will document your analysis. This process does not take the place of NEPA.

If a formal decision under NEPA will be required to implement your project, consider formatting your minimum tool analysis so that it can be incorporated directly into your environmental analysis. The minimum requirements analysis will tie to your statement of Purpose and Need for the project in your environmental analysis.
Minimum Requirements Worksheets

STEP 1 - DETERMINING THE MINIMUM REQUIREMENTS
(a two part process)

PART A - Minimum Requirement Key to making a determination on wilderness management proposals

(This flow chart will help you assess whether the project is the minimum required action for administration of the area as wilderness. Answering these questions will help determine if this action is really the minimum required action in wilderness.)

Guiding Questions

Is this an emergency? (i.e. a situation that involves an inescapable urgency and temporary need for speed beyond that available by primitive means, such as fire suppression, health and safety of people, law enforcement efforts involving serious crime or fugitive pursuit, retrieval of the deceased or an immediate aircraft accident investigation.)

If Yes, then:

Document rationale for line officer approval using the minimum tool form and proceed with action.

If No, then:

Use the available space or additional sheets as necessary.

Answer: YES: □ NO: □

Explain:

If Yes, then:

Does the project or activity conflict with the stated wilderness goals, objectives, and desired future conditions of applicable legislation, policy and management plans?

If Yes, then:

Do not proceed with the proposed project or activity.

If No, then:

go to next question

If No, then:

Are there other less intrusive actions that should be tried first? (i.e. signing, visitor education, or information.)

If Yes, then:

Implement other actions using the appropriate process.

If No, then:

go to next question

If No, then:

go to next question

ARThUR CARHART NATIONAL WILDERNESS TRAINING CENTER
Minimum Requirement Decision Guide

49  |  P a g e
Minimum Requirements Worksheets

Can this project or activity be accomplished outside of wilderness and still achieve its objectives? (i.e. some group events.)

If Yes, then:
Proceed with action outside of wilderness using the appropriate process.

If No, then:
go to next question

Is this project or activity subject to valid existing rights? (i.e. a mining claim or right-of-way easement.)

If Yes, then:
Proceed to minimum tool section of this document, STEP 2.

If No, then:
go to next question

Is there a special provision in legislation (the 1984 Wilderness Act or subsequent wilderness legislation), that allows this project or activity? (i.e. maintenance of dams and water storage facilities with motorized equipment and mechanical transport or control of fire, insects and disease.)

If Yes, then:
The proposed project or activity can be considered but is not necessarily required just because it is mentioned in legislation. Go to Part B, as needed.

If No, then:
Proceed to Part B, Responsive Questions

Answer: YES: □ NO: □

Explain:

Answer: YES: □ NO: □

Explain:

Answer: YES: □ NO: □

Explain:
## Minimum Requirements Worksheets

### PART B - Determining the Minimum Requirement

Responsive Questions for Minimum Requirements Analysis: Explain your answer in the response column. If your responses indicate potential adverse impacts to wilderness character, evaluate whether or not you should proceed with this proposal. If you decide to proceed, begin developing plans to mitigate impacts, and complete the Minimum Tool Analysis in this guide. Some of the following questions may not apply to your proposed project or activity.

<table>
<thead>
<tr>
<th>EFFECTS ON WILDERNESS CHARACTER</th>
<th>RESPONSIVE STATEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does the project or activity benefit the wilderness resource as a whole as opposed to maximizing one resource?</td>
<td></td>
</tr>
<tr>
<td>If this project or activity were not completed, what would be the beneficial and detrimental effects to the wilderness resource?</td>
<td></td>
</tr>
<tr>
<td>How would the project or activity help ensure that human presence is kept to a minimum and that the area is affected primarily by the forces of nature rather than being manipulated by humans?</td>
<td></td>
</tr>
<tr>
<td>How would the project or activity ensure that the wilderness provides outstanding opportunities for solitude or a primitive and unconfined type of recreation? (i.e. does the project or activity contribute to people’s sense that they are in a remote place with opportunities for self-discovery, adventure, quietness, connection with nature, freedom, etc.)</td>
<td></td>
</tr>
</tbody>
</table>

### MANAGEMENT SITUATION

What does your management plan, policy, and legislation say to support proceeding with this project?

How did you consider wilderness values over convenience, comfort, political, economic or commercial values while evaluating this project or activity?

<table>
<thead>
<tr>
<th>SHOULD WE PROCEED?</th>
<th>YES: Go to Step 2</th>
<th>NO: Stop</th>
</tr>
</thead>
</table>

Arthur Carhart National Wilderness Training Center
Minimum Requirement Decision Guide
# Minimum Requirements Worksheets

## STEP 2 - DETERMINING THE MINIMUM TOOL
(The Minimum Tool Analysis)

These questions will assist you in determining the appropriate tool(s) to accomplish the project or proposed activity with the least impact to the wilderness resource. This analysis can be used as part of the NEPA process if desired. This analysis can be documented on the following form or on additional sheets. Directions are in bold type. Promoting questions are in *italics.*

### Develop several approaches to resolve the issue or problem. At a minimum consider the following three methods:

<table>
<thead>
<tr>
<th>Alternative 1: An alternative utilizing motorized equipment or mechanical transport</th>
<th>Alternative 2: An alternative using non-motorized equipment and non-mechanical transport</th>
<th>Alternative 3: Variations of method 1 and 2, as appropriate</th>
<th>Alternative 4: Other ideas?</th>
</tr>
</thead>
</table>

### Describe the alternatives. Be specific and provide detail.

- **What is proposed?**
- **Why is it being proposed in this manner?**
- **Who is the proponent?**
- **When will the project take place?**
- **Where will the project take place?**
- **How will it be accomplished? (What methods and techniques will be used?)**

<table>
<thead>
<tr>
<th>Alt#1:</th>
<th>Alt#2:</th>
<th>Alt#3:</th>
<th>Alt#4:</th>
</tr>
</thead>
</table>

### Utilize the following criteria to assess each method (a brief statement should suffice):

- **Biophysical effects**
  - Describe the environmental resource issues that would be affected by the project.
  - Describe any effects this action will have on protecting natural conditions within the regional landscape (i.e. insect, disease, or noxious weed control).
  - Include both biological and physical effects.

<table>
<thead>
<tr>
<th>Alt#1:</th>
<th>Alt#2:</th>
<th>Alt#3:</th>
<th>Alt#4:</th>
</tr>
</thead>
</table>
### Minimum Requirements Worksheets

**Social/recreation/experiential effects**
Describe how the wilderness experience may be affected by the proposed action. Include effects to recreation use and wilderness character. Consider the effect the proposed action may have on the public and their opportunity for discovery, surprise, and self-discovery.

<table>
<thead>
<tr>
<th>Alt#1:</th>
<th>Alt#2:</th>
<th>Alt#3:</th>
<th>Alt#4:</th>
</tr>
</thead>
</table>

**Societal/political effects**
Describe any political considerations (i.e. MOUs, agency agreements, local positions) that may be affected by the proposed action. Describe relationship of method to applicable laws.

<table>
<thead>
<tr>
<th>Alt#1:</th>
<th>Alt#2:</th>
<th>Alt#3:</th>
<th>Alt#4:</th>
</tr>
</thead>
</table>

**Health and safety concerns**
Describe and consider any health and safety concerns associated with the proposed action. Consider the types of tools used, training, certifications, and other administrative needs to ensure a safe work environment for employees. Consider the effect the proposed action may have on the health and safety of the public.

<table>
<thead>
<tr>
<th>Alt#1:</th>
<th>Alt#2:</th>
<th>Alt#3:</th>
<th>Alt#4:</th>
</tr>
</thead>
</table>
Minimum Requirements Worksheets

Economic and timing considerations
Describe the costs and timing associated with implementing each alternative
Assess the urgency and potential cumulative effect from this proposal of similar actions.

<table>
<thead>
<tr>
<th>Alt#1:</th>
<th>Alt#2:</th>
<th>Alt#3:</th>
<th>Alt#4:</th>
</tr>
</thead>
</table>

Formulate a preferred action. Be specific and describe in detail below.

Choose a preferred alternative:

Further refine the preferred alternative to minimize impacts to wilderness.

What will be the specific operating requirements for the action? Include information on timing, locations, amounts, etc… Be as specific as possible.

What are the maintenance requirements? Describe any ongoing or repeat efforts that will be necessary.

What standards and designs will apply?

Develop and describe any mitigation measures that apply.

What will be provided for monitoring and feedback to strengthen future efforts and preventative actions to be taken to help in future efforts?
Appendix D: Interpretative Products and Material

**Leave No Trace**

Just as it is important for visitors to return safely from wilderness, it also is important that the wilderness remains unharmed during your visit. Visitors in these areas should practice the seven principles of Leave No Trace so that the park’s wilderness is protected for future generations of explorers.

1. Plan Ahead and Prepare
2. Travel and Camp on Durable Surfaces
3. Dispose of Waste Properly
4. Leave What You Find
5. Minimize Campsite Impacts
6. Respect Wildlife
7. Be Considerate of Other Visitors

For more information on the seven Leave No Trace principles, and links to additional resources about the Buffalo National River Wilderness, please visit the park’s wilderness page at: www.nps.gov/buff/wilderness

*If future generations are to remember us with gratitude rather than contempt, we must leave them something more than the miracles of technology. We must leave them a glimpse of the world as it was in the beginning…*

- President Lyndon B. Johnson, upon signing the Wilderness Act

**Wilderness: America’s Legacy**

Wilderness is an indispensable part of the American story. Native Americans depended on the bounty of wilderness for survival and held Earth and its wild places as sacred. The great western explorers Meriwether Lewis and William Clark were inspired by the untamed beauty of wilderness that became the forge upon which our uniquely American national character was created. But after just 200 years, the essential wildness of America virtually disappeared. As Americans realized that the long-term health and welfare of the nation were at risk, a vision for conservation emerged.

In 1964, our nation’s leaders formally acknowledged the immediate and lasting benefits of wild places to the human spirit and fabric of our nation. That year, in a nearly unanimous vote, Congress enacted landmark legislation that permanently protected some of the most natural and undisturbed places in America. The Wilderness Act established the National Wilderness Preservation System to “…secure for the American people of present and future generations the benefits of an enduring resource of wilderness.”

A uniquely American idea, wilderness is part of our heritage and passed as a legacy to our children. Indispensable to the American past, the legacy that is wilderness will remain indispensable to the American future.
BUFFALO NATIONAL RIVER WILDERNESS

What is Wilderness?

Though the idea of "wilderness" is understood differently by many, Federal agencies must manage wilderness areas using the clear, legal definition set forth in the Wilderness Act of 1964, which states:

"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions..."

Under the Wilderness Act, roughly 38 percent of Buffalo National River has been designated wilderness. In November 1978, recognizing the unique character and scientific features of the area, Congress saw fit to afford it the highest level of protection possible. Buffalo National River Wilderness comprises of 36,000 acres, located in three units: Upper Buffalo, Ponca and Lower Buffalo.

Wilderness provides sanctuaries for human visitation, habitats for wildlife, sites for research and a reservoir for clean, free-flowing water, for current and future generations. Along with these tangible aspects, wilderness may evoke experiences of inspiration, humility, and fulfillment.

Visiting the Wilderness

In order to minimize human impact and preserve wilderness, important guidelines must be observed when venturing into any designated wilderness. In the Buffalo National River Wilderness, the use of motor vehicles, motorized equipment (portable generators, etc.), and mechanical transport is prohibited. While the river corridor is designated wilderness in the Upper Buffalo and Ponca units, it is legislatively excluded from the Lower Buffalo unit. This provision allows for the continued traditional use of motorboats with 10 hp (or less), provided it does not impact the wilderness.

It is important for visitors to return safely from wilderness. The Upper and Lower Buffalo units are mostly without marked trails or routes. Numerous natural conditions exist in wilderness, which requires both experience and good judgment to negotiate without incident. Communication via cell phones is sparse. Rescues from wilderness are generally long and difficult. Rescues are also potentially dangerous for the injured person and the rescuers due to the terrain and distance that generally must be covered. Because of these difficulties, rescue attempts may not be successful. Here are some things to keep in mind:

- Plan ahead and have a backup plan.
- Carry a map and compass, even if you have a GPS unit.
- Use good equipment and be familiar with its operation.
- Carry adequate supplies for the expected duration of your trip.
- Know the limits of your group members and stay within the abilities of your weakest group member.
WILDERNESS (Website Content)

Wilderness... the word has different meanings to different people. From a place to be feared to a place to be revered, wilderness can evoke images of wild animals, cascading streams, jagged mountains, vast prairies, or deserts. For individuals wilderness can mean physical challenge, grand vistas, solitude, community, renewal, or respite from a complex technological society.

In Buffalo National River wilderness is a place with specific meaning, tied to America’s legacy. Native Americans depended on the wilderness for survival and held Earth and its wild places as sacred. The great western explorers Meriwether Lewis and William Clark were inspired by the untamed beauty of wilderness that became the forge upon which our uniquely American national character was created. But after just 200 years, the essential wildness of America virtually disappeared. As Americans realized that the long-term health and welfare of the nation were at risk, a vision for conservation emerged.

In 1964, our nation’s leaders formally acknowledged the immediate and lasting benefits of wild places to the human spirit and fabric of our nation. That year, in a nearly unanimous vote, Congress enacted landmark legislation that permanently protected some of the most natural and undisturbed places in America. The Wilderness Act\(^7\) established the National Wilderness Preservation System\(^8\) to “...secure for the American people of present and future generations the benefits of an enduring resource of wildness.”

When the Wilderness Act passed in 1964, 9.1 million acres of federal public land in 13 states were designated as wilderness. Since then, the National Wilderness Preservation System has grown almost every year and now includes 109 million acres in 44 states and Puerto Rico.

Buffalo National River Wilderness is part of this American legacy. November 10, 1978 marks the day Congress designated 38 percent of Buffalo National River as wilderness (Public Law 95-625\(^9\)), recognizing the unique character and scientific features of the area. Buffalo National River Wilderness comprises 36,000 acres, located in three units: Upper Buffalo, Ponca, and Lower Buffalo. The park’s wilderness not only encompasses magnificent vistas, but also sanctuaries for human visitation, and a reservoir for clean, free-flowing water. Wilderness provides natural habitat for wildlife and wildflowers and preserves the human history held within the Ozark Highlands. Along with these tangible aspects, wilderness may evoke experiences of inspiration, humility and fulfillment.

\(^7\) Insert website link: [http://www.wilderness.net/nwps/legis/nwps_act.cfm](http://www.wilderness.net/nwps/legis/nwps_act.cfm)
\(^8\) Insert website link: [http://www.wilderness.net/nwps/](http://www.wilderness.net/nwps/)
\(^9\) Insert website link (need to upload pdf file of Public Law 95-625 to park management section)
In order to minimize human impact and preserve wilderness, visitors are encouraged to practice the principles of Leave No Trace\(^\text{10}\) so that wilderness is protected for future generations of explorers. The use of motor vehicles, motorized equipment (portable generators, etc.), and mechanical transport is prohibited. While the river corridor is designated wilderness in the Upper Buffalo and Ponca units, it is legislatively excluded from the Lower Buffalo unit. This provision allows for the continued traditional use of motorboats with 10 hp (or less), provided it does not impact the wilderness.

Extra care should be taken when exploring Buffalo’s wilderness. The Upper and Lower Buffalo units are mostly without marked trails or routes. Numerous natural conditions exist in wilderness, which require both experience and good judgment to negotiate without incident. Here are some guidelines to keep in mind:

- Plan ahead and have a backup plan
- Carry a map and compass, even if you have a GPS unit
- Use good equipment and be familiar with its operation
- Carry adequate supplies for the expected duration of your trip
- Know the limits of your group members and stay within the abilities of your weakest group member

In the wilderness, you have the opportunity to explore, to savor the solitude, to experience the values of wilderness character\(^\text{11}\). However, you must respect the natural resources and expect to provide for your own safety.

**Be a Good Steward**

Everyone has a responsibility to leave the landscape as they found it. Your efforts to leave it better than you found it - by carrying out *more* than you carried in - are truly appreciated.

**Learn More**

The Wilderness Act\(^\text{12}\) (Public Law 88-577) was signed into law on September 3, 1964

National Park Service Wilderness\(^\text{13}\)

Wilderness.net\(^\text{14}\)

Visit “Views of the National Parks: Wilderness”\(^\text{15}\)

Wilderness\(^\text{16}\) multimedia education program

\(^{10}\) Insert website link: [http://www.lnt.org/programs/principles.php](http://www.lnt.org/programs/principles.php)

\(^{11}\) Insert website link: [http://leopold.wilderness.net/research/fprojects/F014_B1.htm](http://leopold.wilderness.net/research/fprojects/F014_B1.htm)


\(^{13}\) Insert website link: [http://wilderness.nps.gov/default.cfm](http://wilderness.nps.gov/default.cfm)

\(^{14}\) Insert website link: [http://www.wilderness.net/index.cfm](http://www.wilderness.net/index.cfm)

\(^{15}\) Insert website link: [http://www.nature.nps.gov/views/](http://www.nature.nps.gov/views/)

\(^{16}\) Insert website link: [http://www.nature.nps.gov/views/KCs/Wilderness/Wilderness_Index.htm](http://www.nature.nps.gov/views/KCs/Wilderness/Wilderness_Index.htm)