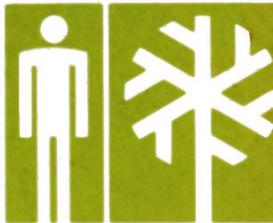


# wilderness study

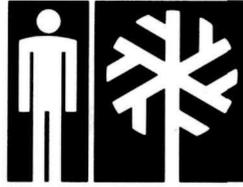
environmental assessment

**BUFFALO**



NATIONAL RIVER / ARKANSAS

WILDERNESS STUDY  
ENVIRONMENTAL ASSESSMENT



BUFFALO  
NATIONAL RIVER  
ARKANSAS  
OCTOBER 1974

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**problem statement**

Section 6, Public Law 92-237 (see appendix A), of March 1, 1972, establishing Buffalo National River provided that:

“Within three years from the date of enactment of this Act, the Secretary shall review the area within the boundaries of the national river and shall report to the President, in accordance with subsections 3(c) and 3(d) of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1132 (c) and (d)), his recommendation as to the suitability or unsuitability of any area within the national river for preservation as a wilderness, and any designation of any such area as a wilderness, shall be accomplished in accordance with said subsections of the Wilderness Act.” (See Appendix B – Wilderness Act.)

Subsection 3(d) of the Wilderness Act provides that the Secretary of the Interior shall, prior to submitting any recommendation to the President, give public notice of the proposed action and hold a public hearing at a location convenient to the affected area.

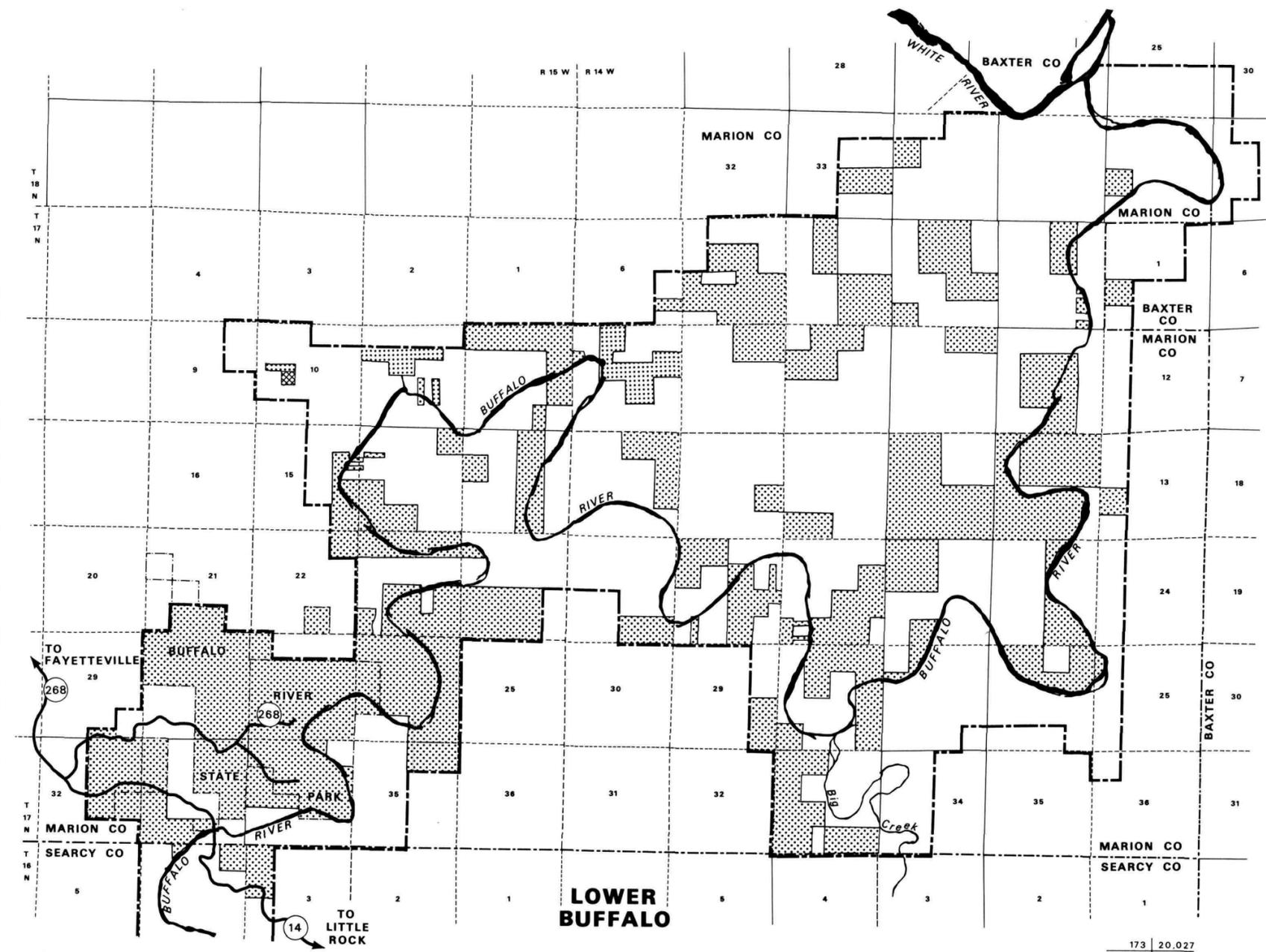
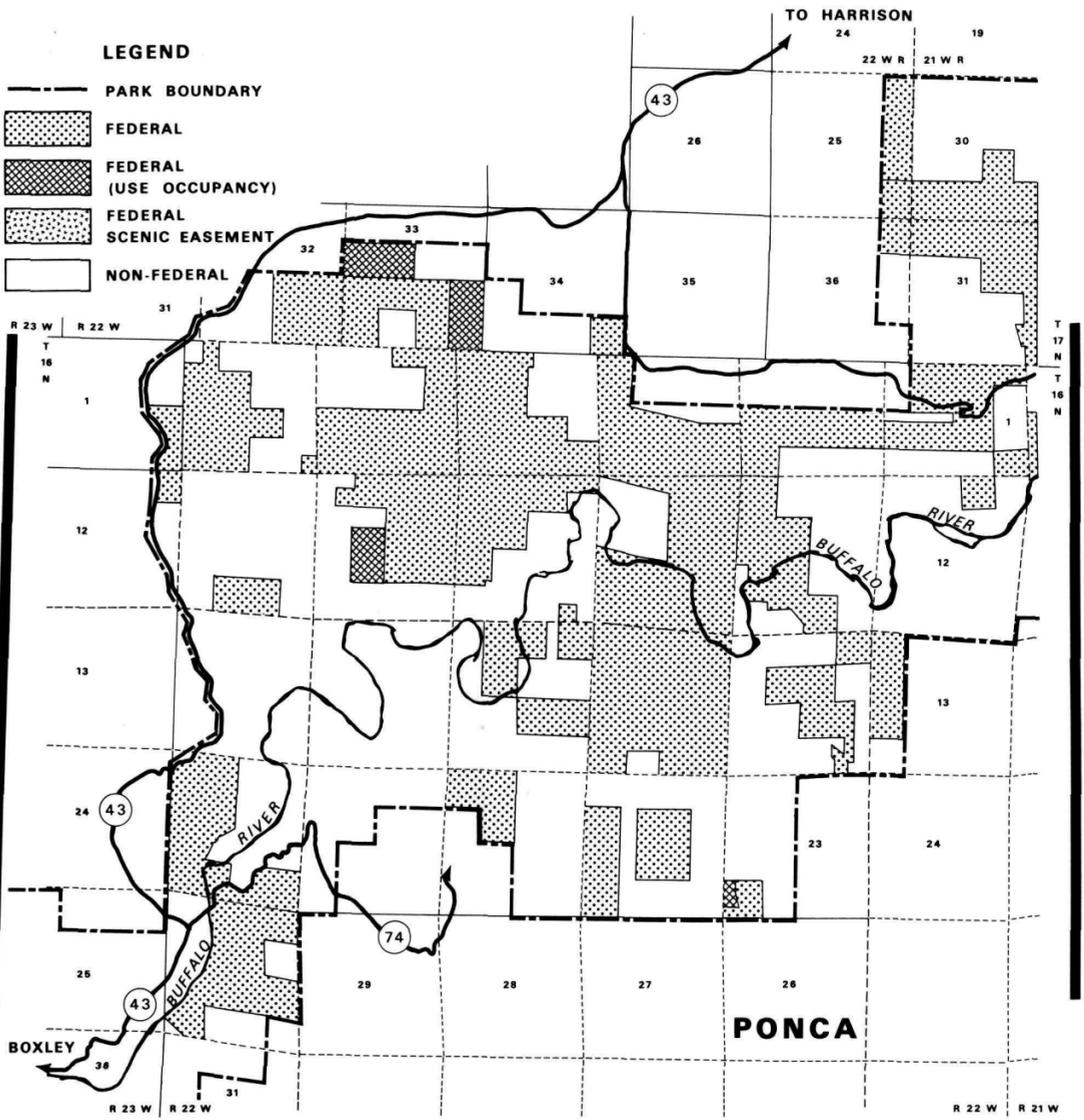
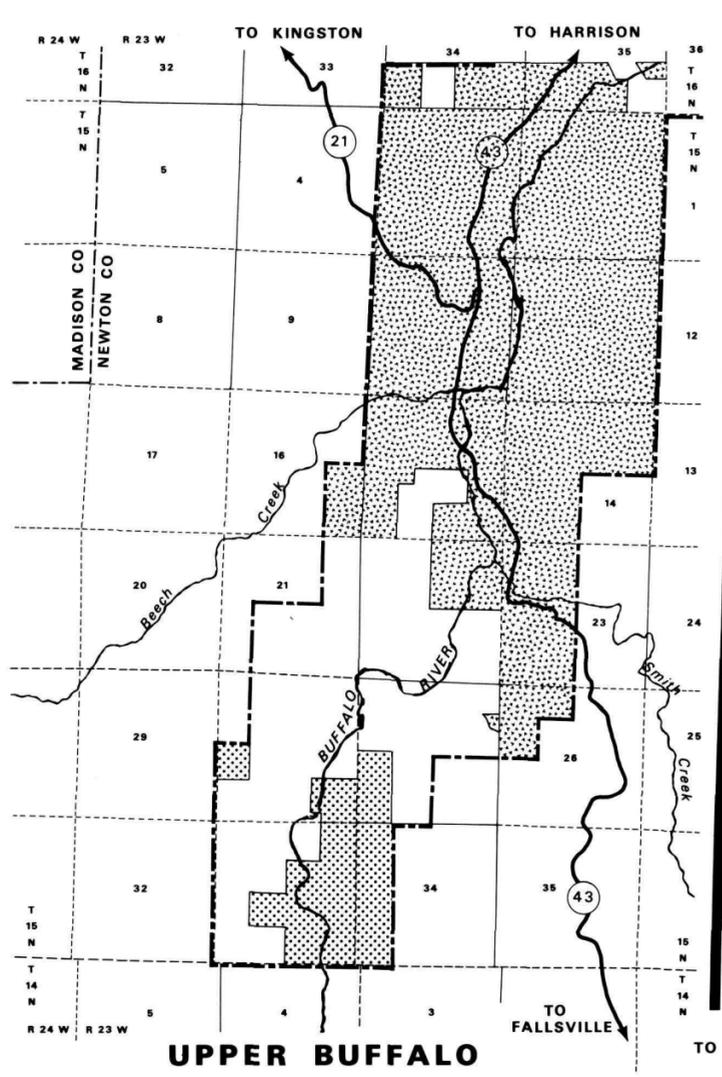
The Wilderness Act provides a definition that is the basis for determining the wilderness suitability of an area. Further guidelines for determining wilderness suitability are provided in the Department of the Interior’s *Departmental Guidelines for Wilderness Proposals*. (See appendix C.)

## **FACTORS AFFECTING WILDERNESS SUITABILITY FOR BUFFALO NATIONAL RIVER**

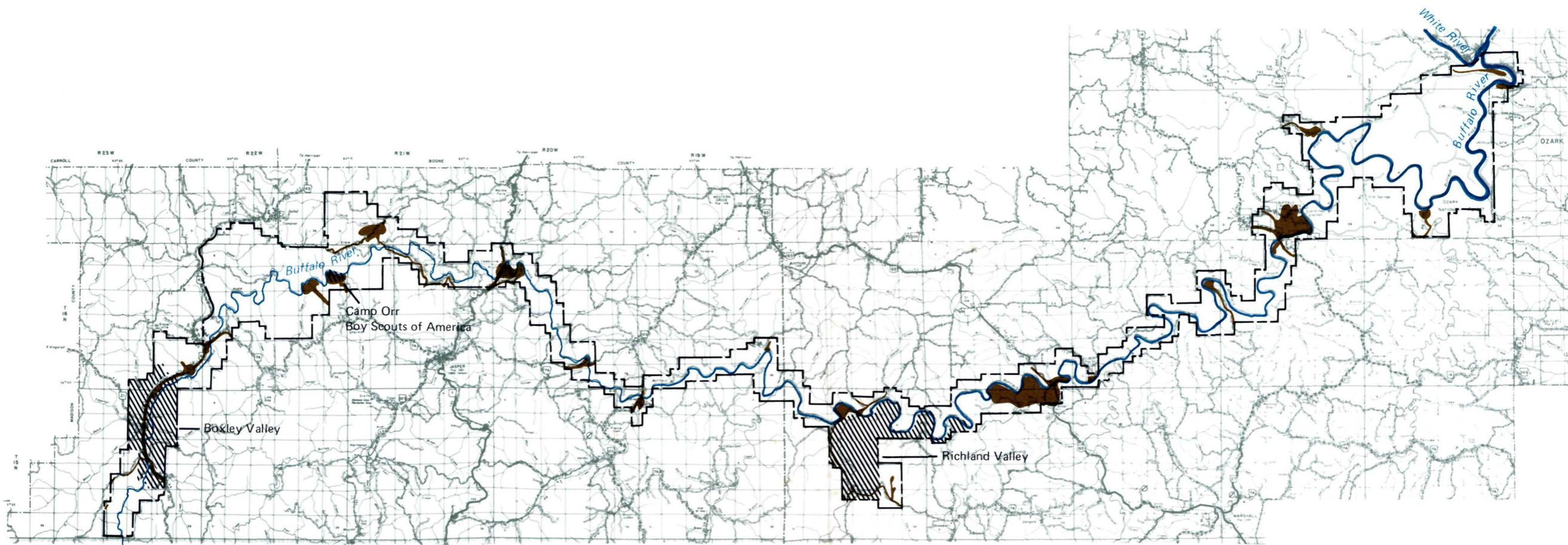
### **Land Status**

The act establishing Buffalo National River (see appendix A) provided in part that the Secretary of the Interior has the authority to acquire land and waters within the national river boundaries by donation, purchase, or exchange, except for land owned by the State of Arkansas or a political subdivision, which may be acquired only by donation. (See land status maps.)

Except for property that the Secretary determines is necessary for the purposes of administration, development, access, or public use, an owner of any improved property that is used solely for noncommercial residential purposes or any lands used solely for agricultural purposes (including, but not limited to, grazing) may retain as a condition of the acquisition a right of use and occupancy for residential or agricultural purposes. The term of the right retained shall expire upon the death of the owner or the death of his spouse, whichever occurs later, or

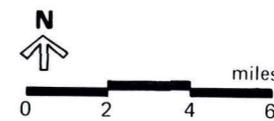


**LAND STATUS  
BUFFALO NATIONAL RIVER**



# Zoning Plan

## Buffalo National River



in lieu thereof, after a definite term that shall not exceed 25 years after the date of acquisition.

Certain lands in the Boxley Valley area (Upper Buffalo) and the Richland area, as well as the Boy Scout's Camp Orr were indicated as private-use zones in the proposal presented to Congress to establish Buffalo National River. These lands, also indicated in the draft master plan, will remain in private ownership subject to scenic controls and necessary rights-of-way for roads and trails and so long as water and air pollution do not increase. (See zoning plan.)

### **Hunting**

The act establishing Buffalo National River provided for hunting on the lands within the national river. Hunting is an acceptable use on lands administered by the National Park Service under the recreation category. Hunting will therefore be permitted away from developed areas and during regularly established seasons in accordance with applicable State laws and regulations.

### **Condition of the Land**

Historically, the Buffalo River valley was settled by homesteaders in the early 1800's. These early settlers cleared the bottomlands for crop production and livestock grazing. Homesteading continued until all available lands were settled. Marginal agricultural lands, as well as accessible forested tracts, were converted to timber production. Zinc and lead were discovered and mined at almost 100 sites throughout the valley, peaking between 1914 and 1917.

Currently, farming within the Buffalo River valley is minimal, and pasturage is the principal agricultural use. (See section II, Economic Factors That Influence or Are Influenced By the Buffalo National River.) Logging activities have also decreased markedly since the 1960's.

There is no current mining or mineral exploration activity in the Buffalo River valley. The last mining of any consequence occurred in the Rush district in 1962. Operations ceased in 1963.

Establishment of the Buffalo National River will assure that restoration of the lands within the river valley will continue. Regulation and/or elimination of agricultural practices, logging, and mining will allow second-growth forested areas to develop into native oak-hickory climax communities. Bottomlands previously utilized for grazing will return to native grasses, shrubs, and trees. Pollution and development of the river ecosystem will also be lessened significantly or eliminated completely.

### **Draft Master Plan for Buffalo National River**

The draft master plan for Buffalo National River classifies the land within the national river for various uses to ensure preservation of the basic resources, to

provide areas for public facility development, to guide private uses, and to provide "threshold" lands between those areas to be developed intensively and those to remain primitive. (See plan for visitor use.)

To provide a general structure for planning and development, river lands have been classified in accordance with a system similar to that proposed by the Outdoor Recreation Resources Review Commission and prescribed by the Bureau of Outdoor Recreation for application to Federal lands. Buffalo River contains five of the six classes of land: Class I, high density recreation areas – none; Class II, general outdoor recreation areas; Class III, natural environment; Class IV, outstanding natural areas; Class V, primitive areas; and Class VI, historic and cultural areas. (See land class map.)

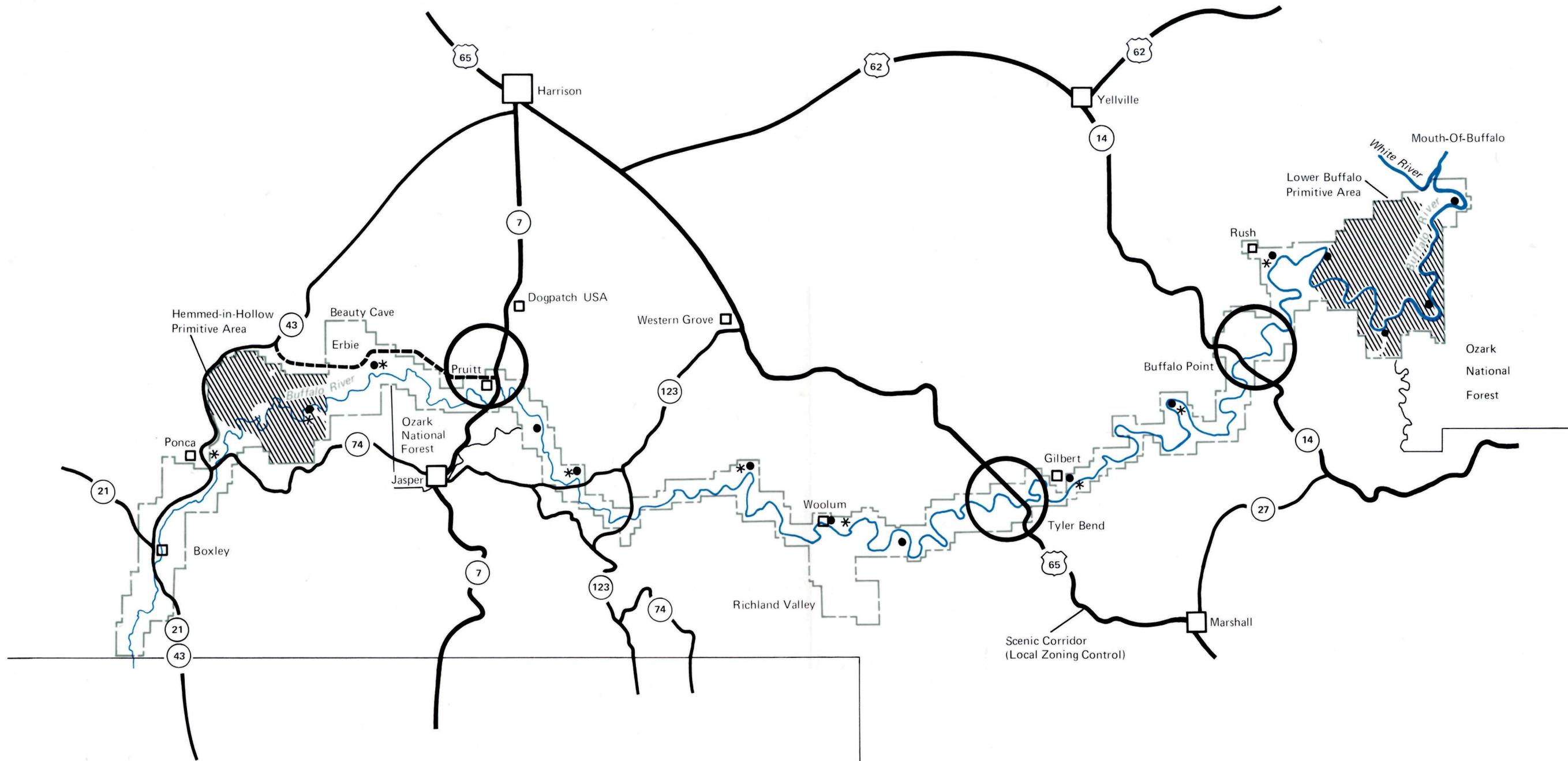
Using this system as a framework, the area's resources have been divided into several conceptual categories, each providing for a specific type of development and use, while at the same time remaining closely associated with the others. The concept for dividing the national river into various broad land classes is to assure the visitor a variety of experiences as he passes through the different environments – pastoral, primitive, recreational, and natural. (See map – concept for land classification.) This concept envisions a further breakdown of the usual land classification, dividing the natural environment zone (Class III) into natural and pastoral, thus relating to the acquisition zoning plan. The natural is to revert to normal succession of growth, while the pastoral is to be perpetuated. The pastoral can then be acquired on an easement basis, or leased to maintain this scene.

**Study Areas** (See map – study areas.)

The entire area lying within Buffalo National River was studied for its suitability for preservation as wilderness. A considerable portion of the national river does not lend itself to wilderness management because of its narrow configuration and incompatible uses as provided for in the act establishing Buffalo National River and by the draft master plan. These lands were therefore found unsuitable for wilderness designation.

The proposal to establish Buffalo National River, as presented to the Congress, and the current draft master plan indicate two areas – the Lower Buffalo area and the Ponca area – as primitive zones. A study of these two areas for possible wilderness designation resulted in several alternative proposals that are contained in the Alternatives section of this assessment.

As a result of the wilderness study of the entire Buffalo National River, one other area was considered as a possible alternative – the Upper Buffalo (Boxley area), which is also indicated and discussed in the Alternatives section of this report.

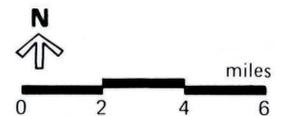


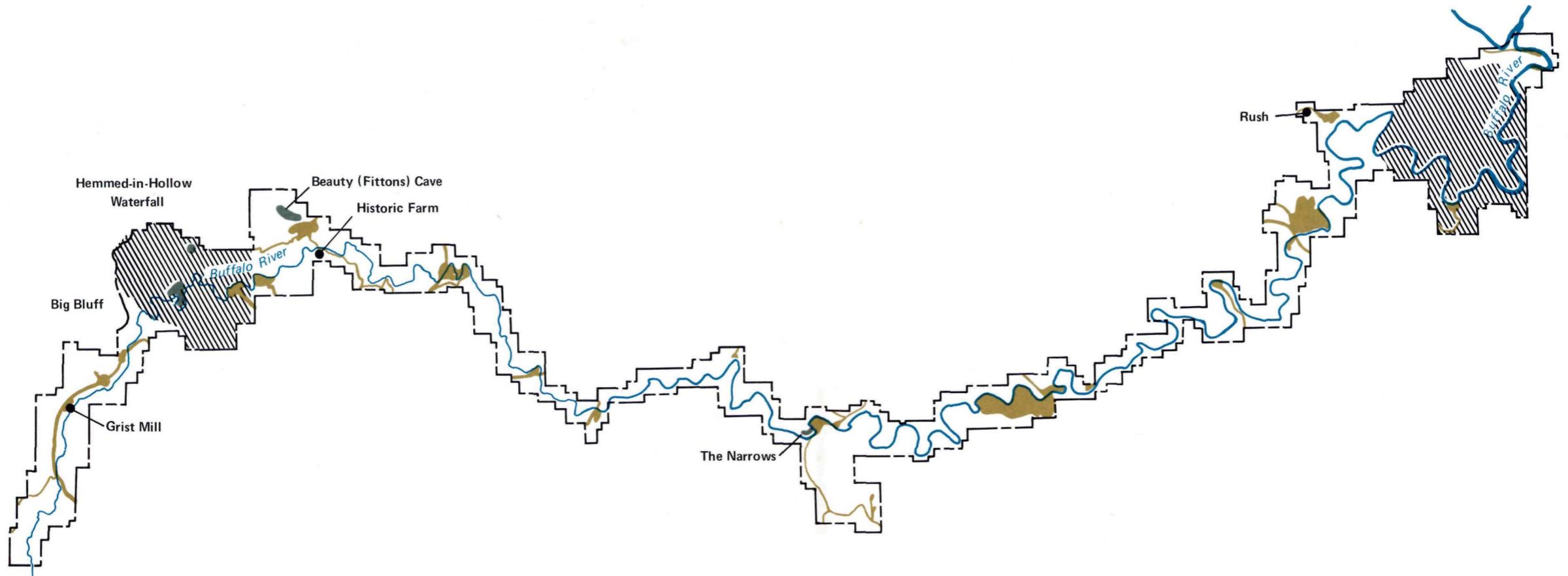
Ozark National Forest

# Plan For Visitor Use

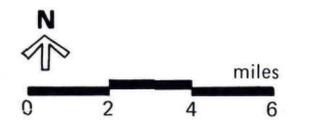
## Buffalo National River

-  Information
-  Boat Access
-  Recreation Area
-  District Headquarters
-  Primitive Camp
-  Boat Access Point
-  Proposed Road



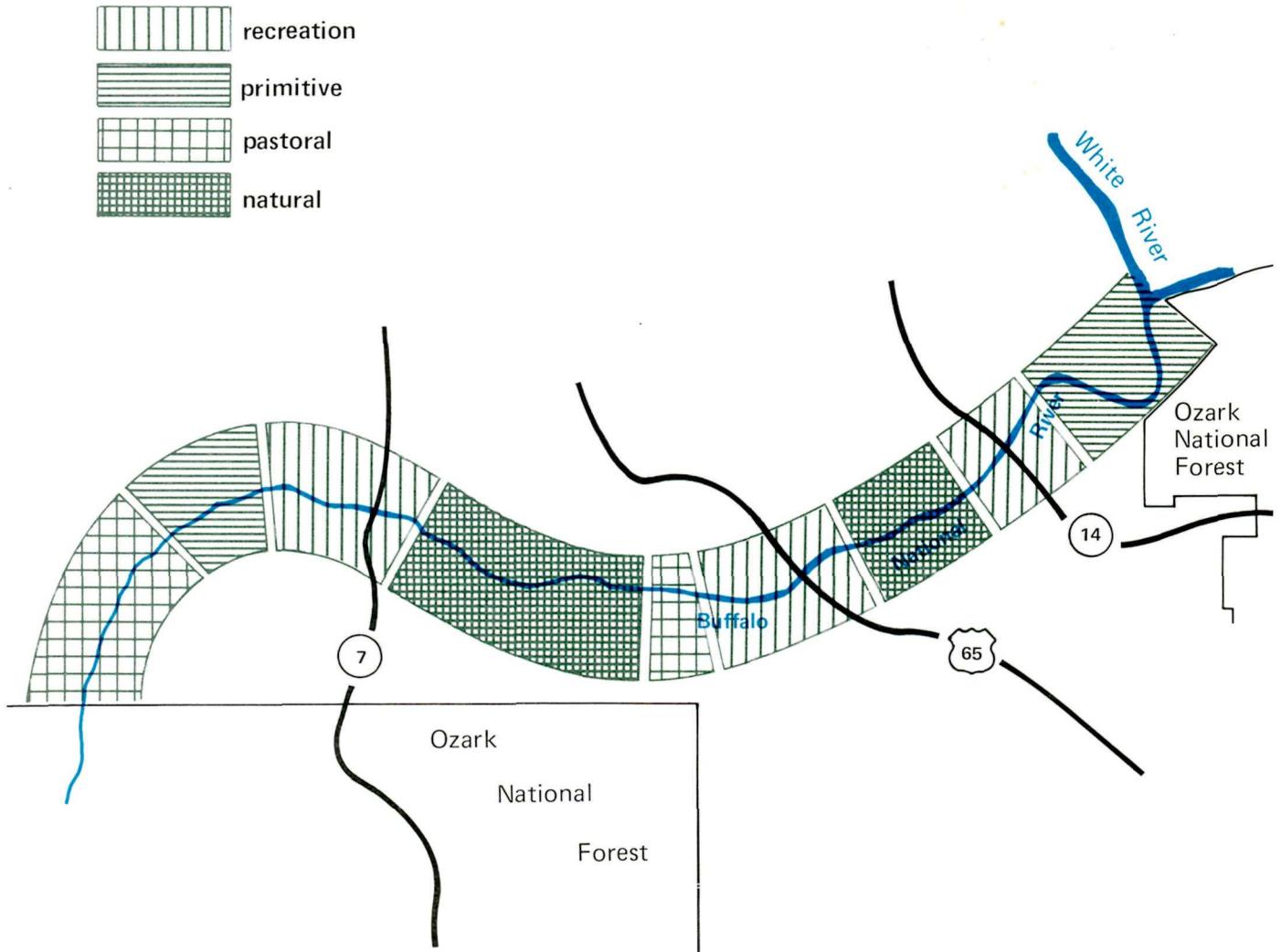


- Class 2 – General Outdoor Recreation
- Class 3 – Natural Environment
- Class 4 – Outstanding Natural Feature
- Class 5 – Primitive
- Class 6 – Historic and Cultural



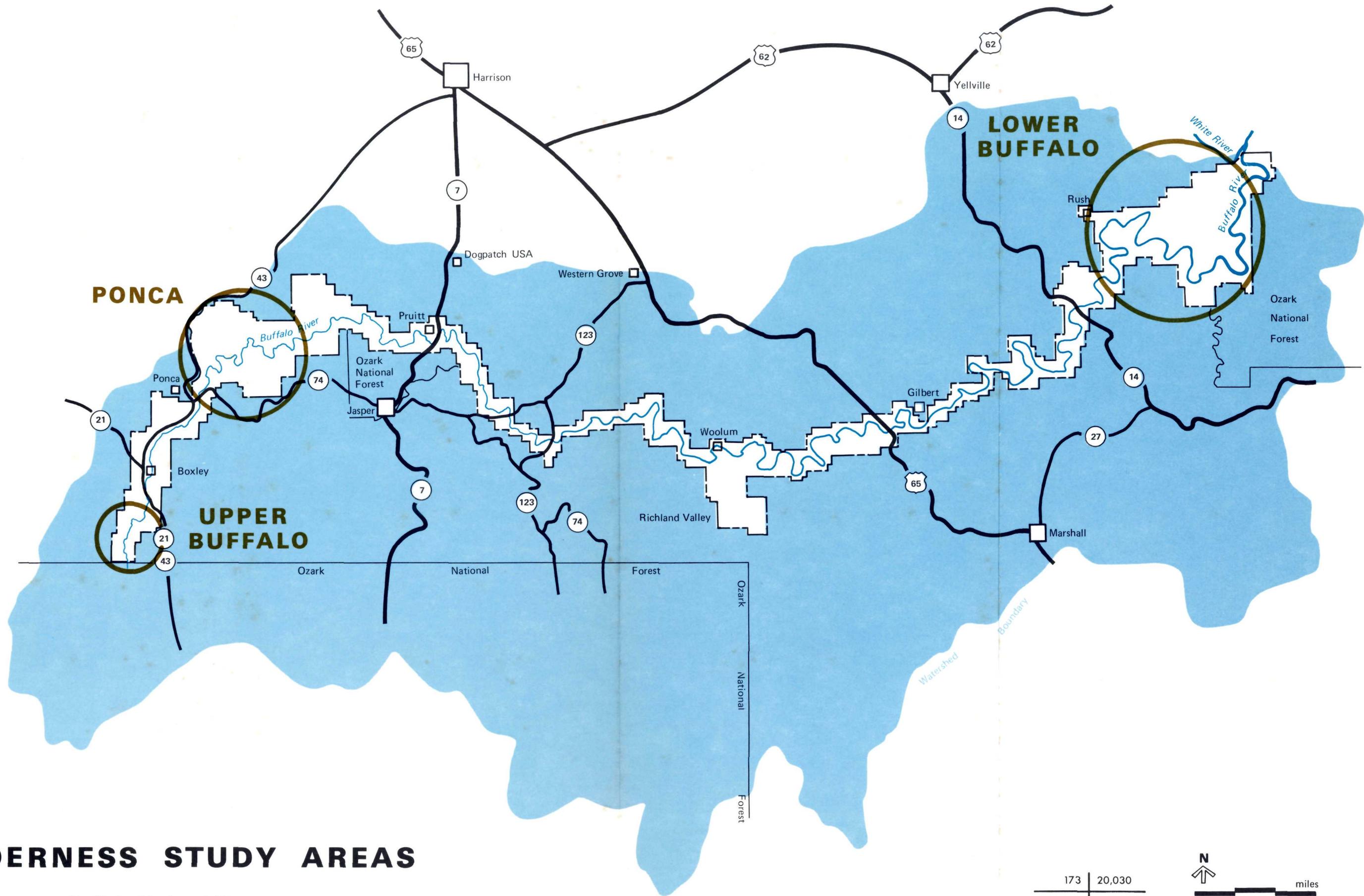
# Land Classification Plan

## Buffalo National River



# Concept for Land Classification

## Buffalo National River



# WILDERNESS STUDY AREAS

Buffalo National River

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**description of the environment**

## **REGIONAL SIGNIFICANCE**

The Buffalo River, situated in northcentral Arkansas near the heartland of the Ozarks, is one of the few remaining free-flowing, relatively undisturbed major streams left undammed in the Arkansas Ozarks. Originating high in the Boston Mountains (2,400 feet above sea level), the Buffalo meanders eastward across the Ozark Plateau country of Baxter, Boone, Marion, Newton, and Searcy Counties, finally joining the White River near Buffalo City, Arkansas.

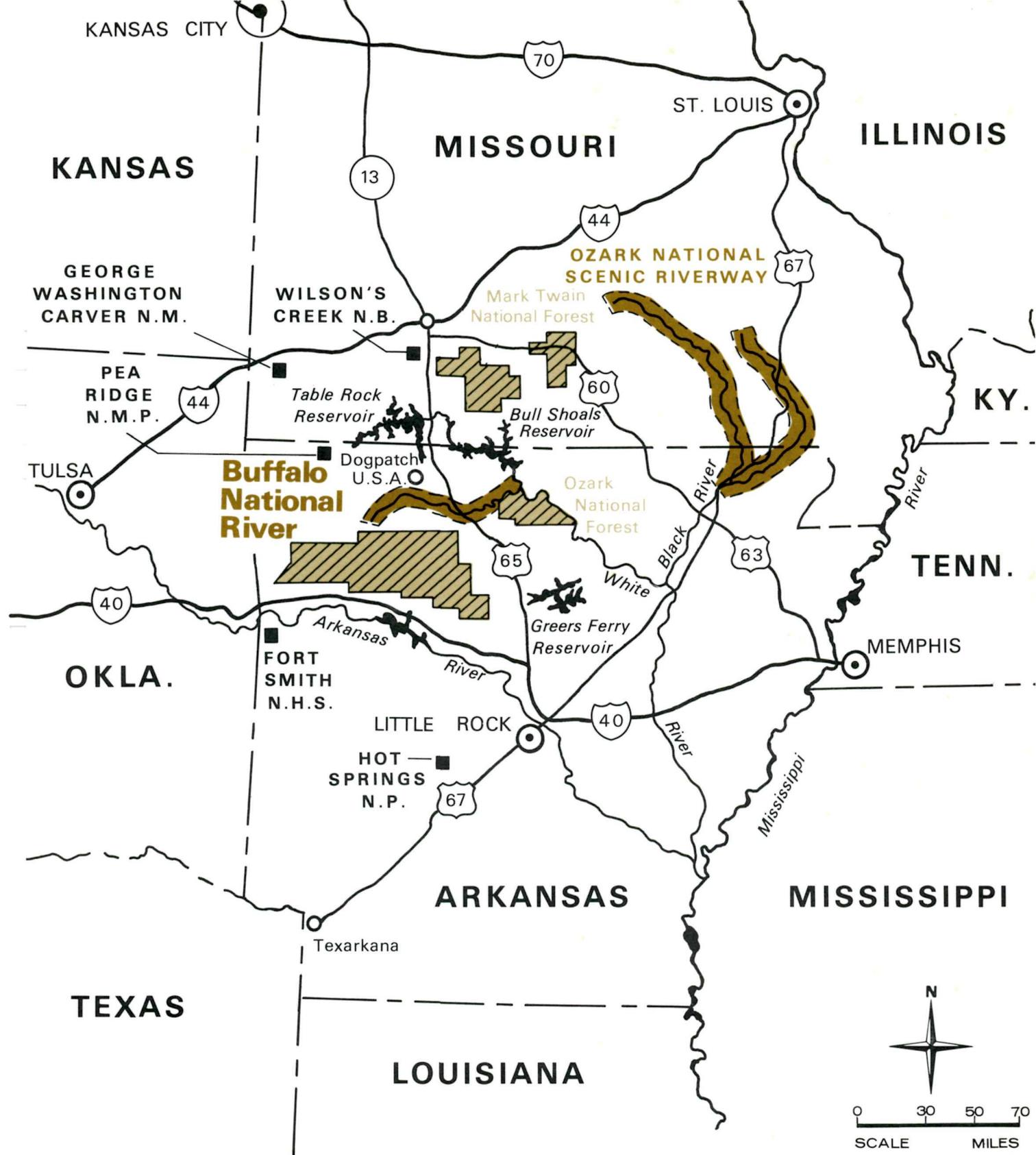
The headwaters and first 16 miles of the Buffalo River lie within the Ozark National Forest (see boundary map), as do the headwaters of major tributary streams including Little Buffalo, Big Creek, Cave Creek, and Richland Creek. The remaining 132 miles of the Buffalo River and its associated river ecosystems lie within the boundaries of the Buffalo National River. Included are features illustrating the river-basin's geology, vegetation, wildlife, archeology, and history. A major appeal of the river is its clean, flowing waters that support a notable sport fishery and provide an opportunity for pleasure boating and swimming.

Although the Ozark region is a land of many rivers, the largest of them have been dammed and inundated, resulting in the loss of free-flowing river recreation opportunities. Missouri possesses three rivers of comparable size (length of float stream): the 139-mile-long Current River and its 45-mile-long Jacks Fork tributary, portions of which are preserved in the Ozark National Scenic Riverway; the 235-mile-long Gasconade, which meanders through the lower, more open farmlands of the Northern Ozarks; and the 191-mile-long Meramac River, whose upstream portion is subject to inundation by a proposed dam and whose last 60 miles are intermittently disturbed by real estate developments, railroads, and industry.

Other Ozark streams, shorter in length than the Buffalo, but generally regarded as outstanding in quality, include the following:

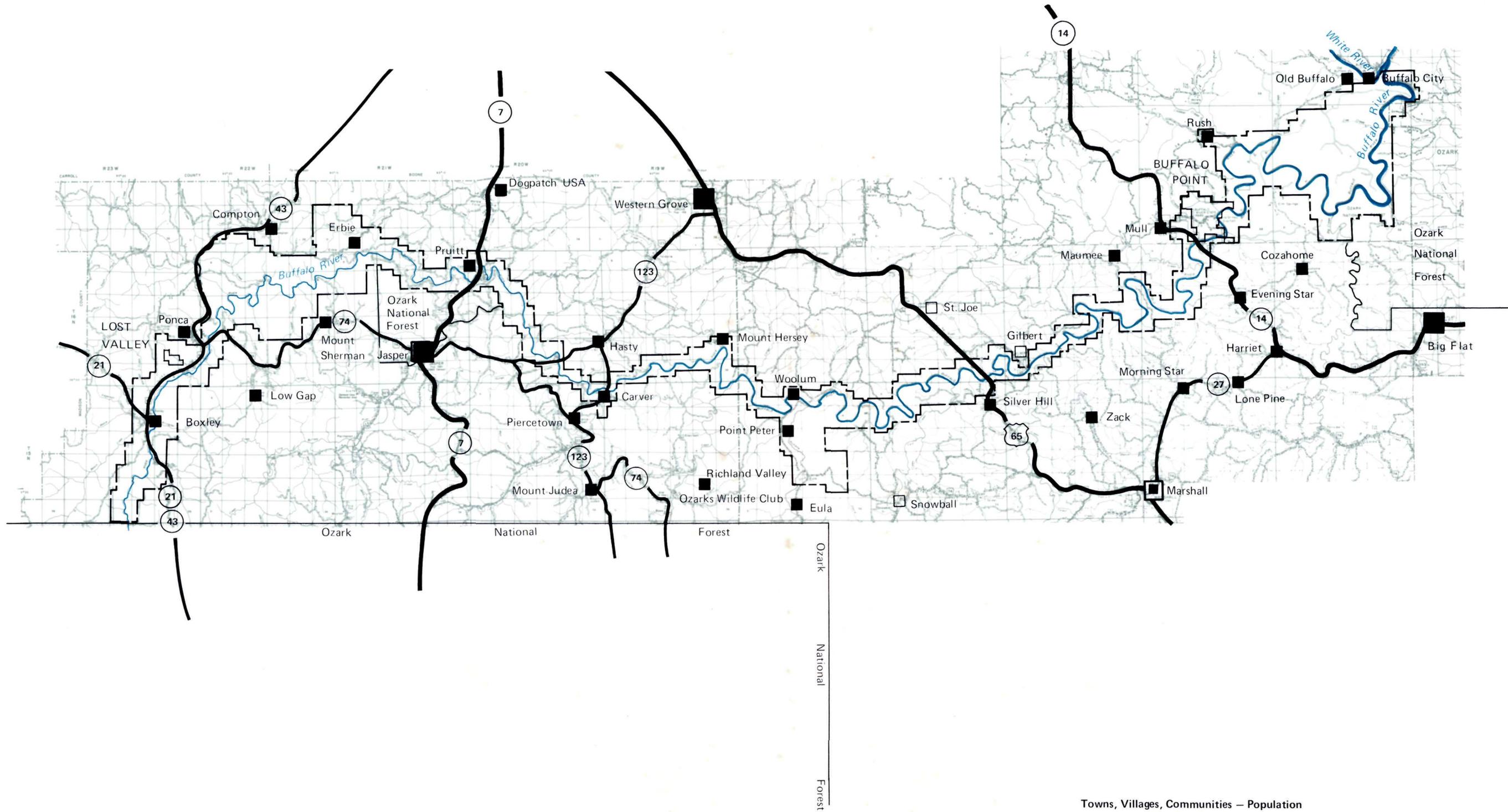
### **White River, Arkansas**

About 25 to 30 miles of the headwaters above Beaver Reservoir are floatable in the spring. More than 200 downstream miles have been inundated by four reservoirs. Below Bull Shoals Dam, the 42 miles of river to Norfork are scenic and excellent for trout fishing, even though the region is settled with farms and paralleled by a railroad.



# OZARK REGION

## BUFFALO NATIONAL RIVER

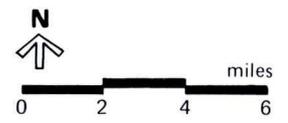


# Boundary Map

Buffalo National River

Towns, Villages, Communities – Population

- 0 - 50 People
- 50 - 100 People
- 100 - 500 People
- 500 - 1500 People



**Eleven Point River, Arkansas and Missouri**

Situated in wildernesslike country of Missouri (49 miles) and Arkansas (35 to 40 miles), the Eleven Point River has been proposed for a scenic river (the Missouri portion) and for damming or a scenic river (the Arkansas portion).

**James River, Missouri**

About 60 miles of the lower James River have been inundated by Table Rock Reservoir. The upper 40 miles cannot be floated during low water.

**North Fork River, Missouri**

This 48-mile fork of the White River flows through uninhabited country and is excellent for whitewater floating or canoeing. The lower North Fork has been tamed by Norfork Dam in Arkansas.

**Mulberry River, Arkansas**

During its brief floating season, the Mulberry (35 to 40 miles) is extremely wild and a real challenge to the experienced canoeist. A portion of the river lies in Ozark National Forest and possesses fine mountain scenery.

**Kings River, Arkansas**

The Kings River (30 to 35 miles) is a scenic stream with relatively little traffic. The lower river has been altered by Table Rock Reservoir, and another dam is proposed for the river's middle reaches.

**Spring River, Arkansas**

The Spring River (55 to 60 miles) can be floated year around. However, many summer homes and resorts line the river's banks and a railroad follows the stream for its entire length.

**REGIONAL RECREATIONAL OPPORTUNITIES**

Twelve major conservation reservoirs with a total water area of 295,000 acres occur within the Ozarks of Missouri, Arkansas, and northeastern Oklahoma. The majority of the developed recreation facilities in these regions is situated around these reservoirs. More than 20 other large impoundments in Arkansas and Oklahoma also provide reservoir-recreation opportunities for people residing in the Ozark region.

The State parks in Missouri's Ozarks center around reservoirs and large springs; eight of the nine State parks and recreation areas in Oklahoma's Ozarks are situated on reservoirs. Arkansas' State parks in the Ozarks include Devil's Den, with deep open fissures and a wooded creek valley. Smaller State parks are found at Withrow Springs near Huntsville, and at Bull Shoals Dam on the White River north of Cotter.

A 700-acre theme park, Dogpatch, USA, is situated 4 miles north of Pruitt on Arkansas highway 7 just outside the Buffalo National River boundary. This recreation park attracted over ½ million visitors in 1972. Dogpatch, USA, offers numerous exhibits and attractions and includes 126 lodging units, a 100-unit motel, and a 600-seat restaurant. A number of other recreation facilities have been completed during the winter of 1972-73: a 1,200-seat convention center, a ski slope, and an ice-skating rink.

Public recreation is also well-served by 2 million acres of national forests in the Ozarks (Ozark National Forest in Arkansas and Mark Twain and Clark National Forests in Missouri). Much of the national forest acreage is comprised of upland forest with little or no water-based recreation. However, a number of facilities have been developed on small impoundments and along streams. A large cavern is also being developed by the Forest Service at Blanchard Springs, 40 miles southeast of Buffalo National River to include: guided tours, campgrounds, picnic areas, lodge and dining accommodations, and trails.

National Park Service facilities within a 150-mile radius of Buffalo National River include the 77,000-acre Ozark National Scenic Riverways, George Washington Carver National Monument, and Wilson's Creek National Battlefield Park in Missouri; and Pea Ridge National Military Park, Fort Smith National Historic Site, Arkansas Post National Memorial, and Hot Springs National Park in Arkansas.

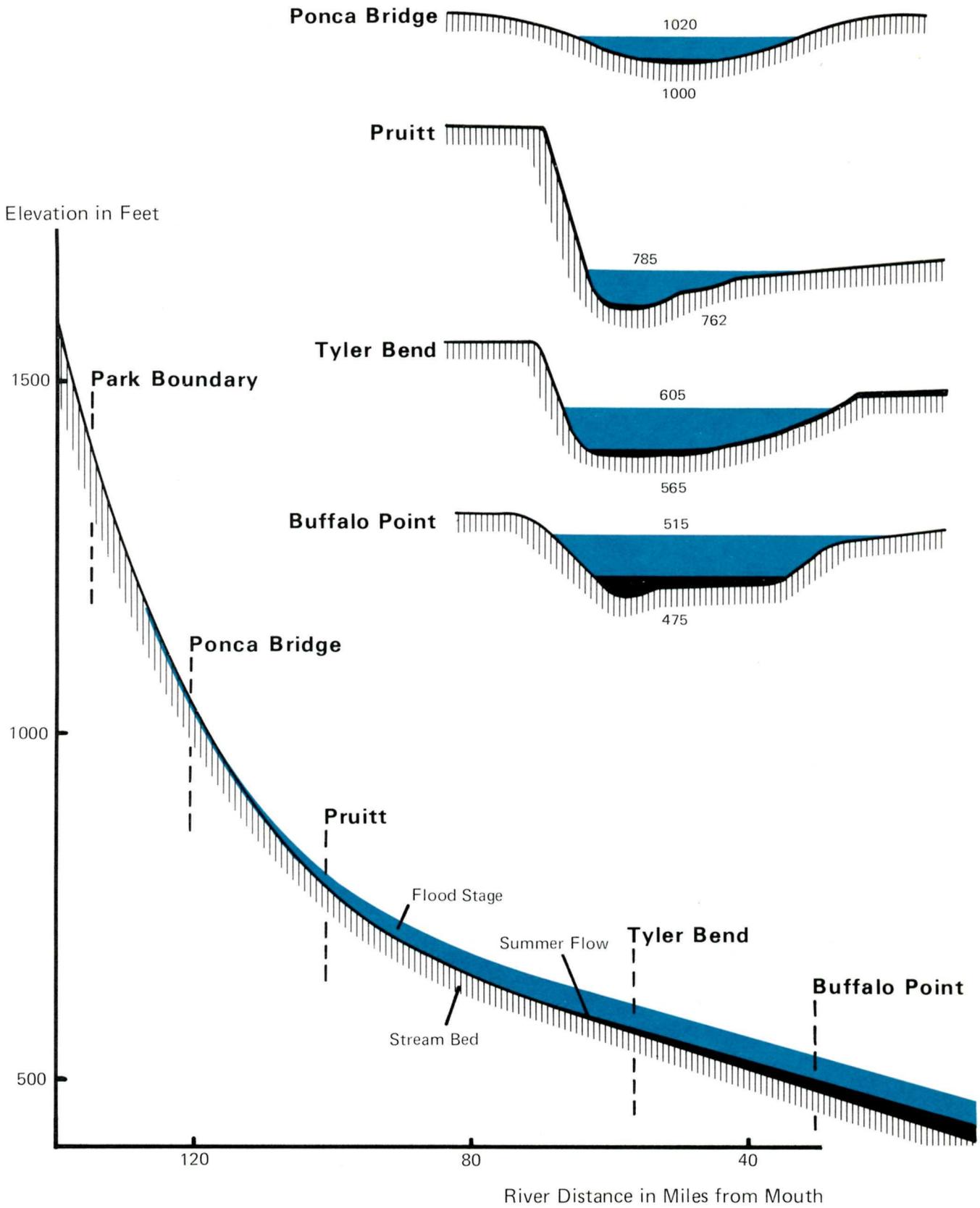
Missouri's seven State forests in the Ozarks offer picnicking, camping, trails, and associated activities on about 100,000 acres, largely in tracts isolated from paved roads. Arkansas and Oklahoma have no State forests, but over 15,000 acres of land in the Ozarks are controlled by the Arkansas Game and Fish Commission, including 10,280 acres in Newton and Searcy Counties within the Buffalo River watershed.

An abundance of private resorts exists within the Ozark region including motels, restaurants, service stations, fishing-supply facilities, frontier towns, and developed caves. These facilities offer the visitor a wide variety of accommodations, ranging from economy to luxury.

The nearest unit of the National Wilderness Preservation System is the 8,510-acre Wichita Mountain Wilderness lying in the Wichita Mountains Wildlife Refuge in central Oklahoma.

## **GEOLOGIC AND EDAPHIC FEATURES**

As described by Fenneman, the Buffalo National River is physiographically situated in the Ozark Plateau province of the Interior Highlands division; its headwaters originate in the Boston Mountains section, and the river flows through the Burlington escarpment of the Salem Plateau section.



# River Profile

Born on summits almost 2,400 feet above sea level, the Buffalo surges over rapids and sweeps gracefully against streaked canyon walls down to elevations of less than 400 feet before joining the White River near Buffalo City. The average fall of the Buffalo is 6½ feet per mile for the 132-mile national river. (See river profile map.) The river's geologic features illustrate the complex story of the building and erosion of the Ozark Dome. The entire area is inundated with many layered rocks and innumerable fossils; ancient peneplains and prominent escarpments; caves, arches, "sink-holes," canyons, and solution valleys. Terrain is generally rough, hilly, and wooded. The river channel itself is exceptionally stable, generally composed of gravel and boulder deposits overlying a solid rock floor. Frequently, the rock strata forms the channel floor. All formations are of sedimentary origin and consist mainly of limestones and dolomites with occasional beds of shale, sandstone, and chert.

Rough terrain and steep slopes often limit access to the Buffalo River. Banks are often covered with dense vegetation that further restricts easy access to the river. Gravel beds offer the most feasible access.

Soils are a complex of sandy and silt loams in the more fertile flood plains of the valleys and of less productive, cherty loams and clays on the steeper slopes and ridges. Thin soils, which occur throughout most of the region, are easily eroded. Most soils in the area are well-drained.

The capability of the land base of the region to sustain economic land uses such as crop and timber production and pasturage has been classified in a study entitled *Arkansas Soil and Water Conservation Needs Inventory*, U.S. Department of Agriculture, 1961. The risks of soil damage and limitations in use become progressively greater within soil type Class VIII areas (table 1). A comparison of the Buffalo River study area, including Boone County, with the State of Arkansas indicates that region falls far below the average of total land area in the first four classes and, conversely, is far above average in percent of total land area in the last three classes. Less than 10 percent of the land lying within the boundary of the national river is suitable for raising crops.

**Table 1. Land base capability (crop and timber production, pasturage, etc.) of five-county Buffalo National River region compared to State of Arkansas.**

	Percent of total land area	
	Five-county region	Arkansas
Classes I-IV	30.8	70.3
Classes V-VIII	69.2	29.7

The principal mineral resources in the Buffalo National River region are lead and zinc. Other minable resources found in the four-county area include tripoli, manganese, pyrite, uranium, marble, copper, fuller's earth, and phosphate rock. Ore deposits are related to the underlying igneous intrusions. Lead and zinc occur primarily in zones of shattering near faults, notably grabens. Limestone and sandstone are widely distributed. Actual mining operations on a continuous basis appear to have been limited to lead and zinc, limestone, aggregate, sand and gravel, and crushed stone.

Presently, mineral rights on 16 properties of the 300 acquired, totaling 946 acres, still exist within the boundaries of the Buffalo National River. These mineral rights are given a separate property number and will be acquired by further negotiation or eminent domain procedures as funds become available. An additional 650 properties still have to be acquired to complete the Buffalo National River. Currently no data are available on the type and number of mineral rights involved.

There are no current mining or mineral activities in the Buffalo National River area. The last mining of any consequence occurred in the Rush district in 1962. Operations ceased in 1963. The nearest lead ore smelters are situated 175 to 250 miles from the lead mines near Ponca. The closest zinc smelter is in St. Louis.

## CLIMATE

The climate of the Buffalo River region is humid-continental, characterized by hot summers and mild winters. The average annual temperature is 58<sup>o</sup> F and the average day/night temperature difference is about 29 degrees. The frost-free season averages 199 days.

Summers are long and warm, but are tempered by relatively cool nights. July temperatures average about 80<sup>o</sup> F often rising to over 100<sup>o</sup> F during midday. Severe winter temperatures are rare, although freezing may occur from late October through March. January temperatures average about 40<sup>o</sup> F, occasionally falling to 0<sup>o</sup> F or below during the night. Temperature extremes of 114<sup>o</sup> F to -23<sup>o</sup> F have been recorded within the Buffalo River basin. The summer and winter seasons are separated by distinct springs and falls.

Annual precipitation averages 49 inches with distribution relatively uniform throughout the year, although the spring months of April to June generally receive slightly higher amounts. Driest months are December, January, and February. From records dating back to 1900, the greatest annual precipitation

measured 82 inches in 1927, and the least, 30 inches in 1901. Precipitation in the amount of a tenth of an inch or more occurs on an average of 1 day out of 5.

Snowfall averages approximately 12 inches a year and can occur from November through March. One or more snowstorms generally occur each winter; however, snow cover seldom lasts more than a few days.

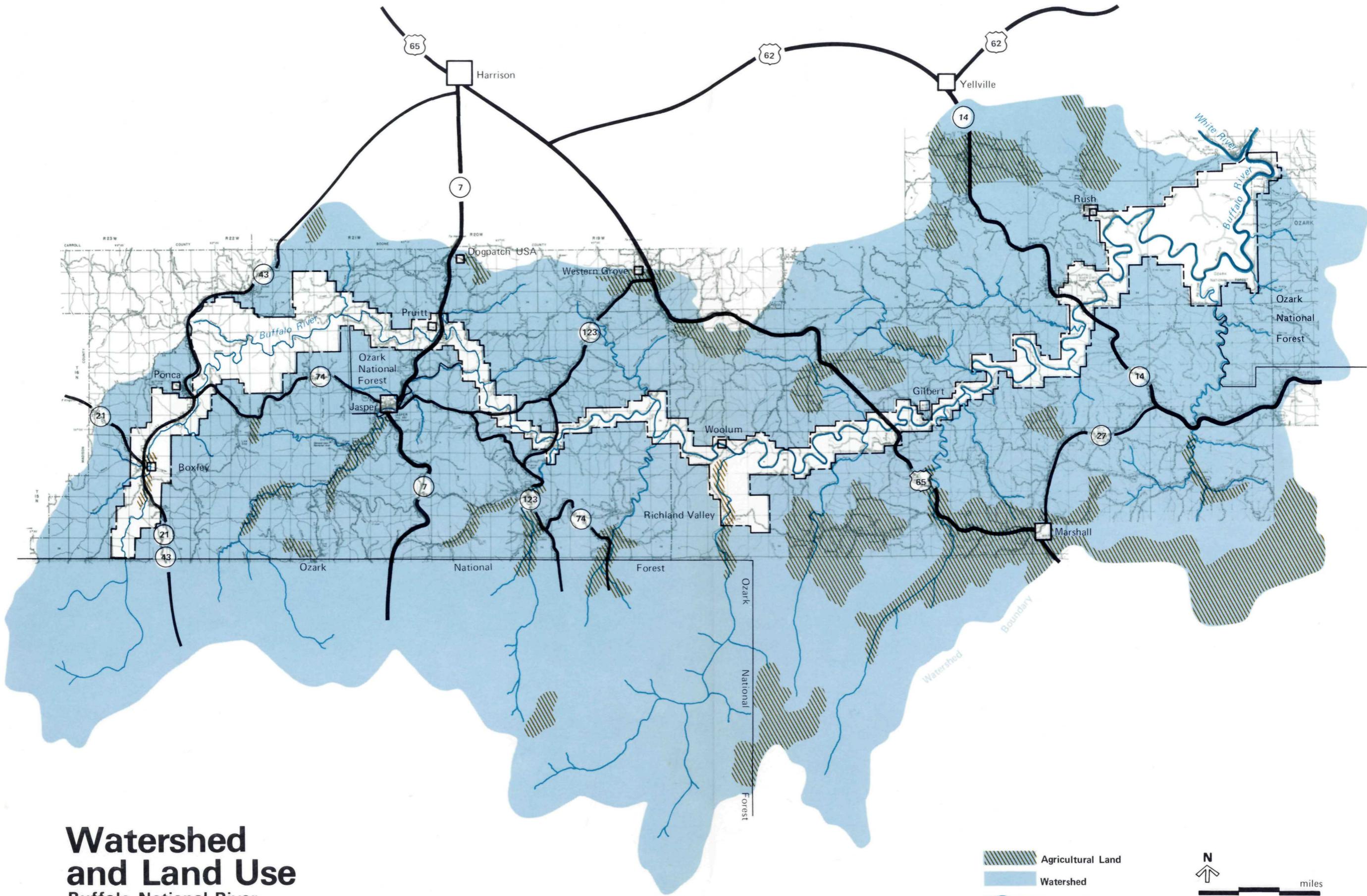
Prevailing winds are usually moderate and come from the south. Drought conditions, common in the Great Plains to the west, frequently extend into the Buffalo River basin and affect the streamflow and plantlife. The basin lies in a region characterized by the occurrence of moderately intense local storms and general storms of somewhat heavier rainfall and several days' duration. The larger storms occur most often in spring, although records show that they can happen at any time of year. Storms that produced major floods in the basin occurred in August 1915; April, June, and December 1927; February, March, April, and June 1945; fall 1972; and spring and fall 1973. Tornadoes with accompanying gale-force winds occur frequently in spring.

## **WATERSHED AND HYDROLOGY**

The runoff within the Buffalo River watershed (watershed and land use map) varies to a greater degree than is indicated by the relatively uniform rainfall pattern. Late summer and early fall are characterized by greatly reduced flows. This pattern is common in all years, but is more pronounced during drought years. Generally, the entire river is floatable from October until the end of May or early June (river floatability map).

Except for extreme dry periods, the lower half of the river can be floated almost anytime. Because one of the greatest attributes of the Buffalo River is its natural condition, its fluctuating character is to be expected and desired. In recent years, annual flows have often been lower than in the past. However, this is also the case for many streams in the region and is probably a result of annual variations in precipitation. The mean annual discharge figure illustrates this trend for the Buffalo River, as well as for the Kings River, which lies near, but not within, the Buffalo watershed. Data was provided by the U.S. Geological Survey (U.S.G.S.), Little Rock, Arkansas. Streamflows during the late summer dry periods have also shown a slight decline in recent years for both the Kings and the Buffalo Rivers. Available data does not provide any evidence that streamflow decreases in either river have been statistically significant between 1941 and 1970.

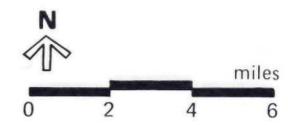
During dry periods, sections of the stream may disappear into a bed of gravel (sinkhole) and reappear above ground downstream. Thus, although the river appears to be dry in some areas, there is actually a substantial subsurface flow.

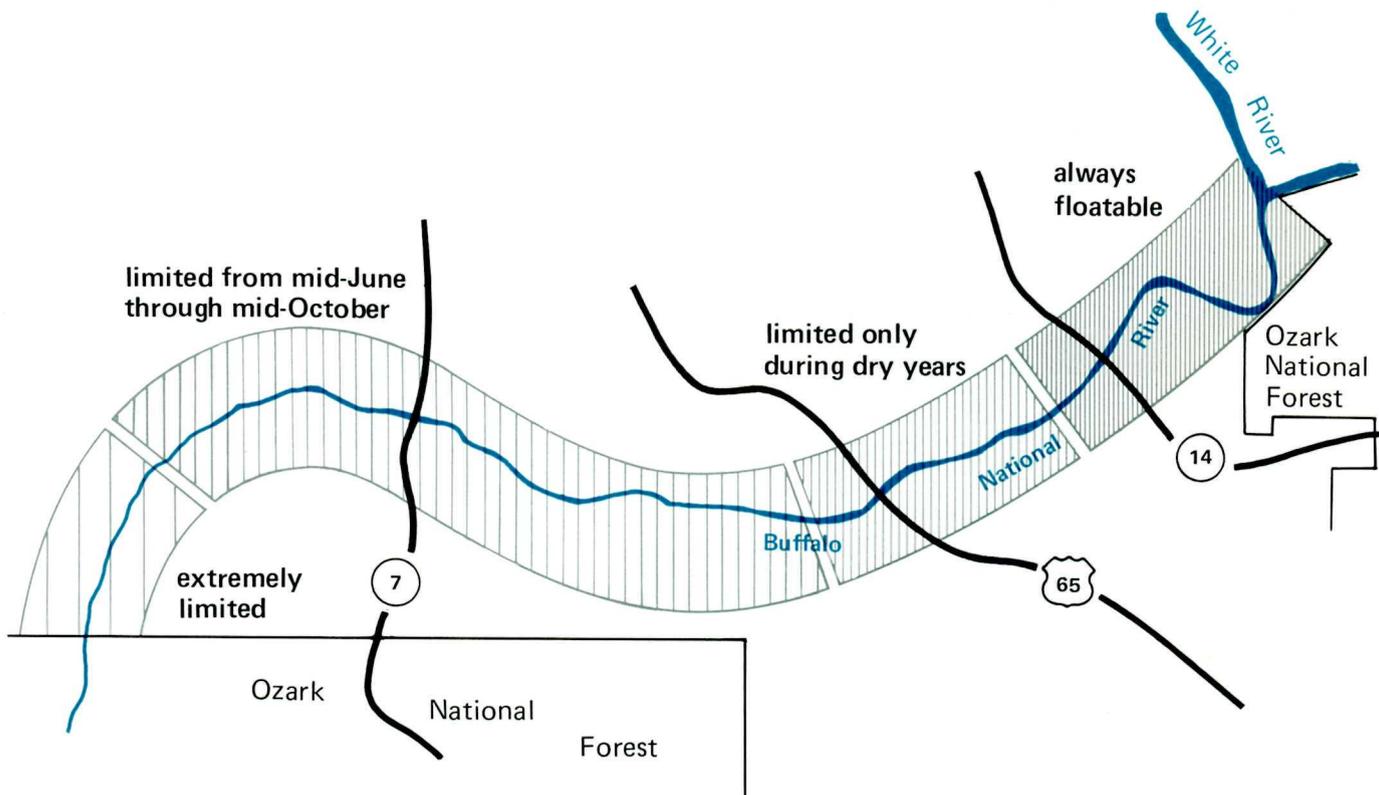


# Watershed and Land Use

## Buffalo National River

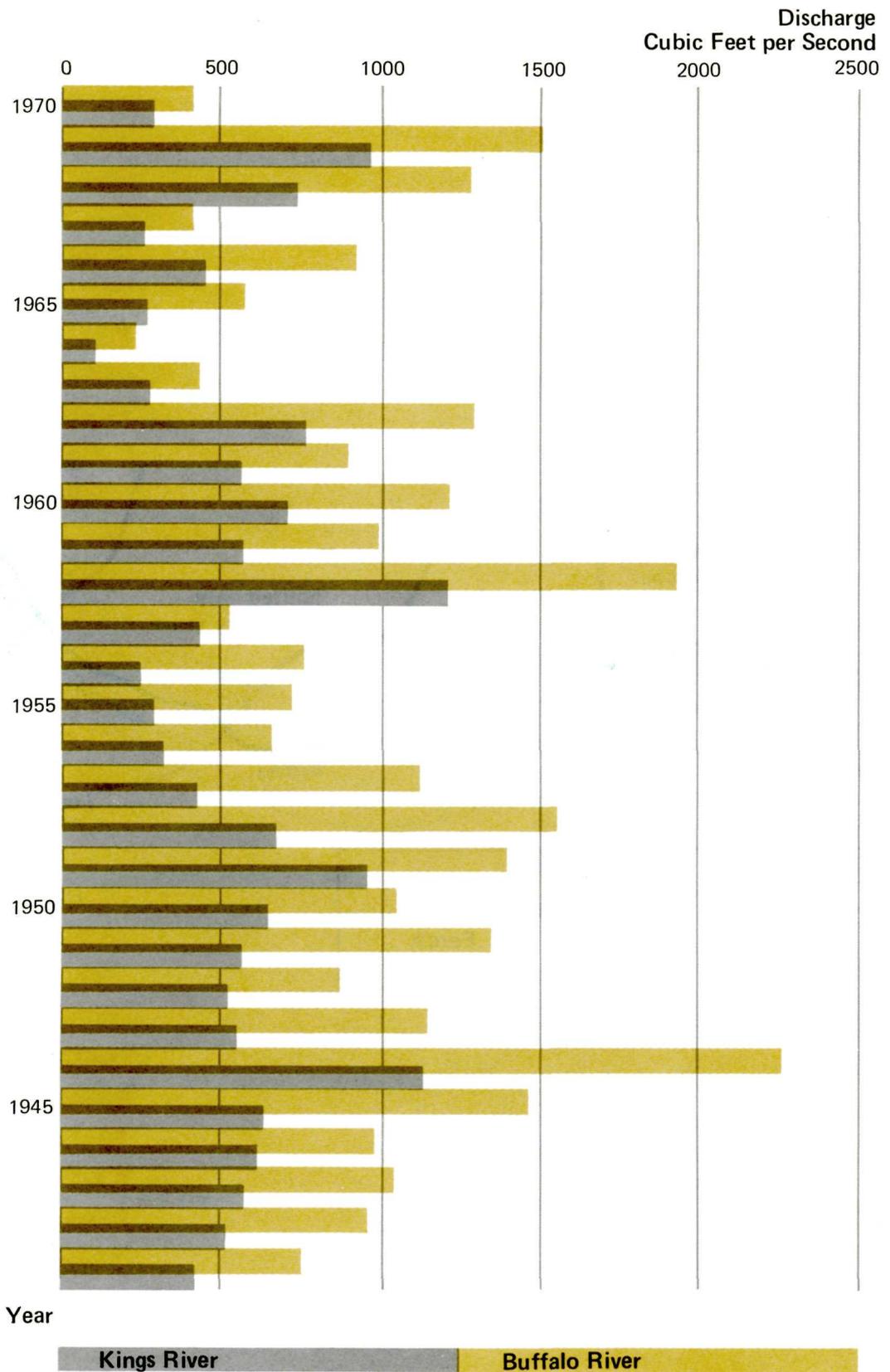
-  Agricultural Land
-  Watershed
-  Drainage Pattern





## River Floatability

Buffalo National River



Mean annual discharge for Kings River near Berryville, Arkansas and Buffalo River near St. Joe, Arkansas, 1941-1970.

Except for minor siltation during periods of heavy runoff, the Buffalo River is generally considered a moderately polluted stream, especially from Jasper downstream. A preliminary water quality analysis for the months of May and June is summarized in appendix D; however, these analyses may be somewhat misleading, for the U.S.G.S. reports that the critical water-quality months are July and August. Although surrounding agricultural lands are annually fertilized with nitrogen, potassium, and phosphorus in approximately a 10-20-10 ratio, nutrient concentrations remain relatively low. Likewise, local applications of 2-4D and 2-4-5T herbicides have had no observable effect upon the river ecosystems. Pollution from domestic sewage effluents, however, has resulted in somewhat elevated fecal coliform levels, an indication of contamination from human fecal material, near Jasper on the Little Buffalo River, and near Hasty and Shaddox on the Buffalo River itself. (Appendix D.)

## VEGETATION

The plant communities within the Buffalo River watershed are generally similar to the vegetation types that occur throughout the Arkansas Ozarks. The national river is situated within the oak-hickory forest association near the center of the Interior Highlands natural region. Vegetation throughout this area is extremely rich and diverse and the relative occurrence of the various plant communities depends primarily upon climate, soil and moisture conditions, and topography. The numerous hillsides, bluffs, glades, and river flood plains provide ample habitat for over 1,500 species of plants.

The upland forests in the region, although modified in part by logging and grazing activities, are generally second-growth oak-hickory communities. Six species of oak and three of hickory are predominant in this plant association: White, black, blackjack, chinquapin, post, and northern red oak are abundant and the mockernut, black, and shagbark hickories are equally well represented. Also present are such trees as beech, winged elm, red maple, flowering dogwood, minor representations of shortleaf pine, red cedar, persimmon, and more than 40 other species.

The river flood plain and associated low, moist areas in the region are generally characterized by a flood plain/mixed-lowland forest community. As with the upland forested areas along the Buffalo, these plant communities have also been subjected to varying amounts of logging and grazing and are typically second-growth stands where they occur. Species composition and density are dependent primarily upon the amount of disturbance (logging and grazing) in the area, soil moisture conditions, and topography. These forest types generally occur as isolated strips of vegetation near and/or along the banks of the Buffalo and its associated tributaries, grading into the oak-hickory type on the adjacent upland

areas. Boxelder, green ash, silver maple, American elm, sweetgum, hackberry, redbud, and bitternut hickory are the primary tree species, with an understory of buckbrush, spicebush, stinging nettle, cane, and Virginia wild rye.

The Buffalo River bed also includes large gravel bars and associated low areas scattered throughout the watershed. These gravel bars and river bottom areas exhibit distinct plant communities or vegetation complexes. Black willow, ward willow, cottonwood, sycamore, black river birch, and silver maple are the primary tree species. Witchhazel, buttonbush, smartweed, water willow, rushes, and cane dominate the understory vegetation.

The great variety of micro-environments in the Arkansas Ozarks has permitted the survival of many relic species from times past, when a different local climate prevailed. Some of these such as the monkey flower, blue larkspur, and Indian mallow show spectacular separation from their present-day ranges further west.

Ozark chinquapin and spring-flowering witchhazel are two plants found only in the Ozark Mountains. Other species occurring in the Buffalo River watershed that are either very unusual or of limited distribution include the fee lipfern, Bradley spleenwort, smoketree, yellowwood, Ashe juniper, umbrella magnolia, yellow mandarin, mockorange, and the yellow ladyslipper orchid.

The flowering azalea, redbud, serviceberry, and dogwood are beautiful in spring or early summer, as is the fall coloring of the deciduous forests. Another spectacular sight on the Buffalo are the so-called "fern falls" that occasionally occur on the cooler, more moist, north-facing slopes of bluffs. These cascades of ferns blanketing a precipitous, treeless incline appear from a distance to be a green-tinted waterfall.

## **WILDLIFE**

The animal life of the Arkansas Ozarks is representative of the deciduous forest biome and its rivers, but diversified by the presence of endemic species and western faunal elements. As white men settled the area, a number of animals were eventually eliminated from the region, notably: the timber wolf and elk, and the bison that may have given the Buffalo River its name. In all probability, the mountain lion and red wolf have also been eliminated from the region. The last reported kill of a mountain lion in Arkansas occurred in the Ouachita Mountains in 1949. Although lions are still reportedly sighted occasionally in the region, no authenticated observations have been recorded in recent years.

The status of the red wolf is also unclear. Although the animal apparently ranged throughout the northern Arkansas Ozarks in time past, it does not inhabit any of the Buffalo National River watershed today. The red wolf is currently classified as a threatened species by the U.S. Department of the Interior, Fish and Wildlife Service.

A number of other large mammals inhabit the Buffalo National River environs. Black bear transplanted from Minnesota and Manitoba in the early 1960's are now found in the Ozark National Forest and their numbers appear to be increasing. Several sightings of bear are now recorded each year along the Buffalo River.

White-tailed deer are increasing rapidly in the area, providing the principal big-game-hunting opportunity for the region. Coyotes are also common to abundant, having increased their numbers and extended their range with the clearing of the Ozark forested areas for farming. Other large mammals frequently observed on the Buffalo watershed are bobcats, grey foxes, and red foxes.

Aquatic fur-bearing mammals such as beaver, otter, mink, and muskrat are also found in varying numbers along the Buffalo. Beaver, once extirpated from the region, have been reintroduced from Minnesota. Their numbers have increased rapidly and colonies may be observed all along the Buffalo, especially along the lower half of the drainage. Otter are present but not common. Mink and muskrat are relatively common, but numbers fluctuate from year to year.

A variety of smaller mammals including raccoon, opossum, skunk, cottontail rabbit, and squirrel are common to abundant along the confluents of the Buffalo. Their numbers and distribution depend primarily on habitat conditions, degree of disturbance in the area, and time of year.

Birdlife within the Buffalo National River boundaries is extremely rich and diverse. Ornithologists have recorded over 250 species utilizing the variety of habitats that occur along the Buffalo watershed. Although a number of these species are only observable during spring and fall migrations, many frequent the region throughout the year.

The Buffalo River's principal game birds are wild turkey, ruffed grouse, bobwhite quail, and a variety of migratory waterfowl. The eastern wild turkey once occupied this region in great numbers, but was eliminated in the early 1920's. However, a reintroduction program in recent years has been extremely successful and the turkey population is increasing rapidly, offering a potential hunting resource in the future. Ruffed grouse were also extirpated from the area, but reintroduced.

Currently the grouse can be observed wherever suitable habitat exists. Bobwhite quail, Arkansas' most important game bird, is relatively abundant in the region, and can be observed along most of the Buffalo watershed. A number of species of waterfowl and shore birds also utilize the confluents of the Buffalo during spring and fall migration and are hunted heavily. Wood ducks are particularly abundant and often remain on the Buffalo year around.

A variety of other birds are also quite conspicuous along the Buffalo. Bald eagles, golden eagles, and ospreys often utilize the Buffalo watershed during their migrations. Occasionally observed are pileated woodpeckers, herons, kingfishers, turkey vultures, and road runners – just a few of the other interesting species that nest along the Buffalo.

The Buffalo National River, with an excellent smallmouth bass fishery, offers an outstanding fishing experience in addition to its fine canoeing resource. Although smallmouth bass are the primary game fish, rock bass, green sunfish, long-eared sunfish, catfish, redhorse, and suckers are common in the Buffalo and a few of its larger tributaries. Except for outflows near the larger springs, the river's waters are too warm for trout. Unusual fish species include the studfish, chestnut lamprey, darter, and gar. The Buffalo is now an isolated ecological unit protected from an invasion of warm water rough fish by the chilled water of the White River below Bull Shoals Dam.

Important in interpreting the Buffalo River ecosystems are animals that have retained narrow habitat requirements and thus provide the best clues to past conditions and occurrences; a number of species are listed below under appropriate headings:

**Ozark Plateau endemics:**

- Ringed salamander
- Many-ribbed salamander
- Grotto salamander
- Stippled darter
- Yoke darter
- Longnose darter
- Ozark shiner
- Wedgespot shiner
- Bluntface shiner
- Bleeding shiner

**Western animals at eastern extremities of their range:**

- Brush mouse
- Road runner
- Collared lizard

**Eastern animals showing disjunct Ozark ranges:**

- Queen snake
- Wood frog
- Zigzag salamander
- Streamline chub
- Small blindfish
- Northern studfish
- Greenside darter

**SOCIOECONOMIC ENVIRONMENT**

**The Region**

The four counties adjacent to the Buffalo River are rural and sparsely settled. The population has declined during the 1960-70 period in Newton (-2 percent) and Searcy (-4.8 percent) Counties. Tables 2 and 3 illustrate the population trends in the four counties and in the three counties most affected by the Buffalo National River, with comparisons to the State of Arkansas and the rural portions of the State, all derived from the 1970 Bureau of the Census data.

Population patterns of the Buffalo River area reflect the relative lack of economic opportunity and consequent migration to areas and occupations where there's a chance to improve income and living standards. The high median ages of the population in the four counties result from both outmigration of young persons from farms and small communities into larger communities and metropolitan areas, and the influx of retirement-age individuals attracted by the favorable regional cost-of-living, tax structure, and recreation resources.

**Table 2. Population for age group and sex, and median age presented by county: 1970.\***

Age Group	Population		
	Total	Male	Female
Baxter County			
All Ages	15,319	7,492	7,827
0-5	1,149	604	545
6-15	2,185	1,134	1,051
16-21	1,081	524	557
22-44	3,131	1,457	1,674
45-54	1,670	777	893
55-64	2,623	1,180	1,443
65 & over	3,480	1,816	1,664
Median Age	45.7	45.4	46.0

Age Group	Total	Male	Female
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Marion County

All Ages	7,000	3,433	3,567
0-5	544	287	257
6-15	1,122	581	541
16-21	506	260	246
22-44	1,441	673	768
45-54	892	430	462
55-64	1,112	530	582
65 & over	1,383	672	711
Median Age	43.4	42.5	44.3

Newton County

All Ages	5,844	2,965	2,879
0-5	550	279	271
6-15	1,154	589	565
16-21	557	302	255
22-44	1,384	676	708
45-54	713	353	360
55-64	733	368	365
65 & over	753	398	355
Median Age	32.4	31.5	33.2

Searcy County

All Ages	7,731	3,828	3,903
0-5	637	326	311
6-15	1,510	779	731
16-21	731	373	358
22-44	1,729	823	906
45-54	902	428	474
55-64	970	482	488
65 & over	1,252	617	635
Median Age	35.9	34.6	37.0

Arkansas

Median Age	29.1
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\*U.S. Department of Commerce, Bureau of the Census  
Industrial Research and Extension Center,  
University of Arkansas.

**Table 3. Population change by county, compared with State totals.**

County, or as Noted	Acres in National River	Percent of Total Lands	Population		Percent Change
			1960	1970	
Marion	26,000	7	6,041	7,000	15.9
Newton	43,610	8.25	5,963	5,844	-2.0
Searcy	24,530	5.75	8,124	7,731	-4.8
Baxter	1,590	.50	9,943	15,319	54.1
Marion, Newton & Searcy	94,140	7	20,128	20,575	2.2
State of Arkansas			1,786,000	1,923,000	7.7
Rural, State of Arkansas			962,000	1,021,000	5.7

The components of population change for the 1960-70 decade show net migration as the principal factor in losses or gains in the four involved counties. (See table 4.)

Projections by the U.S. Water Resources Council of regional economic activity for a 29-county water resource area in Arkansas and adjacent Missouri, including the four counties in which the Buffalo National River is situated, are presented in table 5.

Mountain Home, population 3,936, Baxter County, is the major urban area in the four-county area. Mountain Home and Harrison, population 7,239, Boone County, are major economic growth centers for the region. Population has increased steadily in these two cities since 1960. Population gains have primarily resulted from an increase in local manufacturing, promotion of the recreation industry, and establishment of the region as a destination for retirees.

#### **Potential Visitation**

The Ozark region is surrounded by more densely populated regions containing a number of large cities. More than 10 million people live within 250 airline miles of the Buffalo River, including residents of St. Louis, Kansas City, Topeka, Wichita, Tulsa, Oklahoma City, Shreveport, Little Rock, and Memphis. If the

radius is extended to 350 miles – a day’s driving distance from the Buffalo – the perimeter takes in Dallas and Fort Worth and approaches Baton Rouge, Birmingham, Omaha, and Des Moines. The Buffalo, with its mild climate and lengthy outdoor season, is thus within any easy day’s drive of nearly 15 million people. These large urban population concentrations are the potential visitors for whom the proposed national river’s contrast with city environments and its other attributes will be attractive.

**Table 4. Population change by county, 1960-70.**

	Births	Deaths	Natural Increase	Net Migration Number	Percent
Baxter	1,669	1,607	62	5,314	42.1
Marion	846	817	29	930	14.3
Newton	946	565	381	-500	-8.5
Searcy	1,262	969	293	-686	-8.7

**Table 5. U.S. Water Resources Council projections of economic activity in northern Arkansas and adjacent Missouri (29 counties).**

	1969	1980	2000	2020
Population, midyear	342,277	352,300	382,700	438,000
Per capita income (1967)	1,816	2,604	5,328	10,363
Per capita income, relative (U.S.=1.00)	.53	.55	.64	.73
Total employment	109,136	116,700	139,000	171,100
Employment/population ratio	.32	.33	.36	.39
Earnings per worker (1967\$)	3,962	5,724	10,790	19,711
Earnings per worker, relative (U.S.=1.00)	.58	.61	.68	.74

*The Economic Study of the Proposed Buffalo National River*, College of Business Administration, University of Arkansas, February 1968, states:

“Approximately 44 percent of all the visitors should be from other states, and it is estimated that they would spend 3.3 days in the near vicinity of the proposed National Area. It is estimated that in-State visitors will spend 1.7 days in the study area. From this information, it is believed that the average length of stay of the typical Buffalo National River visitor will be 2.38 days.”

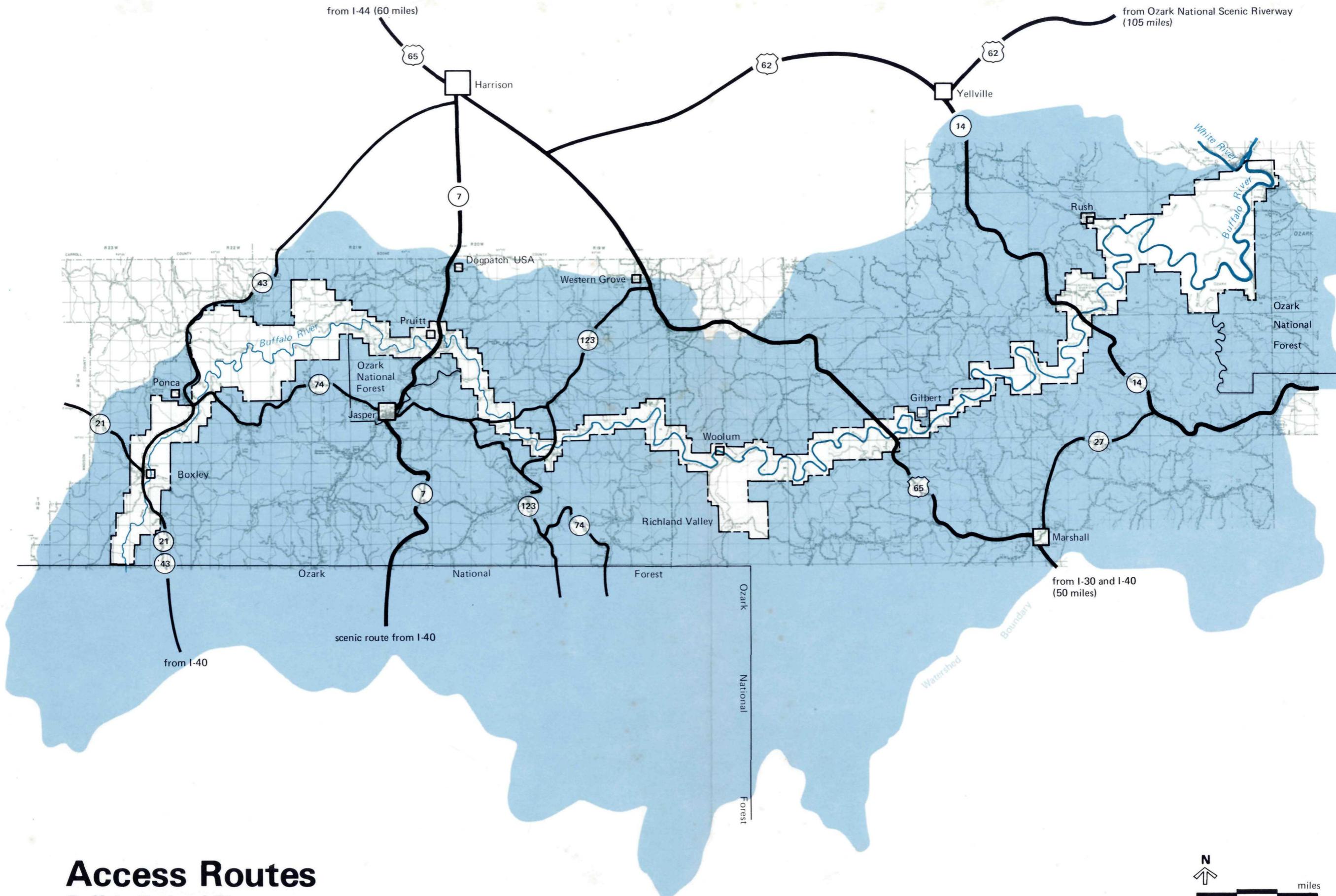
Generally, the primary access to the area is good, with major roads crossing the national river at a number of points. Lateral circulation within the area is difficult and, in some instances, impossible. (See access routes map.) The route of east-west Interstate 40 lies parallel to and some 70 miles south of the river. U.S. 62, a major route servicing resort and vacation areas across the northern Arkansas counties, lies 20 to 30 miles to the north. Arkansas highways 7, 14, and 21 and U.S. highway 65, the latter a major north-south artery, cross the Buffalo River valley to provide primary access. Several gravel-surfaced State routes and unsurfaced county roads afford limited circulation within the Buffalo River watershed, and lead to scattered access points on the river or to overlooks and tributary canyon rims. Local dirt roads lead to fords, camping and picnic sites, boat launching points, fishing waters, major scenic attractions, and natural features.

#### **Economic Factors That Influence or Are Influenced By the Buffalo National River**

Historically, the first settlers of the Ozarks were farmers who, over time, exceeded the carrying capacity of their land resource. Marginal fertility of the land, erosion resulting from ill-advised land uses, isolation from market areas, and high birth rates combined to act as limiting factors to economic growth and development. Table 6 illustrates the low income and employment structure of the four-county region.

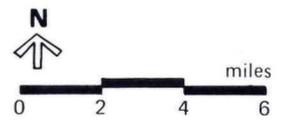
**Table 6. Income and employment statistics by county.**

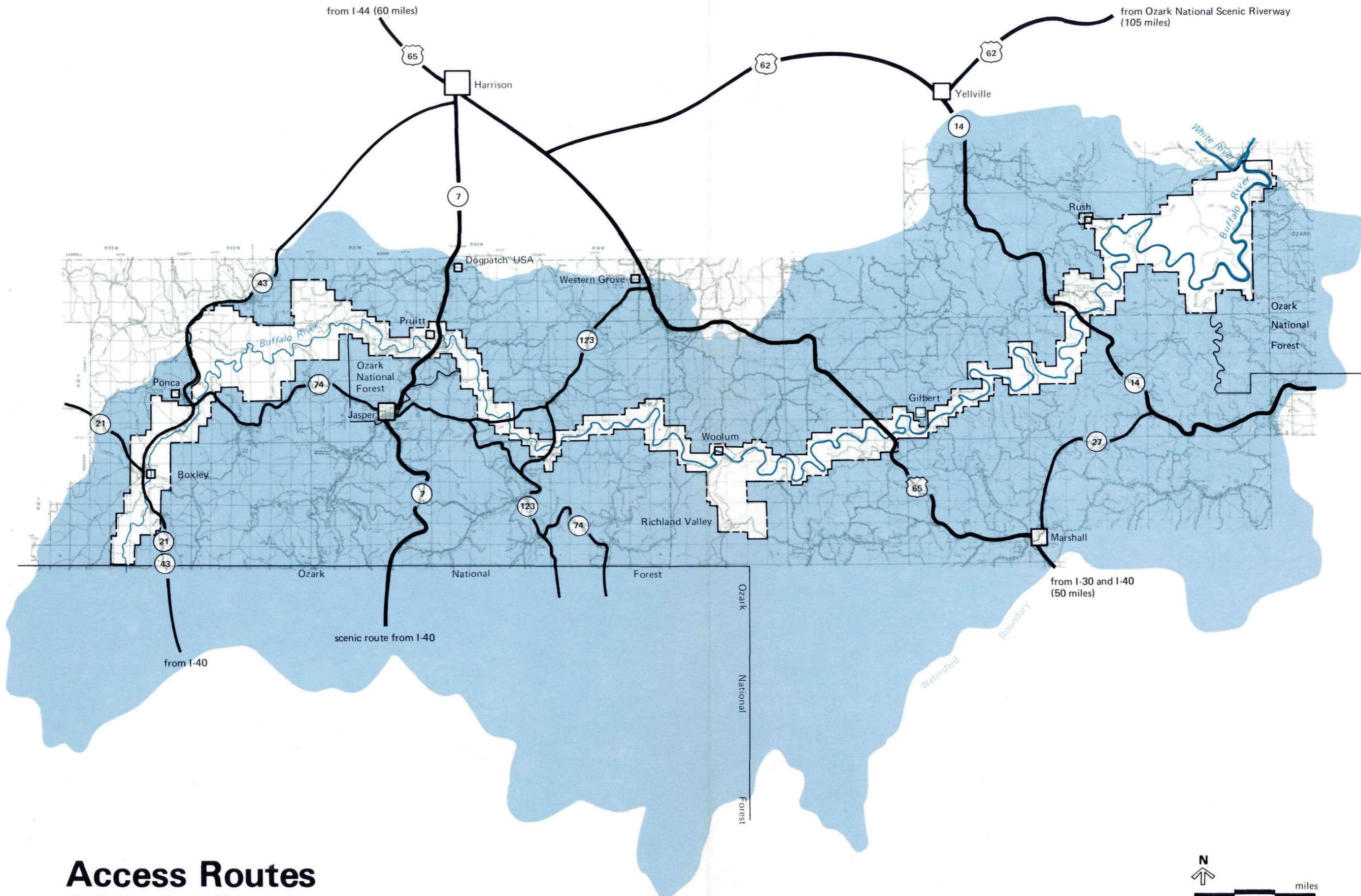
	Per capita personal income		Pct. change in total employment		Unemployment rate	
	1960	1970	Agri.	Nonagri.	1960	1970
Baxter	\$1,142	\$2,691	35.3	174.4	8.7	4.7
Marion	954	2,162	-38.1	70.6	8.3	9.0
Newton	610	1,649	-35.3	88.9	10.3	11.8
Searcy	868	2,033	-36.8	51.2	9.0	10.1



# Access Routes

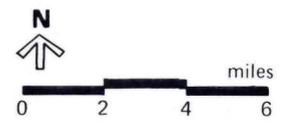
## Buffalo National River





# Access Routes

## Buffalo National River



Presently, the number of economic farm units has decreased through consolidation, and the size of the average farm is on the rise. Farmland is principally used for pasturage.

Marginal agricultural land in the area was often converted to timber production. The Buffalo River area follows the pattern of the State as a whole with respect to percentage of total land area forested. Hardwood sawtimber stock has been cut more rapidly than growing stock can reach maturity. A 54 percent decrease in the volume of logs and lumber processed was noted between 1961 and 1967. If allowed to persist, this condition will lead to an eventual loss of the hardwood resource base in the area. Even with excellent forestry and conservation practices, only a rather modest and gradual increase in the forest resource and employment based on it could reasonably be expected in the Buffalo River basin.

Within the boundary of Buffalo National River and immediately adjacent thereto, there are 59 overnight establishments with accommodations for 3,132 persons per day, according to a 1962 survey conducted by the Bureau of Business and Economic Research, University of Arkansas. The tourist business is one of Arkansas' major industries, with the lake and mountain areas of the northcentral portions of the State among those most heavily visited. Two constraints on more extensive recreational development in the Buffalo River region have been the lack of a full complement of facilities and restricted lateral access.

The 1968 University of Arkansas economic study estimated that all employment directly generated by recreation and tourism in the Buffalo River area amounted to about 8.5 percent of total 1965 employment in the area, or something over 1,400 persons. Translated into personal income, this means that recreation and tourism expenditures in 1965 were responsible for the creation of nearly \$9 million in personal income, of which \$5.3 million was direct income, and about \$3.7 million indirect income. Table 7 presents personal income payments by source for the State, the nine-county Northwest Arkansas Economic Development District, and the four-county Buffalo National River area. Tourist spending in 1970 was estimated at \$13 million.

Per capita income, type of employment, and unemployment rates for the 1960-70 period display an increase in the low income structure, a move out of agriculture, and substantial unemployment (tables 6, 8, and 9).

#### **State and Local Land-Use Plans That Affect or Are Affected By the Proposal**

Land-use planning is in an embryonic stage in the four counties adjacent to the Buffalo River. County planning boards in Baxter and Marion Counties will have completed land-use plans by June 1974 and June 1975 respectively. No such plans are presently being developed for Newton or Searcy Counties. Neither does the Northwest Arkansas Economic Development District anticipate development of a regional land-use plan in the near future. Comprehensive development plans

Table 7. Personal income payments produced (thousands of dollars) by major source: 1970.

Source	Arkansas	*NAEDD	Baxter	Marion	Newton	Searcy
Total	5,376,000	566,240				
Personal Income Payments			37,149	9,251	7,358	12,283
Wage and Salary	3,169,000	315,192	19,037	3,257	2,732	5,217
Farms	99,000	6,541	145	106	53	68
Mining and construction	34,000	1,101	53	30	0	0
Manufacturing	167,000	14,465	1,059	116	165	10
Whsle. and retail trade	962,000	103,820	6,946	462	116	1,972
Fin., ins., and real est.	511,000	48,981	2,323	418	218	661
Trans., comm., and util.	133,000	10,573	572	117	56	149
Services	250,000	24,339	1,158	353	2	64
Government	364,000	38,184	3,083	467	745	765
Federal	635,000	63,449	3,672	1,188	1,344	1,450
State and local	248,000	17,659	2,127	304	498	434
Other industries	387,000	45,790	1,545	884	846	1,016
Other Labor Income	16,000	3,739	26	0	33	78
	193,000	19,665	1,246	130	70	459

Table 7 (Cont.).

Source	Arkansas	*NAEDD	Baxter	Marion	Newton	Searcy
Proprietor's						
Income	757,000	91,948	3,313	1,304	1,682	2,010
Farm	376,000	50,821	738	764	832	1,005
Nonfarm	380,000	41,127	2,575	540	850	1,005
Property						
Income	692,000	71,083	4,547	1,198	669	1,250
Transfer						
Payments	743,000	86,312	10,116	3,556	2,385	3,656
Less Soc. Sec.						
Contri.	-178,000	-17,960	-1,110	-194	-180	-309

\*Northwest Arkansas Economic Development District (nine counties)

Source: Industrial Research and Extension Center, University of Arkansas:  
Arkansas Personal Income Handbook, 1972.

**Table 8. Manpower resources summary by county: 1970-71 Resident population 16 years of age or older.**

Place	Employed		Not in current work force		Not currently employed		Underemployed Underutilized		Currently employed	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Baxter	4,454	38.3	6,678	57.4	507	56.3	112	12.4	282	31.3
Marion	2,266	49.9	2,661	50.4	356	37.3	157	16.4	442	46.3
Newton	1,506	36.1	2,208	52.9	460	65.4	51	6.7	253	27.9
Searcy	5,562	39.0	2,970	53.4	422	66.0	118	18.5	99	15.5

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Source: Arkansas Employment Security Division, The Smaller Communities Program: Manpower Resources Reports for the nine counties.

**Table 9. Family income by income group; median family income.**

Place	Total No. of families	Under \$3000		3000-4999		5000-6999		7000-9999	
		No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Baxter	4,854	1,217	25.0	1,120	23.1	824	17.0	806	16.6
Marion	2,095	726	34.7	483	23.0	358	17.1	356	17.0
Newton	1,569	674	43.0	359	22.9	220	14.0	167	10.6
Searcy	2,226	715	32.1	642	28.8	383	17.2	242	10.9

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Place	Total No. of families	10,000-14,999		15,000 & Over		Median Family Income
		No.	Pct.	No.	Pct.	
Baxter	4,854	598	12.3	289	6.0	5,178
Marion	2,095	125	6.0	47	2.2	3,971
Newton	1,569	107	6.8	42	2.7	3,582
Searcy	2,226	153	6.9	91	4.1	4,103

Source: U.S. Department of Commerce, Bureau of the Census, Census of Population, 1970: General Social and Economic Characteristics.

exist for the communities of Pruitt and Jasper. These plans were both prepared by the Northwest Arkansas Economic Development District.

The Governor's Advisory Committee on Land Resource Management is presently identifying areas where land-use patterns are of critical concern, on a statewide basis. Ultimately, policies will be formulated that will provide direction for land resource management within the State of Arkansas. At the present time, however, the amount of time required to complete this task cannot be estimated with certainty.

## **HISTORIC AND ARCHEOLOGIC RESOURCES**

It is expected that a large number of archeological sites within the national river will disclose the story of some 9,000 years of Indian occupation. Two hundred and fifty-four archeological sites have been located to date, the majority of these by amateur archeologists. Site survey forms recording these sites are on file at the Arkansas Archeological Survey Station at Arkansas Polytechnic College in Russelville.

Several Civil War skirmishes occurred along the Buffalo, and lead and saltpeter works supplied Confederate forces before being destroyed by Union soldiers. The Buffalo also has many artifacts relating to an important theme in rural American life: settlement and eventual overpopulation of the land, depletion of resources, and the subsequent emigration of farm families to the cities.

The Arkansas Historic Preservation Officer has nominated Boxley Mill in Newton County to the National Register of Historic Places and the Historic Preservation Officer has expressed his intention to nominate the Clyde Brewer house as well. Fourteen other sites are being given further study and consideration for possible nomination in the near future. These include:

\* Villines cabin, springhouse, and shed, situated on the Lindsey H. Edwards, et al., property – Ponca Unit

Villines cabin, situated on the Nature Conservancy

Rufus Robertson houses

James W. Lane house and cabin

Harold Sherratt cabin

Hickman cabin

Boxley Community Center

Rush ghost mining town

Joe Wages cabin

Floyd Hawkinsmith cabin

C. E. Raines structures

Arvin Tinsley barns

\* William White structures – Ponca Unit

\* Charlotte Mahoney cabin – Ponca Unit

\*Structures and/or artifacts situated within the wilderness study areas.

In the Buffalo National River all but three of the known principal historic sites are situated outside the wilderness study areas, and thus will not be affected by the proposal.

Historical and archeological surveys are in progress or have been programmed to assure compliance with Executive Order 11593 of May 13, 1971. As survey-inventory work proceeds, additional cultural resources may be judged worthy of nomination to the national register. Pending the results of the surveys and the application of national register criteria and possible nomination and listing, interim protection will be provided to all properties that would seem to qualify. Also, when the data from the surveys become available and when the acquisition of land is far enough advanced to allow a comparative application of values to a representative range of cultural properties, specific determinations will be made not only to national register nominations but also to levels of preservation and proposed uses.

Pending formal nomination to and acceptance on the national register of selected properties now owned by the National Park Service, the Service has concluded a Joint Memorandum of Agreement with the Advisory Council, signed on December 4, 1973, to allow emergency stabilization of national register potential structures. (See appendix E.)

Any wilderness action that might affect national register properties is currently being reviewed by the Advisory Council on Historic Preservation and the State of Arkansas. Mutually agreeable practices will be formulated to avert or mitigate adverse effects. (See appendix F.)

**alternatives**

## INTRODUCTION

As a result of the wilderness study, seven alternatives have been developed. They are:

- Potential  
Wilderness
- 
1. Two units, conforming to land classification plan of the draft master plan.
  2. Units retaining primitive access roads, and addition of a third unit.
  3. Maximum in three units.
  4. Maximum Ponca and Upper Buffalo/Minimum Lower Buffalo.
  5. Ponca and Upper Buffalo/No Lower Buffalo.
  6. Instant wilderness with potential wilderness additions.
  7. No wilderness.

Alternatives 1 through 5 are all potential wilderness alternatives. The Wilderness Act states that only federally owned land may be designated as wilderness. The majority of the land in the three study areas is at this time held in non-Federal ownership and some of the lands within the study areas will be subject to use and occupancy. (See land status maps, Problem Statement section.) A minimum of 25 years will be required to extinguish all non-Federal rights and nonconforming uses. Around that time, all of the lands within the three study areas would qualify for wilderness designation.

Alternatives 1 through 5 provide for management as primitive areas by the National Park Service of the proposed potential wilderness units until all lands within the boundaries of the units are in complete Federal ownership, and all nonconforming uses have been eliminated. Therefore, if any of the alternatives 1 through 5 are selected, it would be with the provision that all of the lands within a particular unit would be designated as wilderness by Congress, effective upon publication in the *Federal Register* of a notice by the Secretary of the Interior that these lands are Federal property, and that all uses thereon prohibited by the Wilderness Act have ceased.

A discussion of the impacts of all the alternatives as to impacts on visitor-use and park development, impacts on natural and cultural resources of the park, and impacts on the socioeconomic environment of the park and the surrounding area is included in the discussion of each alternative.

The discussion of impacts for alternatives 1 through 5 is based on the effective date of wilderness designation, which would be approximately 25 years hence, therefore the term wilderness is used throughout the discussion of impacts.

The impacts of the various alternatives can be summarized as follows:

Wilderness designation would add a second layer of congressional protection for preservation of the resources within certain areas of the national river. The public would be assured that the lands so designated would continue to be managed by the National Park Service for wilderness use.

Wilderness designation would prohibit private and other public agencies from constructing roadways, powerlines, pipelines, and the like within any of the areas designated as wilderness unless otherwise authorized by Congress. Therefore, the lands within these areas would remain free of nonconforming park uses.

Some alternatives would provide for fewer public-use facilities and more wilderness, thereby decreasing the overall visitor capacity of the Buffalo National River. The reverse would be the case for other alternatives.

Wilderness designation by Congress may create a greater public interest in Buffalo National River, with a resulting increase in visitation. Eventually this may require limitations of visitor use equal to the carrying capacity of the wilderness land.

No wilderness (alternative 7) would allow the National Park Service to manage Buffalo National River as proposed in the draft master plan, with the flexibility to alter that management if conditions warrant it.

## **ALTERNATIVE 1: TWO POTENTIAL WILDERNESS UNITS – PONCA AND LOWER BUFFALO**

### **Description of the Alternative**

This alternative would conform to the draft master plan, Land Classification plan. All Class IV and V lands, with the exception of the Beauty Cave area (Class IV), would be included in the potential wilderness boundaries. (See alternative 1 map.) All Class II and III lands would be excluded. As a result, there would be two units of potential wilderness, the Ponca Unit (11,300 acres) and the Lower Buffalo Unit (15,600 acres).

All of the following references to existing developments to be retained and/or proposed developments are based on the draft master plan.

**Ponca Unit:** This unit of approximately 11,300 acres is generally primitive in nature with richly vegetated, rugged slopes; a 200-foot waterfall (Hemmed-in-Hollow); and scenic streams with interesting rapids and rock formations. The draft master plan proposes this area for primitive management (Class V) providing for hiking, camping, canoeing, horseback riding, and hunting. That portion of the Buffalo River flowing through the Ponca Unit would conform to traditional use. Motorized boats would not be allowed on the river in the Ponca Unit. This would not conflict with existing use patterns because the fluctuating water level precludes the use of motor-powered boats on the river throughout much of the year. Existing primitive roads within this unit would be converted and maintained for trail use.

The boundaries of the north, west, and south sides of the Ponca Unit would generally conform to the Buffalo National River park boundaries, with the following exceptions:

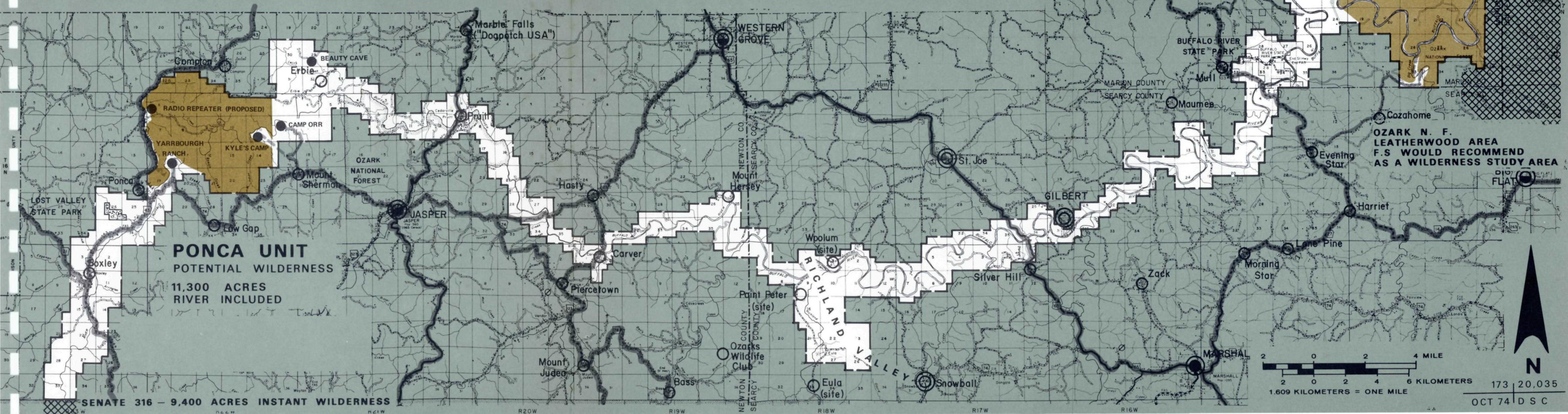
*Radio-Repeater Site* – The western boundary is drawn to exclude 1 acre along the boundary of the national river in the SE¼ sec. 1, T. 16N., R. 23W. to provide for a radio-repeater site that will be utilized by both the Park Service for management of the Buffalo National River and the telephone company serving the region.

*Ponca Bridge-Steel Creek Area* – The southwest boundary of the Ponca Unit is drawn to exclude existing and/or proposed developments south of the Buffalo River including an existing boat and canoe access at the Ponca bridge; a proposed day-use area (25-site) at Ponca bridge; and the existing buildings and facilities in the Steel Creek area. This area, as proposed by the draft master plan, will be

# BUFFALO NATIONAL RIVER WILDERNESS STUDY

# ALTERNATIVE 1

PROPOSAL CONFORMS TO MASTER PLAN - CLASS IV & V



developed into an environmental education center. The development would also provide shelter and trail access for hikers and canoeists.

The above-mentioned areas were excluded because the existing and/or proposed facilities situated there are inconsistent with wilderness designation.

The eastern boundary of the Ponca Unit would follow the north-south section line between secs. 2, 11, and 14, T. 16N., R. 22W.; and 1, 12, and 13, T. 16N., R. 22W. excluding Kyle's Landing, which is Class II land according to the draft master plan. Kyle's Landing is the first access and/or take-out point below Ponca after a full day's float. The site is also a trailhead for the Hemmed-in-Hollow area. A primitive camp with sanitary facilities for both the floater and hiker is proposed for this site. Existing structures will be utilized for group camps and environmental education, as well as shelter for trail users and canoeists.

Immediately east of Kyle's Landing is Camp Orr, an existing Boy Scout camp. The Camp Orr site is proposed as Class III land by the draft master plan and will be a private-use zone, subject to scenic controls and necessary rights-of-way for roads and trails, as long as water and air pollution do not increase.

**Lower Buffalo Unit:** The Lower Buffalo Unit of approximately 15,600 acres also exhibits wilderness qualities with rugged topography, rich and diverse hardwood forests, and clear, fast-flowing streams. Although the area was heavily logged in the past, it is recovering rapidly. This area is proposed for management by the draft master plan as primitive land (Class V). The Buffalo River would be excluded from potential wilderness in this alternative, allowing johnboat floaters continued use of light motors to navigate the river; the use of motor-powered vehicles is prohibited in wilderness. Throughout the Lower Buffalo Unit, the high-water mark of the river would form the potential wilderness boundaries along the Buffalo River.

Vehicular access to the area would be eliminated and, where feasible, primitive trail systems would utilize existing roadways.

The north, east, and south boundaries of the Lower Buffalo Unit would generally conform to the boundaries of the Buffalo National River with the following exceptions:

*River Access-South* – On the southern boundary of the Lower Buffalo Unit, the draft master plan proposes a put-in/take-out point for boaters using the Buffalo River. The proposed roadway will follow Big Creek, terminating at the Buffalo River. The road corridor and terminus at the river would be excluded from this potential wilderness unit.

*River Access-North* – The draft master plan also recognizes a potential alternate take-out point along the north boundary of the national river from Old Buffalo to the White River, where the Buffalo River enters the White. Presently, floaters put in upstream on the Buffalo River, often at Buffalo Point or Rush. When they reach the White River they have no convenient route back to their point of origin. They must either continue many miles down the White or maneuver across its swift water to Buffalo City on the opposite shore. Some use originates on the White River and moves up the Buffalo, using motor-powered boats.

As a result, the Lower Buffalo Unit boundary would be drawn to exclude this alternate 6-mile access roadway that would run from Old Buffalo to the river mouth of the Buffalo.

All of these areas were excluded because the existing and/or proposed facilities situated there are inconsistent with wilderness designation.

The western boundary of the Lower Buffalo Unit would generally follow the high-water mark of the east bank of the Buffalo River from sec. 7, T. 17N., R. 14W., southwest to sec. 24, T. 17N., R. 15W., then southeast – terminating at the park boundary in the center of sec. 19, T. 17N., R. 14W.

#### **Interrelationships With Other Projects**

The Leatherwood area of the Ozark National Forest, which abuts the eastern boundary of the Lower Buffalo Potential Wilderness Unit, would be recommended for a wilderness study area for possible inclusion into wilderness by the Forest Service. (See alternative 1 map.) If designated by Congress, a wilderness area comprised of both the Leatherwood and Lower Buffalo areas would not only create a larger wilderness unit, but would also offer legislative protection to a larger portion of the Buffalo River ecosystem and its watershed.

In summary, alternative 1 would include two potential wilderness units, the Ponca Unit and the Lower Buffalo Unit, totaling approximately 26,900 acres.

#### **Impacts of the Alternative**

Alternative 1 will not significantly alter present land-use patterns for Buffalo National River, for the areas involved are proposed by the draft master plan for management as Class IV (outstanding natural areas) and Class V (primitive areas) lands. *Nondevelopment* would be in order whether or not wilderness is designated by Congress.

The National Park Service can administratively reclassify lands at a later day, if necessary, to provide proper recognition and protection of park resources or to plan for future visitor use and enjoyment of the values of the area. This flexibility would no longer exist with congressional wilderness designation.

Wilderness designation would give the public congressional assurance that the lands so designated would be managed to preserve their wilderness character in compliance with the provisions of the Wilderness Act of 1964.

In general, management of designated areas within Buffalo National River as wilderness will result in the same impacts (listed below) that would occur if these areas were managed as Class IV and Class V lands under the National Park Service Land Classification System.

**Impacts on Visitor Use and Park Development:** Lands will be managed as wilderness. Hiking, horseback riding, backpacking, primitive camping, canoeing, hunting, fishing, and various passive types of use will be provided for or allowed. Extensive recreational development and permanent physical facilities would be prohibited from the designated areas. All motorized vehicles such as cars, four-wheel drives, dune buggies, trail bikes, and other off-road vehicles and/or equipment would also be prohibited except in emergencies involving the health and safety of the wilderness user. (See appendixes B and C.)

That portion of the public dependent upon mechanical transportation would not be able to utilize and enjoy these wilderness areas.

Floating of that portion of the river within wilderness would be by nonmotorized boat or canoe. Motor-powered boats would be prohibited on that section of the Buffalo River flowing through the Ponca Unit.

Access into designated wilderness by National Park Service personnel would be more arduous, time-consuming, and inconvenient. Administrative control and management of these areas would have to be accomplished without the use of motorized vehicles and equipment.

The National Park Service can presently issue special-use permits for certain private, county, State, and Federal projects like roadways, powerlines, and pipelines. These projects could possibly affect the lands within the Buffalo National River, even Class IV (outstanding natural areas) and Class V (primitive areas) lands. However, under wilderness designation nonconforming park uses, these projects would be prohibited within the designated areas unless otherwise authorized by Congress.

Research activities utilizing motorized vehicles and equipment and permanent structures will be somewhat inconvenienced because motorized equipment and tools and permanent structures are prohibited in wilderness. These research activities will have to be accomplished without these conveniences.

**Impacts on Natural and Cultural Resources of the Park:** Minor impacts on vegetation and wildlife proximal to the river and primitive trails and campsites – such as destruction of vegetation, disruption of wildlife, and erosion, siltation, and pollution of the river – will occur in the wilderness areas because of hiking, horseback riding, camping, canoeing, and hunting uses.

Historical and archeological sites, in accordance with Section 106, National Historical Preservation Act of 1966 (80 Stat. 915) and Executive Order 11593, will be provided the same special protection whether managed as Class IV (outstanding natural areas) and Class V (primitive areas) lands or as wilderness. Wilderness designation, however, will ensure that developments affecting any archeological or historical sites would not occur without congressional approval.

**Impacts on the Socioeconomic Environment of the Park and the Surrounding Area:** Designation of certain areas as wilderness may result in increased public interest to Buffalo National River and the resources contained within the park and the surrounding vicinity. This could result in at least a short-term increase in backcountry and river use, particularly in the spring and fall when the conditions for river use are at their best. Impacts on vegetation and gravel-bar ecology would occur if this visitor-use increase is realized.

Increased visitation could necessitate an increase in energy and money expenditures required for proper management to protect the natural and cultural resources of the park.

If the human carrying capacity of the wilderness areas is reached, management controls such as limiting the number of visitors may be necessary to minimize impacts on the natural and cultural resources, as well as to retain a wilderness experience for the visitor.

If realized, increased visitation deriving from the “wilderness label” to Buffalo National River may benefit the local and regional economy, because there could be an increased demand for gas, foods, camping and canoeing equipment, and supplies.

## **ALTERNATIVE 2: POTENTIAL WILDERNESS UNITS RETAINING PRIMITIVE ACCESS ROADS, AND ADDITION OF A THIRD UNIT**

### **Description of the Alternative**

This alternative would retain existing primitive roads for vehicular access in the Ponca and Lower Buffalo areas and add an Upper Buffalo Unit to potential wilderness (see alternative 2 map), resulting in three separate units of potential wilderness.



**Upper Buffalo Unit:** Although relatively small in size (approximately 2,200 acres) the Upper Buffalo area is generally primitive in nature, with extremely rugged topography and relatively little development. This area is proposed as Class III land (natural environment) in the draft master plan and will therefore be managed to maintain and/or restore the natural and historical scene.

Existing primitive roads within this unit would be converted to and maintained for trail use. That portion of the Buffalo River flowing through the Upper Buffalo Unit would be included in potential wilderness, thereby precluding the use of motor-powered boats.

The west, south, and east boundaries of the Upper Buffalo Unit would conform to the boundaries of the Buffalo National River.

The north boundary would be delineated by lands that are to remain in private ownership with scenic easement and by the county road that runs through secs. 21 and 22, T. 15N., R. 23W. All lands within the Buffalo National River south of the scenic easement lands and the county road would be included in the Upper Buffalo Unit. Scenic easement lands (see land status maps – Problem Statement) do not qualify for wilderness because full Federal ownership is not planned, and certain uses of these lands conflict with wilderness designation.

**Ponca Unit:** The boundaries of the Ponca Unit would generally be the same as described in alternative 1, with the following exceptions: The northeast corner of the Ponca Unit would be extended east to the major powerline crossing the Buffalo River in a north-south alignment, transecting secs. 1 and 12, T. 16N, R. 22W.; two primitive roadways totaling approximately 4 miles in length would be retained to provide vehicular access to trailheads, the river, and for hunting. These road access corridors would therefore not be included in potential wilderness.

The Buffalo River itself would be included in the Ponca Unit. The size of this unit would be approximately 11,000 acres.

**Lower Buffalo Unit:** The Lower Buffalo Unit boundaries for this alternative would generally conform to those described in alternative 1, with the following exceptions: a network of primitive roadways, totaling approximately 10 miles, would be retained to provide vehicular access to trailheads, the river, and for hunting. Therefore, as with the Ponca Unit, these road corridors would not be included in potential wilderness.

With retention of the primitive roadway along Cow Creek for vehicular access, the small 1,000-acre area immediately north of the creek would no longer be manageable as wilderness and would therefore not be included in the Lower Buffalo Unit.

That portion of the Buffalo River flowing through the Lower Buffalo area would not be included in potential wilderness. The high-water mark of the river forms the potential wilderness boundaries. This potential wilderness unit would encompass approximately 14,100 acres.

In summary, alternative 2 would include three separate potential wilderness units, the Upper Buffalo Unit, Ponca Unit, and Lower Buffalo Unit, totaling approximately 27,300 acres.

#### **Interrelationships With Other Projects**

The Eastern Wilderness Bill, as proposed by Senate Bill 316, would designate a 9,400-acre area of the Ozark National Forest, tentatively called Upper Buffalo Wilderness Area. It would abut the Upper Buffalo Unit on the south as wilderness (see alternative 2 map). This action would significantly benefit the Buffalo River – protecting the entire headwaters area of the river and preserving it as a clean, free-flowing stream for future generations.

The interrelationships between the Lower Buffalo Unit and the Leatherwood area of the Ozark National Forest would be the same as discussed in alternative 1.

#### **Impacts of the Alternative**

Alternative 2 for potential wilderness will result in the same general impacts as alternative 1 in respect to land-use management, visitor use, and development of park resources. However, alternative 2 does propose several changes from alternative 1:

The addition of a 2,200-acre tract of potential wilderness in the Upper Buffalo area.

An eastward addition of 300 acres to the northeast boundary of the Ponca Unit extending to an existing major powerline.

The retention of a number of primitive roads for public use; these will therefore not be included within the Ponca and Lower Buffalo Units.

These variations from alternative 1 would result in some additional impacts.

**Impacts on Visitor Use and Park Development:** The addition of a 300-acre tract to the Ponca Unit and the addition of a 2,200-acre unit in the Upper Buffalo area would not create any additional impacts on visitor use and park development, because the area would otherwise be managed as Class III (natural environment) lands according to the proposed master plan.

Facility development within Class III lands is limited to the minimum required for public enjoyment, health, safety, preservation, and protection of the area's features, such as one-way motor nature roads, small visitor-overlooks, informal picnic sites, short nature walks, and wilderness-type uses. Such facilities must be in complete harmony with the natural environment.

Although the master plan does not propose any facilities within these Class III lands at the present time, continued management of these areas as Class III lands would allow for development of facilities at a later date if necessary. Wilderness designation of these Class III lands would, however, preclude the option for future development of facilities without congressional approval.

Retention of two primitive roads in the Ponca area (totaling approximately 4 miles) and a network of primitive roads in the Lower Buffalo area (totaling about 10 miles) would provide the visitor with vehicular access into the backcountry areas, as well as to the Buffalo River.

Vehicular access could result in substantial increases in visitor use of the wilderness units, allowing a greater portion of the public to enjoy the resources of these areas by hunting, fishing, canoeing, camping, and hiking while expending less of their time and energy accomplishing these goals.

**Impacts on Natural and Cultural Resources of the Park:** Increased visitor use with vehicular access would inevitably result in increased trampling and destruction of vegetation, as well as increased disturbance of wildlife in the wilderness units.

Vehicular access with resultant increased visitor use could increase the potential for disruption and destruction of cultural artifacts and/or resources in the wilderness units.

Retention and utilization of primitive roads would result in minor amounts of erosion and siltation and substantially increase noise and air pollution within the wilderness units.

**Impacts on the Socioeconomic Environment of the Park and the Surrounding Area:** A significant increase in energy, funds, and equipment would be required by the National Park Service to properly manage the increase in visitor use and maintain the primitive road systems.

Retention and use of primitive roads will significantly reduce for some the quality of the wilderness and/or backcountry experience.

### ALTERNATIVE 3: MAXIMUM POTENTIAL WILDERNESS – THREE UNITS

#### **Description of the Alternative**

This alternative would provide for maximum potential wilderness in the Upper Buffalo, Ponca, and Lower Buffalo areas of the Buffalo National River. (See alternative 3 map.)

**Upper Buffalo Unit:** The boundaries for this unit would be the same as those defined in alternative 2. The Buffalo River would be included as potential wilderness in this unit. The size of the Upper Buffalo Unit would be approximately 2,200 acres.

**Ponca Unit:** The boundaries of the Ponca Unit would generally be the same as defined in alternative 1, with the following exceptions: the northeast corner of this unit would be extended to the powerline running north-south across the Buffalo River as defined in alternative 2; and the Kyle's Camp area and its associated vehicular corridor would be included in this unit. As a result, the southeast boundary of the Ponca Unit would extend out to include all of sec. 11, T. 16N., R. 22W.; the portion of sec. 12, T. 16N., R. 22W., north and west of the Buffalo River; and that portion of sec. 13, T. 16N., R. 22W. that lies within the boundaries of the Buffalo National River.

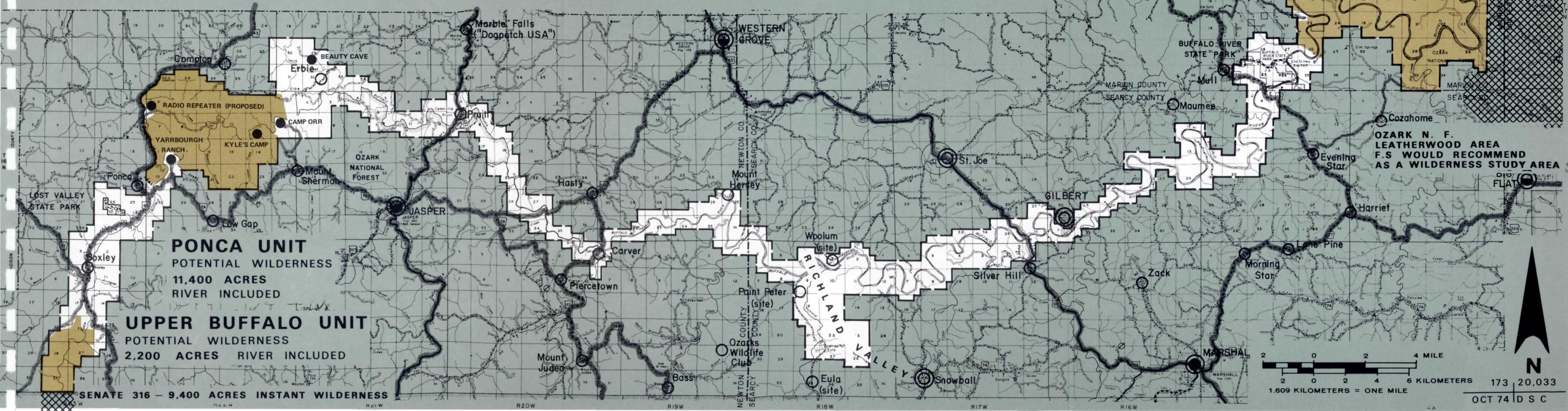
That section of the Buffalo River lying within the Ponca area would be included in potential wilderness. The total acreage for the Ponca Unit would be approximately 11,400.

**Lower Buffalo Unit:** The Lower Buffalo Unit would include all lands within the boundaries of the Buffalo National River from the town of Rush eastward, with the following exceptions: the town of Rush and its associated primitive access road to the Buffalo River would not be included. The draft master plan proposes that the mining ghost town of Rush be interpreted and protected as a significant historical resource of the park. The mouth of Rush Creek is important as a take-out point for an easy day's float from Buffalo Point and the starting point for a 2-day float to Mouth-of-Bufferalo. As a result, boat access (roadway corridor and launching site) and a primitive campsite would be provided. Therefore, this area is excluded from this unit. A small exclusion along the west boundary of the Buffalo National River in secs. 22 and 23, T. 17N., R. 15W., would be necessary to provide road access to private lands lying immediately outside the park boundary. That portion of the Buffalo River flowing through the Lower Buffalo area would be included in potential wilderness, thereby precluding use of motor-powered boats on the river. The total area in the Lower Buffalo Unit would be approximately 22,100 acres.

# BUFFALO NATIONAL RIVER WILDERNESS STUDY

## ALTERNATIVE 3

MAXIMUM



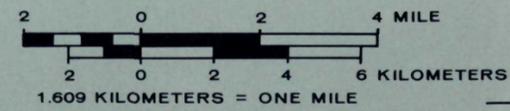
**LOWER BUFFALO UNIT**  
 POTENTIAL WILDERNESS  
 22,100 ACRES  
 RIVER INCLUDED

**PONCA UNIT**  
 POTENTIAL WILDERNESS  
 11,400 ACRES  
 RIVER INCLUDED

**UPPER BUFFALO UNIT**  
 POTENTIAL WILDERNESS  
 2,200 ACRES RIVER INCLUDED

**SENATE 316 — 9,400 ACRES INSTANT WILDERNESS**

OZARK N. F. LEATHERWOOD AREA  
 F.S. WOULD RECOMMEND  
 AS A WILDERNESS STUDY AREA



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In summary, alternative 3 would include three separate units of maximum potential wilderness, the Upper Buffalo, Ponca, and Lower Buffalo Units totaling approximately 35,700 acres.

#### **Interrelationships With Other Projects**

The interrelationships between the Upper Buffalo Unit of the Buffalo National River and the Upper Buffalo area of the Ozark National Forest would be the same as those discussed in alternative 2.

Interrelationships between the Lower Buffalo Unit and the Leatherwood area of the Ozark National Forest would be the same as those discussed in alternative 1.

#### **Impacts of the Alternative**

Impacts resulting from general land-use management, visitor use, and development of park resources will be similar to those discussed for alternative 1. However, alternative 3 does propose a number of significant additions to alternative 1:

That portion of the Buffalo River that flows through the Lower Buffalo Unit will be included in potential wilderness.

An addition of 100 acres of Class II (general outdoor recreation) lands (Kyle's Camp) to the Ponca wilderness unit.

The addition of 8,800 acres of Class II and Class III lands to the Lower Buffalo wilderness unit:

Big Creek access road (Class II lands).

Alternate road access from Old Buffalo to the White River (Class II lands), along with immediate surrounding lands (Class III).

Class III lands from the Rush area southeast to the Buffalo River.

These major additions to alternatives 1 and 2 would result in a number of additional impacts.

**Impacts on Visitor Use and Park Development:** Inclusion into wilderness of some Class III lands in the Lower Buffalo area would not create any additional impacts on visitor use and park development, because the area would otherwise be managed as "natural environment" according to the proposed master plan. (See Impacts on Visitor Use for alternative 2.)

Inclusion into wilderness of Kyle's Camp (Class II lands) would significantly limit the proposed developments of the camp. The master plan proposes to maintain Kyle's Camp as the first vehicular river access point below Ponca, as well as a

trailhead for the Hemmed-in-Hollow primitive area. Sanitation facilities would be provided, and existing structures acquired there are proposed to be utilized for group camps and environmental education. Permanent structures and facilities are not compatible with wilderness and therefore these proposed facilities would not be developed if the camp area is designated as wilderness. The existing road access would also be eliminated. Development would be limited to primitive trail access and a primitive campsite. As a result, public use of the area would be limited to hiking, primitive camping, canoeing, hunting, fishing, and other types of primitive use. That portion of the public that is dependent upon mechanical transportation would not be able to utilize and enjoy this area.

The proposed Big Creek access road (Class II lands) to the Buffalo River, as well as an alternate access road from Old Buffalo to the White River (Class II lands), are discussed in the master plan as potential put-in/take-out points for boaters and canoeists using the lower Buffalo River. These areas would be included in wilderness in alternative 3. Proposed vehicular accesses would be eliminated by alternative 3. As a result, access to the Lower Buffalo at these points would be limited to hiking trails. This action would significantly curtail access to the Buffalo River by the public, especially for those persons who normally utilize that portion of the river for canoeing, hunting, and fishing.

Inclusion of the Buffalo River in the lower wilderness unit will limit the use of that portion of the river to nonmotorized boats and canoes. This action would significantly affect that portion of the public that uses the Lower Buffalo for hunting, fishing, and camping, since it relies heavily on motor-powered boats for transportation upstream to fishable waters and good camping sites.

**Impacts on Natural and Cultural Resources of the Park:** Maximum wilderness for the three study areas lying within the Buffalo National River would give congressional assurance to the public that these areas would be protected and managed under the provisions of the Wilderness Act. This action would ensure that the natural and cultural resources within the Class II and III lands included in this alternative would be provided the added protection of wilderness designation.

Inclusion of some Class II and III lands in wilderness would eliminate motorized vehicles and permanent developments from these areas. Impacts on vegetation, wildlife, and cultural resources caused by construction of buildings, roads, parking areas, and so forth, and normal use of these facilities by the public would either be eliminated and/or significantly reduced.

Soil erosion with resultant siltation will be lessened with the elimination of motorized vehicles and facilities from these wilderness units. Noise and air pollution will also be reduced in these units.

Inclusion of the Buffalo River into wilderness in the Lower Buffalo Unit will limit the use of that portion of the river to nonmotorized boats and canoes. This will significantly reduce the impact of boating and camping on the riverine ecosystem (that is, roiling of the river bottom by motors, destruction of aquatic vegetation, and disturbance of wildlife that utilizes the river).

**Impacts on the Socioeconomic Environment of the Park and the Surrounding Area:**

Inclusion of Kyle's Camp in wilderness will result in the elimination of the road access proposed for retention by the master plan and the permanent facilities at the camp. This will cause some inconvenience of time and cost to river-users who normally utilize the Kyle's Camp as a take-out point after a 1-day's float from Ponca bridge. Use of the camp as a put-in point for float trips further down the Buffalo will also be eliminated, resulting in longer float trips.

Inclusion of the Big Creek access and the alternate access from Old Buffalo to the mouth of the White River into wilderness will also preclude their development for vehicular access, resulting in significant inconvenience to river-users on the Lower Buffalo. The only accessible put-in points will be at Buffalo Point and Rush Creek. Fishermen and canoeists will have no convenient take-out points on the Lower Buffalo River, but will have to travel on to the mouth of the Buffalo and upstream across the swift waters of the White River to Buffalo City.

Inclusion of the lower portion of the Buffalo River in wilderness will preclude the use of motorized boats on that portion of the river. This action would result in a significant inconvenience for that portion of the public that utilizes motorized boats to reach fishing-holes and campsites on the Lower Buffalo River, especially those people who normally put in at Buffalo City and motor upstream on the Buffalo to their destinations.

That portion of the public that requires motorized vehicles to travel would not be able to enjoy the fishing, hunting, and camping experiences offered by the Lower Buffalo. The remainder of campers and fishermen would be forced to put in at Buffalo Point or Rush Creek, float downstream to their fishing-holes and campsites, then continue down the Buffalo across the White River to Buffalo City to take-out.

**ALTERNATIVE 4: MAXIMUM PONCA AND UPPER BUFFALO POTENTIAL WILDERNESS/MINIMUM LOWER BUFFALO POTENTIAL WILDERNESS**

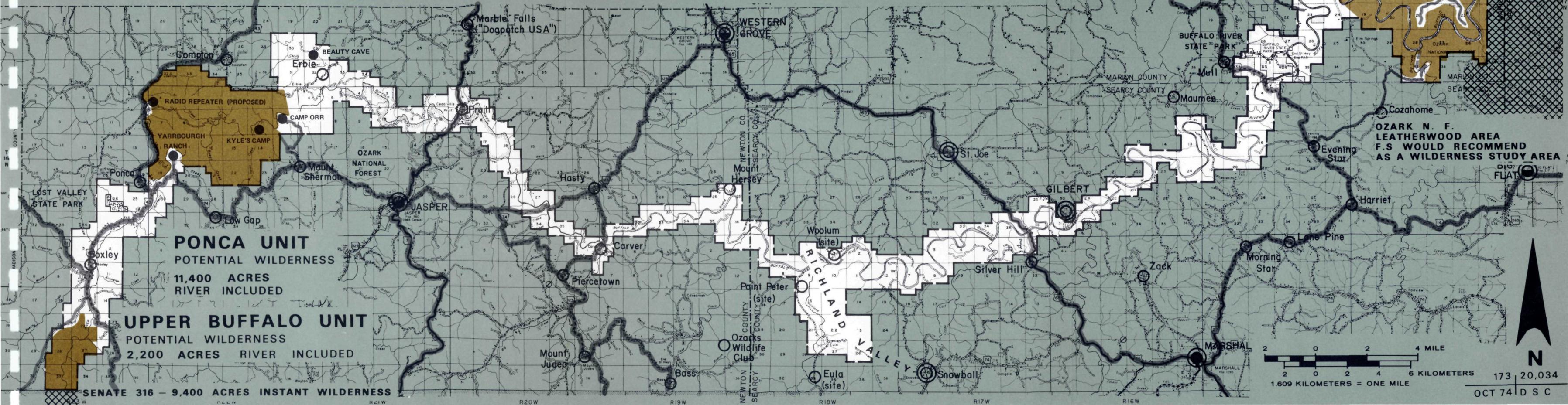
**Description of the Alternative**

This alternative proposes maximum potential wilderness for the Upper Buffalo and Ponca areas and minimum potential wilderness for the Lower Buffalo area. (See alternative 4 map.)

# BUFFALO NATIONAL RIVER WILDERNESS STUDY

## ALTERNATIVE 4

MAXIMUM PONCA & UPPER BUFFALO - MINIMUM LOWER BUFFALO



**Upper Buffalo Unit:** The potential wilderness boundaries for the Upper Buffalo Unit would be the same as those defined in alternatives 2 and 3. Again, that portion of the Buffalo River flowing through this area would be included in this potential wilderness unit. The Upper Buffalo Unit would be approximately 2,200 acres.

**Ponca Unit:** The potential wilderness boundaries for the Ponca Unit would be the same as described in alternative 3. That section of the Buffalo River running through this area would be included in the potential wilderness unit. The total acreage for the Ponca Unit would be approximately 11,400.

**Lower Buffalo Unit:** The potential wilderness boundaries for the Lower Buffalo Unit would be the same as described in alternative 2. That portion of the Buffalo River flowing through this area would not be included in potential wilderness to facilitate continued motorboat use as proposed by the draft master plan. The Lower Buffalo Unit would be approximately 14,100 acres.

In summary, alternative 4 would provide maximum potential wilderness for the Upper Buffalo area and Ponca area, and minimum potential wilderness for the Lower Buffalo area totaling 27,700 acres.

#### **Interrelationships With Other Projects**

The interrelationships between the Upper Buffalo Unit of the Buffalo National River and the Upper Buffalo area of the Ozark National Forest would be the same as that discussed in alternative 2.

The eastern boundary of the Lower Buffalo Unit would not be altered in this alternative. Therefore, the interrelationships between the Leatherwood area of the Ozark National Forest and the Lower Buffalo Unit would be the same as discussed in alternative 1.

#### **Impacts of the Alternative**

This alternative incorporates concepts from previously discussed alternatives 2 and 3, and impacts would be the same as stated in these alternatives:

Impacts of maximum wilderness in the Upper Buffalo area would be the same as discussed for this unit in alternative 2.

Impacts of maximum wilderness in the Ponca area would be the same as discussed for this unit in alternative 3.

Impacts of minimum wilderness in the Lower Buffalo area would be the same as discussed for this unit in alternative 2.

## **ALTERNATIVE 5: PONCA AND UPPER BUFFALO POTENTIAL WILDERNESS/NO LOWER BUFFALO POTENTIAL WILDERNESS**

### **Description of the Alternative**

This alternative proposes maximum potential wilderness for the Upper Buffalo and Ponca areas with no potential wilderness for the Lower Buffalo area. (See alternative 5 map.)

**Upper Buffalo Unit:** The potential wilderness boundaries for the Upper Buffalo Unit would be the same as described in alternatives 2, 3, and 4. That portion of the Buffalo River within this area would be included in potential wilderness. This unit would be approximately 2,200 acres.

**Ponca Unit:** The potential wilderness boundaries would be the same as described in alternatives 3 and 4, with the Buffalo River included in potential wilderness. The Ponca Unit would be approximately 11,400 acres.

In summary, alternative 5 would include two units of potential wilderness (the Upper Buffalo Unit and Ponca Unit), totaling 13,600 acres.

### **Interrelationships With Other Projects**

The interrelationship between the Upper Buffalo Unit of the Buffalo National River and the Upper Buffalo area of the Ozark National Forest would be the same as discussed in alternative 1.

### **Impacts of the Alternative**

Alternative 5 incorporates concepts of previously discussed alternatives 2 and 3 for the Upper Buffalo and Ponca Units and no wilderness for the Lower Buffalo Unit:

Impacts of maximum wilderness in the Upper Buffalo area would be the same as discussed for this unit in alternative 2.

Impacts of maximum wilderness in the Ponca area would be the same as discussed for this unit in alternative 3.

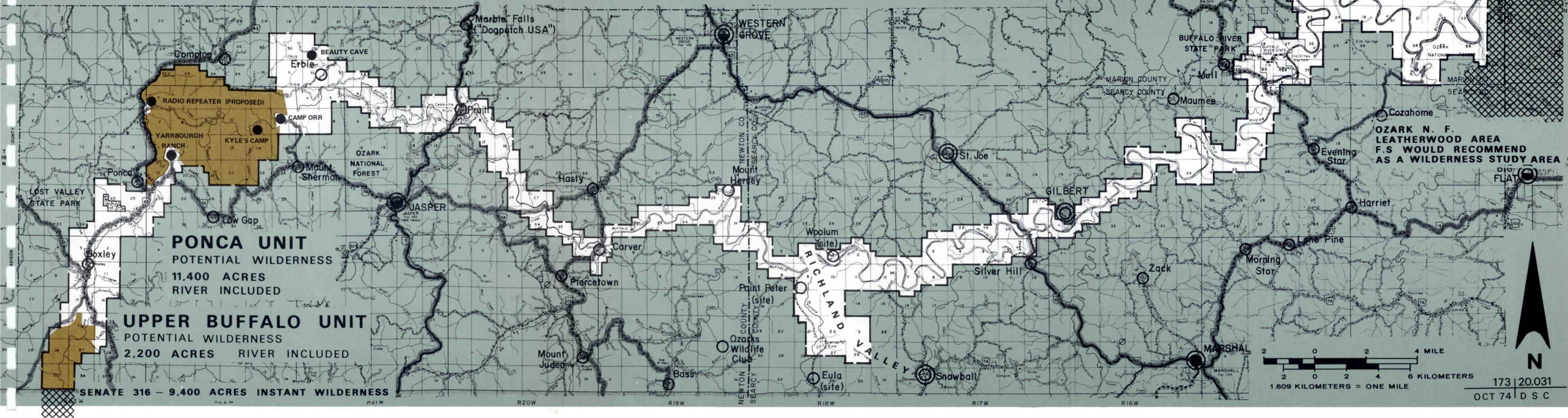
No wilderness in the Lower Buffalo area would result in the impacts outlined below.

**Impacts on Visitor Use and Park Development:** If no wilderness is designated by the Congress in the Lower Buffalo Unit, the National Park Service would manage these lands according to the land classification plan in the draft master plan. Management of the lands classed as IV (outstanding natural areas) and V (primitive areas) would be essentially the same as wilderness. However, the public would not have congressional assurance of continued wilderness management.

# BUFFALO NATIONAL RIVER WILDERNESS STUDY

## ALTERNATIVE 5

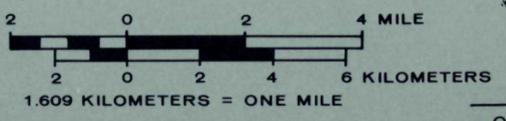
PONCA & UPPER BUFFALO - NO LOWER BUFFALO



**PONCA UNIT**  
 POTENTIAL WILDERNESS  
 11,400 ACRES  
 RIVER INCLUDED

**UPPER BUFFALO UNIT**  
 POTENTIAL WILDERNESS  
 2,200 ACRES RIVER INCLUDED

SENATE 316 - 9,400 ACRES INSTANT WILDERNESS



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Class III lands would be managed by the National Park Service as natural environment areas. The only facilities to be placed in these lands are the minimum required for public enjoyment, health, and safety; and preservation and protection of the features such as primitive roads, small visitor-overlooks, informal picnic sites, short nature trails, and primitive camping areas.

Class II (general outdoor recreation areas) lands, some of which are proposed as potential wilderness in alternatives 3 and 4, would be managed by the National Park Service as general outdoor recreation areas. These lands are reserved for such things as existing and proposed visitor accommodations, administrative facilities, formal campgrounds, and one-way roads of varying intensities.

Without wilderness designation the Lower Buffalo Unit could be affected by private and/or public agency projects such as highways, pipelines, and powerlines if approved by the National Park Service.

**Impacts on Natural and Cultural Resources of the Park:** Without wilderness designation, private and/or public agency projects such as roads, pipelines, and powerlines within the Buffalo National River could be approved in the future. National Park Service development plans could also be altered depending on future needs in the park. These demands and needs would result in a change in the land classification in the park that could affect both the natural and cultural resources of the area.

Construction of roadways and permanent facilities would result in some destruction of vegetation and disturbance of wildlife in the affected areas. Erosion and siltation, and noise and air pollution would also increase in these areas.

A change in the land classification of the park, with resultant construction and developments, would increase the probability of disturbance of the cultural resources of the park.

Increased facilities and roadways would result in an increase in visitor use of these areas, causing trampling and destruction of vegetation and disturbance of some wildlife.

An increase in visitor use in the developed areas could also result in overuse of portions of the Buffalo River. Heavy use by motorized boats would result in significant impacts on the riverine ecosystem including disturbance of aquatic vegetation, disruption of the fishery of the river – especially game-fish spawning beds, destruction and trampling of vegetation proximal to the river, and overall deterioration of the gravel bars presently utilized for campsites.

**Impacts on the Socioeconomic Environment of the Park and the Surrounding Area:** A change in the land classification resulting in development of permanent facilities and roadways would also result in a decrease in the esthetic quality of the park experience for those visitors seeking a wilderness experience.

Extreme increases in visitor use may necessitate some sort of controlled visitor use programs by the Park Service, ultimately denying some of the public use of the park resources, especially the Buffalo River itself.

## **ALTERNATIVE 6: INSTANT WILDERNESS WITH POTENTIAL WILDERNESS ADDITIONS**

### **Description of the Alternative**

This alternative would recommend to Congress that all of the Federal lands within the exterior boundaries of the proposed units (Upper Buffalo, Ponca, and Lower Buffalo Units) would be designated as wilderness, and that all of the non-Federal lands within the boundaries of these units would be proposed as potential wilderness additions. (See land status maps, Problem Statement section.) All of the potential wilderness lands would, within an estimated 25 years, qualify for wilderness. A special provision would be recommended in the legislative proposal giving the Secretary of the Interior the authority to designate these lands as wilderness at such time as he determines they qualify. The legislation designating wilderness within the Buffalo National River would have to recognize existing non-Federal rights for as long as they exist. These rights may conflict with wilderness, such as right of vehicle access to private lands and right of use and occupancy.

The minor difference between this alternative and alternatives 1 through 5 is that a congressional provision would be required recognizing non-Federal rights whereas alternatives 1 through 5 would provide that the National Park Service could administratively provide for non-Federal rights until their expiration and designation as wilderness.

Alternative 6 can be applied to any of the alternatives 1 through 5:

*Potential Wilderness* – Two units conforming to master plan – Class IV and V lands.

*Potential Wilderness* – Units retaining primitive access roads and an additional unit.

*Potential Wilderness* – Maximum in three units.

*Potential Wilderness* – Maximum Ponca and Upper Buffalo/Minimum Lower Buffalo.

*Potential Wilderness* – Ponca and Upper Buffalo/No Lower Buffalo.

### **Impacts of the Alternative**

The impacts of alternative 6 would be the same as outlined and discussed under each of the alternatives 1 through 5.

### **MITIGATING MEASURES – ALTERNATIVES 1 THROUGH 6**

Adverse impacts of alternatives 1 through 6 that can be mitigated:

Those people who seek vehicle-oriented recreation activities involving motor-powered boats, four-wheel-drive vehicles, trail bikes, and so forth will be informed of similar opportunities in other nonwilderness areas of Buffalo National River and/or in the vicinity like National Forest Service lands, State parks, and so on.

Increased use of wilderness areas will be permitted until the carrying capacity of the land is reached. Management will develop a system to maintain use within the carrying capacity, that is, a reservation system.

Some minor destruction of vegetation, disruption of wildlife, erosion of the land, and siltation and pollution of the water is to be expected as a result of wilderness use. This gradation over the short-term and long-term will be allowed to occur until the land and the water reach their ability to recover from this level of use.

Information provided for the visitor will attempt to educate him on how to use the wilderness, thereby reducing the need for patrol and maintenance of the wilderness areas and at the same time providing the visitor with a better wilderness experience.

Private and other public agency projects precluded from wilderness will have to be constructed on or through alternate areas.

Sites, structures, and objects of historic and archeological significance are being reviewed by professional historians and archeologists in order to comply with Section 106 of the National Historic Preservation Act of 1966 and with Executive Order 11593, "Protection and Enhancement of the Cultural Environment," dated May 15, 1971. An archeological overview study of the area will be made and, after professional evaluation of archeological resources, significant sites will be nominated to the National Register of Historic Places.

To ensure that Federal property is not transferred, sold, demolished, or substantially altered, none of the alternatives propose the transfer, sale, demolition, or substantial alteration of any sites with potential archeological or historical significance. However, in compliance with Section 2(b) of Executive Order 11593, the National Park Service will exercise caution until archeological and historical inventories and evaluations are completed.

#### **UNAVOIDABLE ADVERSE IMPACTS – ALTERNATIVES 1 THROUGH 6**

As a result of wilderness uses such as canoeing, fishing, hiking, horseback riding, backpacking, primitive camping, hunting, and various passive recreation uses some unavoidable adverse impacts may occur:

Minor destruction of vegetation proximal to trails and primitive campsites.

Limited disturbance of wildlife.

Minor siltation and pollution of the Buffalo River and its watershed.

#### **THE RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY – ALTERNATIVES 1 THROUGH 6**

Short-term economic gains might be realized by private development within Buffalo National River of visitor service facilities such as lodging and food service for recreationists visiting Buffalo National River. However, these gains would probably be offset by the loss of income to already existing visitor facilities situated in the vicinity of Buffalo National River.

The long-term wilderness designation will provide for greater enhancement, protection, and preservation of portions of the national river's natural and cultural resources.

#### **IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES – ALTERNATIVES 1 THROUGH 6**

Rather than allowing consumptive uses, wilderness, and also primitive management – Class V, will in fact ensure resource preservation. Wilderness inhibits development, and no change in the wilderness line can be accomplished

without congressional approval. This, in a sense, is a commitment of resources in that economic benefits derived from development are unavailable. But there are few inherent resources suitable for commercial development.

Wilderness designation preserves and perpetuates the resource, therefore at any time Congress determines that some other use of the resources within Buffalo National River would be in the best interest of the Country, it can provide for that use.

## **ALTERNATIVE 7: NO WILDERNESS**

### **Description of the Alternative**

This alternative proposes no wilderness or potential wilderness (no action) within the Buffalo National River.

Lands within the Upper Buffalo area would be managed by the National Park Service as Class III (natural environment) according to the land classification plan of the draft master plan.

Lands in the Ponca and Lower Buffalo areas would be managed by the National Park Service as primitive lands according to the land classification plan of the draft master plan (Class IV and V lands).

### **Impacts of the Alternative**

Impacts of this proposal would essentially be the same as those discussed for the no wilderness alternative on the Lower Buffalo Unit, alternative 5.

Management of the lands classed as IV (outstanding natural areas) and V (primitive areas) would be essentially the same as wilderness; however, the public would not have congressional assurance of this type of continued management by the National Park Service.

Lands classed as III would be managed by the National Park Service as natural environment areas. The only facilities that can be placed in these "natural environment" lands are the minimum required for public enjoyment, health, safety, preservation, and protection of the features such as one-way motor nature roads, small visitor-overlooks, informal picnic sites, short nature trails, and wilderness-type uses. Such limited facilities must be in complete harmony with the natural environment.

Class II lands would be managed by the National Park Service as general outdoor recreation areas. These lands are reserved for such things as existing

and proposed visitor accommodations, administrative facilities, formal campgrounds, and two-way roads.

Without wilderness designation, the Buffalo National River could be affected by private and/or public agency projects such as highways, pipelines, and powerlines if approved by the National Park Service. These actions could significantly impact the natural and cultural resources in the park without proper management and/or control.

At this time there are no existing or proposed projects that would affect any of the three wilderness study areas – Upper Buffalo, Ponca, and Lower Buffalo Units.

### **Mitigating Measures**

Some impacts of alternative 7 that are adverse can be mitigated, they are:

Those people who seek vehicle-oriented recreation activities such as motor-powered boating, four-wheel driving, and trail biking will be informed of similar opportunities in other nonprimitive (Class IV – Class V) areas of Buffalo National River and/or in the vicinity, like National Forest Service lands and State parks.

Increased use of primitive areas will be permitted until the carrying capacity of the land is reached. Management will develop a system to maintain use within the carrying capacity, that is, a reservation system.

Some minor destruction of vegetation, disruption of wildlife, erosion of land, and siltation and pollution of water is to be expected as a result of backcountry use. This destruction over the short-term and long-term will be allowed to occur until the land and the water reach their ability to recover from this level of use.

Information provided for the visitor will attempt to educate him on how to use the primitive lands, thereby reducing the need for patrol and maintenance of the primitive areas and at the same time providing the visitor with a better backcountry experience.

Sites, structures, and objects of historic and archeological significance are being reviewed by professional historians and archeologists in order to comply with Section 106 and with Executive Order 11593, "Protection and Enhancement of the Cultural Environment," dated May 15, 1971. An archeological overview study of the area is being made and after professional evaluation of archeological resources, significant sites will be nominated to the National Register of Historic Places.

To ensure that Federal property is not transferred, sold, demolished, or substantially altered, this alternative does not propose the transfer, sale, demolition, or substantial alteration of any sites with potential archeological or historical significance. However, in compliance with Section 2(b) of Executive Order 11593, the National Park Service will exercise caution until archeological and historical inventories and evaluations are completed.

#### **Unavoidable Adverse Impacts**

Because the area will be managed as Class V (primitive) land, backcountry uses such as canoeing, fishing, hiking, horseback riding, backpacking, primitive camping, hunting, and various passive recreational uses, some unavoidable impacts *may* occur:

Minor destruction of vegetation proximal to trails and primitive campsites.

Limited disturbance of wildlife.

Minor siltation and pollution of the Buffalo River and its watershed.

#### **Irreversible and Irretrievable Commitment of Resources**

Management as Class IV and V land will, rather than allowing consumptive uses, ensure resource preservation. Primitive management prohibits any large-scale development and no change in the Class V lands can be accomplished without the National Park Service holding a public meeting on the proposed change. This, in a sense, is a commitment of resources in that economic benefits derived from development are unavailable. But there are few inherent resources suitable for commercial development.

Management as primitive land preserves and perpetuates the resource; however, at any time the National Park Service through its normal planning procedures determines that some other use of the resource within Buffalo National River would be in the best interest of the public, the National Park Service could provide for that use.

#### **The Relationship Between Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity**

Short-term economic gains might be realized by private development within Buffalo National River of visitor service facilities such as lodging and food service for recreationists coming to Buffalo National River. However, these gains would probably be offset by the loss of income to already existing visitor facilities situated in the vicinity of Buffalo National River.

In the long-term, management as primitive land will provide greater enhancement, protection, and preservation of the national river's natural and cultural resources.

## **consultation and coordination**

During the process of preparing this environmental assessment, the National Park Service made some informal contacts with public agencies and organizations. They are:

Ozark National Forest Office in Russelville, Arkansas

Soil Conservation Service

Northwest Arkansas Economic Development District

Arkansas State Parks Department

Ozark Society

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# appendixes

APPENDIX A

Public Law 92-237  
92nd Congress, S. 7  
March 1, 1972

An Act

86 STAT. 44

To provide for the establishment of the Buffalo National River in the State of Arkansas, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled.* That for the purposes of conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations, the Secretary of the Interior (hereinafter referred to as the "Secretary") may establish and administer the Buffalo National River. The boundaries of the national river shall be as generally depicted on the drawing entitled "Proposed Buffalo National River" numbered NR-BUF-7103 and dated December 1967, which shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior. The Secretary is authorized to make minor revisions of the boundaries of the national river when necessary, after advising the Committees on Interior and Insular Affairs of the United States House of Representatives and the United States Senate in writing, but the total acreage within such boundaries shall not exceed ninety-five thousand seven hundred and thirty acres.

Buffalo National River, Ark. Establishment.

SEC. 2. (a) Within the boundaries of the Buffalo National River, the Secretary may acquire lands and waters or interests therein by donation, purchase or exchange, except that lands owned by the State of Arkansas or a political subdivision thereof may be acquired only by donation: *Provided*, That the Secretary may, with funds appropriated for development of the area, reimburse such State for its share of the cost of facilities developed on State park lands if such facilities were developed in a manner approved by the Secretary and if the development of such facilities commenced subsequent to the enactment of this Act: *Provided further*, That such reimbursement shall not exceed a total of \$375,000. When an individual tract of land is only partly within the boundaries of the national river, the Secretary may acquire all of the tract by any of the above methods in order to avoid the payment of severance costs. Land so acquired outside of the boundaries of the national river may be exchanged by the Secretary for non-Federal lands within the national river boundaries, and any portion of the land not utilized for such exchanges may be disposed of in accordance with the provisions of the Federal Property and Administrative Services Act of 1949 (63 Stat. 377; 40 U.S.C. 471 et seq.), as amended. With the concurrence of the agency having custody thereof, any Federal property within the boundaries of the national river may be transferred without consideration to the administrative jurisdiction of the Secretary for administration as part of the national river.

Lands and waters, acquisition.

(b) Except for property which the Secretary determines to be necessary for the purposes of administration, development, access or public use, an owner or owners (hereafter referred to as "owner") of any improved property which is used solely for noncommercial residential purposes on the date of its acquisition by the Secretary or any owner of lands used solely for agricultural purposes (including, but not limited to, grazing) may retain, as a condition of the acquisition of such property or lands, a right of use and occupancy of such property for such residential or agricultural purposes. The term of the right retained shall expire upon the death of the owner or the death of his spouse, whichever occurs later, or in lieu thereof, after a definite term which shall not exceed twenty-five years after the date of acquisition. The owner shall elect, at the time of conveyance, the term of the right

Retention rights.

reserved. The Secretary shall pay the owner the fair market value of the property on the date of such acquisition, less the fair market value of the term retained by the owner. Such right may, during its existence, be conveyed or transferred, but all rights of use and occupancy shall be subject to such terms and conditions as the Secretary deems appropriate to assure the use of such property in accordance with the purposes of this Act. Upon a determination that the property, or any portion thereof, has ceased to be used in accordance with such terms and conditions, the Secretary may terminate the right of use and occupancy by tendering to the holder of such right an amount equal to the fair market value, as of the date of the tender, of that portion of the right which remains unexpired on the date of termination.

"Improved property."

(c) As used in this section the term "improved property" means a detached year-round one-family dwelling which serves as the owner's permanent place of abode at the time of acquisition, and construction of which was begun before September 3, 1969, together with so much of the land on which the dwelling is situated, the said land being in the same ownership as the dwelling, as the Secretary shall designate to be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use.

Hunting and fishing, rules and regulations.

SEC. 3. The Secretary shall permit hunting and fishing on lands and waters under his jurisdiction within the boundaries of the Buffalo National River in accordance with applicable Federal and State laws, except that he may designate zones where and establish periods when, no hunting or fishing shall be permitted for reasons of public safety, administration, fish or wildlife management, or public use and enjoyment. Except in emergencies, any rules and regulations of the Secretary pursuant to this section shall be put into effect only after consultation with the Arkansas Fish and Game Commission.

Water resource projects, restriction.

SEC. 4. The Federal Power Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act (41 Stat. 1063), as amended (16 U.S.C. 791a et seq.), on or directly affecting the Buffalo National River and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river is established, as determined by the Secretary. Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above the Buffalo National River or on any stream tributary thereto which will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of approval of this Act. No department or agency of the United States shall recommend authorization of any water resources project that would have a direct and adverse effect on the values for which such river is established, as determined by the Secretary, nor shall such department or agency request appropriations to begin construction on any such project, whether heretofore or hereafter authorized, without, at least sixty days in advance, (i) advising the Secretary, in writing, of its intention so to do and (ii) reporting to the Committees on Interior and Insular Affairs of the United States House of Representatives and the United States Senate, respectively, the nature of the project involved and the manner in which such project would conflict with the purposes of this Act or would affect the national river and the values to be protected by it under this Act.

Administration.

SEC. 5. The Secretary shall administer, protect, and develop the Buffalo National River in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1 et seq.), as amended and supplemented; except that any other statutory authority available

to the Secretary for the conservation and management of natural resources may be utilized to the extent he finds such authority will further the purposes of this Act.

SEC. 6. Within three years from the date of enactment of this Act, the Secretary shall review the area within the boundaries of the national river and shall report to the President, in accordance with subsections 3(c) and 3(d) of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1132 (c) and (d)), his recommendation as to the suitability or non-suitability of any area within the national river for preservation as a wilderness, and any designation of any such area as a wilderness, shall be accomplished in accordance with said subsections of the Wilderness Act.

Area review;  
report to  
President.

SEC. 7. For the acquisition of lands and interests in lands, there are authorized to be appropriated not more than \$13,115,000. For development of the national river, there are authorized to be appropriated not more than \$283,000 in fiscal year 1974; \$2,923,000 in fiscal year 1975; \$3,643,000 in fiscal year 1976; \$1,262,000 in fiscal year 1977; and \$1,260,000 in fiscal year 1978. The sums appropriated each year shall remain available until expended.

Appropriation.

Approved March 1, 1972.

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LEGISLATIVE HISTORY:

HOUSE REPORT No. 92-807 accompanying H. R. 8382 (Comm. on Interior and Insular Affairs).

SENATE REPORT No. 92-130 (Comm. on Interior and Insular Affairs).

CONGRESSIONAL RECORD:

Vol. 117 (1971): May 21, considered and passed Senate.

Vol. 118 (1972): Feb. 7, considered and passed House, amended, in lieu of H. R. 8382.

Feb. 9, Senate concurred in House amendment.

## APPENDIX B

*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 untrammelled 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 the effective date of this Act 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 the effective date of this Act, 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 the enactment of this Act, review, as to its suitability or non-suitability for preservation as wilderness, each area in the national forests classified on the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "primitive" and report his findings to the President.

*Presidential 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 the enactment of this Act, not less than two-thirds within seven years after the enactment of this Act, and the remaining areas within ten years after the enactment of this Act.

*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 the effective date of this Act shall continue to be administered under the rules and regulations affecting such areas on the effective date of this Act 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 the effective date of this Act 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 the effective date of this Act and shall report to the President his recommendation as to the suitability or non-suitability of each such area or island for preservation as wilderness.

*Presidential 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 enactment of this Act, not less than two-thirds within seven years of enactment of this Act, and the remainder within ten years of enactment of this Act.

*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 other-

wise, 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.

(2) 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 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).

(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, Eightieth Congress, June 22, 1948; 62 Stat. 568), and the Humphrey-Thye-Blatnik-Andresen 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 the Act of August 25, 1916, 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 Geological Survey and the 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 same extent as applicable prior to the effective date of this Act, 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 the 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 the effective date of this Act 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, 1984, 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.* (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 the effective date of this Act, 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 employed 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 become 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) 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.

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**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.

Vol. 110 (1964): July 28, considered in House.

July 30, considered and passed House, amended, in lieu of H. R. 9070.

August 20, House and Senate agreed to conference report.

## APPENDIX C

### DEPARTMENTAL GUIDELINES FOR WILDERNESS PROPOSALS

United States Department of the Interior

Office of the Secretary  
Washington, D.C. 20240

June 24, 1972

#### Memorandum

To: Director, Bureau of Sport Fisheries  
and Wildlife  
  
Director, National Park Service

From: Assistant Secretary for Fish and Wildlife  
and Parks

Subject: Guidelines for Wilderness Proposals – Reference  
Secretarial Order No. 2920

In the course of developing wilderness proposals we should strive to give the areas under study wilderness designation but not at the expense of losing the essential management prerogatives that are necessary to fulfill the purposes for which the areas were originally intended. Although each area under study must be considered separately, with special attention given to its unique characters, the following criteria should be adhered to when determining the suitability of an area for wilderness designation.

#### Management

An area should not be excluded from wilderness designation solely because established or proposed management practices require the use of tools, equipment or structures, if these practices are necessary for the health and safety of wilderness travelers, or the protection of the wilderness area. The manager should use the *minimum* tool, equipment or structure necessary to successfully, safely and economically accomplish the objective. When establishing the minimum tool

and equipment necessary for a management need within wilderness areas economic factors should be considered the least important of the three criteria. The chosen tool or equipment should be the one that least degrades wilderness values temporarily or permanently.

For the purpose of this paragraph, accepted tools, equipment, structures and practices may include but are not limited to: fire towers, patrol cabins, pit toilets, temporary roads, spraying equipment, hand tools, fire-fighting equipment caches, fencing and controlled burning. In special or emergency cases involving the health and safety of wilderness users or the protection of wilderness values aircraft, motorboats and motorized vehicles may be used. Enclaves, buffer zones, etc., should not be established if the desired management practices are permitted under these guidelines.

### **Visitor Use Structures and Facilities**

An area that contains man-made facilities for visitor use can be designated as wilderness if these facilities are the minimum necessary for the health and safety of the wilderness traveler or the protection of wilderness resources. An example of a wilderness campsite that could be included is one having a pit toilet and fire rings made of natural materials and tent sites. A hand-operated water pump may be allowed. This kind of campsite would not be considered a permanent installation and could be removed or relocated as management needs dictate. Facilities that exceed the "minimum necessary" criteria will be removed and the area restored to its natural state. (See section on Exceptions.)

Areas containing campsites that require, for the protection of the adjacent wilderness values, facilities more elaborate than those allowed in a wilderness campsite should be excluded from wilderness designation.

### **Prior Rights and Privileges and Limited Commercial Services**

Lands need not be excluded from wilderness designation solely because of prior rights or privileges such as grazing and stock driveways or certain limited commercial services that are proper for realizing the recreational or other wilderness purposes of the areas.

### **Road and Utilities – Structures and Installations**

Areas that otherwise qualify for wilderness will not be excluded because they contain unimproved roads, created by vehicles repeatedly

traveling over the same course, structures, installations or utility lines, which can and would be removed upon designation as wilderness.

### **Research**

Areas that otherwise qualify need not be excluded from wilderness designation because the area is being used as a site for research unless that use necessitates permanent structures or facilities in addition to those needed for management purposes.

### **Future Development**

Those areas which presently qualify for wilderness designation but will be needed at some future date for specific purposes consistent with the purpose for which the National Park or National Wildlife Refuge was originally created, and fully described in an approved conceptual plan, should not be proposed for wilderness designation if they are not consistent with the above guidelines.

### **Exceptions**

Certain areas being studied may contain structures such as small boat docks, water guzzlers and primitive shelters that ought to be retained but may not qualify as minimum structures necessary for the health and safety of wilderness users or the protection of the wilderness values of the area. When an area under study for wilderness designation would otherwise qualify as wilderness a specific provision may be included in the proposed legislation for this area, giving the wilderness manager the option of retaining and maintaining these structures. Necessary management practices such as controlled burning shall also be mentioned specifically in the proposed legislation.

Areas being considered for wilderness designation will not be excluded solely because they contain hydrologic devices that are necessary for the monitoring of water resources outside of the wilderness area. When these devices, either mechanical or electronic, are found to be necessary, a specific provision allowing their use will be included in the legislation proposing the wilderness area being considered. For the installation, servicing and monitoring of these devices the minimum tools and equipment necessary to safely and successfully accomplish the job will be used.

Areas being studied for wilderness designation will not be excluded solely because they contain lakes created by water development projects if these lakes are maintained at a relatively stable level and the shoreline has a natural appearance. Where this occurs and there is no other reason for excluding the area, a specific provision describing the water development project and its operation will be included in the proposed legislation along with the recommendation for including it in the wilderness area. Other minimal development of water resources may be suggested for inclusion in wilderness if specific reference is made to them in the proposed legislation. These provisions will allow present maintenance practices to continue.

Areas that contain underground utilities such as gas pipelines and transmission lines will not be excluded from wilderness designation solely for this reason. Where this occurs the areas may be included by making specific mention of them in the proposed legislation indicating that this use would continue and previously established maintenance practices would be allowed to continue.

When non-qualifying lands are surrounded by or adjacent to an area proposed for wilderness designation and such lands will within a determinable time qualify and be available Federal land, a special provision should be included in the legislative proposal giving the Secretary of the Interior the authority to designate such lands as wilderness at such time he determines it qualifies.

A handwritten signature in black ink, reading "Nathaniel P. Reed". The signature is written in a cursive style with a large initial 'N' and a long, sweeping tail.

Nathaniel P. Reed

## APPENDIX D

Preliminary Reconnaissance Water Quality Survey of the Buffalo National River.  
Water Resources Research Center, University of Arkansas, 1973-1974.

### PHYSICAL PARAMETERS

Principal Investigator: Dr. D. G. Parker

Three, two day, sampling trips were taken in 1973 and four trips were taken in 1974 in order to collect information on water quality. The dates of these trips were May 22-23, June 10-11, and June 24-25, 1973; and May 21-22, June 4, June 17-18, and August 14-15, 1974.

During each trip eight or nine sampling stations were surveyed. The location of each sampling station is shown on the map, Figure 1. The following is a brief description of the locations of each station:

Station 1: Boxley – located immediately downstream from Highway 21 bridge.

Station 1A: Ponca – located near the Ponca bridge.

Station 2: Shaddox – located downstream from the confluence with Mill Creek at Shaddox Cemetery.

Station 3: Jasper – located on the Little Buffalo River at Highway 7 bridge.

Station 4: Hasteley – located at the low water bridge upstream from Highway 123 bridge.

Station 5: Gilbert — located at the Gilbert landing.

Station 6: Highway 14 — located just downstream from Highway 14 bridge.

Station 7: State Park — located in Buffalo River State Park in camping area above sewage effluent.

Station 8: Rush — located downstream from influent of Clabber Creek.

#### **Water Quality Data:**

Tables 1, 2, and 3 list the pertinent water quality information obtained during the 1973 study period. The following is a brief description of each parameter:

Flow — Streamflow was determined at stations 2 and 3 to establish the relative quantity of flow in the Little Buffalo. It appears that the flow in the Little Buffalo makes up approximately 29% of the total flow in the Buffalo River below the confluence. This indicates that any water quality problem in the Little Buffalo could have a significant effect on water quality in the Buffalo.

Temperature — The temperature of the water in the river increased slightly from May through June and is generally cooler upstream than downstream.

Dissolved Oxygen — The dissolved oxygen concentration in the river was consistently above 7.2 mg/l which is sufficient to support a healthy aquatic environment.

pH — The pH varied from 7.0 to 7.9; however, no trend is readily apparent.

Color and Turbidity — The color and turbidity of the river water were generally low; however, it was observed during the first sampling trip that both parameters can be significantly affected by rain water runoff.

Nitrate — Variation in nitrate nitrogen are shown in Tables 2 and 3. The concentrations appear to be largest in the downstream stations. This increase could possibly be the result of increased input of agricultural runoff and domestic waste discharges into the river.

Orthophosphate — Variations in orthophosphate are shown in Tables 2 and 3. The concentrations of orthophosphates were determined under field conditions and were too low to be measured accurately by the techniques used. However, later measurements indicate that concentrations of less than 0.1 mg/l  $\text{PO}_4\text{-P}$  are typical for the river.

Alkalinity — Alkalinity is primarily a measure of the bicarbonate concentration in the water. The alkalinity in the Buffalo River increases in the downstream direction. This increase is probably the result of changing geological conditions as the river drops in elevation.

Hardness — Hardness is a measure of the concentration of divalent metal ions, principally calcium and magnesium. The hardness in the river is similar to the alkalinity and is probably influenced by the same factors that influence alkalinity in this system.

Chlorides — The chloride concentration was low at all stations on the river.

Conductivity — The conductivity of water is primarily influenced by the concentration of dissolved solids in the water. The conductivity of the river increased in the downstream direction and indicates an increase in the dissolved solids concentrations in the lower portion of the river.

Suspended Solids — Suspended solids concentrations in the river are relatively low (< 11 mg/l) except for stations 2, 4, and 5 on May 22-23. This increase was a result of heavy rains which started during May 22.

Total Solids — Total solids increase downstream which is a result of the increase in dissolved solids.

Coliform Organisms — Coliform organisms are indicators of possible fecal contamination in water. The United States Public Health Service sets a limit of one coliform per 100 ml of water as a safe level for drinking water. Table 4 shows the variation in total coliforms in the river. Stations 3 and 4 at Jasper and Hasty, Arkansas consistently showed high concentrations of organisms and samples collected in Mill Creek above station 2 also showed high coliform counts. The actual sources of this contamination could only be determined by further investigation but there is sufficient evidence to recommend that the Buffalo River water not be used as a source of untreated drinking water.

Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) — The BOD and COD tests were conducted and it was found that the values of these parameters were too low to be significant.

Total Organic Carbon (TOC) — The TOC is a measure of the organic matter in the water and is often related to BOD and COD. It was found that all samples were quite small (< 6.0 mg/l) which indicates that the river water contains only a very small quantity of oxygen demanding material.

**WATER QUALITY ANALYSIS**  
**BUFFALO NATIONAL RIVER, ARKANSAS**  
**Date Sampled: May 22-23, 1973**

**TABLE 1**

Parameter	Rush 8	St. Park 7	Hwy 14 6	Gilbert 5	Hasty 4	Jasper 3	Shaddox 2	Boxley 1
Flow (cfs)	—	—	—	—	—	—	—	—
Temperature (°C)	20	20	20	19	17.5	17	17	17
Dissolved Oxygen (mg/1)	—	—	—	—	—	—	—	—
pH	7.5	7.5	7.5	7.6	7.4	7.6	7.5	7.1
Color (Units)								
Turbidity (JTU)								
Nitrate (mg/1 as N)			EQUIPMENT FAILURE					
Orthophosphate (mg/1 as PO <sub>4</sub> )								
Alkalinity (mg/1 as CaCO <sub>3</sub> )	140	120	120	110	70	80	70	25
Hardness (mg/1 as CaCO <sub>3</sub> )	—	—	—	—	—	—	—	—
Chlorides (mg/1)	—	—	—	—	—	—	—	—
Conductivity ( μ Mhos)	—	—	220	200	120	760	140	40
Suspended Solids (mg/1)	2.6	3.0	6.0	20.6	39.6	7.4	23.2	10.6
Total Solids (mg/1)	—	—	144	168	176	104	152	64
Coliforms, Total (Coli/100 ml)	0	0	130	0	5,500	5,000	300	30
Coliforms, Fecal (Coli/100 ml)	0	0	50	0	1,500	670	150	0
Total Organic Carbon (mg/1)	2.1	2.1	2.9	1.9	5.6	—	5.7	3.3

WATER QUALITY ANALYSIS

BUFFALO NATIONAL RIVER, ARKANSAS

Date Sampled: June 10-11, 1973

TABLE 2

Parameter	Rush 8	St. Park 7	Hwy 14 6	Gilbert 5	Hasty 4	Jasper 3	Shaddox 2	Boxley 1
Flow (cfs)	—	—	—	—	—	—	—	—
Temperature (°C)	22	23	23	22.5	22	19	21	22
Dissolved Oxygen (mg/1)	8.0	8.5	9.0	9.0	75	8.0	10	7.3
pH	7.6	7.6	7.8	7.7	7.5	7.5	7.6	7.5
Color (Units)	5	10	0	0	0	0	20	10
Turbidity (JTU)	5	0	0	0	0	0	5	5
Nitrate (mg/1 as N)	0.60	0.20	0.45	0.12	0.09	0.18	0.26	0.08
Orthophosphate (mg/1 as PO <sub>4</sub> )	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity (mg/1 as CaCO <sub>3</sub> )	112	102	100	95	86	78	91	33
Hardness (mg/1 as CaCO <sub>3</sub> )	—	—	—	—	—	—	—	—
Chlorides (mg/1)	2.8	2.8	2.8	2.8	2.8	4.2	2.8	2.8
Conductivity (μ Mhos)	160	140	140	140	130	120	140	50
Suspended Solids (mg/1)	8	11	9	16	5	5	5	5
Total Solids (mg/1)	67	75	67	63	75	72	80	16
Coliform, Total (Coli/100 ml)	220	100	27	200	330	1,700	700	130
Coliform, Fecal (Coli/100 ml)	34	50	10	50	140	190	23	30
Total Organic Carbon (mg/1)	3.2	5.0	3.5	2.7	4.2	3.2	2.6	2.9

WATER QUALITY ANALYSIS

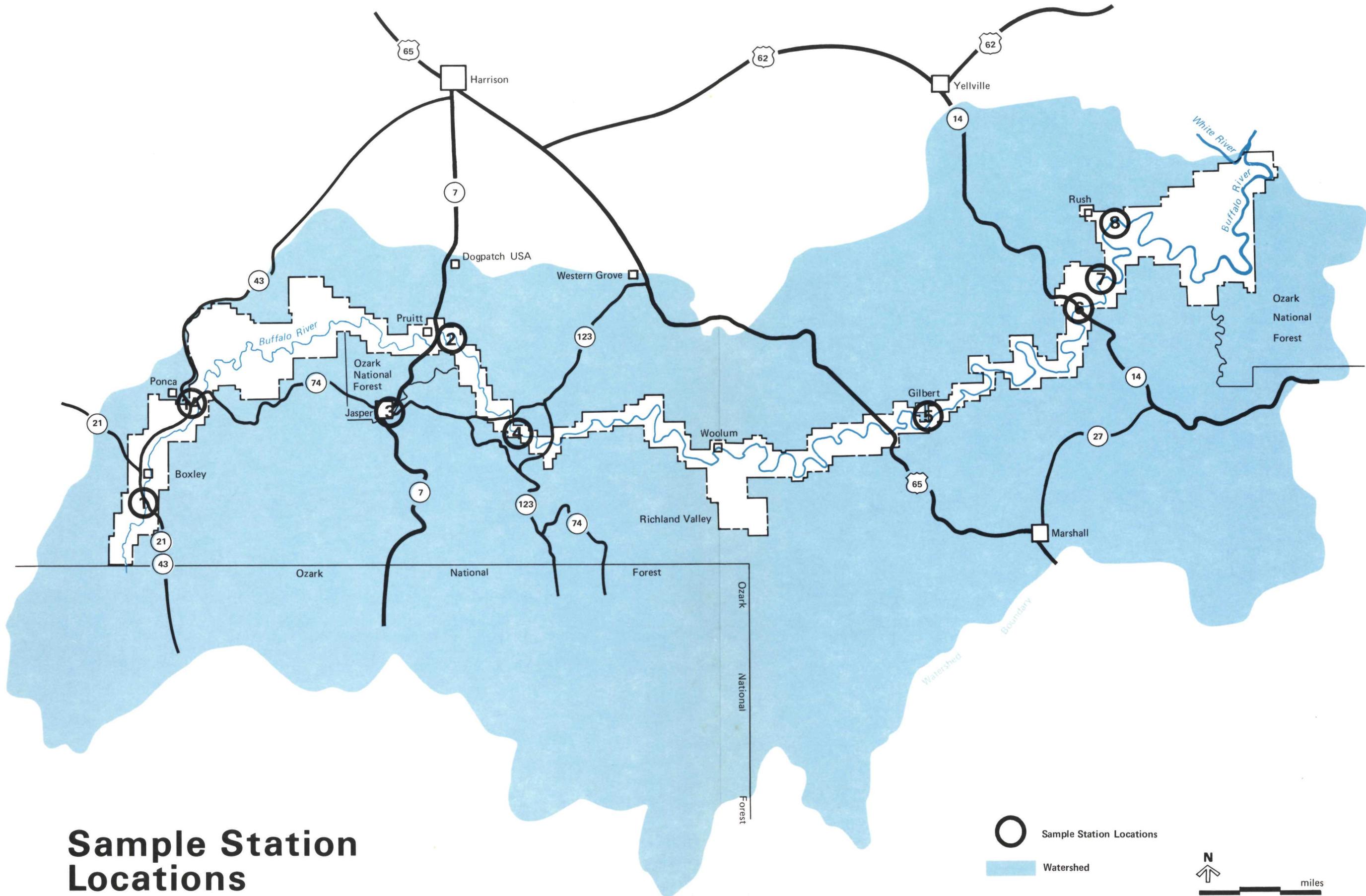
BUFFALO NATIONAL RIVER, ARKANSAS

Date Sampled: June 24-25, 1973

TABLE 3

Parameter	Rush 8	St. Park 7	Hwy 14 6	Gilbert 5	Hasty 4	Jasper 3	Shaddox 2	Boxley 1
Flow (cfs)	—	—	—	—	—	42	104	—
Temperature (°C)	26	26	27	27	26	23	23	25
Dissolved Oxygen (mg/1)	7.2	7.4	8.9	8.5	8.5	7.4	8.0	8.4
pH	7.5	7.4	7.8	7.9	7.4	7.6	7.7	7.0
Color (Units)	0	0	0	0	0	0	0	0
Turbidity (JTU)	0	0	0	0	0	0	0	0
Nitrate (mg/1 as N)	1.2	0.8	0.10	0.06	0.06	0.25	0.10	0.20
Orthophosphate (mg/1 as PO <sub>4</sub> )	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Alkalinity (mg/1 as CaCO <sub>3</sub> )	130	127	123	123	106	98	100	42
Hardness (mg/1 as CaCO <sub>3</sub> )	148	136	117	111	105	95	109	43
Chlorides (mg/1)	1.5	1.5	1.5	1.0	1.5	1.5	1.0	0.5
Conductivity ( μ Mhos)	250	240	240	220	200	200	220	90
Suspended Solids (mg/1)	1.4	2.7	2.3	2.2	3.5	3.0	3.6	4.8
Total Solids (mg/1)	152	141	120	125	119	111	127	60
Coliforms, Total (Coli/100 ml)	20	22	41	26	29	11,000	230	2,000
Coliforms, Fecal (Coli/100 ml)	130	7	—	8	4	16,000	150	200
Total Organic Carbon (mg/1)	2.1	1.7	2.7	2.1	1.8	4.5	2.9	2.2

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# Sample Station Locations

## Buffalo National River

WATER QUALITY ANALYSIS  
 BUFFALO NATIONAL RIVER, ARKANSAS  
 Fecal Coliforms (Coli/100 ml)

TABLE 4

Station	22-23 May, 1973	10-11 June, 1973	24-25 June, 1973	21-22 May, 1974	4 June, 1974	17-18 June, 1974	14-15 August, 1974
1 Boxley	0	30	—	43	—	—	—
1A Ponca	—	—	200	37	130	34	2
2 Pruitt	150	23	150	9	41	56	5
3 Jasper	670	190	1,600	100	400	100	760
4 Hasty	1,500	140	4	23	21	490	1
5 Gilbert	0	50	8	45	—	160	1
6 Hwy 14	50	10	—	1	—	64	5
7 St. Park	0	50	7	17	—	71	26
8 Rush	0	34	130	8	—	18	3

APPENDIX E

ADVISORY COUNCIL  
ON  
HISTORIC PRESERVATION

WASHINGTON, D.C. 20240

December 21, 1973

Mr. Frank F. Kowski  
Director  
Southwest Region  
National Park Service  
Old Santa Fe Trail  
P.O. Box 728  
Santa Fe, New Mexico 87501

Dear Mr. Kowski:

The Advisory Council is pleased to inform you that the Memorandum of Agreement for the Buffalo National River, in Arkansas, has been approved by the Chairman of the Advisory Council. This completes the Executive Order 11593 process and the National Park Service may proceed with the proposal to conduct emergency stabilization on newly acquired cultural resources. A copy of the Agreement is enclosed.

The Council appreciates your cooperation in the resolution of this matter and commends your contribution to the preservation of our national heritage.

Sincerely yours,



Ann Webster Smith  
Director, Office of Compliance

Enclosure

ADVISORY COUNCIL  
ON  
HISTORIC PRESERVATION

WASHINGTON, D.C. 20240

MEMORANDUM OF AGREEMENT

WHEREAS, the National Park Service, Department of the Interior, proposes to conduct emergency stabilization on newly acquired cultural resources of Buffalo National River, Arkansas; and,

WHEREAS, the National Park Service, Department of the Interior, has determined that this proposal will affect properties eligible for nomination to the National Register of Historic Places and pursuant to Section 2(b) of Executive Order 11593, "Protection and Enhancement of the Cultural Environment," dated May 13, 1971, has requested the comments of the Advisory Council on Historic Preservation; and,

WHEREAS, representatives of the Advisory Council on Historic Preservation, the National Park Service and the Arkansas Historic Preservation Officer have consulted regarding the proposed emergency stabilization program; now,

THEREFORE:

It is mutually agreed that implementation of the proposed undertaking, in accordance with the attached letter of July 19, 1973, from Frank F. Kowski, Regional Director, Southwest Region, National Park Service, with specific conditions under which the work will be performed, to insure preservation of the historic integrity of the properties, will not have an adverse effect.

John D. McInerney (date) 11/13/73  
Executive Secretary  
Advisory Council on Historic Preservation

F. F. Kowski 11-21-73  
(date)  
National Park Service  
Department of the Interior

Wm E. Henderson 11-28-73  
(date)  
Arkansas Historic Preservation Officer

S. K. Stevens 12/4/73 (date)  
Chairman  
Advisory Council on Historic Preservation



United States Department of the Interior  
NATIONAL PARK SERVICE  
SOUTHWEST REGION  
P.O. Box 728  
Santa Fe, New Mexico 87501

IN REPLY REFER TO:

Mr. Robert R. Garvey  
Executive Secretary  
Advisory Council on Historic  
Preservation  
1522 K Street, N.W.  
Washington, D. C. 20005

Dear Mr. Garvey:

Pursuant to Section 106 of the National Historic Preservation Act of 1966 and Section 2(b) of Executive Order 11593, the National Park Service requests the Advisory Council to comment on its work program for preservation and stabilization of historic and prehistoric properties in the Southwest Region. This work is programmed mostly for 1974 F.Y., but some projects may carry over into 1975 F.Y. because of budgetary limitations.

The attached project descriptions identify each of the programmed undertakings and discuss the effects upon each cultural resource. Some of these resources are on the National Register and therefore fall under the coverage of Section 106 of the NHPA (items 14 thru 18 on Summary List); others are in process of nomination to the National Register and therefore fall under Section 2(b) of E.O. 11593 (items 1 thru 13).

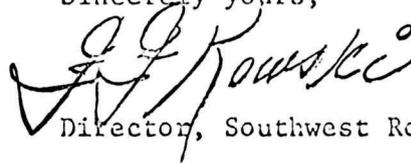
The general effects of these projects fall into three classes: (1) Holding-action emergency stabilization and repair to retain existing original fabric, thus allowing future preservation treatment as will be determined by Historic Resources Management Plans, (items 1 thru 12 in the Summary List). (2) Safety provisions at historic mine shafts and tunnels (item 13). (3) Continuing stabilization and rehabilitation of basic resources in National Register properties (items 14 thru 18). Item 14-- Fort Union-- is described as an emergency project because of severe damage from heavy snow and rain this past winter and spring.

To ensure that these undertakings contribute to the preservation of the integrity of the affected properties, all work will be supervised by a professional restoration specialist, historical architect, or archeologist; and all work will be performed in accordance with the standards and procedures determined by National Park Service historic preservation policies.

We are sending informational copies of this letter and its attachments to the appropriate State Historic Preservation Officers, with the request that they forward any comments upon these projects directly to the Advisory Council, with copy to this office.

Should you require additional information, please contact Ron Ice or Dave Battle of this Office (505-982-3501).

Sincerely yours,

A handwritten signature in cursive script, appearing to read "J. J. Kowski". The signature is written in dark ink and is positioned above the typed name.

Director, Southwest Region

Enclosures

cc: Louis Wall, Advisory Council, Denver  
State Historic Preservation Officers,  
Arizona, Arkansas, New Mexico, Texas  
all w/encls.

## APPENDIX F

### NATIONAL PARK SERVICE PROPOSAL FOR COMPLIANCE WITH ADVISORY COUNCIL ON HISTORIC PRESERVATION PROCEDURES FOR THE PROTECTION OF HISTORIC AND CULTURAL PROPERTIES: BUFFALO NATIONAL RIVER MASTER PLAN AND WILDERNESS RECOMMENDATION

This proposal results from a tri-partite field consultation held at Buffalo National River on September 13 and 14, 1974. It was attended by Robert R. Garvey, Jr. and Lou Wall of the Advisory Council; Gene Richardson and Barbara Woodard, representing the State Historic Preservation Officer; and Bill Brown, Ron Ice, and Superintendent Spaulding, representing the National Park Service.

Basic agreement was reached between the parties as to compliance with the Advisory Council procedures, which derive from the National Historic Preservation Act of 1966 and the Executive Order 11593 of 1971. This proposal summarizes those modes of compliance that brought about that agreement...The Master Plan and Wilderness Recommendation constitute a combined Federal undertaking that will affect potential National Register properties within the proposed boundaries of the Buffalo National River. With reference to potential National Register sites that

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\*Appendix F summarizes that portion of the draft agreement pertaining to a Wilderness Recommendation for Buffalo National River. When finalized, the approved agreement will be available to all interested parties upon request.

might be identified in current and proposed surveys, the National Park Service proposes to adopt modes of wilderness area operation, research designs, and preservation maintenance procedures. In sum, these modes contemplate the following criteria:

1. Wilderness area operation will avoid any transfer, sale, demolition, or substantial alteration of any potential National Register property or of its environmental setting. Any visitor access to, or to the vicinity of, any such property will take account of historical and scientific values--which may result in prohibiting any access or access development to such properties, particularly those that might possess outstanding scientific potential. Moreover, should vandalism of isolated backcountry sites result because of trail proximity, protective patrols would be instituted; or, failing that, trails would be closed or used only on a guided-tour basis.

2. Any extraction of scientific data by excavation of potential National Register sites would occur only after development of research designs that would be reviewed and agreed to by the State Historic Preservation Officer and the Advisory Council on Historic Preservation. Such designs would provide for the least possible site destruction (given research aims), proper salvage technique, appropriate backfilling, and reservation of sectors of sites for future scientific investigations.

3. Should significant structural remains be discovered during current and proposed surveys, a programmed, cyclic maintenance procedure would be instituted to assure preservation of such sites at preservation levels to be determined and defined in the park's Historic Resources Management Plan and in specific-structure preservation guides. Such documents, as they are developed to meet evolving needs, will also be subject to review by the State Historic Preservation Officer. As to preservation of archeologic sites, the basic principle in the wilderness area will be to leave such sites alone, except in the instance of selective scientific excavation under terms of approved research designs. On the basis of existing reconnaissance and survey data, it appears that most potential National Register sites that might be discovered in the wilderness area would be archeological sites of primarily scientific rather than interpretive value. The principle of leaving the archeological sites alone, except for selective scientific excavation, is the best preservation method.

The above criteria for wilderness area operations, research, and maintenance--in reference to potential National Register properties--will be conducive to preservation of such properties, and, therefore, will avert or adequately mitigate any adverse effects that might flow from the proposal. This evidence of initial compliance with the Executive Order, and, by extension, with the National Historic Preservation

Act, is further guaranteed by the proviso that future proposals flowing from the current proposal and affecting potential National Register properties will be subject to review by the State Historic Preservation Officer.

The Wilderness Recommendation will not affect any non-federally owned districts, sites, buildings, structures, or objects of historical, archeological, architectural, or cultural significance. The proposal contemplates lands wholly under the jurisdiction of the National Park Service within the boundaries of Buffalo National River and far removed from existing or potential non-federal National Register properties being considered by the State.

The proposed land use in the wilderness area--in light of the type of cultural resource most likely to be found there--will have beneficial indirect effects on these resources, due to perpetuation of relative isolation and limited visitor use in the wilderness area. The proviso that essential preservation maintenance will be conducted in the wilderness area--assuming the existence of properties requiring such maintenance--will avert the "destruction by neglect" of cultural resources.

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