development concept plan

march 1981

BUFFALO

BUFFALO POINT

NATIONAL RIVER / ARKANSAS

RECOMMENDED:

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DEVELOPMENT CONCEPT PLAN

BUFFALO POINT

BUFFALO NATIONAL RIVER
ARKANSAS

Prepared by
United States Department of the Interior
National Park Service
Denver Service Center

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INTRODUCTION

Buffalo National River runs a 148-mile course in an east-northeasterly direction through the Ozark Highlands of north-central Arkansas. The Ozarks extend through eastern Oklahoma, northern Arkansas, and southern Missouri. Within this area of unusual natural beauty are a wealth of recreational sites, including national forests, state parks, public hunting grounds, large reservoirs, caves, and private tourist developments.

Buffalo National River in its entirety is a unique feature in the region. The diversity of experiences, as well as the exceptionally high quality of resources, sets the national river apart from other recreational areas and distinguishes it among the nation's few remaining free-flowing streams.

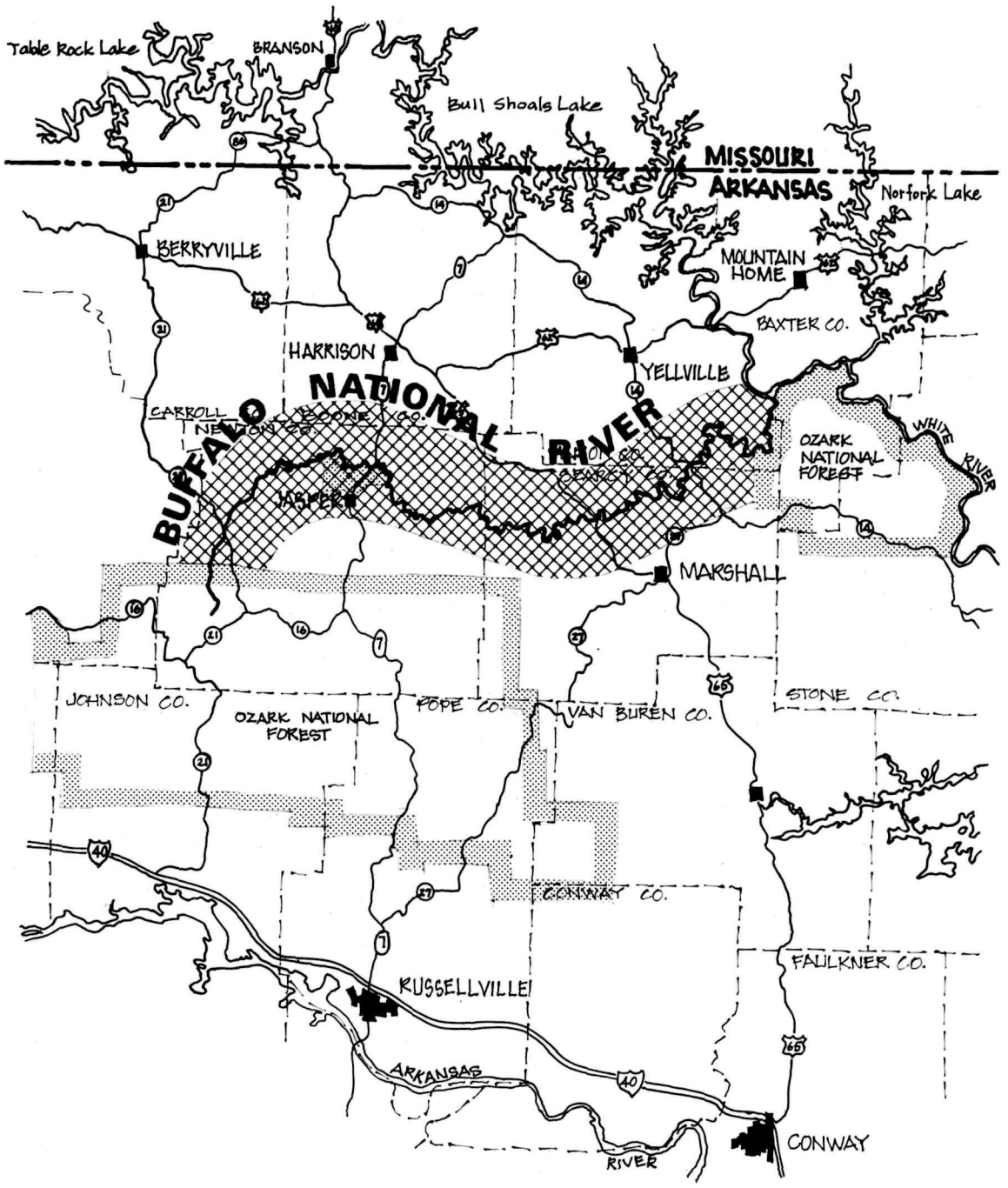
There are three major development areas in Buffalo National River, all located at highway crossings of the river. Buffalo Point is at the Arkansas 14 crossing; Tyler Bend, upstream from Buffalo Point, is at the U.S. 65 crossing; and Pruitt, on the upper one-third of the river, is on Arkansas 7. Each of these development areas serves as district management headquarters. Tyler Bend and Buffalo Point, situated farther downriver where the water depth remains sufficient for river recreation throughout the summer, are intended to provide visitor use facilities for the majority of Buffalo National River visitors.

This Development Concept Plan, Buffalo Point addresses design and development proposals for the Buffalo Point development area. The area served as an Arkansas state park for a number of years. Many of the existing facilities need repairs and are below standard in terms of operation and safety. Continued use of the facilities will lead to further deterioration. Inadequacies in the original design of facilities and campsites have also led to problems, for example; erosion of dirt fills around picnic tables and tent pads, causing safety hazards for visitors.

Other problems have resulted from use of certain areas for different, sometimes conflicting activities. At the existing beach, trucks and trailers backing up to load and unload canoes are particularly hazardous because swimmers are using the surrounding beach and water. Overnight camping and day use areas are intermingled within the river area, which contributes to confusion in camper registration. Finally, group camping is situated in the middle of a picnic area, causing conflict and confusion to visitors.

Many people are repeat visitors--that is, they come to the Buffalo Point area for a weekend or a week every year. These visitors usually support retention of traditional uses. Therefore, uses and associated facilities, such as the rental cabins, the restaurant, the swimming beach, the canoe launching ramp, and the campgrounds, are difficult to change.

New facilities and utilities are needed to serve visitors and management. However, new construction must be kept to only that which is essential.



VICINITY

Buffalo National River, Arkansas

N

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Although the concession is a small operation, it is kept very busy throughout the summer. It does not operate year-round, mainly due to insufficient heating and insulation for winter use.

Because of Buffalo Point's popularity and because the water level is more constant year-round at this lower end of the river, the area has an extremely high visitation rate and is currently experiencing the pressures of overuse. The role of informing visitors about the other developed river areas is therefore an important one in helping to relieve overuse here.

There is little developable terrain at Buffalo Point (see Developable Areas map). Level land is limited and is either located on ridgetops or valley bottoms, which are in the 100-year floodplain. Permanent development should be kept out of this area.

Buffalo Point functions as the district headquarters for the Buffalo district. The district is constantly enlarging as more land is acquired; consequently, the responsibilities for visitor and resource protection are increasing. To ensure a more efficient operation in serving the entire district, as well as the Buffalo Point area, a district management headquarters is needed.

River floaters often camp at Buffalo Point, Maumee (upstream), and Rush (downstream). Camping sites should be located in the riverbank areas to better serve these floaters.

Loop A of the existing campground is located on a sidehill with excessive slope, resulting in much soil erosion. Also, most campsites are too close together. Loop A is located near the already congested beach area, where people are swimming, picnicking, and launching boats.

This Development Concept Plan addresses the following specific concerns for the development and use of Buffalo Point:

The aesthetic natural view from Buffalo River should not be infringed upon by man-made structures.

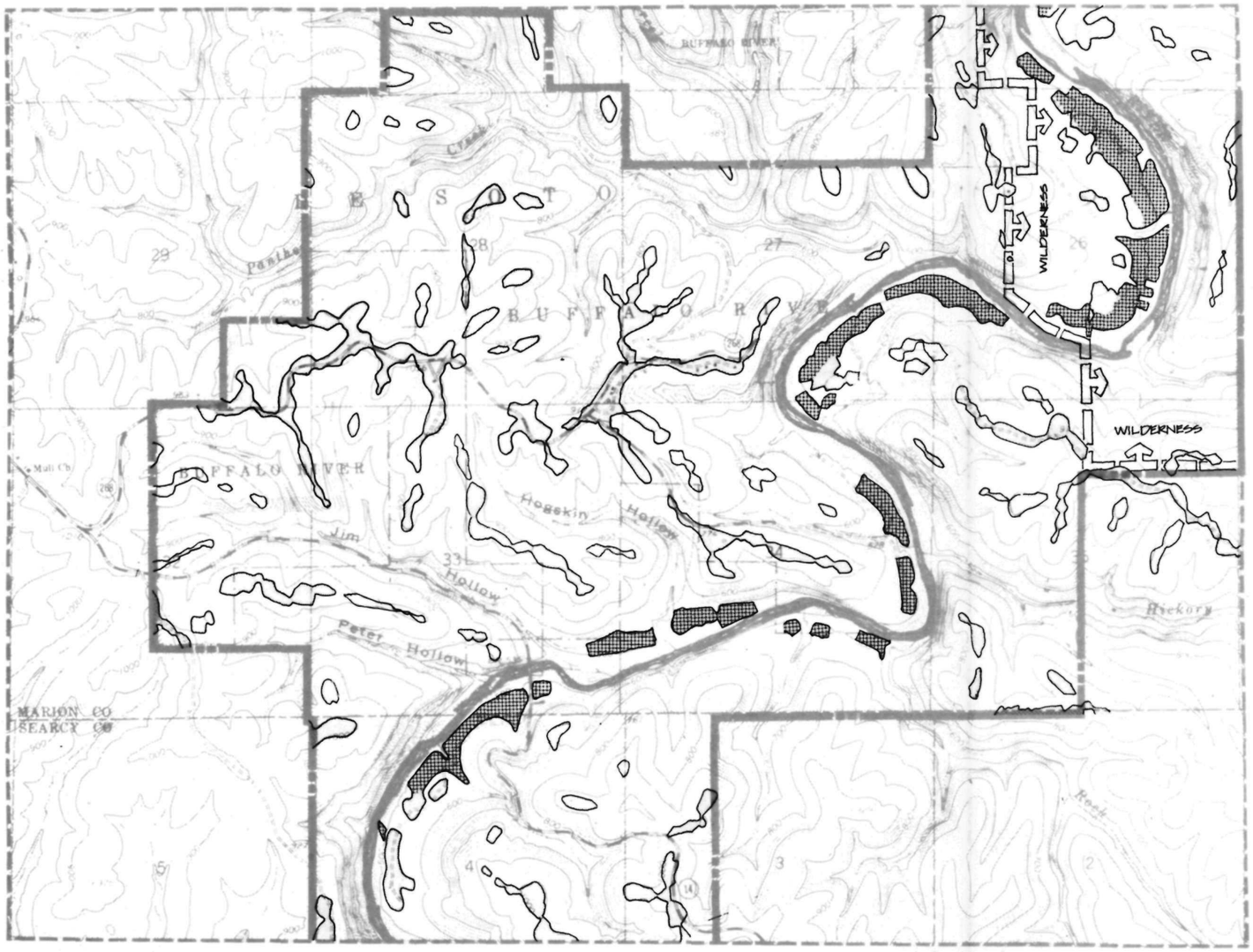
Interpretation should be provided close to the resources so that visitors actually come in contact with those resources.

The increasing emphasis on energy conservation should be a concern in new building construction and in locating facilities to permit a minimal amount of driving time between them.

In compliance with Executive Order 12003, "Energy Policy and Conservation," buildings will be designed and constructed to be energy efficient.

Accessibility to, and use of, park facilities by physically and mentally handicapped visitors must be ensured in conformance with applicable provisions of the Design and Construction of Public Buildings to Accommodate the Physically Handicapped Act (PL 90-480, 82 Stat. 718) and other applicable laws and regulations.

River recreation facilities should be sited to support the use patterns of floaters who need overnight camping areas and car shuttles. These use patterns relate to activities at Maumee and Rush.



DEVELOPABLE AREA

FLOODPRONE AREA

DEVELOPABLE AREAS

0 - 10% SLOPE

0 500 2,000 4,000

north

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DESCRIPTION OF THE ENVIRONMENT

BUFFALO POINT

Buffalo Point is situated on the lower one-third of Buffalo National River, approximately 12 miles cross-country or 32 miles by river from its junction with the White River and about 100 miles north of Little Rock, Arkansas. Access to Buffalo Point is from Arkansas 14, which connects to Arkansas 62 and 65. The park headquarters is in Harrison, 48 miles by road.

Buffalo Point is more removed from support facilities in nearby communities when compared to Pruitt and Tyler Bend, the other development areas in Buffalo National River. From Buffalo Point, it is 19 miles north to Yellville and 21 miles south to Marshall, the closest towns providing commercial facilities. As a result, future visitation could be substantially different from that at Pruitt and Tyler Bend, which have shorter, more direct access to the region's urbanized areas.

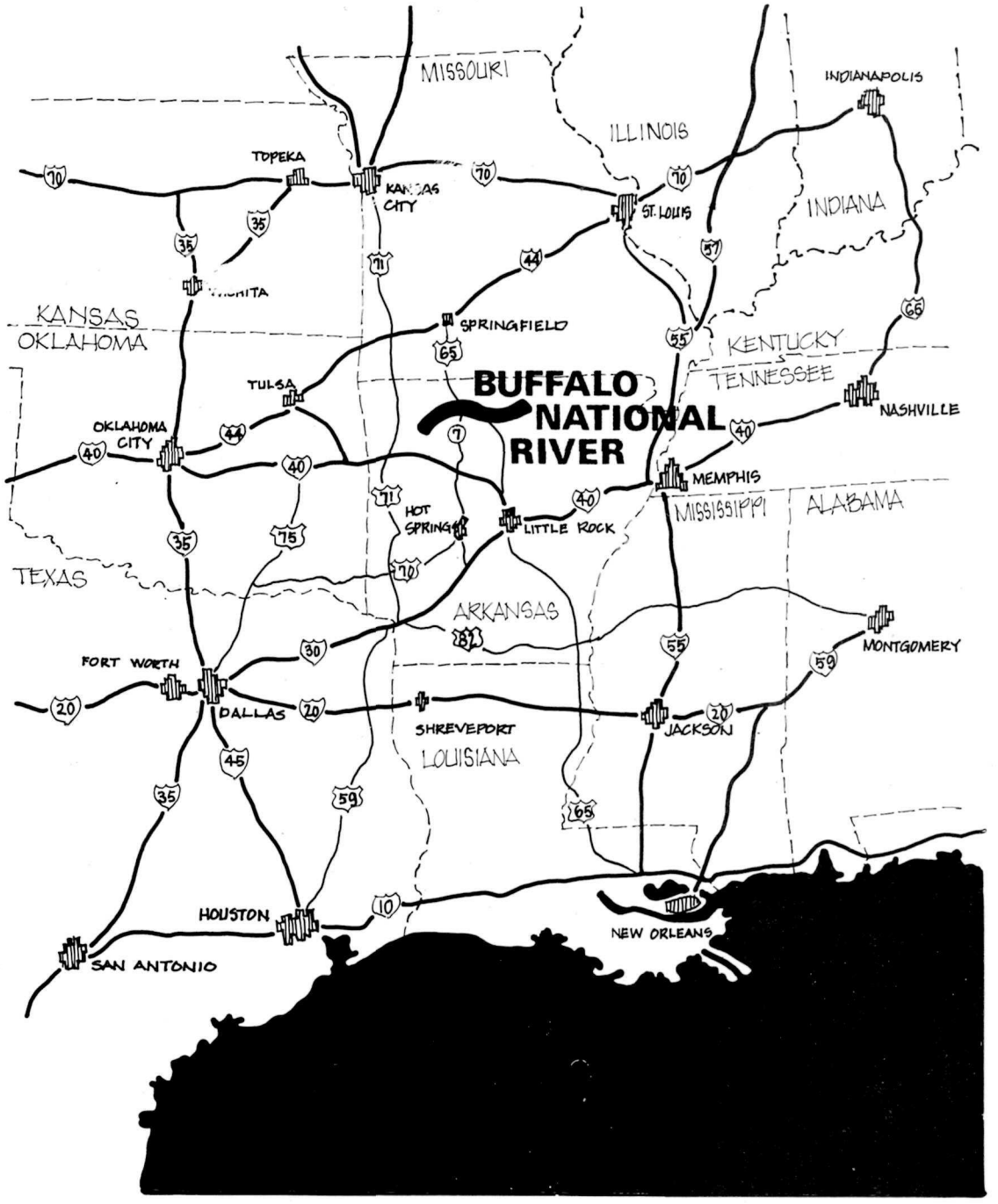
Buffalo Point, formerly Buffalo River State Park, has perhaps the longest history of formal recreational development of any area on the river. Situated as it is in the lower reaches of the river, the area offers a river level that permits year-round floating and a gradient that averages 3 feet of fall per mile.

Existing Resources

Vehicular access to Buffalo Point is via Arkansas 14 and Arkansas 268, a paved road extending along a ridgetop that dead-ends in the development area. One-half mile from its intersection with Arkansas 14, Arkansas 268 crosses the Buffalo Point area boundary; 1,000 feet farther, there is a temporary maintenance building adjacent to the road. After another 1¼ miles the road forks; the left fork continues along the ridgetop, and the right descends to the riverbank. A small building is located at this road split, which serves in the multiple capacity of residence, visitor contact station, ranger station, district headquarters, and public restroom.

The left fork of Arkansas 268 provides access to six cabins, which were constructed by the CCC in the 1930s. These cabins are of historical interest and have been nominated to the National Register of Historic Places. One of the cabins is utilized as a residence for the onsite concession manager, who rents the remainder of the cabins to visitors for overnight lodging. On the opposite side of the road is a small parking area serving the hiking and self-guiding nature trails.

Continuing on the ridgetop road, another side road branches off to provide access to six more rental units. Just beyond these units is a dormitory for seasonal employees, and a short distance beyond the dormitory is a concession dining facility. At the end of the ridgetop road is a duplex rental facility. These last three buildings are all at the end of the ridgetop and provide views of Buffalo River.



REGION

Buffalo National River, Arkansas

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The right fork of Arkansas 268 descends to the river; halfway down it reaches a level ridgetop, which contains a picnic area and pavilion. A group camping area is also provided at this location. Continuing down to the riverbank, the right fork divides. Here the left side road goes downstream parallel to the river, passes a ranger/interpretive station and amphitheater, and then goes through four campground loops. Adjacent to the end loop is a tertiary sewage treatment plant. The right side road goes upstream parallel to the river into the day use area, which contains a swimming beach, a canoe launching ramp, and picnic tables. This road terminates in campground loop A, which is on a hillside just uphill from the swimming beach.

Water for the Buffalo Point area comes from two wells, each 180 feet deep. A 9,000-gallon reservoir serves the lower area. There are two pumping stations, which pump the water up to the ridgetop tanks. One ridgetop tank holds 50,000 gallons above ground, and the other holds another 35,000 gallons below ground, which is kept in reserve for fire protection.

There are two sewer systems at Buffalo Point. One is the upper ridgetop system served by a 20,000-gallon-per-day tertiary treatment plant, and the other is the lower tertiary system served by a 30,000-gallon-per-day plant. The capacity of these plants is more than adequate to handle the existing sewage flow and also the anticipated flow for projected use.

Visitor Use

The Buffalo Point area was used as a state park from the 1940s to 1972. Since 1972, the National Park Service has managed the area. Visitation has steadily increased through the years. Visitor use for the year 1975 was as follows:

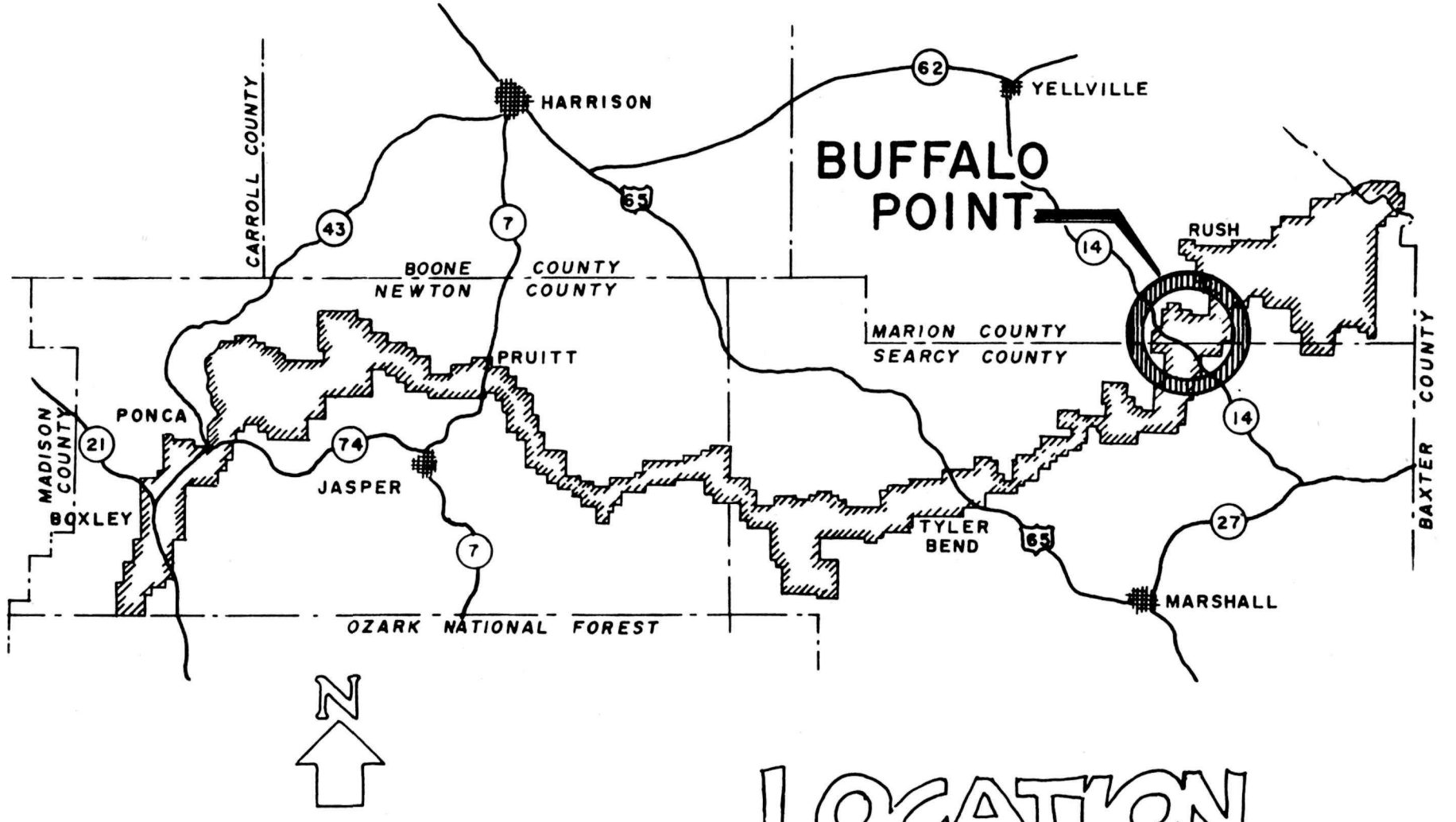
Total visitation	179,139
Camper-days	54,014
Cottage rentals	8,600
Canoe-days	14,387
Interpretive contacts	14,417

Visitation for the district in the year 1977 was 251,446. Buffalo National River visitation was 315,734 in 1976, 331,546 in 1977, and 645,343 in 1978.

NATURAL ENVIRONMENT

Climate

The climate of Buffalo River is temperate. The average annual temperature is 58 degrees Fahrenheit, and the average day-night temperature difference is approximately 29 degrees. Summers are long and warm, with July temperatures averaging about 80 degrees. The frost-free season averages 199 days.

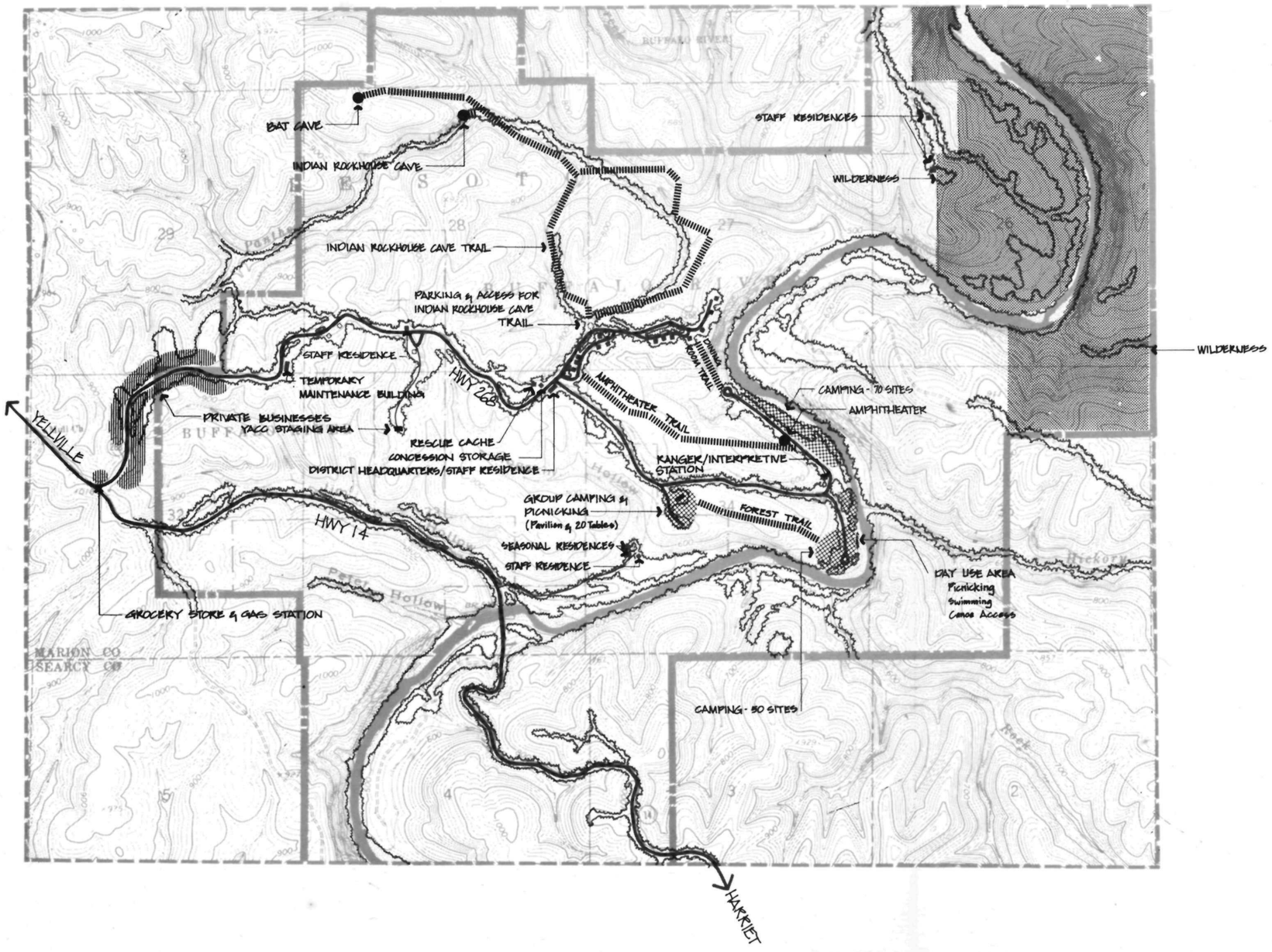


LOCATION

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EXISTING USE

0 500 2,000 4,000

north

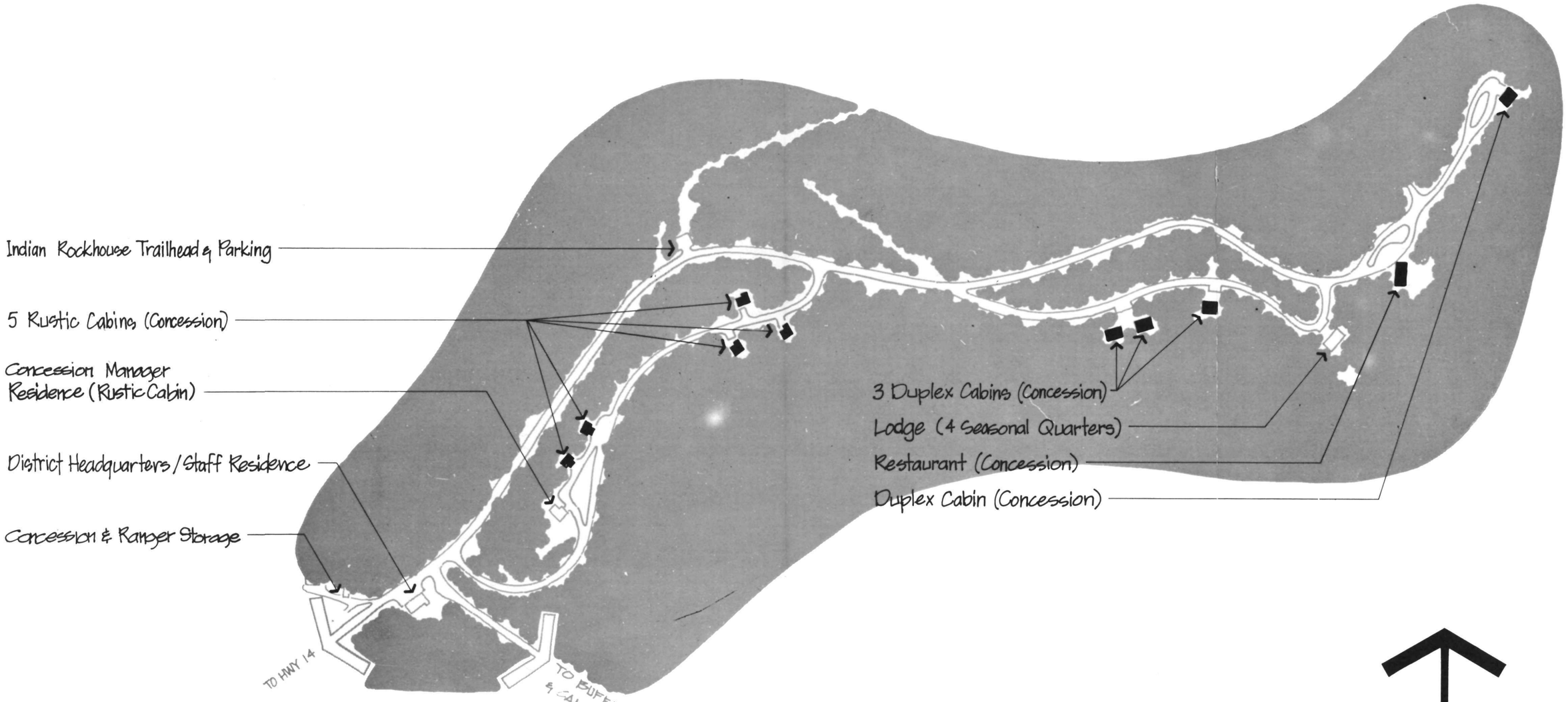
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EXISTING USE OF RIDGETOP

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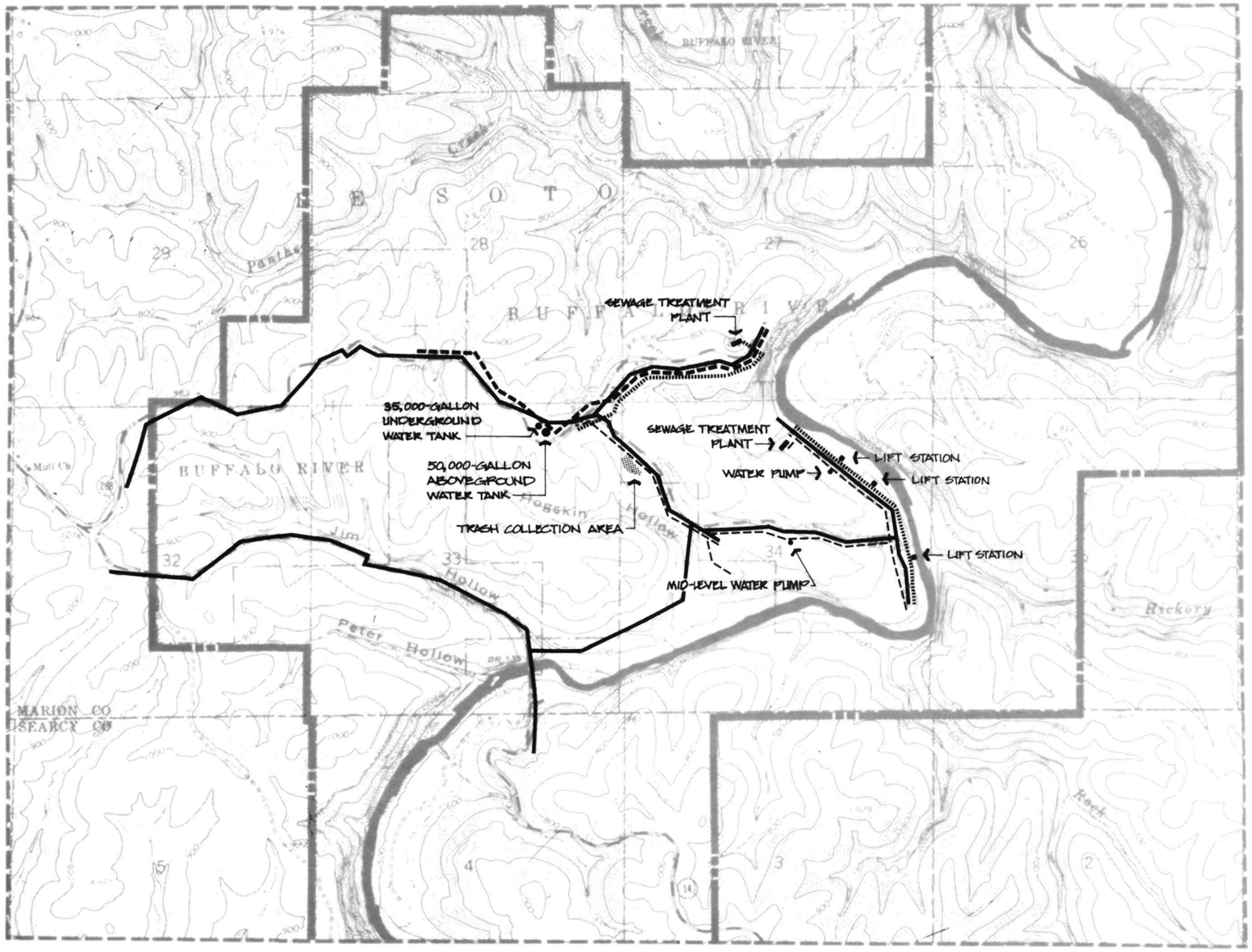
Buffalo National River, Arkansas

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20 100 400
0 50 200

NORTH

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Legend

- ELECTRIC LINE
- 4" PVC WATER LINE
- 2½" WATER LINE
- 6" SANITARY SEWER

EXISTING UTILITIES

0 500 2,000 4,000

north

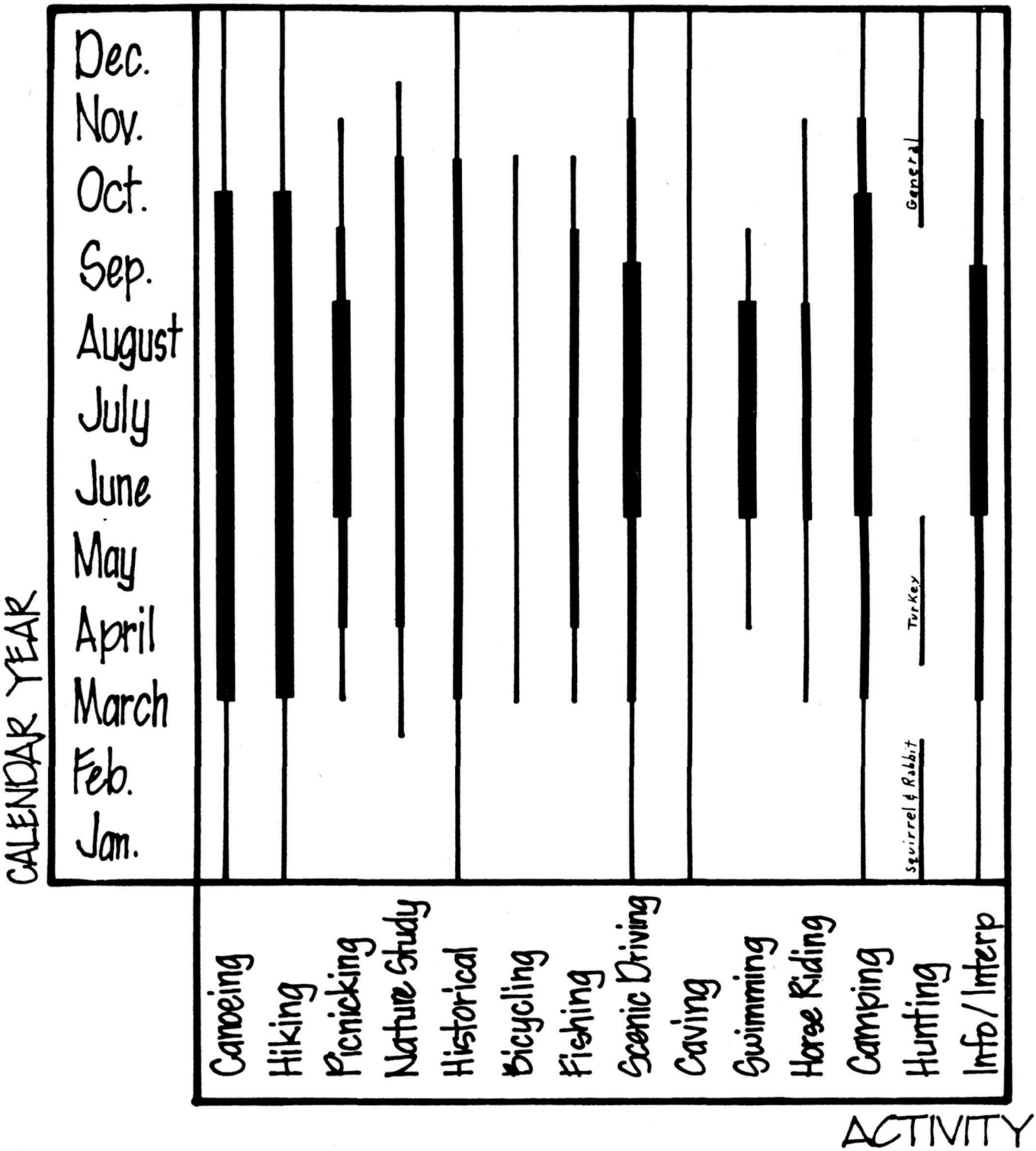
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Periodicity and Intensity of Recreational Use in the Buffalo Point Area

BUFFALO NATIONAL RIVER, ARKANSAS

Prevailing winds are moderate and southerly. Drought conditions, common to the Great Plains, often extend into the Ozarks and affect plant and animal life, as well as streamflow.

The average annual precipitation is 46 inches; distribution is relatively uniform throughout the year, although spring months receive slightly higher amounts. From records that date back to 1900, the greatest annual precipitation was 82 inches in 1927, and the least was 30 inches in 1901. Snowfall averages 12 inches a year and may occur from November through March.

There is some variability in annual rainfall at local measuring stations: Marshall records 49 inches, Maumee 45 inches, and Yellville 42 inches. The monthly precipitation distribution measured in inches for these three stations is shown in table 1.

Table 1. Monthly and Annual Precipitation

Month	Marshall	Maumee	Yellville
January	3.19	2.67	3.53
February	2.97	3.96	3.36
March	3.98	3.85	3.20
April	5.45	4.50	4.22
May	6.27	5.55	4.95
June	4.32	4.79	4.80
July	3.71	3.90	4.32
August	4.74	3.14	3.02
September	3.62	2.95	2.38
October	3.67	3.34	2.44
November	3.70	4.05	3.91
December	3.47	2.63	2.48
Annual	49.09	45.33	42.61

Temperatures for Gilbert and Marshall are generally comparable; however, temperatures at Gilbert, within the immediate Buffalo River valley, tend to be 1 to 2 degrees warmer than at Marshall. Temperature extremes of 114 degrees and -23 degrees have been recorded at Gilbert.

Geology/Topography/Soils

The surface geology of the Buffalo River watershed is generally sedimentary. Rocks were deposited in a Paleozoic marine basin situated between a continental landmass to the south and an intermittently persistent landmass to the north. Sediments of the Ordovician and Mississippian periods are the most prominent formations along Buffalo River. The oldest exposed rocks are of Ordovician age.

The topography in the Buffalo Point area is very rugged. A generalized slope composition in the immediate area shows approximately one-third in the 6-12 percent range, one-third in the 12-25 percent range, and one-third over 25 percent. Vertical or near-vertical bluffs are adjacent to Buffalo River.

The Slope Analysis map categorizes slopes in the Buffalo Point area for the purposes of potential development. Slopes of 0 to 5 percent are the most suitable for development, but design must take into consideration the possibility of some poor drainage areas. Slopes of 5 to 10 percent are also suitable for constructing facilities, given the same potential constraints. Slopes of 10 to 20 percent can be adapted to development, although greater adjustments in design are often necessary. Slopes over 20 percent are generally unsuitable for development.

Soils in the area have evolved from limestone formations and are categorized as Ozark Highlands limestone soils. Practically all the soils are well drained but range in permeability from slow to excessive. Silt and sandy loams are present in the floodplains and on low terraces; the hillsides tend to be stony or cherty clays and loams. By far the most prominent soils in the Buffalo Point area are of the Nixa and Clarksville series.

The Soil Survey map shows the relative limitations of various soil series for uses and related developments at Buffalo Point. Slight limitations indicate few, if any, problems for a use. Moderate limitations indicate that care must be taken in planning, design, and maintenance to avoid soil problems. Severe limitations indicate that major actions, such as soil reclamation, special design, or intense maintenance, would be required to overcome the unsuitability of the soil.

Vegetation

The natural portions of Buffalo River basin are heavily wooded and dominated by oaks. Hickory forests are interspersed with stands of shortleaf pine and redcedar. A broad overview of the Buffalo Point area would lead the observer to believe that this monoclimax generalization could adequately describe the vegetative characteristics of the entire area. It is true that upland hardwoods comprise the largest portion of the vegetative community, but closer investigation reveals a complex pattern of five distinct climax associations overlayered by seres, which attest to man's past or present use of the land (see Existing Vegetation map).

The vegetative analysis was derived from an evaluation of the geomorphological and geophysical characteristics of the area. This evaluation was synthesized to define sites for vegetative associations found within the region. Color aerial photographs and onsite investigations provided the additional data necessary to modify or confirm the preliminary interpretations.

Upland Hardwood Association. This is the most extensive association within the development area. It is found on ridges and upper slopes with

poor and shallow soils. The overstory is dominated by post oak (Quercus stellata), blackjack oak (Quercus marilandica), black hickory (Carya texana), southern red oak (Quercus falcata), black oak (Quercus velutina), eastern redcedar (Juniperus virginiana), and winged elm (Ulmus alata). Typical understory vegetation is persimmon (Diospyros virginiana), redbud (Cercis canadensis), and hawthorn (Crataegus sp.).

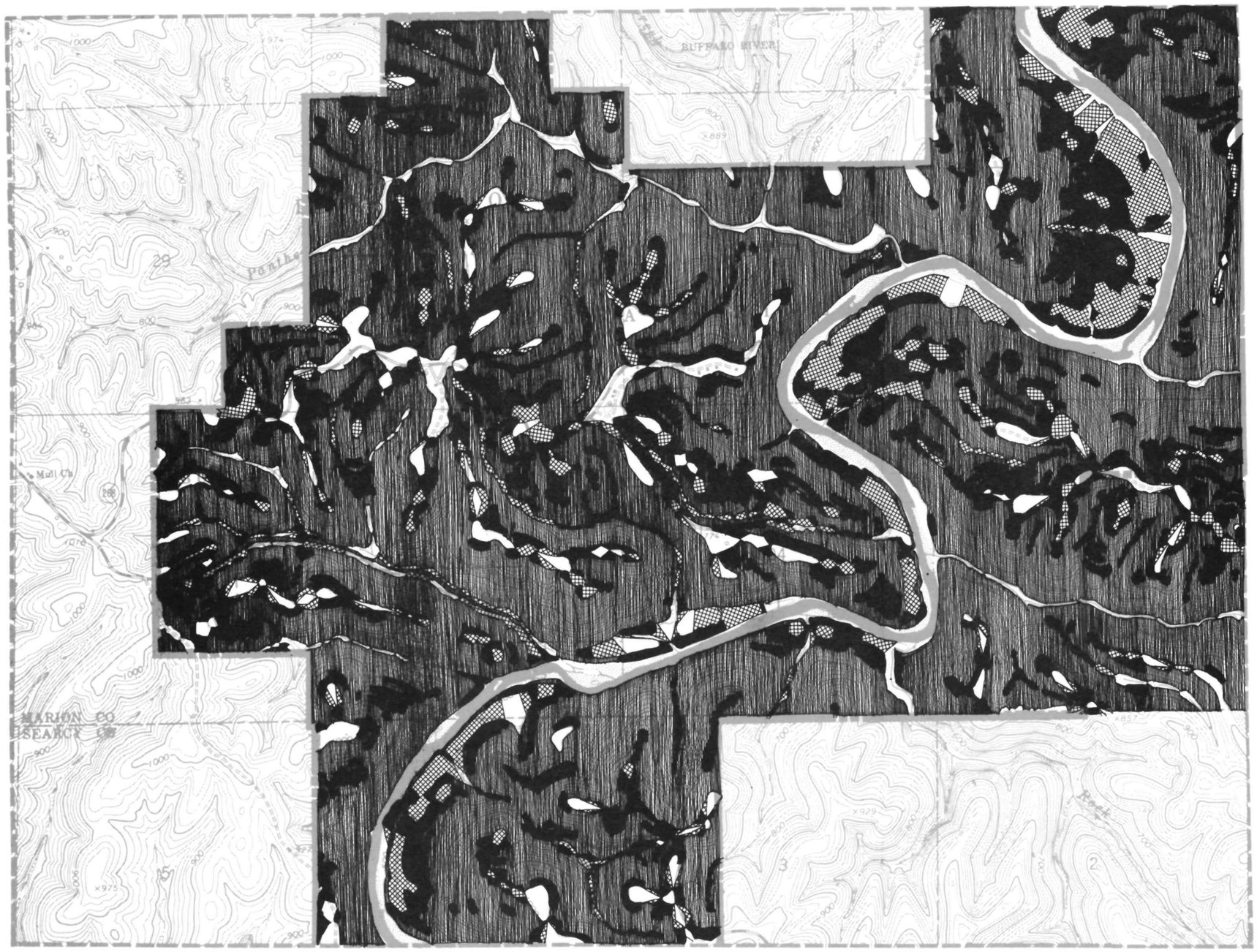
The upland hardwood association is primarily composed of vegetation that can tolerate compaction and hydrologic modification within its proximity without sustaining extensive damage. However, care must be taken to prevent the erosion of shallow topsoil.

Pine Association. Small stands of shortleaf pine are scattered throughout the area in association with other species; the pine seldom appears in pure stands. In addition to the shortleaf pine (Pinus echinata), the overstory often contains northern red oak (Quercus rubra), winged elm, red maple (Acer rubrum), southern hackberry (Celtis laevigata), blackgum (Nyssa sylvatica), and other species found on northern slopes. The pine association occupies areas with deep rich soil, good moisture, and moderate drainage.

The designation of the pine association as a climax community is often misleading. Perhaps it should be classified as a sere due to the fact that many of the species within the association are considered pioneer species or nurse overstory for true climax vegetation. It is difficult to differentiate between stable pine climax areas or preclimax seres, which were once old fields, logged sites, or burned areas. For the sake of simplification, all areas that have a species composition of 80 percent pine or greater are classified as pine association.

Streamside Association. This association is found in many of the stream valleys throughout the region and adjacent to perennial streams. Although it once was abundant in the narrow river valleys, it is now confined to riverbanks due to the clearing of the land for farms. The overstory is primarily composed of silver maple (Acer saccharinum), river birch (Betula nigra), black willow (Salix nigra), American elm (Ulmus americana), green ash (Fraxinus pennsylvanica), white ash (Fraxinus americana), pecan (Carya illinoensis), sweetgum (Liquidambar styraciflua), sycamore (Platanus occidentalis), Shumard oak (Quercus shumardii), bur oak (Quercus macrocarpa), chinkapin oak (Quercus muehlenbergii), and boxelder (Acer negundo). Due to the intolerance to use of many of the species within this association, care must be taken to avoid extensive development within the defined areas. Use of the areas for recreational purposes must be carefully monitored to avoid destruction of groundcover and understory vegetation.

Cove Association. This association commonly occurs on lower north-facing slopes within ravines and small stream valleys. It is typified by lush undergrowth and dense overstory. Spleenwort fern, Christmas fern, and Virginia creeper are commonly found among the groundcovers. The understory contains dogwood (Cornus florida) and redbud, among others. The overstory is composed of a broad species composition, which includes bur oak, chinkapin oak, shagbark hickory (Carya ovata), mockernut hickory (Carya tomentosa), sugar maple (Acer



0.5%

5.10%

10.20%

20 +

SLOPE ANALYSIS

0 500 2,000 4,000

200 1,000

north

DEVELOPMENT CONCEPT PLAN

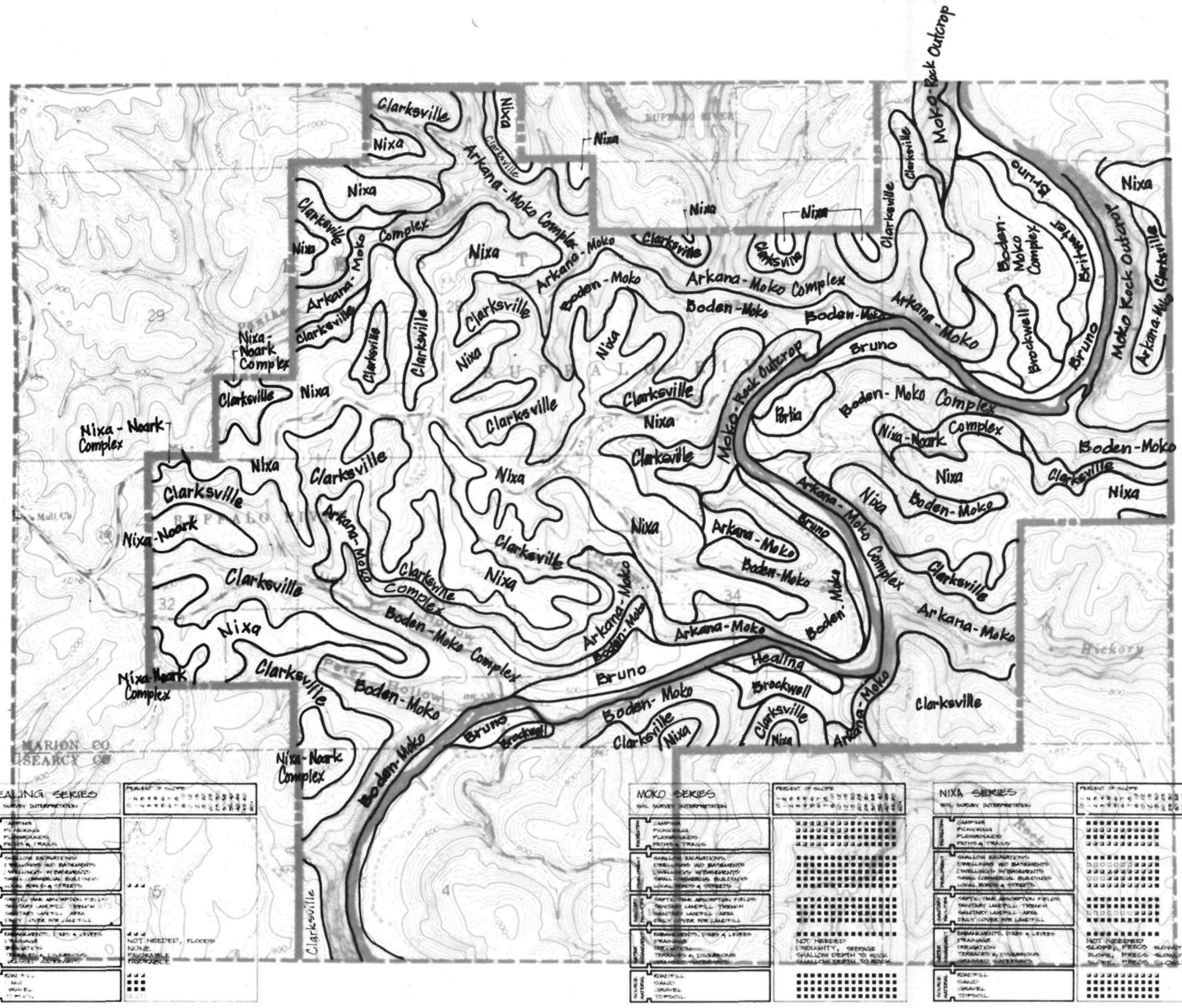
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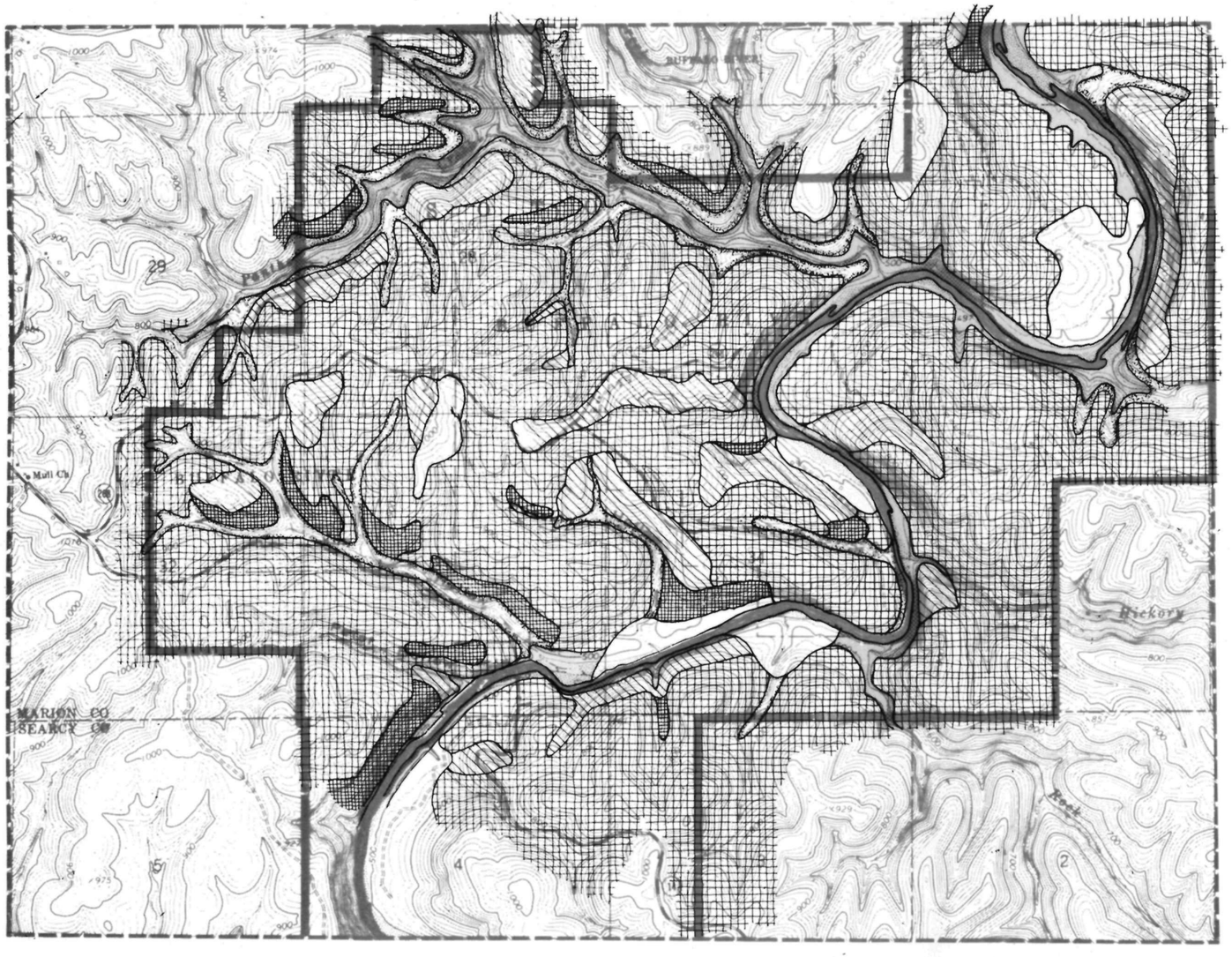
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Clarksville
Nixa
Arkana - Moko Complex
Nixa - Noark Complex
Boden - Moko
Boden - Moko Complex
Moko - Rock Outcrop
Bruno
Portia
Brockwell
Healing
Arkana - Moko
Nixa - Noark Complex
Clarksville
Boden - Moko
Bruno
Brockwell
Arkana - Moko
Clarksville
Nixa
Boden - Moko Complex
Nixa - Noark Complex
Boden - Moko
Clarksville
Nixa
Arkana - Moko
Boden - Moko
Bruno
Clarksville
Nixa
Arkana - Moko
Clarksville
Nixa
Boden - Moko



- Upland Hardwood
- Pine
- Cedar Glade
- Streamside
- Cove
- Grassland

EXISTING VEGETATION

0 500 2,000 4,000

north

DEVELOPMENT CONCEPT PLAN
BUFFALO POINT
BUFFALO NATIONAL RIVER, ARKANSAS

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saccharum), red maple, American elm, slippery elm (Ulmus rubra), white ash, hackberry, black walnut (Juglans nigra), and Carolina beech (Fagus grandifolia). Three types of oak with great commercial value also occur within cove associations, and for this reason they have been subject to extensive logging operations. The types are the white oak (Quercus alba), red oak, and black oak.

The biomass per square foot of this association is far greater than any of the other designated groups. The foliage is lush and easily damaged by constant human activity. The factor that will allow moderate use is the very short regeneration period.

Cedar Glade Association. This association is typically found on slopes with southern exposure, shallow calcareous soils, and excessive drainage. As the name implies, the eastern redcedar is the dominant tree. The redcedar is found in almost pure stands, lightly interspersed with winged elm, blackjack oak, common persimmon, and Ashe juniper (Juniperus ashei).

In addition to the major overstory vegetation, many lesser and more delicate plant forms can be found. Several species of reindeer lichen, covering patches of exposed rock, occur in some areas. Other groundcovers consist of sphagnum moss, sparse grasses, and delicate annuals in the Sedum family. The relative hardiness of the overstory vegetation is misleading when evaluating the sensitivity of this association. The groundcover found with this association is extremely fragile and cannot tolerate even occasional foot traffic. Early spring is the only time of the year many of these plants appear to have life. During the summer months, most become dormant and have the appearance of dead grass. Due to the growth characteristics, overuse of the cedar glade is difficult to detect at any time of the year other than early spring. The destruction of the groundcover in a cedar glade can have disastrous effects on the glade's microenvironment because of the resulting loss of the shallow topsoil. The natural revegetation process for a typical glade area can take as long as ten years. Because of the sensitive members in its community and the slow revegetation process, the cedar glade association should not be subjected to any recreational activities, and where existing trails occur within a glade, they should be realigned to avoid direct human contact.

Endangered Species. Arkansas has listed several endangered plant species that occur in the development area. These local species are Castanea pumila Mill var. ozarkensis (Ashe) Tucker, which occurs near the entrance to Arkansas 268; Stylophorum diphyllum (Michx.) Nutt, which is recorded only for the Buffalo Point area; and Arabis shortii (Fern) Bl. var. shortii, which occurs near the lower sewage treatment plant. The latter variety is listed as occurring only in Marion County in Arkansas.

Wildlife

Common Species. Wildlife present along Buffalo River is typical of the deciduous forest biome. In general, the forest habitat has decreased in

recent decades as a result of continued clearing of forested lands to grow pastureland. Consequently, the quantity of forest-dwelling wildlife has decreased while species common in meadow and forest margins have increased.

Arkansas game animals present in Buffalo National River are white-tailed deer, squirrel, rabbit, bobwhite quail, mourning dove, and wild turkey. Fur-bearing animals common here are opossum, raccoon, mink, red fox, gray fox, skunk, muskrat, bobcat, coyote, beaver, and otter. The red fox is protected in Arkansas. Hunting is permitted in season within the national river boundaries but prohibited within the development area.

A number of species such as timber wolf, elk, and bison have been extirpated from the region. Black bear and wild turkey were once endangered species in Arkansas, but they have been successfully reestablished and are currently on the "game" list of the Arkansas Game and Fish Commission. The eastern cougar and red fox are present in small numbers.

Buffalo River is noted for its smallmouth bass fishing. Other game fish present are the largemouth bass, spotted black bass, Ozark rockbass, suckers, catfish, bluegills, green sunfish, and other sunfish. In a species survey in 1977, there were 59 species of fish recorded in Buffalo River. Some of the other fish present are the studfish, chestnut lamprey, darters, and gar.

Over 250 species of birds have been reported in the Buffalo River area. These include many migratory waterfowl, which are seen during the spring and fall.

Threatened and Endangered Species. Threatened wildlife species on the Arkansas state list are the Ozark big-eared bat (Plecotus townsendii ingers), American brook lamprey (Lampetra lamottic), grotto salamander (Typhlotriton spelaeus), great blue heron (Ardea herodias), red-shouldered hawk (Buteo lineatus), Swainson's warbler (Limnothlypis swainsonii), blue-winged warbler (Vermivora pinus), yellow warbler (Dendroica petechia), and small-footed bat (Myotis leibii). The status of these species within the national river boundary and particularly the Buffalo Point area is uncertain.

The Indiana bat (Myotis sodalis) and the gray bat (Myotis grisescans) are known to live in the region and are on the federal endangered species list. The eastern cougar (Felis concolor cougar) and the southern bald eagle (Haliaeetus leucocephalus leucocephalus) have been sighted in the general area and are both on the federal endangered species list. However, sightings are infrequent, and there are no known individuals residing in the existing or proposed development area.

Research on reptiles and amphibians is lacking at this time and has been identified as a future need.

Air Quality

Measurements of air quality parameters in Buffalo National River are generally nonexistent. Waggoner (1978) has provided data on particle scattering extinction coefficient for the period November 4-December 4, 1975, at Hall Mountain, Arkansas. These nephelometer measurements of b_{sp} ranged from about 0.9×10^{-6} m^{-1} to 2×10^{-4} m^{-1} at 550 nanometers. These values correspond to visual ranges of between 170 and 20 kilometers.* The values are distributed bimodally, with a broad, primary mode at approximately 87 kilometers and a narrow mode at 27 kilometers.

Local sources of air pollution include motor vehicle emissions, smoke from occasional clearing of pasturelands, smoke from nearby charcoal ovens, and campfire smoke from the Buffalo Point campground.

A coal-fired electrical generating plant will be constructed at Newark, approximately 75 miles to the east of the Buffalo Point area. The plant will generate up to 1,000 megawatts of power, and it may have an impact on air quality in Buffalo National River unless adequate control technology is utilized at the plant.

Additional visibility measurements were taken in 1979, and particulate sampling is underway. When available, the results of these analyses will help to provide baseline data on air quality.

Water Resources

Hydrology. The Buffalo River originates in the Ozark Plateaus of Newton County, Arkansas. The river is 148 miles in length flowing in an eastward direction with an average fall of 10 feet per mile. The Buffalo River watershed covers 1,338 square miles, and 1,091 square miles of it occur upstream from the measuring station at Rush.

The streamflow throughout the basin is affected mainly by the topography and the underlying formations. The mineral content of Buffalo River is a bicarbonate type, reflecting the fact that the stream traverses limestone areas.

Runoff in Buffalo River is rapid because the river's course meanders through deep narrow valleys with steep walls. Precipitation is usually in the form of short but intense thundershowers. The combination of heavy runoff and rugged topography creates very significant fluctuations in pool elevations. In the Ozark Plateaus, the steep slopes of the tributary streams cause rapid concentration of storm runoff and early peaks.

Flooding in the lower portions of Buffalo River occurs several times a year; flooding on the higher plains occurs less frequently. Prior

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*Assuming visual range = $\frac{3.92}{b_{sp}}$

recorded data show that floods on Buffalo River occur most often during the months of March, April, and May. However, floods have been known to occur in every month of the year. Notable floods, which covered large portions of the basin, were recorded in August 1915, April 1927, May 1943, January 1949, April-May 1957, and November 1973.

Water Quality. The water adjacent to and upstream from Buffalo Point has relatively few pollution sources. Unless there is drastic population growth at the headwaters of the Buffalo or a drastic increase in agricultural and industrial activities, the water quality of these streams should remain relatively unchanged for the foreseeable future.

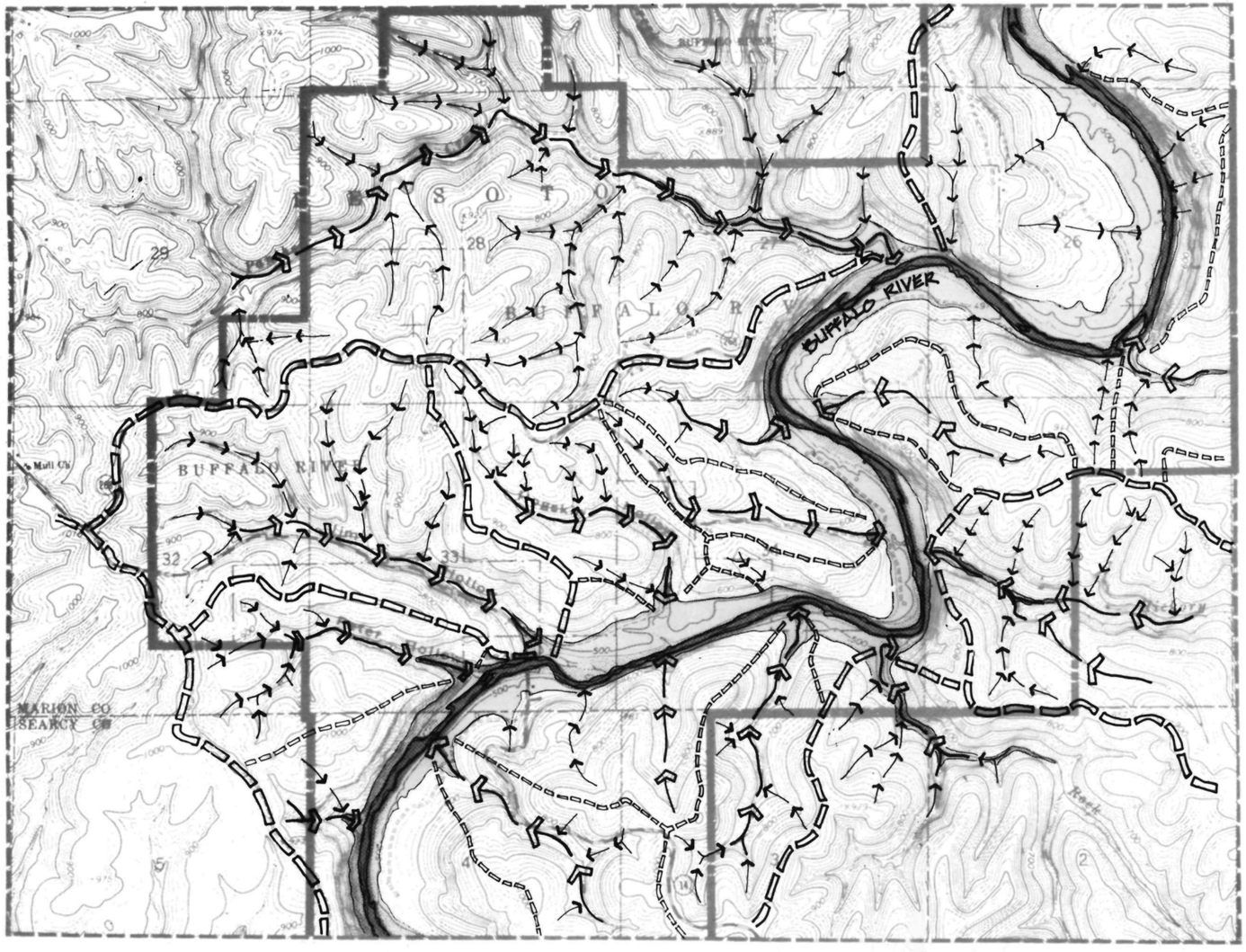
Pollution currently contaminating Buffalo River has two basic sources: domestic discharges and agricultural pollutants. The domestic sources of river pollutants are the widely dispersed residences along the river and its tributaries. The farms and homes in the immediate vicinity of the river utilize septic tanks or tile fields for sewage disposal. The high rock content and porous quality of the soil allow virtually raw sewage to flow laterally over impervious rock strata into streams or shallow pockets of groundwater.

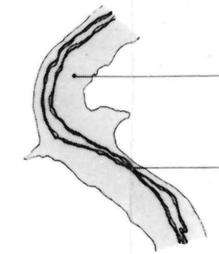
Agricultural pollution falls into two categories: stream siltation, and contamination from runoff of agricultural chemicals. Stream siltation is the primary source of pollution in Buffalo River and its tributaries. Soil erosion occurs during cultivation periods of row crops; however, this is minimal due to the limited land suitable for crop production. Most erosion within the Buffalo River watershed results from the wholesale clearing of land to convert heavily wooded hillsides into grazing land.

The time between the clearing of the land and reestablishment of a soil-binding groundcover determines the severity of siltation contamination. Quite often after the land has been cleared, the owner will discover that due to excessive slope, shallow soils, and stone content, the area is not suited to grazing purposes, and he will then allow the area to revegetate naturally. This has occurred more frequently because the use of herbicides for land clearing has become a common practice throughout the region.

The effects of clear-cutting on cave resources are adverse because they preclude percolation and lead to drying of caves, as well as siltation due to greater erosion.

A study of the Buffalo Point area shows 13 tributary streams intersecting Buffalo River within the project boundary; however, only six of the tributary watersheds lie totally within the boundary. If extensive development outside the boundary were to occur, it could produce adverse impacts on the tributary watersheds and ultimately on the overall character of the Buffalo Point area. Some manner of protecting these watersheds should be explored because the problem is a potential one for the entire river. However, it is most likely to occur at the few points where major public recreational development attracts related private development.





FLOODPRONE AREA

RIVER CHANNEL

MAJOR WATERSHED DIVISION

MINOR WATERSHED DIVISION

MAJOR DRAINAGE CHANNEL

MINOR DRAINAGE CHANNEL

HYDROLOGY

0 500 2,000 4,000

north

DEVELOPMENT CONCEPT PLAN

BUFFALO POINT

BUFFALO NATIONAL RIVER, ARKANSAS

United States Department of the Interior / National Park Service

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Water resource data for the White River basin have been collected since 1946 by the U.S. Geological Survey. This has not been a continuous collection but rather a series of periodic checks over the years from 1946 to 1966. Three locations (Pruitt, St. Joe, and Rush) on Buffalo River have been spot-checked for chemical quality and daily temperature. No spot checks have been made since 1966.

In 1977, there were no significant changes in water quality in Buffalo River, as reported in research conducted by the University of Arkansas (see appendix B). Seasonal variations followed previous seasonal patterns. Detailed water quality analysis has been conducted since 1973, and there were no signs of degradation of water quality in 1977--the most recent reporting period.

Aesthetic Quality

Prominent bluffs, steep hillsides, narrow ridgetops, abundant vegetation, animals, caves, springs, cultures, historic structures, people, and the river itself are features that contribute to the aesthetic quality of Buffalo National River.

Because the river is the major attraction, developments to accommodate visitors must be located close to it. Minor developments like campgrounds, picnic areas, restrooms, and hiking and equestrian trails, which do not entail substantial construction, can be placed within the floodplain where native streamside vegetation will help screen them. However, because of almost yearly flooding of the low terraces (and in compliance with Executive Order 11988, Floodplain Management, dated May 24, 1977), major developments like visitor information facilities, interpretive centers, and district offices must be located well above the 100-year floodplain. Such major developments should be designed to blend with the landforms and be screened from the river by native vegetation.

The design concepts discussed above will be implemented at Buffalo Point to help preserve the aesthetic quality of Buffalo National River.

CULTURAL ENVIRONMENT

Prehistory

The earliest inhabitants of the Ozark region were probably members of small nomadic bands that crossed the area during the Paleo-Indian period (20,000 to 8,000 B.C.). Paleo-Indian cultures characteristically utilized distinctive lanceolate projectile points in hunting large game such as extinct forms of elephant and bison. No physical remains of this period have yet been positively identified in the Buffalo Point area.

During the subsequent Archaic period (8,000 to 1,000 B.C.), the regional cultures became increasingly efficient at utilizing the full range of natural resources available. Adjusting to climatic and cultural changes, they continued to hunt bison and smaller animals but placed

greater emphasis on seeds, fruits, and other plant resources. By the end of the Archaic period, local inhabitants were weaving cloth and baskets, and their settlements had become more populous and were typically located in bluff areas.

In later prehistoric periods, the cultural development of the Ozarks remained somewhat conservative and independent from that in surrounding regions. The lifeway of the late Archaic bluff dwellers continued largely unchanged into historic times. Cultures in adjacent areas developed pottery and horticultural skills during the Burial Mound period (1,000 B.C. to A.D. 700). In the Temple Mound period (A.D. 700 to 1700), the Mississippian cultural tradition was characterized by intensive agriculture, large permanent villages, and platform mounds spread through most of eastern United States. The Ozarks were only marginally influenced by these neighboring cultures.

History

The first major European settlement was established in Arkansas near the site of the present Arkansas Post National Monument in 1721, 180 years after De Soto and his men traveled through the eastern and south-central part of the state. However, permanent European settlement in the Buffalo River area did not occur until the early 1800s.

Indians were still living in the Buffalo River area at the time the first Europeans arrived in the region. In addition to descendants of the earliest inhabitants of the area, the white settlers encountered Indians from two other major tribes. The Osage, although primarily inhabitants of south-central Missouri, used northwestern Arkansas as a hunting territory from the late 1600s until 1808. In that year, the Osage sold all the Arkansas land they controlled and were removed to Oklahoma.

The Cherokee, the second major tribe, inhabited the area in quite large numbers. They entered northeastern Arkansas in the early 1800s because of pressure from increasing occupation of their homelands in Tennessee, Alabama, and Georgia. Many of these first Cherokee settlers inhabited Arkansas as far west as Harrison. In 1817, a Cherokee reservation was established in north-central Arkansas. The reservation was purchased by the government in 1828, and the Cherokee living there were moved to Oklahoma. Cherokee traveling from the region east of Arkansas to Oklahoma passed through the Buffalo River area from the late 1820s until 1838-1839 when the last of the Cherokee east of the Mississippi River gave up their homes and traveled by land and river to Oklahoma, a journey now referred to as the "Trail of Tears."

The non-Indian settlers who reached the Buffalo River area in the early 1800s were descendants of the English colonists and came mostly from the East, especially from the mountainous regions of Kentucky, Virginia, Tennessee, and North Carolina. Some historians credit the settlers from Tennessee with the naming of the Buffalo River in Arkansas after the river of the same name in Tennessee. Others believe the name came from the animal, which was still in the valley until about 1830.

Some European settlers supported themselves by fishing, trapping, or hunting, at least in the early years, although most engaged in subsistence farming. Between 1830 and the outbreak of the Civil War in 1861, more settlers were drawn to the area in part by cheap land, the best of which often went for $1.25 per acre. Canebreaks were burned, timber was felled, and lands were tilled for crops. Timber was first used for building cabins and fences and making whiskey barrel staves. Later, it was used for making railroad ties and for other commercial activities. Clear-cutting was prevalent in some areas to convert hillsides and meadows into grasslands for grazing of livestock.

A number of Civil War skirmishes and raids took place along the Buffalo River in the early 1860s. Confederate forces were supplied by lead and saltpeter works in the area until the works were destroyed by Union soldiers. Homesteading continued after the Civil War, with timber becoming the major economic activity. In addition to the reestablished lead and saltpeter works, other mining also played a role prior to and just after the turn of the century.

The town of Rush, several miles downstream from Buffalo Point, boasted 2,000 residents and 17 zinc mines in the early 1890s. Rush marked the center of the lead- and zinc-mining industry in the state during World War I. First developed during the 1880s, Rush grew steadily both in production and population until by 1916-1917 approximately 3,000 miners and their families were packed into the narrow valley. During its years of peak production, the Rush area produced approximately one-half of the state's total output of lead and zinc. However, following the collapse of the market near the end of the war, the area quickly declined. Occasional attempts to mine the area occurred during subsequent decades, but all were of a short-lived nature. One of the last attempts, during the early 1960s, resulted in the construction of a large concentrating plant near the mouth of Rush Creek.

By 1910 all available land in the area was settled and homesteading ceased. The population of the 1,338-square-mile watershed of the Buffalo River was approximately 27,000 at the turn of the century. After homesteading ceased, population began a trend of decrease that has persisted until the present. The rate of decline has slowed significantly in the last decade and has even been reversed in a few areas.

Many factors played a part in the out-migration of persons from the area and the concurrent decline in economic opportunity relative to other sections of the state and nation. Inadequate crop rotation, overgrazing, and clear-cutting of the land, combined with a lack of knowledge and capital with which to practice conservation, hastened the erosion of the limited topsoil and decreased the productivity of the land, which was only of marginal fertility to begin with. In addition, business in the early and middle 1900s became increasingly competitive, and the area was isolated from market centers. The birth rates were high, the land was overpopulated, and other more viable opportunities for economic advancement were simply not available in the area.

Present conditions are little different from those just described, and where changes have taken place, they have often been a mixed blessing.

Tourism, concentrated around Bull Shoals and Norfork lakes, and increased economic activity at Mountain Home, the growth center for the area, have increased economic opportunity and the standard of living for some residents. The high level of unemployment and the increased concentration of older persons, due both to the out-migration of younger people and the in-migration of retirement-age individuals, have increased the demand for public services at the same time that the tax base used for the supply of such services is decreasing.

The relatively small numbers of people in the four-county area encompassing Buffalo National River, especially in the nonurban sections, as well as their physical and social isolation reduce the social interaction necessary to allow an increase in general knowledge of a change in values. The result is a distrust of persons and values from outside the community, which to some degree perpetuates the social and economic problems already outlined.

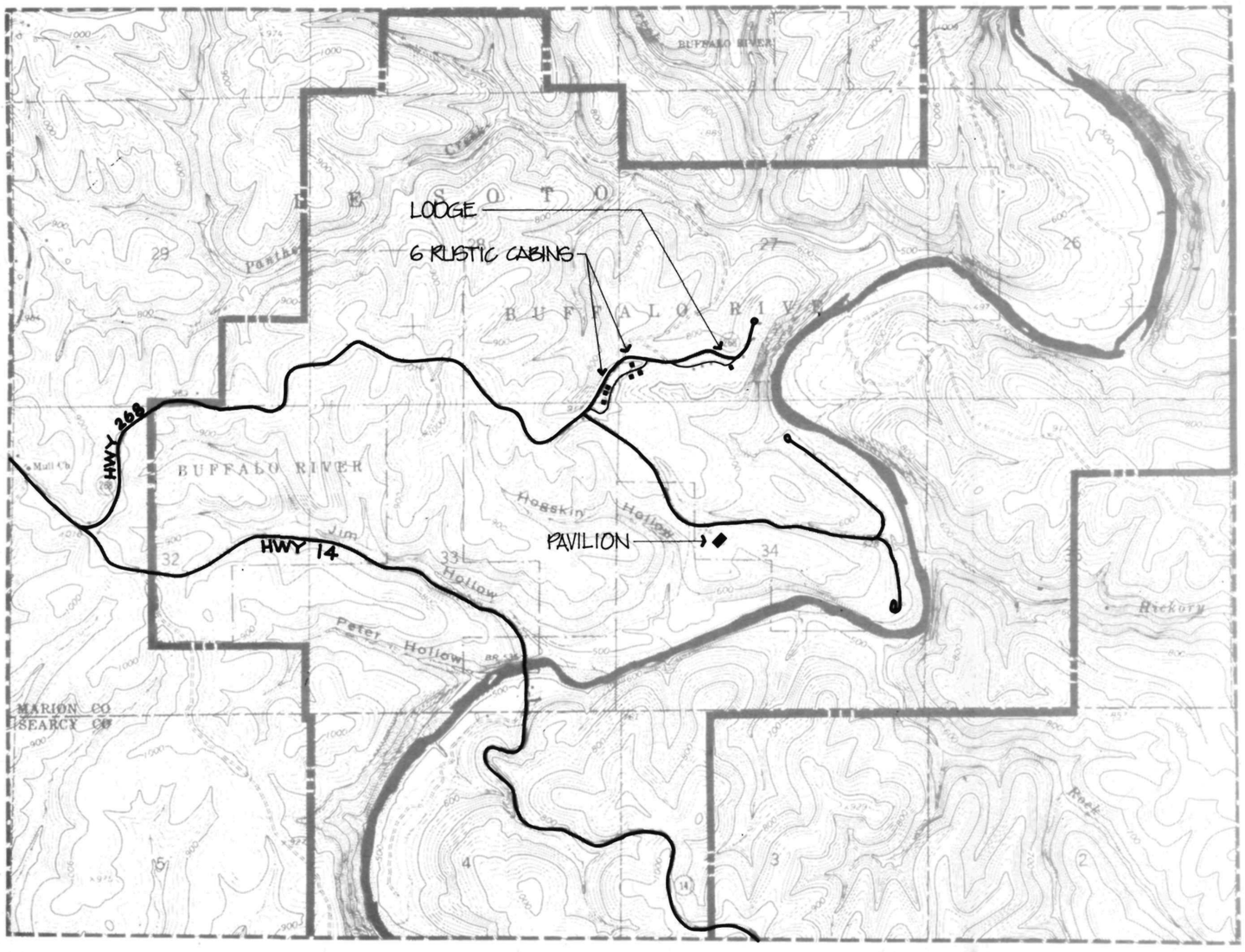
The area along Buffalo River, as well as the Ozark region in general, is of national significance because of the Ozark mountain folk culture, which still prevails in many parts of the area. The unique mountaineer settlements, with their log or native stone cabins and other building architecture, depict a physical heritage that has been in existence since the first Europeans settled in the area. Of equal importance are the folklore, handicrafts, and ballads that are still being passed on to an increasing number of local youths who are finding personal satisfaction and commercial opportunities for carrying on the arts and crafts of their past. The cultural heritage of the area has been given regional and national exposure through the efforts of the Ozark Folk Culture Center (Mountain View, Arkansas) and many individuals.

Buffalo River State Park (now Buffalo Point) was established by the Arkansas State Parks Commission in March 1938 and was developed in its entirety by the Civilian Conservation Corps. Active work was begun during the summer of 1939 and the six cabins, the lodge, and the old stone pavilion were erected at that time. World War II forestalled completion of the park. Following 1945 the state of Arkansas placed the CCC structures in operation, and in the 1960s it erected four duplex cottages and a dining room and fully developed the camping area with bathhouses and pavilions. The park continued to be operated by the Arkansas Department of Parks and Tourism until 1972, when the area was transferred to the federal government.

Historic Resources

Rush is historically significant because of the prominent role it played in the production of Arkansas lead and zinc. It is the only mining ghost town in the state.

The six rustic cabins, rustic lodge, and large stone pavilion at Buffalo Point are among the least altered CCC structures in Arkansas and, as such, are eminently worthy of preservation. These structures exemplify the architectural styles and the rustic building materials employed by the CCC during the depression of the 1930s. Evocative of the New Deal era,



HISTORIC RESOURCES

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north

DEVELOPMENT CONCEPT PLAN

BUFFALO POINT

BUFFALO NATIONAL RIVER, ARKANSAS

United States Department of the Interior / National Park Service

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these buildings have survived with a high degree of historic integrity. Not only do they retain substantial original fabric, but the surrounding area also appears little changed since it was first developed. The eight structures are currently being nominated to the National Register of Historic Places (see the Historic Resources map).

Archeological Resources

Professional and amateur archeological surveys over the years have located more than 254 prehistoric sites inside the national river boundary with cultural affiliations ranging from the Archaic through the Woodland to Mississippian period. It is likely that additional unlocated sites exist that are either covered by alluvial and colluvial fill or obscured by undergrowth and fallen leaves.

In 1975, certain areas proposed for development within the national river boundary were surveyed for archeological remains by Robert G. Campbell of the Department of Anthropology, Texas Tech University. Dr. Campbell was unable to survey all areas proposed for development because some had not yet been acquired by the National Park Service at that time. The survey was largely concentrated in the area around Buffalo Point. The sites identified are listed in table 2.

SOCIOECONOMIC ENVIRONMENT

Transportation

Arkansas 268 serves the Buffalo Point area and dead-ends there. It connects to Arkansas 14, which averages a daily vehicle flow of 550 cars; the average daily flow on Arkansas 268 is 400 cars. There is no scheduled bus service to the area. At Marshall, the Searcy County Airport has a 2,500-foot paved runway, which can accommodate small private aircraft.

Nearly all visits to Buffalo Point are by private vehicle. This is partly because of the lack of commercial transportation, but also because of the type of use: Many visitors camp in the area so they need to bring their camping gear or motor home, and many float the river so they need to have cars shuttled to their take-out points.

Land Use and Status

Arkansas 14 is situated mostly on ridgetops south and north of Buffalo River; however, the highway drops down to the river bottom as it crosses the Buffalo River valley. The junction of Arkansas 14 and 268 is on ridgetop to the north of the river. Several businesses are located at this junction, which mainly serve tourists and recreationists. Some recreation-oriented businesses are also located on the portion of Arkansas 268 outside the national river boundary.

Table 2. Archeological Survey

SITE	TYPE OF SITE
3MR99 (TTU 3)	Sizable unstratified lithic scatter
TTR 4	Small unstratified lithic scatter
3MR99b (TTR 5)	Moderate unstratified lithic scatter
3MR98	Stratified rock-shelter
TTU 6	Disturbed, unstratified hilltop lithic scatter
3MR35	Stratified dry cave
3MR81 (Sinkhole)	Burial site
3MR95 (TTU 7)	Large (ca. 10 acres) unstratified lithic scatter, some groundstone
TTU 8	Moderate (9,000 sq. ft.) lithic scatter, chipped and groundstone
TTU 9	Small unstratified lithic scatter

The more level spots on ridgetops have been cleared for agriculture, and this is where most farms are located. However, the majority of the terrain is forested.

The Buffalo Point area is comprised mostly of land that was previously owned by the state of Arkansas and managed as Buffalo River State Park. The state has transferred most of the land to the federal government. A few disputed titles remain to be cleared; however, most land proposed for development is now owned by the federal government. There are no county or state land use plans that would affect development in the Buffalo Point area.

Population and Economic Considerations

Buffalo River falls within four northern Arkansas counties: Baxter, Marion, Newton, and Searcy; the Buffalo Point area, including the area upstream from the Arkansas 14 bridge, is situated in Marion and Searcy counties. The population in the four-county area was 39,401 in 1950; by 1960 it had decreased to 30,071, representing an almost 24-percent decline in population. All four counties had heavy population losses due to out-migration of residents looking for better educational and economic opportunities. The state also lost population, but at a much lower rate (see table 3).

Table 3. Population Changes

County	1950	1960	% Change
Marion	8,609	6,041	-29.8
Newton	8,685	5,963	-31.3
Searcy	10,424	8,124	-22.1
Baxter	11,683	9,943	-14.9
Four-County Total	39,401	30,071	-23.7
Arkansas	1,909,511	1,786,272	- 6.5

County	1960	1970	% Change
Marion	6,041	7,000	15.9
Newton	5,963	5,844	- 2.0
Searcy	8,124	7,731	- 4.8
Baxter	9,943	15,319	54.1
Four-County Total	30,071	35,894	19.4
Arkansas	1,786,272	1,923,295	7.7

The following decade (1960-1970) showed a significant change in the trend of out-migration. Newton and Searcy counties had brought their out-migration down to less than 5 percent, while Marion and Baxter

counties had reversed the trend and had population gains. The largest population increase, in Baxter County, can be attributed to the growth of Mountain Home, the center of economic and tourist activity and the largest urban area in north-central Arkansas.

Two factors contributed to the relatively high median age in Marion and Searcy counties as shown in table 4. The first was the out-migration of younger persons, particularly during the 1950s and 1960s. (A high median age is fairly common in poorer agricultural areas, where out-migration of young people has been a trend for a number of decades.) The median age in 1960 was already significantly higher in the two-county area than in the state as a whole, and by 1970 it had increased to the point where the two-county median was considerably above the state median, which had remained almost unchanged since 1960.

By 1970, a second factor was as much or more of an influence on the median age than out-migration of the young. In the 1960-1970 decade, there was an emphasis on the development and promotion of retirement communities throughout the entire Ozark region. The resultant in-migration of older persons caused an increase in the median age in the area, including Marion and Searcy counties, and accounted for the large growth in population in Baxter and Marion counties.

Table 4. Age Distribution

1960

County	0-21	22-64	65 & Over	Median Age
Marion	2,047	3,088	906	38.8
Searcy	3,251	3,790	1,083	33.5
Arkansas	760,755 (43%)	831,145 (46%)	194,372 (11%)	29.0

1970

County	0-21	22-64	65 & Over	Median Age
Marion	2,172	3,445	1,383	43.4
Searcy	2,878	3,601	1,252	35.9
Arkansas	780,242 (41%)	905,293 (47%)	237,760 (12%)	27.1

In 1960, the percent of total population in the labor force was lower for Searcy and Marion counties than for the state as a whole. Unemployment was lower in Searcy County than in the state, and in Marion County it was about equal to that in the state. By 1970, the force percentage for both counties had decreased while the state showed a major increase.

Personal income in both counties was quite low relative to that in the state during the 1960-1970 decade. Table 5 provides 1960 and 1970 per capita and total personal income figures for the two counties and the state.

Table 5. Per Capita/Total Income

1960

County	Per Capita Personal Income	Total Personal Income (Thousands)
Marion	$ 954	$ 5,763
Searcy	868	7,052
Arkansas	1,394	2,490,063

1970

County	Per Capita Personal Income	Total Personal Income (Thousands)
Marion	$2,162	$ 15,134
Searcy	2,033	15,717
Arkansas	2,864	5,508,317

THE PLAN

DEVELOPMENT

Buffalo Point will utilize many of the existing facilities and provide for new needs with minimal construction. Recreational uses will increase in the area, and existing conflicts will be reduced.

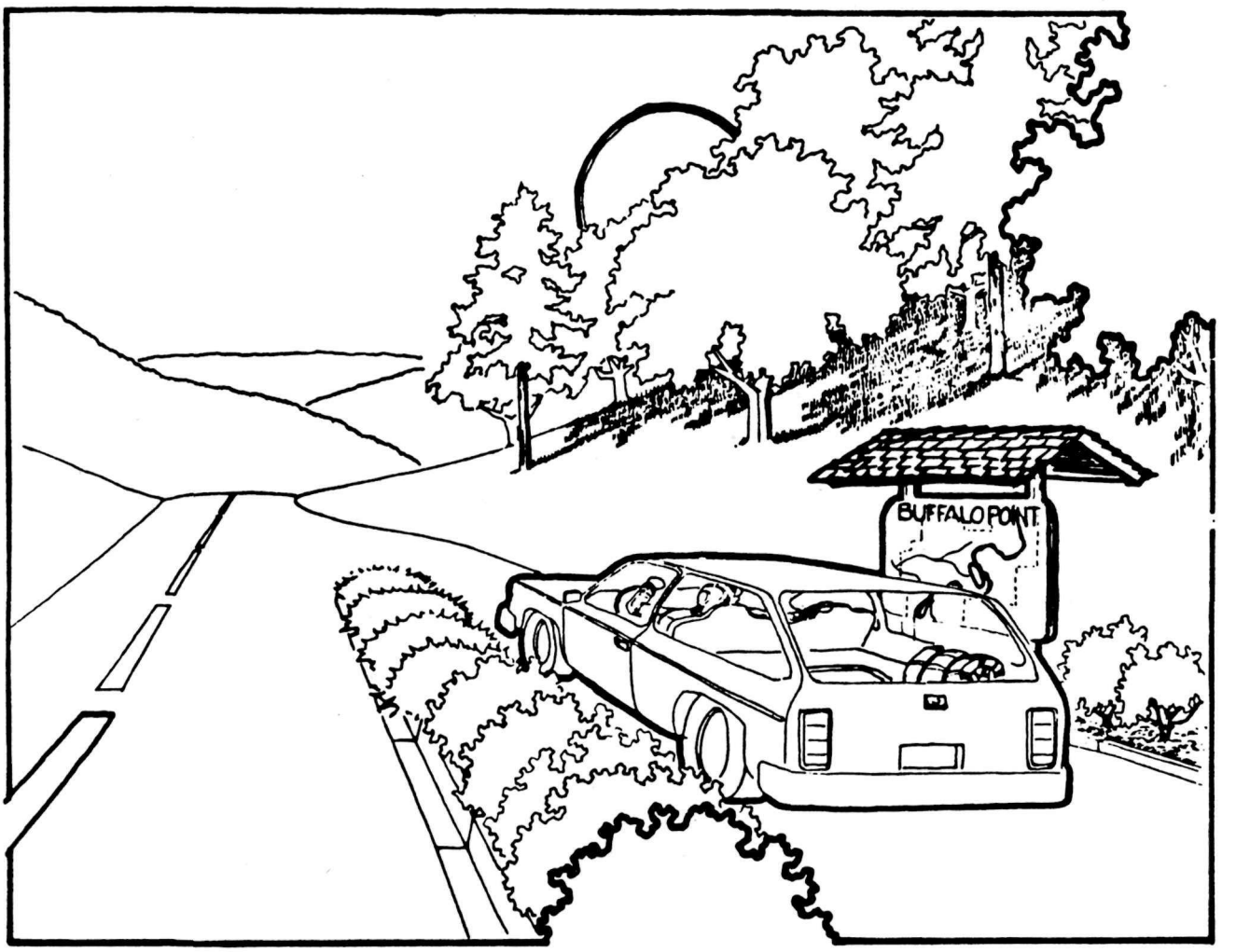
Visitor information stations will be located at the north and south approaches on Arkansas 14. These unmanned pulloff stations will be at the side of the road (see Visitor Information Station Concept) and will provide basic information and orientation. They may also have underground radio transmitters that can broadcast brief messages on current campground and river conditions. Cooperation with the Arkansas Highway Department will be necessary because the station near the Arkansas 14/268 junction needs to be located outside the national river boundary within the highway right-of-way.

District headquarters, a maintenance facility, a fire/rescue cache, and a YACC operation will be located on the ridgetop adjacent to the Arkansas 268 park entrance, about 1½ miles from the Arkansas 14 junction. The district headquarters building will be close to the entrance road. Visitor information/orientation and maps will be provided there, but there will be no interpretive exhibits in the structure. Besides the district offices for protective, interpretive, and maintenance divisions, there will be a training/meeting room, a visitor contact desk, and a storage room. The fire/rescue cache will be located just south of the headquarters building. The maintenance area will be south of the fire/rescue cache and will include an enclosed maintenance building (an existing building is being moved to this location), a YACC operations building, an outside fenced storage area, and a refueling area.

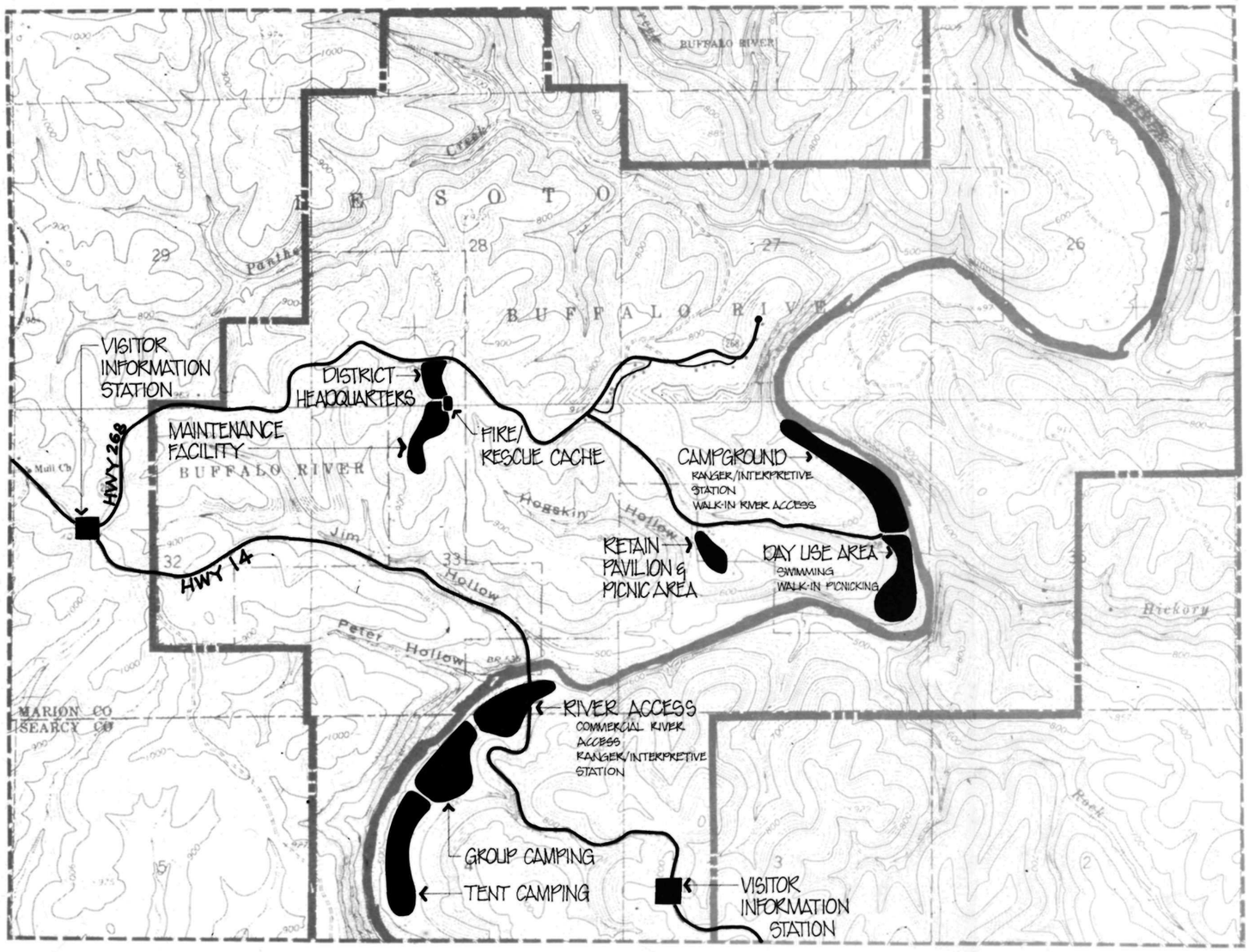
The concession operation at the ridgetop development will continue to provide visitor services for the foreseeable future. The cabins will continue as rental units until it is no longer economically feasible to use them for this purpose. As the number of visitors increase, similar services are expected to be provided by businesses outside the national river boundary. This will eliminate the need for construction of expensive new facilities inside the park.

Should the concession operation end, the historic structures, which include six small rental rustic cabins and one lodge built by the Civilian Conservation Corps, can be better preserved and maintained if they are utilized. The westernmost cabin, currently occupied by the concession manager, will provide housing for an NPS ranger. The interiors of the other five cabins will adapted for similar use as seasonal quarters. (These cabins are not insulated or equipped for year-round use.) The structures will need to be protected, especially when they are unoccupied during the winter.

Midway along the ridgetop are three duplex rental cabins; these will be converted to three single-family residences. The lodge will be retained as quarters for four seasonal employees. The duplex cabin at the end of



VISITOR INFORMATION STATION CONCEPT



PROPOSED DEVELOPMENT

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north

DEVELOPMENT CONCEPT PLAN

BUFFALO POINT

BUFFALO NATIONAL RIVER, ARKANSAS

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the road will be relocated and used as seasonal quarters. The restaurant will be converted into an environmental education center.

The existing district headquarters/staff residence building will be converted into duplex housing for seasonals. Because this building is highly visible, it will be screened from the road by shrub and tree plantings. The parking area on the north side will be eliminated.

The popular trail to Indian Rockhouse will continue to be utilized. The trail offers excellent sites for interpreting surrounding natural features, and signs, brochures, and tours will be provided that highlight the area's natural history. The archeological history of Indian Rockhouse will not be emphasized until all archeological work in the area has been completed and the full story can be told. The trail to Indian Rockhouse is currently being improved; the parking area at the trailhead will be enlarged. A trail will lead to the end of the ridge near the restaurant for a view of the Buffalo River valley.

The picnic area will be retained on the mid-level ridge. Group camping will no longer be accommodated here, but sites will be provided in the Arkansas 14 bridge area. The CCC pavilion will continue to be used as a picnic shelter. It will also be used for interpretive presentations, especially in inclement weather.

The river recreation area will still accommodate present uses but will be altered somewhat. Campground loop E will be removed. Loop B and the beach area will then be converted for day use only; swimming and picnicking will be the major activities. Loop A of the campground will be retained until the new camping area is completed at the Arkansas 14 bridge site. At that time, management will reevaluate maintenance problems in loop A and visitor camping demand, so that a decision can be made to close or retain loop A. River access, including commercial canoe and johnboat launching will be relocated near the Arkansas 14 bridge. The existing launch ramp at Buffalo Point will be retained to permit limited access to the river for campers in that area. The beach area will continue to be used mainly for swimming.

The existing ranger/interpretive station will be expanded and modified to provide visitor contact, ranger service, fee collection, camper registration, interpretive exhibits, natural history sales, and a meeting place for interpretive walks. This station, in conjunction with the nearby amphitheater, will serve as the focus for interpretive functions. However, there will be no auditorium or audiovisual room, as visitors will directly contact the resources for interpretive experiences. Only modest audiovisual displays will be offered in the station. Evening campfire programs will continue at the amphitheater.

In order to maintain a sufficient number of campsites during the development period so that visitors will not be inconvenienced, loops A, B, and E will be retained as camping areas until the proposed campground at the Arkansas 14 bridge is completed and in operation. Loop B will then be converted for day use, and loop E will be removed entirely. Loop A will then be retained or closed depending on needs and/or problems. Loops C and D will continue to provide sites for all types of camping.

A new river recreation area will be developed upstream from the Arkansas 14 bridge. This area will be arranged and designed so that there will be less noise and more primitive surroundings as one advances upstream. The recreational uses will be basically the same as in other river recreation areas, but there will be some diversity to eliminate conflicts and congestion in the other areas. A ranger/interpretive station will be located upstream from the bridge and above the 100-year floodplain. This station will provide visitor contact, ranger service, camper registration, interpretive exhibits, natural history sales, and a meeting place for interpretive functions. River access for canoes and johnboats will be nearby. Once the site is completely in public ownership, an access road will be constructed that will serve the entire river recreation area. The road will be designed so that outfitters do not have to back their vehicles long distances to load and unload canoes.

Upstream from the river access will be a group campground, which will accommodate four groups. A tent campground will be farther upstream. It will have sufficient space for 80 campsites. This open forest is ideally suited for tent camping. Design of the area will involve some tree cutting, but only for the roadway because parking areas and campsites will be sensitively positioned under the trees. The new tent campground is intended to relieve overcrowded conditions at the existing campground, to open more river frontage, and to provide a less structured camping area. A swimming beach will be designated near the campground.

In both new camping areas, parking will be located above the floodprone area. Individual campsites may be located in the floodprone area, but the existing flood alert system will minimize potential safety hazards.

Utility supply lines (water, electricity, telephone, and sewer) are all existing. These lines will be extended to serve the two new areas. All existing and future electric and telephone lines will be placed underground. A new tertiary sewage treatment plant will also be needed at the Arkansas 14 bridge site.

Energy conservation will be applied where possible. New structures should use all practical means of energy conservation emphasizing passive solar techniques. Buildings should be sited to take advantage of southern orientations to optimize solar potential. Active solar systems will be included if cost effectiveness is verified in the design phase and if visual effects are acceptable. Development should also be clustered to reduce road network systems and minimize the extent of utility system. The National Park Service, where practical, will implement energy saving systems and will endeavor to carry out the "Draft Energy Conscious Planning Guidelines," September 1980.

New facilities should be designed and constructed so that they are accessible to all, including handicapped visitors. Typically, steps and curbs should be replaced with ramps at appropriate locations. Parking stalls for handicapped should be extra wide and located near building entrances. Special populations should be provided with a variety of recreational, cultural, and educational activities to include access and use of interpretive facilities, trails, campgrounds, picnic areas, swimming beaches, and restroom facilities.

Pages 51 and 52 missing in the electronic edition.

The areas that are proposed for development have been surveyed for archeological resources by Campbell (1975) and staff archeologists from the Southwest Regional Office, National Park Service (1979). The archeological sites identified will be evaluated for significance for the National Register of Historic Places by the Southwest Cultural Resources Center. All sites determined to be eligible for inclusion on the National Register will be managed in accordance with the provisions of the National Historic Preservation Act of 1966, its implementing regulations (36 CFR 800), and National Park Service Management Policies. Those sites not determined eligible for National Register listing will be managed in accordance with National Park Service Management Policies. In all cases, the primary policy will be to avoid direct or indirect impacts on all known archeological resources.

MITIGATING MEASURES

Natural Environment

Provision of adequate solid waste containers and sewage disposal facilities will help reduce the likelihood of these contaminants entering the river. Erosion control measures during construction and revegetation soon after will reduce soil erosion.

If future studies or observations provide data on endangered species that change the status of those species within this part of Buffalo National River, a biological assessment will be prepared to comply with the intent of section 7 of the Endangered Species Act of 1973.

Activities affecting air quality will be carried out in compliance with all local, state, and federal air quality standards and regulations. As air quality baseline data and resource sensitivity data become available, they will be utilized to mitigate any inadvertent impacts on air quality selected values.

New construction will be screened by native shrub and tree plantings to eliminate any visual intrusions on the river.

River water quality will be monitored frequently during construction to ensure that soil erosion and siltation prevention measures are working adequately.

Cultural Environment

All work on the exteriors of the historic structures will be in accordance with the secretary of the interior's "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" and the National Park Service Activity Standards.

Potential impacts on archeological or historic sites eligible for listing on the National Register will be mitigated by incorporating appropriate measures in cooperation with the Arkansas state historic preservation officer and the Advisory Council on Historic Preservation. Sites not

eligible for inclusion on the National Register that are subject to direct or indirect impact will be salvaged in accordance with current National Park Service Management Policies.

This plan is addressed in a memorandum of agreement with the Advisory Council on Historic Preservation for the adoption of the Buffalo National River Master Plan and Wilderness Recommendation, signed by the chairman March 15, 1975. The memorandum of agreement includes a proposal requiring that all development concept plans be reviewed by the state historic preservation officer (SHPO). In accordance with this proposal, if any National Register properties are affected by the plan, documentation of the results of the review and consultation with the state historic preservation officer will be provided by the Advisory Council on Historic Preservation (ACHP). If the effects are adverse, the plan will be modified to avoid such effects, or appropriate mitigation will be developed. The revised development plan will again be subject to review and comment by the ACHP and SHPO.

Socioeconomic Environment

Private enterprise will be encouraged to develop campgrounds outside the park, which will help reduce pressure at camping areas within the national river boundary.

COST ESTIMATE

Ridgetop area	
Construct 2 visitor information stations (unmanned)	$ 202,000
Construct district headquarters (2,000 sq. ft.)	269,000
Construct fire/rescue cache	127,000
[redacted]	[redacted]
Convert ranger station to seasonal duplex	34,000
[redacted]	[redacted]
Existing river recreation area	
Rehabilitate campground	48,000
Rehabilitate and enlarge ranger/interpretive station	168,000
Rehabilitate and/or obliterate loops A and E and day use area	85,000
New river recreation area (Arkansas 14 bridge)	
Construct river access	18,000
Construct ranger/interpretive station	168,000
Construct group campground (4 sites)	101,000
Construct tent campground (80 sites)	75,000
Construct access road (3,000 ft.)	504,000
Develop and landscape site, etc. (15%)	342,000
Place existing and new electric and telephone lines underground (8.1 miles)	749,000
Total Gross Cost	[redacted] $2,890,000

Note: All costs are gross amounts and include actual expenses and design and contract supervision. Certain grounds, trails, and rehabilitative work will be done by the Young Adult Conservation Corps.

APPENDIXES

A: MANAGEMENT OBJECTIVES

To preserve the natural river scene and maintain a free-flowing, nonpolluted river and to protect the historical, archeological, and cultural remains from loss through the securing of a land base within the authorized boundaries through acquisition or other means; the implementation of a viable research program; the initiation of programs of stabilization, maintenance, and protection; and, as needed, the modification of management practices and other means of eliminating conditions having adverse effects.

To provide significant recreational opportunities for visitors to the national river by reducing congestion at river put-in and take-out areas during periods of heavy visitation; permitting hunting and fishing (in designated areas in accordance with appropriate laws and consistent with the park's purpose); analyzing and evaluating the three primitive areas nominated for wilderness and encouraging backcountry use therein within yet-to-be-established carrying capacities; and providing a varied and balanced interpretive program, which emphasizes the river and the historical and archeological past and enhances visitor understanding of and interest in the past and present life in the Ozark Highlands and environment, which are still undergoing change.

To coordinate, encourage, and administer a viable research program, emphasizing the inventorying, identifying, and monitoring of the scenic, geologic, historic, hydrological, archeological, and general scientific values, as well as the physiographic and geologic condition of the river; the reintroduction of extirpated species where feasible; the maintenance of open fields where scenic and wildlife habitat will be enhanced; and the promotion of special protection for all rare and endangered species.

To maintain and foster close liaison and cooperation with governmental and nongovernmental entities and individuals who have an interest in the national river and its surroundings in order to achieve the area's purpose through the most harmonious integration of activities inside and outside of the national river boundaries.

B: BUFFALO NATIONAL RIVER PHYSICAL AND CHEMICAL DATA FOR 1977

Date	Station	Temperature (°C)	Turbidity	Dissolved Oxygen	% Saturation	Conductivity	Silica	Nitrate	Ortho-phosphate	pH	Alkalinity
3/11/76	Arkansas 14	10.5	22.0	9.5	84.8	90	4.28	.420	.013	-	-
	Buffalo Point	10.0	40.0	10.0	88.5	90	4.05	.050	.022	-	-
	Rush	10.5	43.0	10.0	89.3	90	4.27	.201	.004	-	-
4/30/76	Arkansas 14	16.8	-	8.0	82.5	125	3.48	.138	.005	-	-
	Buffalo Point	16.2	-	8.0	80.1	130	3.02	.178	.005	-	-
	Rush	15.0	-	8.0	78.4	130	3.30	.099	.004	-	-
6/30/76	Arkansas 14	26.0	4.75	-	-	185	8.71	.420	.001	8.2	98
	Buffalo Point	25.5	4.75	-	-	172	8.09	.420	.001	8.1	98
	Rush	25.0	5.7	-	-	172	9.08	.499	.001	8.15	98
7/15/76	Arkansas 14	30.0	1.4	11.6	152.6	210	6.46	.116	.011	8.25	112
	Buffalo Point	30.0	1.4	11.0	144.7	210	5.10	.200	.006	8.2	112
	Rush	30.0	1.5	9.8	128.9	222	6.67	.241	.000	8.2	112
8/18/76	Arkansas 14	29.5	2.2	10.6	137.7	202	7.65	.083	.000	8.2	105
	Buffalo Point	29.0	2.7	10.3	132.1	200	7.37	.042	.000	8.2	105
	Rush	29.0	3.5	12.83	164.5	190	7.77	.002	.000	8.5	93
9/16-18/76	Arkansas 14	24.8	1.1	10.6	126.2	200	7.79	.041	.000	8.1	126
	Buffalo Point	21.5	1.2	8.5	95.5	185	7.66	.061	.000	7.9	126
	Rush	25.0	0.8	10.6	126.2	198	6.72	.119	.000	7.9	120
10/16-17/76	Arkansas 14	16.0	1.1	10.9	109.0	149	5.89	.148	.008	8.1	122
	Buffalo Point	14.5	1.7	9.6	95.0	159	5.59	.166	.000	7.9	122
	Rush	13.5	1.7	8.6	81.9	142	5.31	.166	.000	7.9	124
11/19/76	Arkansas 14	6.5	1.0	10.0	81	151	4.79	.157	.000	8.0	134
	Buffalo Point	7.9	1.2	11.5	96.6	154	4.68	.157	.002	8.0	132
	Rush	7.0	0.8	11.5	94.3	150	4.63	.061	.000	8.15	134
1/4/77	Arkansas 14	1.0	1.0	13.4	94.4	115	3.27	.098	.010	8.0	112
	Buffalo Point	0.0	0.7	13.5	92.5	120	3.09	.173	.002	8.1	111
	Rush	0.0	0.6	13.5	92.5	114	2.85	.117	.019	8.1	112

Date	Station	Temperature (°C)	Turbidity	Dissolved Oxygen	% Saturation	Conductivity	Silica	Nitrate	Ortho-phosphate	pH	Alkalinity
4/9/77	Arkansas 14	16.0	3.4	10.1	-	-	5.78	.285	.062	8.5	86
	Buffalo Point	17.0	3.4	9.7	-	-	5.61	.285	.067	8.6	86
	Rush	17.0	3.6	9.6	-	-	4.22	.285	.055	8.8	86
5/15-17/77	Arkansas 14	26.0	1.1	8.5	103.7	205	4.64	.188	.004	7.8	104
	Buffalo Point	26.2	1.8	8.6	104.9	205	4.61	.208	.001	7.8	104
	Rush	26.3	1.6	8.2	100.0	208	4.67	.188	.054	7.7	98
6/21/77	Arkansas 14	29.2	1.3	9.6	123.1	208	5.52	.144	.024	8.2	110
	Buffalo Point	29.1	2.3	9.6	123.1	223	7.06	.144	.013	8.2	110
	Rush	29.0	2.2	12.1	155.1	226	6.95	.144	.013	8.7	106
7/25/77	Arkansas 14	30.9	1.4	10.2	136.0	210	11.88	.205	.041	8.3	102
	Buffalo Point	30.1	1.8	8.9	117.1	212	11.70	.205	.012	8.15	102
	Rush	30.9	1.6	9.3	124.0	205	13.92	.245	.015	8.2	99
8/13/77	Arkansas 14	28.7	1.7	9.3	118.2	167	9.64	.159	.001	7.8	99
	Buffalo Point	27.7	1.0	7.8	98.1	169	9.64	.140	.001	7.7	99
	Rush	28.2	0.9	6.8	86.3	170	9.79	.140	.001	7.65	97
9/21-22/77	Arkansas 14	22.5	1.3	7.9	90.3	167	8.2	.177	.001	7.3	110
	Buffalo Point	22.9	1.3	7.9	90.8	180	8.05	.140	.001	7.6	120
	Rush	22.0	2.5	7.2	81.8	190	7.95	.196	.001	7.4	104
10/19-20/77	Arkansas 14	15.9	0.7	10.8	108	160	5.52	.156	.016	7.8	116
	Buffalo Point	16.0	0.8	10.3	103	165	5.46	.156	.013	7.55	130
	Rush	15.5	1.3	9.7	94.2	165	5.34	.184	.045	7.10	124
11/16/77	Arkansas 14	15.0	6.7	10.4	102	140	6.35	-	.048	8.4	116
	Buffalo Point	15.0	6.1	10.2	100	145	6.21	-	.047	8.2	106
	Rush	-	-	-	-	-	-	-	-	-	-
12/30/77	Arkansas 14	6.0	2.0	13.9	111.2	116	4.3	.190	.013	8.0	104
	Buffalo Point	6.0	1.5	13.8	110.4	117	4.39	.190	.011	8.0	104
	Rush	7.2	1.4	13.5	111.6	149	3.95	.190	.011	7.8	106

C: CORRESPONDENCE WITH STATE HISTORIC PRESERVATION OFFICER

ARKANSAS HISTORIC
PRESERVATION PROGRAM

FIRST STATE CAPITOL • 300 WEST MARKHAM • LITTLE ROCK, ARKANSAS 72201

December 16, 1975

Ms. Glennie Wall
Environmental Quality
National Park Service
Denver Service Center
655 Parfet
Denver, Colorado 80225

Dear Ms. Wall:

It has recently come to the attention of the Arkansas Historic Preservation Program that several significant structures may have been overlooked in the original Environmental Impact Statement concerning the Buffalo National River. These structures are the rustic stone buildings located at Buffalo Point (formerly Buffalo State Park). Though only about 40 years old, these seven stone structures are nevertheless significant because they were constructed by the Civilian Conservation Corps.

Architecturally pleasing and structurally sound, these buildings are among a very few constructed in Arkansas by the CCC. Both the professional staff of the Arkansas Historic Preservation Program and Dr. John L. Ferguson, State Historian, consider these structures historically significant and urge their continued preservation.

Sincerely,

Anne Bartley
State Historic Preservation Officer

AB:cm

cc: Dr. John L. Ferguson
Dr. Richard Sellars

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

IN REPLY REFER TO:
H30(SWR)PCH

Ms. Anne Bartley
State Historic Preservation Officer
Suite 500 Continental Building
Markham and Main
Little Rock, Arkansas 72201

Dear Ms. Bartley:

The National Park Service proposes to renovate six cabins, a lodge, and a pavilion at Buffalo Point, Buffalo National River. Constructed by the Civilian Conservation Corps between 1939 and 1941, these structures have been nominated to the National Register. Presently used as concessioner-operated guest cottages and as residences for park personnel, these buildings possess sub-standard wiring and plumbing and are in need of general maintenance and stabilization work. The thrust of the present maintenance effort will be to replace all or segments of the present electrical and plumbing systems and generally to bring the structures up to standard.

During this process, care will be taken that interior and exterior features are preserved. If in the event that such features are damaged during the process or it becomes evident that portions of them must be replaced due to natural deterioration, structural materials similar to the original will be sought and used to preserve the historic appearance. In any event, the architectural style and integrity of the buildings will be maintained. (The only non-historic additions to the building's exteriors will be rain gutters and downspouts. These items will significantly contribute to the future preservation of the cabins.)

In addition to this maintenance related work, the National Park Service proposes to institute a number of fire protection measures which are necessary to provide adequate protection to the structures as well as to their occupants. These measures consist of:

a. The installation of a sprinkler system. This system has been recommended as being the most appropriate and effective method of fire suppression for these structures. Although the installation of the system will have some impact on the original workmanship of the structures in that some original fabric will have to be removed and replaced, it will have relatively little visual effect on the structures.

b. The installation of fire sensors and alarms. This system, which will be installed through the attic, will have a minimal structural and visual impact on the structures.

c. The installation of exhaust hoods over each cooking range. This measure will constitute some visual intrusion but we believe the hoods to be necessary in order to reduce the possibility of fire due to cooking activities.

d. The installation of dry wall behind all water heaters. The areas around the heaters are somewhat restricted and present a potential fire hazard. In order to minimize this danger, the historic paneling will be covered with dry wall. We believe that the chance of fire in these confined areas outweighs historical considerations and that the installation of dry wall, in this instance, is justified.

e. The provision for additional exits. These cabins contain no provision for egress from the rear. To provide this safety measure, screen doors will be installed in each screen porch. Because these doors will be constructed of the same material as the porches, their installation will cause only minor alteration to the historic fabric and will not be visually intrusive.

In accordance with the procedures of the Advisory Council on Historic Preservation we have applied the criteria of effect. We believe the above described preservation and protection measures will have no adverse effect on the resource. Rather, the intent of the project is to promote the safety and comfort of the park visitor through the elimination of potential safety hazards and through the overall revitalization of the structures, while at the same time preserving their architectural style and integrity.

All stabilization work will be performed in strict accordance with NPS historic preservation policies and standards and will be performed under the direction and supervision of the Regional Preservation Architect. Guidelines are being prepared to ensure that this project will adhere to the proper preservation policies and standards. Other related maintenance or repair work that may be identified as the work progresses will also be done in accordance with NPS historic preservation policies and standards under the direction of the Regional Preservation Architect.

This letter supersedes our letter to you on this matter dated November 2, 1977.

We would appreciate your response on this matter as soon as possible. If you concur with the above determination, please sign on the space provided and return the letter to this office within 45 days. A copy of this letter is enclosed for your files. Should you have any questions regarding these projects, please contact Dr. Dwight T. Pitcaithley, Acting Regional Historian, Southwest Regional Office, (505) 988-6501.

Sincerely yours,

Lorraine Mintzmyer

Acting Regional Director,
Southwest Region

In duplicate

Enclosure

I concur with the above stated determination of no adverse effect regarding the CCC Cabins at Buffalo Point, Buffalo National River.

State Historic Preservation Officer — Date: Nov 30/78

cc:
Superintendent, Buffalo National River
Louis Wall, ACHP, Denver
Manager, Denver Service Center
Atten: Chief, Division of Quality Control
Chief, Cultural Resources Management Division, WASO

H30(SWR)PCH

Mr. Louis Wall
Advisory Council on Historic Preservation
Western Office
P. O. Box 25085
Denver, Colorado 80225

Dear Mr. Wall:

The National Park Service proposes to renovate six cabins, a lodge, and a pavilion at Buffalo Point, Buffalo National River. Constructed by the Civilian Conservation Corps between 1939 and 1941, these structures have been nominated to the National Register. Presently used as concessioner-operated guest cottages and as residences for park personnel, these buildings possess sub-standard wiring and plumbing and are in need of general maintenance and stabilization work. The thrust of the present maintenance effort will be to replace all or segments of the present electrical and plumbing systems and generally to bring the structures up to standard.

During this process, care will be taken that interior and exterior features are preserved. If in the event that such features are damaged during the process or it becomes evident that portions of them must be replaced due to natural deterioration, structural materials similar to the original will be sought and used to preserve the historic appearance. In any event, the architectural style and integrity of the buildings will be maintained. (The only non-historic additions to the building's exteriors will be rain gutters and downspouts. These items will significantly contribute to the future preservation of the cabins.)

In addition to this maintenance related work, the National Park Service proposes to institute a number of fire protection measures which are necessary to provide adequate protection to the structures as well as to their occupants. These measures consist of:

a. The installation of a sprinkler system. This system has been recommended as being the most appropriate and effective method of fire suppression for these structures. Although the installation of the system will have some impact on the original workmanship of the structures in that some original fabric will have to be removed and replaced, it will have relatively little visual effect on the structures.

b. The installation of fire sensors and alarms. This system, which will be installed through the attic, will have a minimal structural and visual impact on the structures.

c. The installation of exhaust hoods over each cooking range. This measure will constitute some visual intrusion but we believe the hoods to be necessary in order to reduce the possibility of fire due to cooking activities.

d. The installation of dry wall behind all water heaters. The areas around the heaters are somewhat restricted and present a potential fire hazard. In order to minimize this danger, the historic paneling will be covered with dry wall. We believe that the chance of fire in these confined areas outweighs historical considerations and that the installation of dry wall, in this instance, is justified.

e. The provision for additional exits. These cabins contain no provision for egress from the rear. To provide this safety measure, screen doors will be installed in each screen porch. Because these doors will be constructed of the same material as the porches, their installation will cause only minor alteration to the historic fabric and will not be visually intrusive.

In accordance with the procedures of the Advisory Council on Historic Preservation we have applied the criteria of effect. We believe the above described preservation and protection measures will have no adverse effect on the resource. Rather, the intent of the project is to promote the safety and comfort of the park visitor through the elimination of potential safety hazards and through the overall revitalization of the structures, while at the same time preserving their architectural style and integrity.

All stabilization work will be performed in strict accordance with NPS historic preservation policies and standards and will be performed under the direction and supervision of the Regional Preservation Architect. Guidelines are being prepared to ensure that this project will adhere to the proper preservation policies and standards. Other related maintenance or repair work that may be identified as the work progresses will also be done in accordance with NPS historic preservation policies and standards under the direction of the Regional Preservation Architect.

Pursuant to procedures for compliance with Section 106 of the National Historic Preservation Act, the National Park Service consulted the Arkansas State Historic Preservation Officer on November 8, 1978. A copy of her concurrence regarding this project is enclosed.

Sincerely yours,

/s/ Earl A. Hasselbrock

Acting Regional Director,
Southwest Region

Enclosure

cc:
Superintendent, Buffalo River
Glennie Wall, Quality Control, DSC
Chief, Cultural Resources Management
Division, WASO, 560
State Historic Preservation Officer, Arkansas

January 4, 1979

Mr. E. A. Masselbrock
Acting Regional Director
Southwest Region
National Park Service
P. O. Box 728
Santa Fe, New Mexico 87501

Dear Mr. Masselbrock:

On December 22, 1978, the Council received a determination from the National Park Service that the renovation of six cabins, a lodge and a pavilion at Buffalo Point, Buffalo National River, Arkansas, would not adversely affect these properties which are being nominated to the National Register of Historic Places. The Executive Director does not object to your determination.

A copy of your determination of no adverse effect, along with supporting documentation and this concurrence, should be included in any assessment or statement prepared for this undertaking in compliance with the National Environmental Policy Act and should be kept in your records as evidence of your compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f, as amended, 90 Stat. 1320).

Your continued cooperation is appreciated.

Sincerely,

Signed

Louis S. Wall
Assistant Director
Office of Review and Compliance, Denver

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PLANNING TEAM AND CONSULTANTS

PLANNING TEAM

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Denver Service Center

Larry Walling, Landscape Architect
Denver Service Center

William Rabenstein, Interpretive Planner
Denver Service Center

Elmer Hernandez, Engineer
Denver Service Center

John F. Turney, Superintendent
Buffalo National River

CONSULTANTS

L. Lorraine Mintzmyer, Former Superintendent,
Buffalo National River

Environmental and Historical Specialists
Denver Service Center

Regional Staff
Southwest Region, Santa Fe

Park Staff
Buffalo National River

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, and parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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