draft general management plan
development concept plan

december 1981

OZARK

NATIONAL SCENIC RIVERWAYS/MISSOURI

DRAFT GENERAL MANAGEMENT PLAN

and

DEVELOPMENT CONCEPT PLAN

Ozark National Scenic Riverways

Missouri

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

CONTENTS

INTRODUCTION 1

THE ENVIRONMENT 5
- Natural Environment 5
  - Geology/Geomorphology 5
  - Water Resources 5
  - Climate 6
  - Air Quality/Noise 6
  - Ecosystems 6
  - Rare, Endangered, or Threatened Species 9
- Cultural Resources 10
  - Overview of Ozark Cultural History 10
  - Archeological Resources 10
  - Historic Structures 12
  - Folklife Resources 15
  - Objects and Documents 17
- Existing Conditions 17
  - Landownership 17
  - Development 17
  - Visitor Use 18
- Socioeconomic Environment 29
- Wilderness Suitability 30

GENERAL MANAGEMENT PLAN 31
- Management Zoning 31
  - Natural Zone 31
  - Historic Zone 32
  - Development Zone 32
  - Special Use Zone 32
- Resources Management 41
  - Natural Resources 41
    - Caves 41
    - Aquatic Ecosystems 42
    - Open Fields 43
    - Forests 44
    - Rare, Endangered, or Threatened Species 45
    - Fisheries 46
    - Wildlife 46
    - Extirpated Wildlife Species 48
    - Herbicides/Pesticides 48
    - Fire 49
  - Cultural Resources 50
    - General Policies 50
    - Archeological Resources 51
    - Historic Structures 51
    - Other Historic Resources 54
    - Folklife Resources 54
    - Objects and Documents 55

Visitor Use and Interpretation 55
Access and Circulation 55
Floodplain Considerations 56
River Recreation 59
Land Recreation 63
Concessions 64
Interpretive Programs 64
Interpretive Themes 64
Future Studies 65

DEVELOPMENT CONCEPT PLAN 67
Headquarters 67
Primitive Areas 67
Developed Areas 67
Cedargrove 67
Akers 68
Pulltite 75
Two Rivers 79
Alley Spring 81
Powder Mill 85
Buck Hollow 86
Log Yard 90
Horse Camp 93
Devils Well 97
Jerktail 98
Big Spring 98
Gooseneck 103
Round Spring 105

OPERATION COSTS 111

APPENDIXES 117
A: Legislation 118
B: Management Objectives 121
C: Rare, Threatened, or Endangered Species 123
D: Archeological Sites 125
E: Land Identified as Possessing Wilderness Potential 126
F: Primitive Campsites 127

BIBLIOGRAPHY 128

PLANNING TEAM AND CONTRIBUTORS 132

MAPS

Region 2
Water Resources 7
Cultural Resources 13
Landownership 19, 21, 23, 25
Existing Conditions 27
Management Zoning 33, 35, 37, 39
Public Road and Utility 57
General Development Plan 69
Development Concept Plans
- Cedargrove 71
- Akers 73
- Pulltite 77
- Two Rivers 80
- Alley Spring 83
- Powder Mill 87
- Buck Hollow 89
- Log Yard 91
- Horse Camp 94
- Devils Well 95
- Jerktail 99
- Big Spring 101
- Gooseneck 104
- Round Spring 109

TABLES

1. Archeological Investigations 11
2. Historic Structures 16
3. Average Canoe Use 29
4. Historic Structure Treatments 53
5. Major Interpretive Themes 64
6. Annual Operation Costs 111
7. General Development Priorities and Construction Costs 113

INTRODUCTION

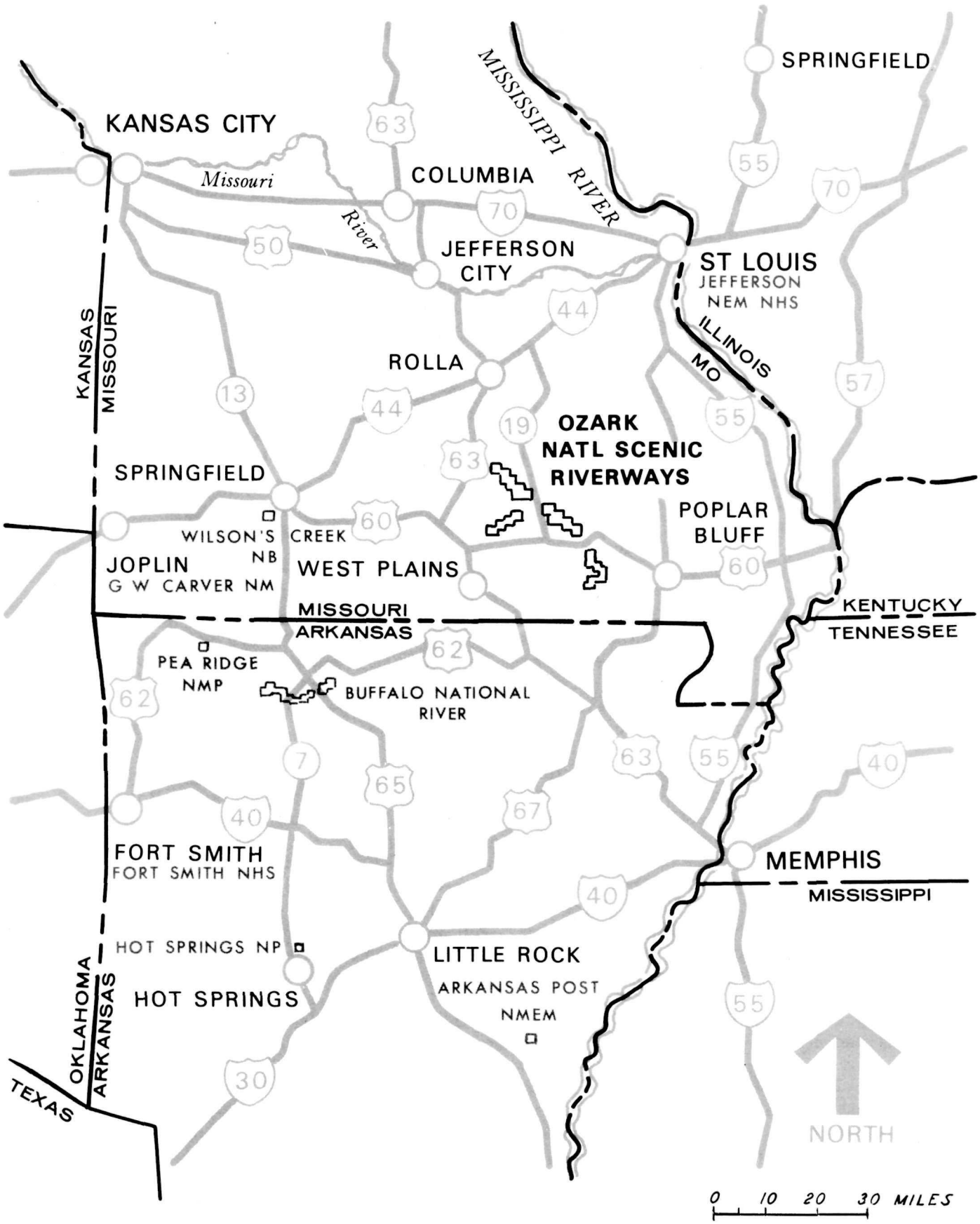
Ozark National Scenic Riverways extends along 134 miles of the Current River and Jacks Fork River in the Ozark Highlands of southeastern Missouri (see Region map). The clean, clear waters of the riverways, alternately sliding over rapids and gathering in still, translucent pools, provide excellent opportunities for johnboating, canoeing, swimming, and fishing. The rivers are fed by intermittent streams, which wind their way through narrow valleys, or hollows, and the gently rolling countryside, and by numerous springs. Many of the larger spring branches flow from clear ultramarine or turquois pools, one of which is more than 300 feet deep. The springs are associated with a network of more than 100 caves that extends along the river corridors. The landscape remains predominantly rural, with broadleaf forests and occasional open fields providing habitat for wildlife and a scenic backdrop for the rivers. Many local residents are descendants of the self-sufficient Ozark settlers, whose history is represented by numerous historic buildings and archeological sites throughout the park. The sights and sounds of the riverways gratify the senses at every turn, making a float down the Current or Jacks Fork truly unforgettable.

The riverways' authorized boundary encompasses a total of 81,216 acres. The National Park Service owns 51,517 acres in fee and has acquired scenic easements on an additional 9,179 acres. Approximately 6,458 acres are in unencumbered private ownership, and 14,062 acres are owned and managed by the Missouri Department of Conservation. Management strategies, constraints, and directions for scenic easements and private lands are discussed in the "Statement for Management" and "Land Acquisition Plan" for the park.

Management of state lands is governed by a memorandum of understanding between the National Park Service and the Missouri Conservation Commission dated March 28, 1968, which defines the mutual land management goals of the two agencies. Another memorandum of understanding between these two agencies, also dated March 28, 1968, relates to wildlife management within the riverways. This memorandum explains that the National Park Service is responsible for habitat management on federal lands and the state is responsible for regulating the harvest of fish and wildlife. A third agreement between the two agencies defines forest fire detection and suppression activities.

Other agreements related to fire control, road maintenance, and research are defined in the "Statement for Management."

The park has operated on its "Statement for Management," cooperative agreements, and interim management plans and guidelines since the establishment of the park in 1964 (see appendix A). The purpose of this document is to provide the park with a thoroughly integrated management direction in the form of an approved general management plan and also to provide the park with a number of site-specific development concept plans for new or improved facilities.



REGION

OZARK NATIONAL SCENIC RIVERWAYS

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614 | 20,001 B
SEPT 81 | DSC

Management problems needing resolution were identified by NPS personnel and interested groups and individuals. Public perceptions of problems and solutions were formally solicited in a series of public meetings held in September 1979 and through a planning workbook response form distributed at these meetings and to individuals and groups on the park's mailing list.

Alternatives for the management of the park's natural resources were presented and evaluated in the Assessment of Alternatives, Natural Resources Management (1979). That assessment discussed alternative strategies for the management of caves, aquatic ecosystems, open fields, timber, rare and endangered plants, fisheries, wildlife, rare and endangered and threatened animals, extirpated wildlife species, visitor use sites, herbicides and pesticides, and fires.

Alternatives for the management of the cultural resources were described and evaluated in the Environmental Assessment, General Management Plan (1980). The need for an integrated management program for historic structures, many of which are in remote locations throughout the riverways; the need for adequate information on the location and significance of archeological resources, both prehistoric and historic; and the need for an integrated research and interpretive program on local history and folklore were addressed in that document.

Alternatives for visitor use and development were also described and evaluated in the 1980 assessment. The alternatives addressed river use management, including problems associated with crowding, conflicts between user groups, litter, and sanitary waste disposal; land-based recreation needs, including provisions for hiking, camping, horseback riding, picnicking, and other activities; and major facility needs, including visitor contact facilities, maintenance facilities, expanded headquarters facilities, and concession operations.

Alternatives for wilderness management were also presented in the 1980 assessment. The park was evaluated for wilderness suitability in accordance with the Wilderness Act and USDI and NPS guidelines for wilderness proposals and wilderness management.

Alternatives for management of the Cross-Country Trail Ride concession were considered in the Assessment of Alternatives, Cross-Country Trail Ride (1980).

Public meetings on the three assessments were held in five Missouri cities and towns (Eminence, Van Buren, St. Louis, Columbia, and Independence) in October 1980. Following a public response period, an analysis of public comments was completed in January 1981 and used in the selection of alternatives that comprise the proposals presented in this document. These proposals will be subject to a 30-day public review period before they can be approved for implementation. Implementation of management and development proposals discussed in this document will be subject to congressional appropriation of necessary funds. It is anticipated that these proposals will be valid for at least ten years from the date of approval of the plan.

All of the proposals included in this Draft General Management Plan/Development Concept Plan were developed and evaluated according to policies of the National Park Service and the Department of the Interior, and in compliance with applicable acts of Congress, rules and regulations, and state and federal statutes (see appendix B for NPS management objectives).

THE ENVIRONMENT

NATURAL ENVIRONMENT

Geology/Geomorphology

Ozark National Scenic Riverways is typified by narrow steep-sided hollows, numerous streams, and bluffs common to the Ozarks of southern Missouri and northern Arkansas. Much of the area is underlain by soluble limestone and dolomite, giving rise to sinkholes, caves, and springs of a classical karst topography. Outstanding cave formations, scenic topography, and some of the largest springs in the United States are important visitor attractions.

Geologically, the park region is comprised of some of the most ancient rocks on the North American continent. Countless millenia of erosion and uplift have produced a hilly, gravelly land. Most soils in the riverways are derived from the weathering of cherty limestone and dolomite and, to a lesser degree, shale and sandstone. Fertility is variable and tends to be lowest in leached soils derived from cherty limestone and greatest in alluvial bottomlands.

Excessive drainage in upland areas and sinkholes, locally severe slopes and erodibility, and the variable permeability of the bottomland soils require careful site-specific investigations prior to all major construction or development activities.

Water Resources

The park is centered around 134 miles of the free-flowing Current and Jacks Fork rivers (see Water Resources map). Most visitor activities--johnboating, canoeing, fishing, sight-seeing, picnicking, and camping--are concentrated around the cool clear rivers and the large springs that provide most of the rivers' flow. Big Spring, the largest spring in the riverways, releases an average of 270 million gallons of water per day to the Current River.

Water quality investigations of springs and rivers indicate that both chemical and bacteriological water quality in the riverways is excellent (Clifford 1966; Harvey and Gann 1969; Barks 1978). Short-term localized bacterial pollution associated with heavy visitation, storm runoff, privies in the floodplain, and horse-watering and -crossing areas has been identified (Barks 1978).

Flooding is common in the riverways. Water levels 6 to 10 feet above mean low water commonly occur, especially during the March to May rainy season. Water levels have been as high as 26 feet above mean water level (USDI, GS 1973-77; U.S. Army Corps of Engineers, personal communication). Floodwaters may rise rapidly. A rise of 2.8 feet per hour was recorded during a 1966 flood on the Current River near Eminence. Flash floods, which may occur when thunderstorm cells stall over small drainage basins, pose special hazards for visitors using these

areas. Many of the intersections between these drainage basins and the main rivers are traditionally used for camping and picnicking. A visitor-warning system is implemented whenever the danger of flooding or flash flooding is known to be severe.

Normal water levels throughout most of the riverways are sufficient for most visitor activities because dry season flows are maintained by large springs. However, water levels above Cedargrove on the Current and above Alley Spring on the Jacks Fork may be too low for canoeing and motorboating during some or all of the summer months.

Climate

Warm summers and mild winters permit year-round recreation in the riverways, with the most favorable temperatures for recreation occurring from April to October. About half the days in July and August have maximum temperatures around 90°F. Precipitation is distributed irregularly and averages 45 to 50 inches per year. Severe thunderstorms are common during summer months. Snowfall rarely exceeds 8 inches per year. September, October, and November are typically the driest months and April, May, and June the wettest months.

Air Quality/Noise

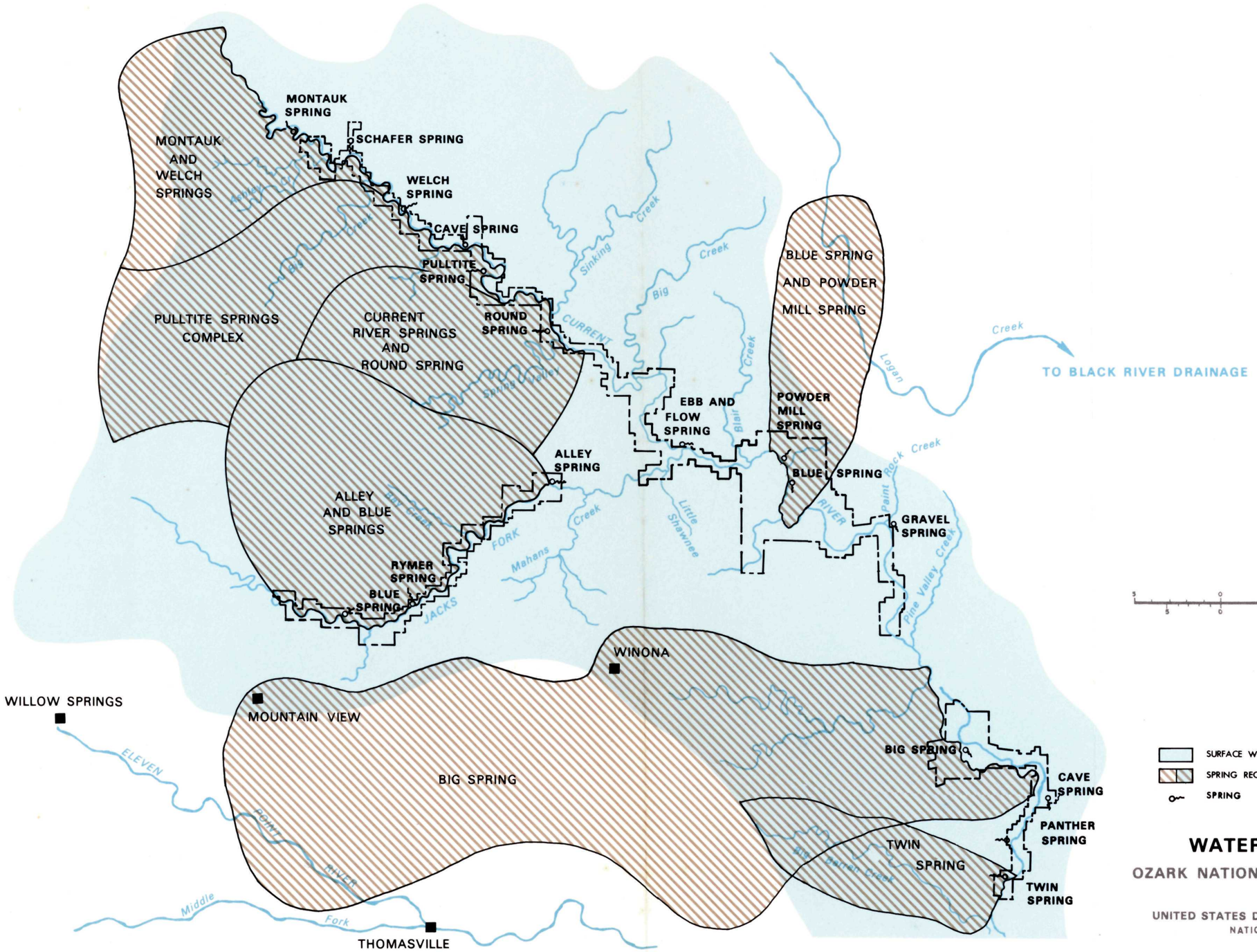
Ozark National Scenic Riverways is classified as a class II air quality area. Class II areas allow for pollution that could accompany moderate well-planned growth. Concentrations of particulate matter, sulfur dioxide, and nitrogen dioxide have been monitored for eight to ten years at an EPA monitoring station in Eminence. Air quality is considered to be good. No primary or secondary ambient air quality standards have been exceeded at this location because of the remote locations of the riverways with respect to major population centers.

No measurements of noise levels have been made within the park. Existing noise levels do not appear to be objectionable to most visitors. However, noise created by gunshots, ORVs, outboard motors, and chain saws may periodically be offensive to some visitors.

Ecosystems

Vegetative communities include several types of deciduous forest associations, bluff and rock ledges, gravel bars, and aquatic communities. Several unique upland glade and river bluff communities containing species from earlier geological periods are also present. Riparian wetlands exist along the entire length of the rivers, except where steep bluffs reach the water's edge, and along most small tributary streams of the major rivers. Vegetative communities on the riverways have been described by Redfearn (1969) and Lipscomb (1969).

Fish and wildlife are of special interest to hunters, trappers, and fishermen. Smallmouth bass and rock bass are the predominant game



WATER RESOURCES

OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

614 | 20,010B
DSC | SEPT 81

fish, but walleye and a variety of panfish are also present. A trophy trout fishery is maintained in the Upper Current River, and suckers are harvested by the traditional methods of grabbing and gigging during special seasons. Aquatic resources have been described by Funk (1969).

White-tailed deer, squirrels, game birds, turkeys, red and gray fox, coyotes, and other small mammals are hunted in the riverways. Furbearers, which may be trapped subject to state regulations, include red and gray fox, raccoon, coyote, mink, skunk, bobcat, opossum, beaver, and muskrat.

Twenty-five species of snakes are present in the riverways. Four species of poisonous snakes are present in the area, with the copperhead being relatively common. Poison ivy, ticks, and chiggers are also found throughout the park.

Rare, Endangered, or Threatened Species

The state of Missouri and the federal government have enacted legislation requiring the identification of plant and animal species in danger of extirpation (the loss of a species from the state) or extinction and providing these species with certain statutory protections.

The Missouri Department of Conservation employs the following species designations (Nordstrom et al. 1977). Endangered species are those species whose prospects for survival within the state of Missouri are in immediate jeopardy. These species must have help or extirpation will probably follow. If suitable habitat of rare species is reduced, their continued presence in the state may become endangered. The rare species designation is not necessarily synonymous with the threatened designation used in federal legislation.

Any species that has been suggested by a competent authority as possibly being rare or endangered but about which there is not enough information to determine its status is designated as status undetermined. Until more information is available, such species should be treated as rare or endangered. Species that are known to exist in the Ozark National Scenic Riverways are listed in appendix C.

Endangered species are in danger of extinction throughout all or a significant portion of their range. Threatened species are likely to become endangered within the foreseeable future throughout all or a significant portion of their range. Five endangered animal species known to have recently inhabited the riverways area are listed in appendix C; also listed are three plant species that are currently under study for federal listing. A cave has been designated by the U.S. Fish and Wildlife Service as part of the critical habitat for the endangered Indiana bat.

CULTURAL RESOURCES

Overview of Ozark Cultural History

The cultural history of the Ozark National Scenic Riverways probably began about 15,000 years ago with Paleo-Indian big game hunters, as evidenced by scattered discoveries of their distinctive spear points. By about 7000 B.C., the Archaic lifeway began to develop as groups adapted to local environments and used a broader range of wild plants and animals. Knowledge of horticulture and pottery was introduced from the lower Mississippi River Valley about A.D. 1, denoting the start of the Woodland period. Yet because of geographic isolation and the natural environment, the Indians of the Ozark Highlands largely retained a more primitive hunting and gathering lifestyle. The cultural elaborations of the Hopewell people in southern Ohio do not seem to have influenced the prehistoric Ozarkians, but the later (A.D. 900 to 1500) Mississippian florescence centered at the prehistoric metropolis of Cahokia (near St. Louis) certainly stimulated the conservative highlanders. There is increasing evidence of Mississippian villages and ceremonial centers throughout southeastern Missouri.

The historic Osage and Quapaw utilized the area primarily for seasonal hunting. The Shawnee and Delaware passed through the area in the early 1800s following displacement from their traditional homelands to the east. They were pushed west by the advancing line of settlement, and by 1830 they were beyond the Missouri border.

Although earlier Spanish explorers may have passed through the area, French hunters, fur trappers, and miners first began exploiting Ozark resources in the 1700s. However, it was not until the early 1800s--after the area was acquired by the United States under the Louisiana Purchase of 1803 and the Osage had been relocated--that Euro-American settlement began. By the 1830s the settlers, largely frontiersmen from the hills of Tennessee and Kentucky, had established the towns of Van Buren and Eminence. Gristmills, sawmills, and schoolhouses became commonplace.

The area had been largely cleared and settled by the 1860s. The Civil War brought destruction and population displacement as a result of guerrilla warfare and bushwacking. The economy was temporarily stimulated after the war by the growth of the lumber industry, but by the turn of the century, improper land use (by today's standards) had led to timber depletion, soil erosion, and a decline in populations of fish, game, and furbearers.

By the 1920s the Ozarks had become an economically depressed rural area. Nevertheless, a rich folk culture persevered.

Archeological Resources

Archeological investigations in the riverways have been limited. Less than 1 percent of the park has been professionally surveyed and many of the earlier efforts do not meet current standards. Table 1 summarizes the archeological investigations conducted to date in the riverways.

Table 1: Archeological Investigations

Area	Level of Investigation	Reference
Carter County	Surface reconnaissance	Lowe (1940)
23SH19	Recovery of eroding burial	Haslag (1959)
23SH19	Recovery of eroding burial	Bray (1964)
23SH10	Surface collection	Williams (1968)
Alley Spring	Intensive surface survey and site testing	Born and Chapman (1972)
23CT54	Excavation of part of site	Smith (1971, 1975)
Akers	Intensive surface survey and limited testing	USDI, NPS (1975)
Big Spring	Intensive surface survey and site testing	Garrison et al. (1976)
Round Spring	Intensive surface survey and site testing	Garrison et al. (1976)
Powder Mill	Intensive surface survey and site testing	Garrison et al. (1976)
Minor developments	Intensive surface survey and shovel probing	ongoing
Evaluation of threatened sites	Test excavations	ongoing

A contract for a five-year study of historic and prehistoric archeological resources in the park has recently been initiated by the National Park Service, Midwest Archeological Center. The study will include (1) archival and field investigations to locate and evaluate archeological sites of the historic period and formulation of a predictive model for such sites; (2) study and documentation of the numerous private artifact collections from the riverways area; (3) location and recording of archeological sites in open field plots being cultivated and managed for wildlife food; and (4) a geomorphological study of the Current River Valley.

It is becoming increasingly apparent that the area abounds in archeological sites (see Cultural Resources map and appendix D). There may be as many as 5,000 archeological sites within the park boundary. However, none of the known archeological sites have been evaluated for

eligibility to the National Register of Historic Places. However, if further fieldwork identifies significant sites in the numbers anticipated, substantial portions of the park may be eligible as National Register districts.

Prehistoric sites span the periods from early Archaic and, perhaps, Paleo-Indian through Mississippian. These resources have the potential not only to yield information about regional cultural history or sequence of cultural change but also to shed new light on anthropological problems such as the trade networks and spheres of influence of the Mississippian people. Remains of the Osage and Quapaw, or the displaced Shawnee and Delaware, may be studied to learn about the process of their acculturation to Euro-American lifeways.

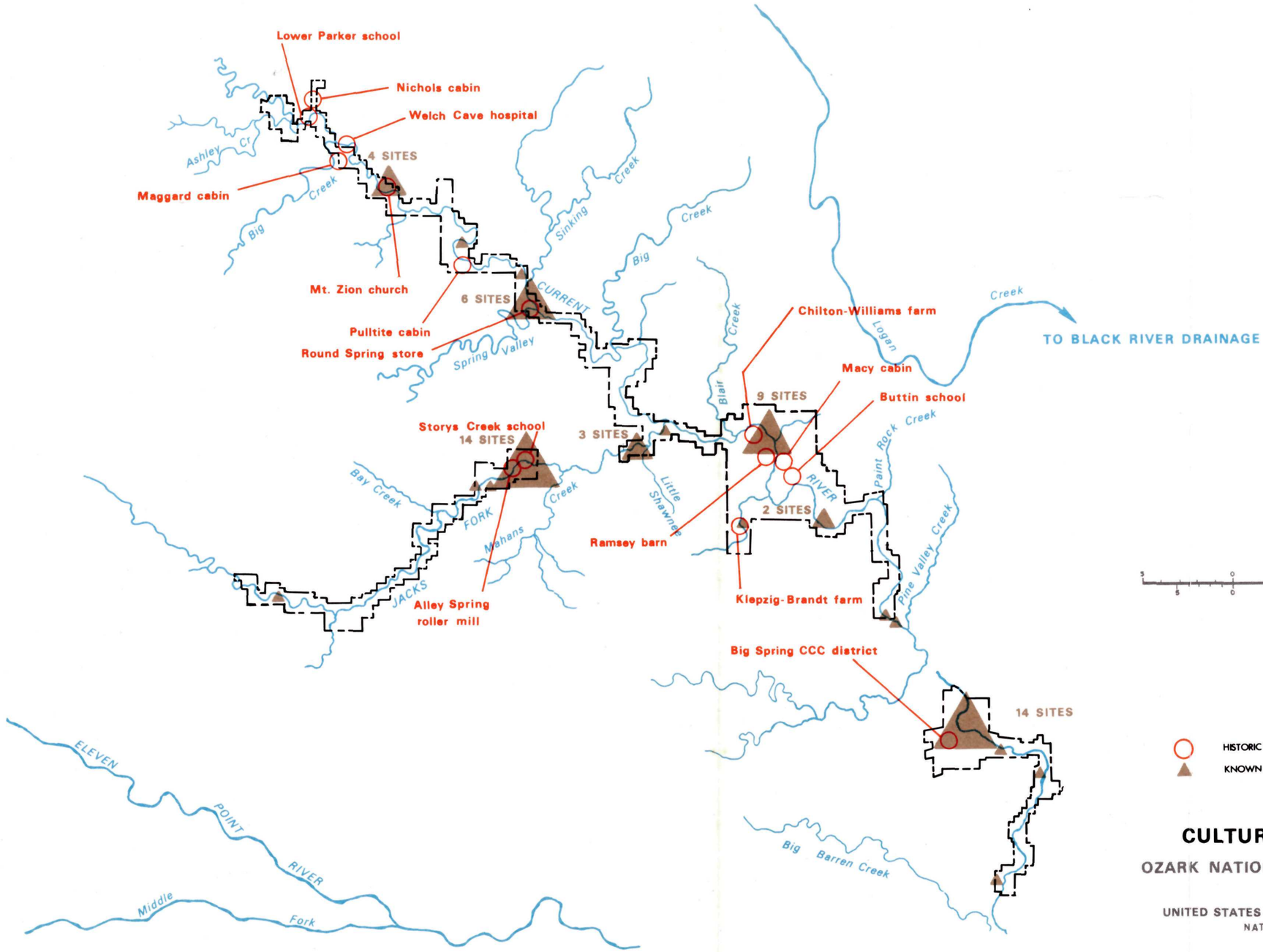
Because the river valleys were the primary transportation and communication arteries, the park contains early trapper and pioneer sites (Price and Price 1978), as well as numerous 19th century farmsteads, cemeteries, millsites, and townsites. Although almost no archeological studies of historic sites have been conducted, the diversity of historic sites and their research potential is obvious. Changes wrought by the Civil War might be best studied through historic archeology; the charred remains of the original town of Eminence are apparently within the park, and changes in settlement patterns could be studied by comparing pre- and post-war farmsteads. Later village developments, such as Cedargrove, and many sites related to the lumber industry are also found in the riverways.

Historic Structures

NPS historical architects conducted a complete inventory of historic structures in 1975, and a number of structures were placed on the NPS List of Classified Structures (LCS). The Missouri Department of Historic Preservation, under contract to the National Park Service, evaluated the inventoried structures in terms of integrity and the eligibility criteria for the National Register of Historic Places.

The evaluation judged seven historic structures or complexes as potentially eligible to the National Register. The Missouri State historic preservation officer later found two of the seven potentially eligible structures--the Cedargrove school and the Welch Cave hospital--to be not eligible. The Mt. Zion church has been determined not eligible because of its recent date of construction and lack of long-term historic associations. The Alley Spring roller mill and the Chilton-Williams farm complex have been nominated; the Big Spring CCC complex was recently listed on the National Register. The other potentially eligible properties have not yet been nominated or determined eligible by either the secretary of the interior or the keeper of the National Register of Historic Places.

The NPS List of Classified Structures has recently (1980) been revised to include an evaluation of significance, use, condition, and location, which resulted in the placement of historic structures in the following four management categories:



CULTURAL RESOURCES

OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

614	20,009B
DSC	SEPT 81

Category A includes structures that are nationally significant, relate to the purpose(s) or theme(s) of the park, or for which individual legislation has mandated preservation.

Category B contains structures that meet National Register criteria, are compatible with the primary park theme, and are potentially beneficial to the park or a leased operation.

Category C incorporates structures that meet National Register criteria but are not compatible with the park theme or potentially beneficial, or structures that are not eligible for the National Register but for which preservation meets a management need.

Category D includes structures that constitute irreparable hazards to public health and safety, lack significance or integrity, are physical or visual intrusions on a prime park value, are destroyed by a natural catastrophe, or are disposed of by a planned action.

Table 2 lists the historic structures or complexes, their management categories, and their National Register status. The Cultural Resources map also shows the locations of historic structures in the riverways.

Folklife Resources

A unique folk culture has evolved in the Ozark Highlands, due in part to the isolation and self-sufficiency of local communities. This traditional culture is typically learned orally, by imitation, or in performance; formal instruction or institutional direction is uncommon. Ozark folklife includes not only crafts and material goods but also language, values, customs, ideology, and folk arts.

The mainstream of western migration in America avoided the Ozarks region because the many small rivers and creeks and the hilly terrain made travel difficult, and the thin rocky soil was not attractive for farming. The geographic isolation of the Ozarks encouraged cultural continuity, and certain contemporary traits can be traced back through southern Appalachia to England.

Still, it is an oversimplification to state that Ozark folklife is synonymous with that of the southern mountains. Although old stock Americans from Tennessee and Kentucky dominated the early settlement, later Irish, German, Hungarian, Amish, and Mennonite groups settled in the riverways area. These and other ethnic groups contributed to the developing strands of Ozark folk culture.

Folklife resources in the riverways area have great research potential in that many strands of Ozark folk culture are represented. While the creation of the park displaced many living examples of folk culture, the region adjacent to the riverways remains a unique zone for the perpetuation of what has been called the Old Ozarks Frontier (Flanders, personal communication, December 5, 1980). In spite of the effect of mass media, improved transportation, and educational systems, contemporary Ozark folk culture remains distinct from mainstream American culture.

Table 2: Historic Structures

Structure or Complex	Historic Structure Number	Management Category	National Register Status
Lower Parker school	233, 233a, 233b	D	Not determined
Nichols cabin	244, 245	D	Not determined
Welch Cave hospital	225	C	Not potentially eligible
Maggard cabin	246	C	Not determined
Mt. Zion church	247	not on LCS	Not eligible
Pulltite cabin	229	C	Not determined
Round Spring store	220	C	Not determined
Alley Spring roller mill	501	B	Nominated
Storys Creek school	520	C	Not determined
Chilton-Williams farm			Nominated
Chilton house	315	B	
Other	318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340	D	
Buttin school	342, 342a, 342b	D	Not determined
Macy cabin	351	D	Not determined
Ramsey barn	313	C	Not determined
Klepzig-Brandt farm	346, 348, 349, 350, 355	C	Potentially eligible
Big Spring CCC			Listed
Dining lodge	422	B	
Other	401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 423, 425, 427, 432, 432, 443, 469, 471, 472	B	
	496	not on LCS	

By stereotyping contemporary Ozark culture as a backward "hillbilly" enclave, improper value judgements often obscure its present vitality. The current expressions of this unique regional culture are often overlooked or dismissed as "quaint," thus perpetuating the stereotypes.

The park staff has gathered oral histories and photographs that contribute to the study of Ozark folklife, but the emphasis has been on local history rather than culture. Folklorists have done research on various topics throughout the Ozark Highlands, but no recent syntheses have been compiled. Anthropologists, folklorists, linguists, or other social scientists have conducted only a few minor studies in the park area.

Blacksmiths, sorghum processors, johnboat makers, quilters, chair makers, millers, whiskey makers, musicians, and others draw upon their folk traditions to provide interpretive demonstrations for park visitors. The park also sponsors craft and music festivals at which folk artists perform. These people are valuable not only in the interpretation of traditional arts and crafts, but also in exposing visitors to current folk language, values, and traditions.

Objects and Documents

The park maintains a modest collection of photographs, oral histories, artifacts, books, periodicals, maps, and documents primarily related to ongoing interpretive efforts. NPS personnel from the Midwest Archeological Center are trying to locate, record, and centralize collections of prehistoric and historic American Indian artifacts that are currently stored at universities, museums, and other institutions.

EXISTING CONDITIONS

Landownership

Landownership within the authorized boundary of Ozark National Scenic Riverways is a mosaic of federally owned parcels (51,517 acres), state-owned parcels (14,062 acres), and privately owned parcels (6,458 acres). The four Landownership maps display these parcels according to ownership. PL 88-492 (see appendix A), which created the riverways, authorizes the National Park Service to manage lands within the boundary and to cooperate with county, regional, and state agencies in developing and implementing watershed management.

Development

The Upper Current, Jacks Fork, and Lower Current areas contain different types of facilities that support different experiences. Major developments on the Upper Current are closer together than on the other two sections and support a high density river recreation experience throughout the peak use season. Development on the Jacks Fork and Lower Current is much less oriented overall to large numbers of

recreationists with few major developed areas and a greater number of primitive camping and river access sites. Since most park developments serve water-oriented activities, most are located within the 100-year floodplain, and several are located in potential flash flood zones.

Existing development and visitor sites, facilities, and services are depicted on the Existing Conditions map. Major developments with facilities for interpretation, day use, overnight use, and park maintenance and operations are found at Akers, Pulltite, Round Spring, Powder Mill, Alley Spring, and Big Spring. These developments all provide river access from which concession canoe trips begin and end. Support services for river floaters, campers, and day users are also provided. These services include concession stores, equipment rental facilities, comfort facilities, and in some cases food services. Developed camping facilities are available for individuals and groups. Campground sizes range from 55 to 220 sites, with the two largest located at Alley Spring and Big Spring. Interpretation of significant natural and cultural features is provided at many of the major sites, most notably Alley Spring, Big Spring, and the visitor center at Powder Mill.

Minor development sites with facilities for day and overnight use are located at Cedargrove, Two Rivers, Jerktail, Buck Hollow, Blue Spring/Bluff View, Log Yard, and Gooseneck. River access and primitive camping facilities provide up to 25 sites, comfort facilities, and floater parking. Two Rivers offers a developed campground and a concession store/canoe rental.

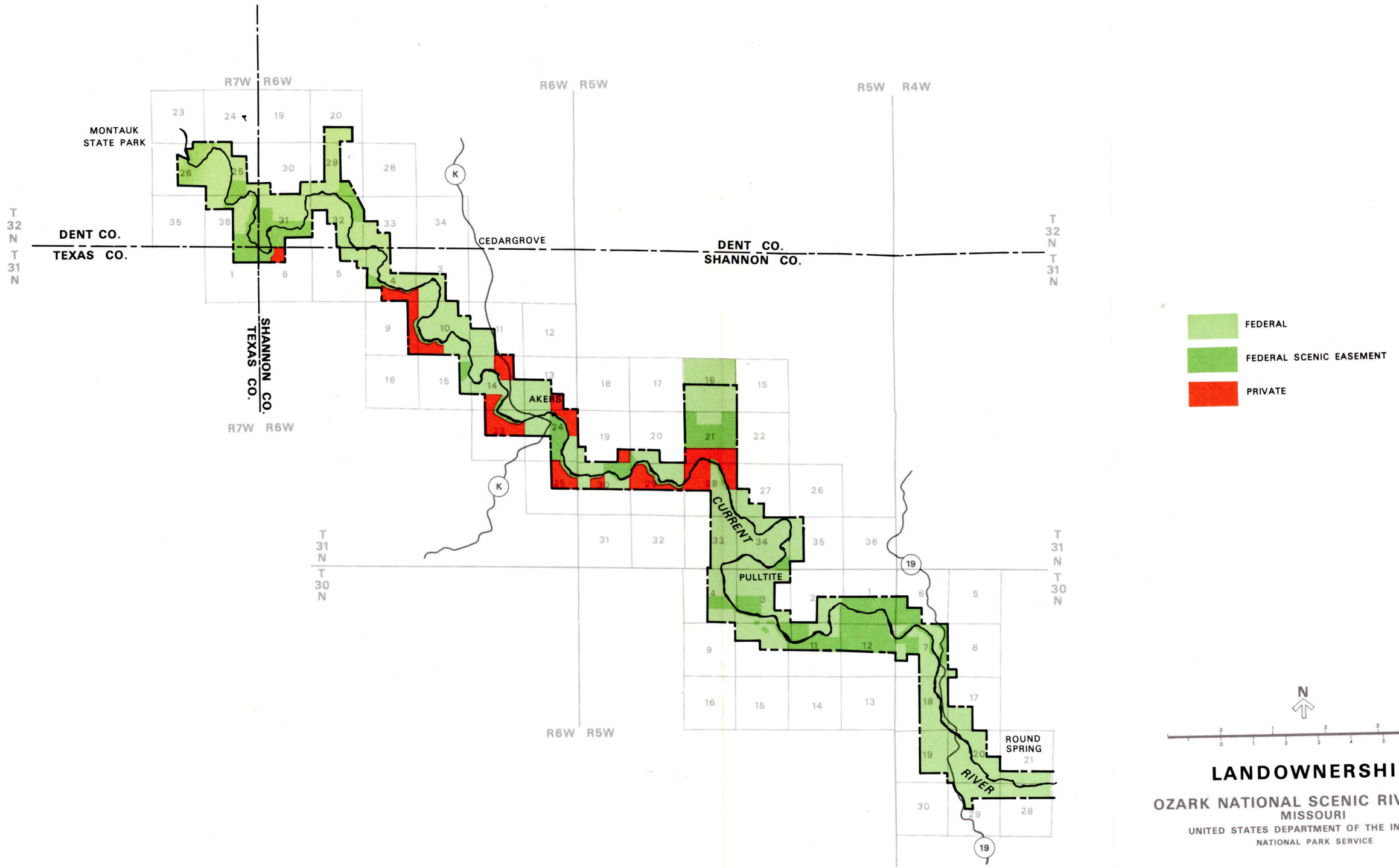
More than 40 regularly used primitive camping and river access sites are scattered throughout the riverways. These are generally accessible by unimproved county roads and contain on the average of two to five campsites with no comfort facilities.

The riverways headquarters is located in the town of Van Buren, and the central maintenance shop and YACC work building are located at Shawnee.

Visitor Use

Excellent opportunities exist in the riverways for visitors to participate in a wide range of recreational activities that include canoeing, boating, fishing, hunting, sight-seeing, camping, caving, horseback riding, hiking, ORV use, and picnicking. River use is the major recreational activity in the riverways, but land-based activities (such as caving, camping, and picnicking) are frequently oriented towards the rivers. Picnicking and sight-seeing account for the single largest proportion of recreational activities. Canoeing accounts for the second largest recreational activity. Canoeists have increased from 145,792 in 1973 to 295,400 in 1979. Most canoeists travel in rented canoes, and the number of rentals available has increased steadily.

Canoe use densities vary between areas in the riverways. Table 3 lists the average weekend day canoe use of the three river sections, as well as canoe densities per mile.

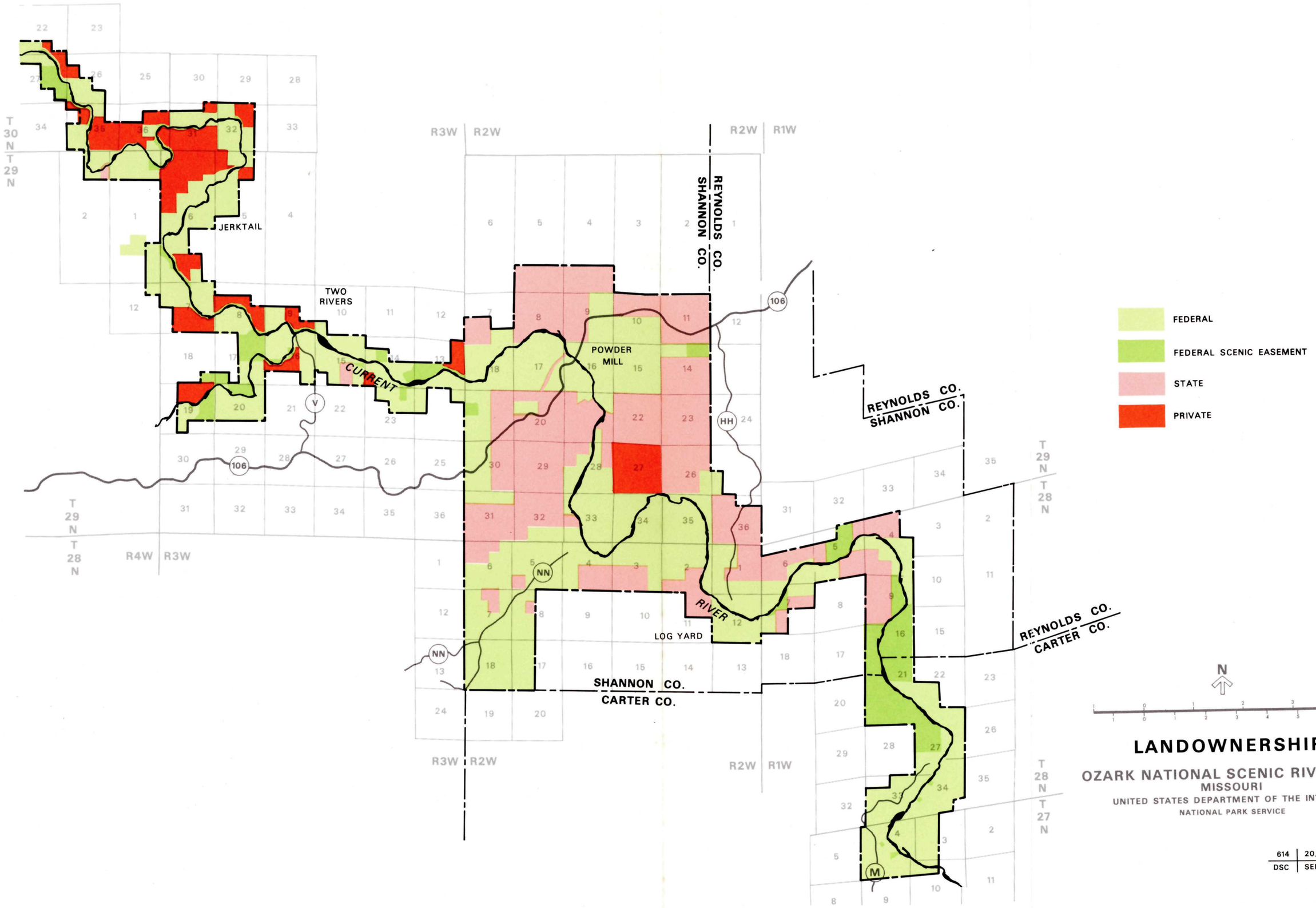


LANDOWNERSHIP

OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

614	20,011B	
DSC	SEPT 81	1 OF 4



LANDOWNERSHIP

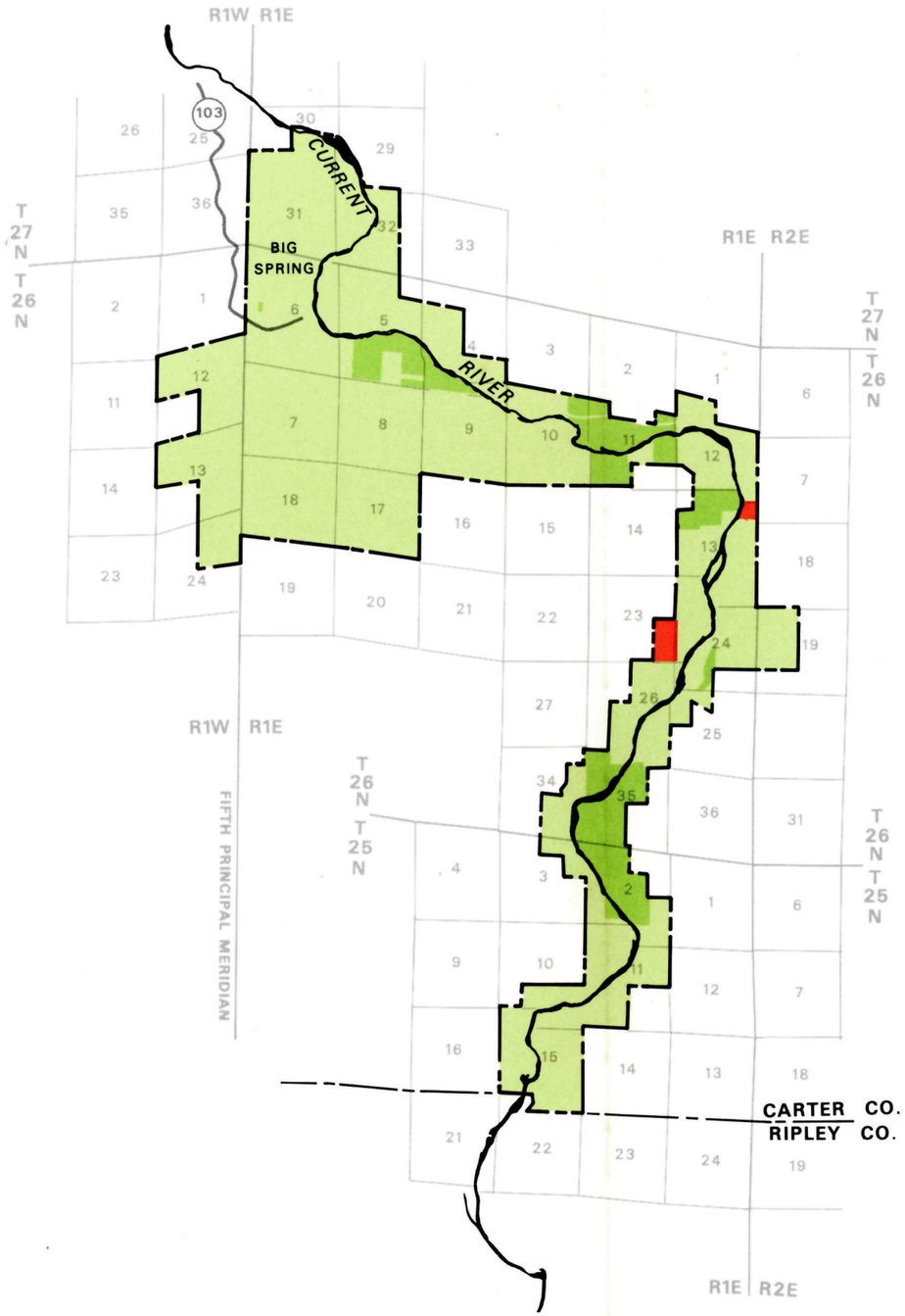
OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

614	20,011B
DSC	SEPT 81



FEDERAL

FEDERAL SCENIC EASEMENT

PRIVATE

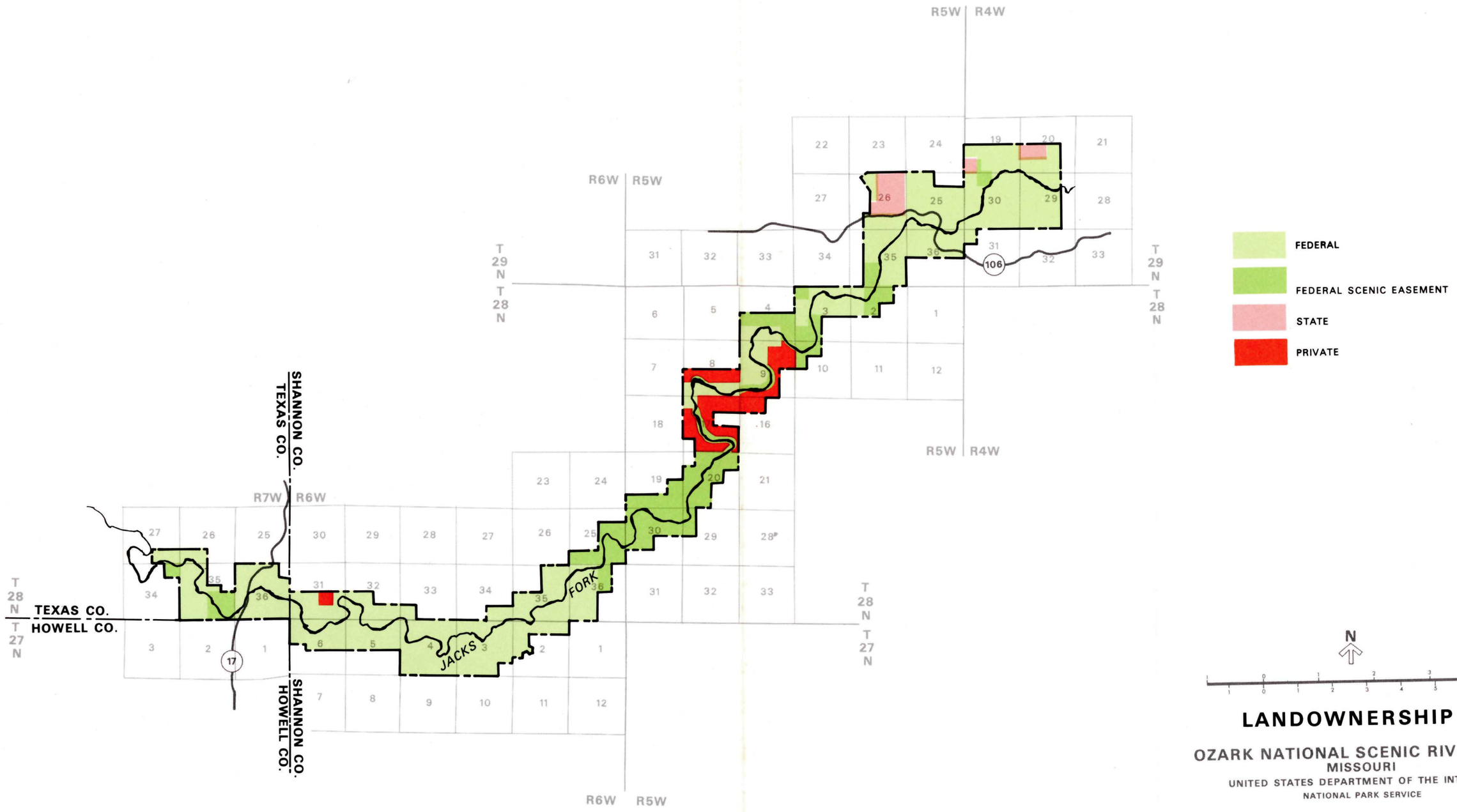
N

4 MILES
6 KILOMETERS

LANDOWNERSHIP

OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

614	20,011B
DSC	SEPT 81



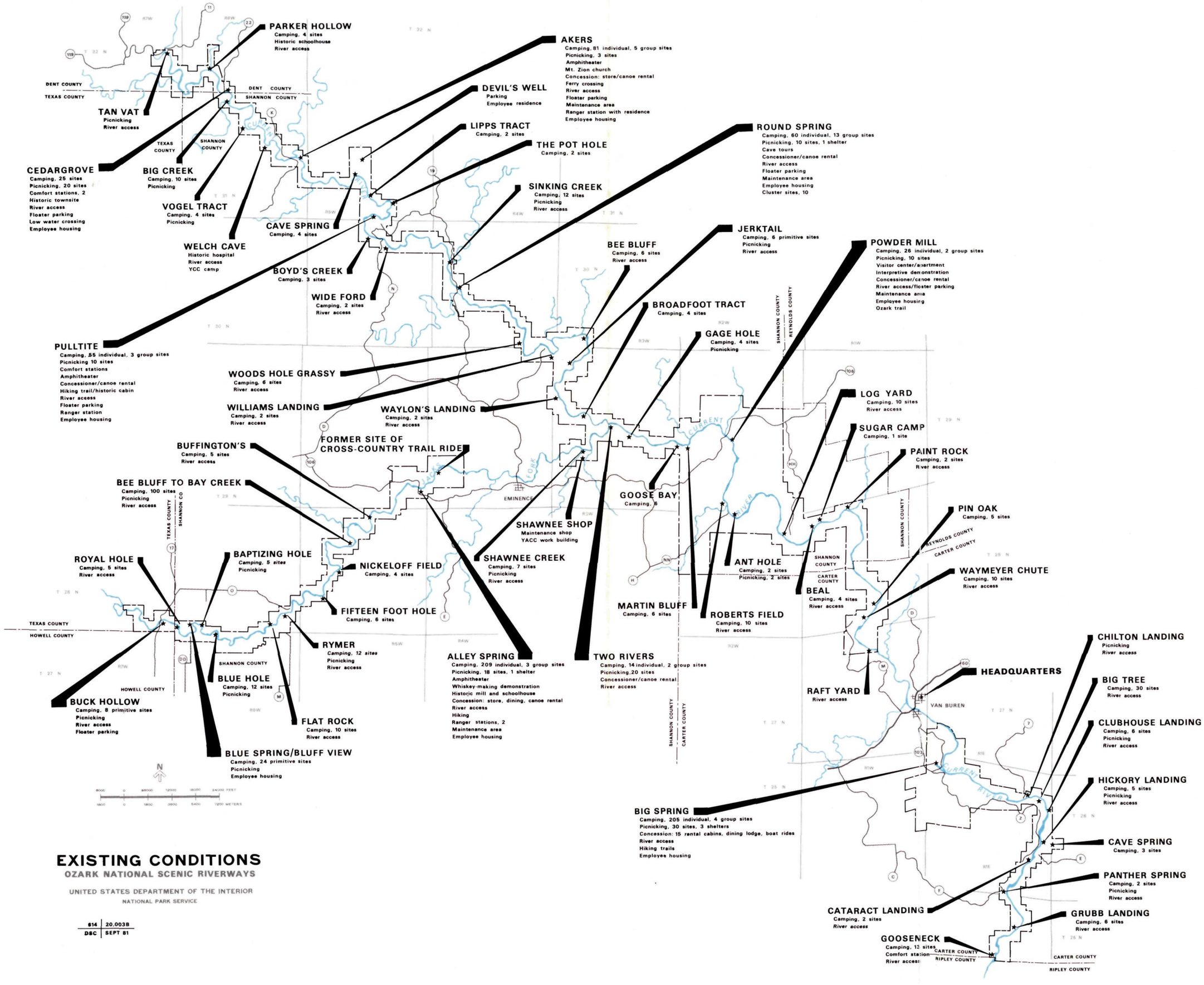
LANDOWNERSHIP

OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

614	20,011B
DSC	SEPT 81

4 OF 4



EXISTING CONDITIONS

OZARK NATIONAL SCENIC RIVERWAYS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

614	20,003B
DSC	SEPT 81

Table 3: Average Canoe Use
(July-August 1979)

	Ave. Weekend Day	Canoes Per Mile
Upper Current	629*	36
Jacks Fork	410	12
Lower Current	484	10

*As measured at Pulltite.

The variation in use densities combined with different development and natural characteristics offer distinct visitor experiences. The Upper Current offers high density canoeing, with faster water, more services, and a more intense social atmosphere. The Jacks Fork and Lower Current are of a more primitive natural character, with less frequent development. The Lower Current visitors experience the lowest use densities in the riverways.

Although canoe use densities vary throughout the riverways, the effects of increased canoe use has been similar in all sections. Because canoeing is the fastest growing recreational activity, crowding has become a significant problem. Since 1972 when crowding research began, the number of canoeists that have stated that the riverways is too crowded and that this has caused problems during their visit has increased at a much faster rate than has the number of canoes.

Camping occurs mostly at developed campgrounds. A total of 708 individual sites and 42 group sites are available at the developed areas. All individual sites are available on a first-come/first-serve basis; all group sites are available by reservation only. On weekends, the campgrounds are frequently used to capacity. Primitive camping occurs along the many unimproved dirt roads that lead to the rivers. Many of these sites (such as gravel bar sites), as well as many not accessible by road, are heavily used by canoeists and boaters for both day and overnight use.

Hunting and ORV use also are enhanced by and occur frequently along the riverways' network of roads.

The riverways contains outstanding natural features such as caves and springs. Many of the natural resources are interpreted for visitors as are many of the cultural resources.

SOCIOECONOMIC ENVIRONMENT

The economy of the riverways region has relied heavily on subsistence agriculture. Low population density, limited exploitable natural resources

(other than timber), and remoteness from major trade and cultural centers have perpetuated economic and cultural isolation. In recent years, however, regional population declines have reversed to where population growth is exceeding urban and state average growth rates. This is largely attributable to the increasing viability of the wood products industry, increasing tourism, and general migration trends away from large metropolitan centers.

Tourism over the last few decades has become more important to the Ozark regional economy. Tourist spending is estimated to contribute significantly to regional employment and income, particularly in the retail trade and service sectors. This is exemplified by the large increase in canoe rentals over the last few years.

WILDERNESS SUITABILITY

Some participants in the public involvement process indicated that a number of tracts in the riverways should be considered for wilderness designation (see appendix E). Particular attention was focused on three areas, the Upper Jacks Fork, Big Spring, and Cardareva. However, no areas were found to be suitable for wilderness designation.

Landownership in the Big Spring area is, for the most part, under management of the National Park Service and the Forest Service. A fire tower on these lands serves some very important needs for the area. Although no longer used for fire watches, the tower houses a radio antenna and repeater transmitter. The radio equipment is essential to efficient management of the riverways. Vehicle access is necessary for maintenance of the equipment. Roads utilized by vehicles are not compatible with wilderness designation, and the need to maintain the radio equipment will continue. Therefore, the Big Spring area is not considered suitable for wilderness designation.

About half of the Cardareva area (or about 6,000 acres) is owned by the Missouri Department of Conservation. This land is managed by the state for forest and wildlife benefits. The only way these lands can be acquired by the federal government is by donation or exchange. As there is no intent on the part of the state to do so, wilderness potential is precluded in this area.

The Upper Jacks Fork area possesses a minimum of obstacles to wilderness designation. However, this designation would entail drastic changes in present use patterns. In addition, wilderness criteria includes a prohibition on use of motorized equipment, and the network of roads and utility lines in the area would be difficult to eliminate under present ownership conditions. Therefore, this area must also be considered unsuitable for wilderness designation.

GENERAL MANAGEMENT PLAN

GENERAL MANAGEMENT PLAN

MANAGEMENT ZONING

Management zoning establishes the future management emphasis for the riverways' lands and waters. The natural, historic, development, and special use zones are used to set forth major differences in management emphasis. Where appropriate, subzones are also established to more specifically define the management emphasis within the parent zones (see Management Zoning maps).

Natural Zone

Within the natural zone, natural resources and processes will be preserved and will remain largely unaltered by human activity. Most of the lands within the riverways (about 65,000 acres), as well as the rivers, fall in this category. Detailed management strategies for the natural resources of the riverways are found in the "Resources Management" section.

Outstanding Natural Features Subzone. Geological and ecological features possessing unusual intrinsic value or uniqueness are classified under this subzone. These resources, which will be managed to provide visitor access while protecting the conditions and processes that make the areas outstanding and unique, include the following:

Big Spring
Radford Slough
Ebb and Flow Spring
Canyon Park - Prairie Hollow Shut-in
Rocky Falls
Schafer Spring
Round Spring
Barn Hollow
Blue Spring (Jacks Fork)
Rymer Spring
Alley Spring
Welch Spring
Pulltite Spring

Other sites that may have been identified in the "Statement for Management" as outstanding natural features, but are not under exclusive NPS management are Long Bay, Marvel-Blair Creek Cave, Gravel Spring, the pioneer natural area, the virgin white oak stand, Medlock Cave, Cave Spring, Little Gem Cave, and Bunker Hill Spring and Cave complex.

Environmental Protection Subzone. Additional areas within the riverways encompass geological, scientific, and ecological characteristics that are sufficiently unique or fragile to warrant special protective consideration. The "Statement for Management" identifies the following areas as environmental protection subzones:

Rocky Creek Shut-ins
Welch Cave
Devils Well
Round Spring Cavern
Jam-Up Cave

Other areas within the park boundary meet the criteria for environmental protection areas, but they are located on nonfederal lands that are not subject to NPS management. Among these areas, Powder Mill Cave and Blue Spring (Current River) are under the ownership of and receiving protection by the state of Missouri. The private owners of Bat Cave have indicated interest in providing adequate protection for that cave's wintering bat populations.

Additional recognition of the significance of these outstanding features and areas of the riverways has been afforded by the state of Missouri. Jam-Up Cave, Barn Hollow, and Prairie Hollow are registered units of the Missouri Natural System, and additional features within the boundary may be designated in the future.

Historic Zone

The historic zone is composed of historically or culturally significant resources. Management emphasis will be on preservation, protection, and interpretation of these resources, including stabilization, adaptive use, and restoration of historic structures where appropriate. Approximately 70 structures located on 400 acres are included in this zone (see Cultural Resources map).

Archeological Subzone. The riverways' abundant archeological resources fall within this subzone. The eventual size of this subzone may be quite large because less than 1 percent of park lands have been professionally surveyed to date. Complete subsurface investigations will occur prior to any disruptive activities to prevent inadvertent damage to previously unknown sites. Management of known sites will protect their scientific and cultural values, and appropriate interpretation will enhance visitor appreciation and enjoyment of these resources.

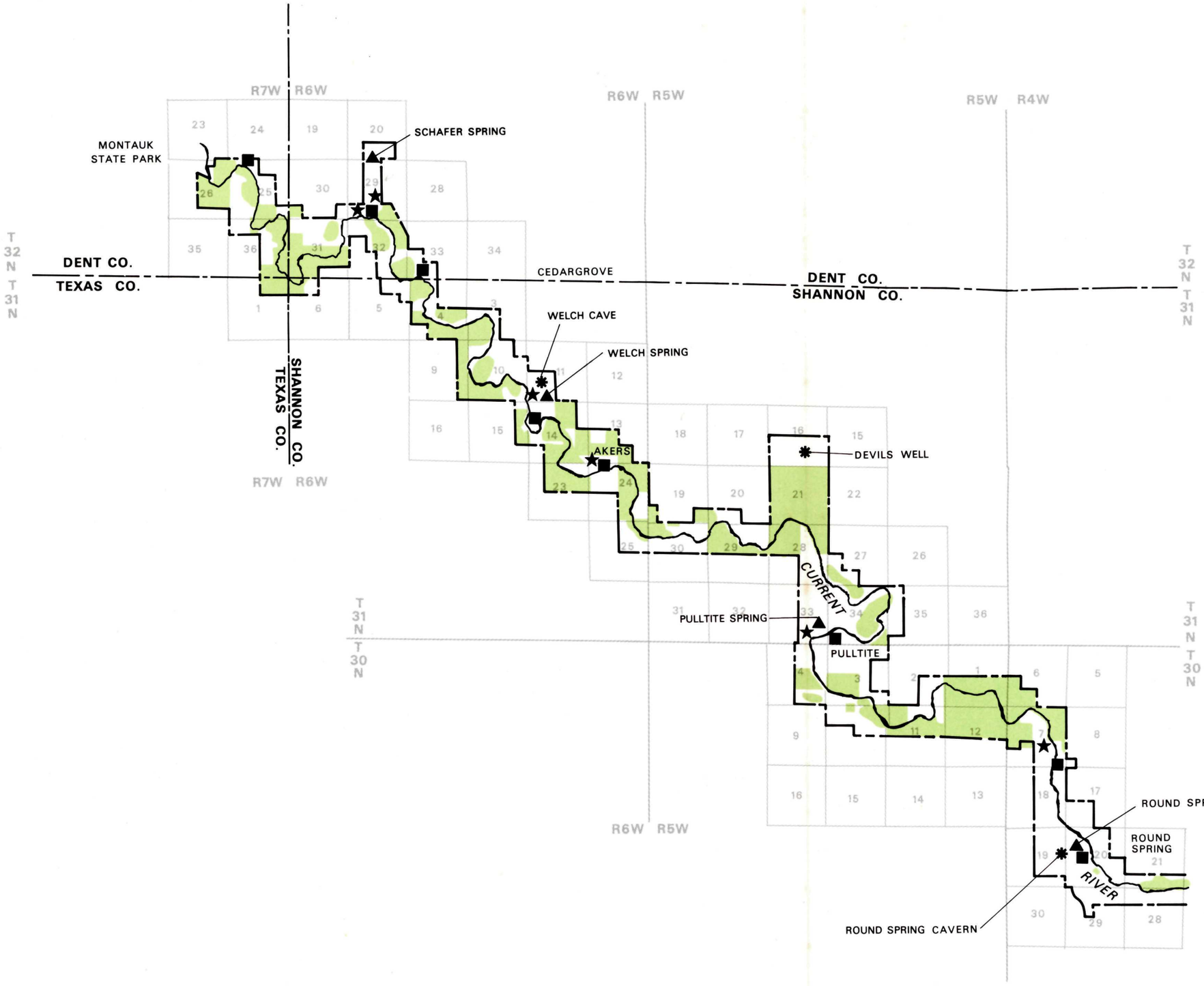
Development Zone

The development zone contains developments for visitor use and safety and park operations. The management strategy for this zone will emphasize development of facilities in the most effective, efficient manner to minimize disruption of natural, historic, cultural, scientific, and recreational values. Less than 1,000 acres fall in this zone.

Special Use Zone

The special use zone contains lands within the riverways boundary that, for various reasons, are not under complete management control of the National Park Service. Several subzones detail the specific management controls within the special use zone.

Scenic Easement Subzone. Approximately 9,179 acres in privately owned tracts have federal scenic easements attached to the tract deeds. In these cases, the National Park Service has the option to control any actions prohibited by the stipulations of the scenic easements.



ZONE

- NATURAL
- ENVIRONMENTAL PROTECTION SUBZONE
- OUTSTANDING NATURAL FEATURE SUBZONE
- SPECIAL USE
- DEVELOPMENT
- HISTORIC

N

0 1 2 3 4 MILES
0 1 2 3 4 5 6 KILOMETERS

MANAGEMENT ZONING

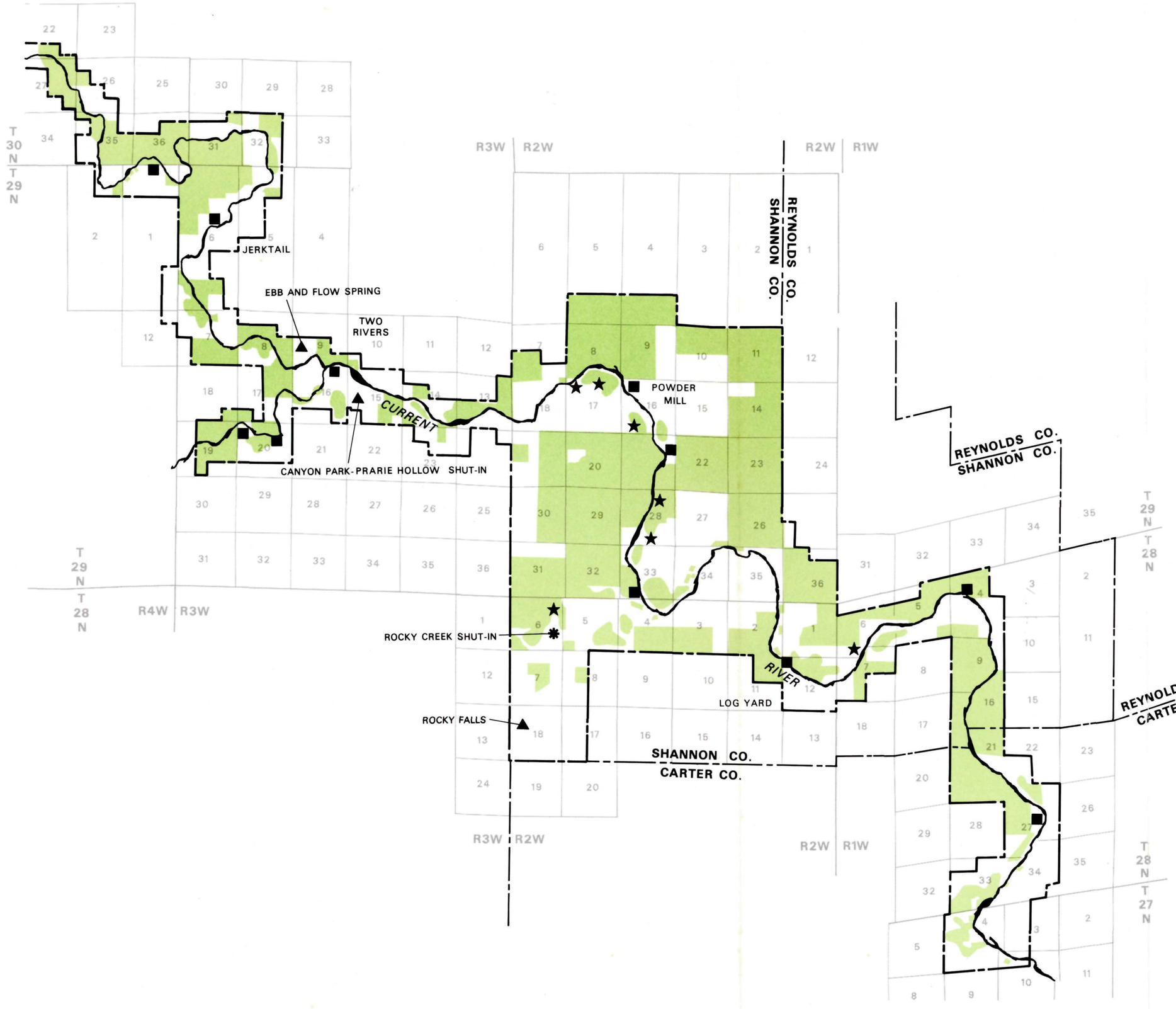
OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

614	20012B
DSC	SEPT 81



ZONE

- NATURAL
- ENVIRONMENTAL PROTECTION SUBZONE
- OUTSTANDING NATURAL FEATURE SUBZONE
- SPECIAL USE
- DEVELOPMENT
- HISTORIC

N

4 MILES
6 KILOMETERS

MANAGEMENT ZONING

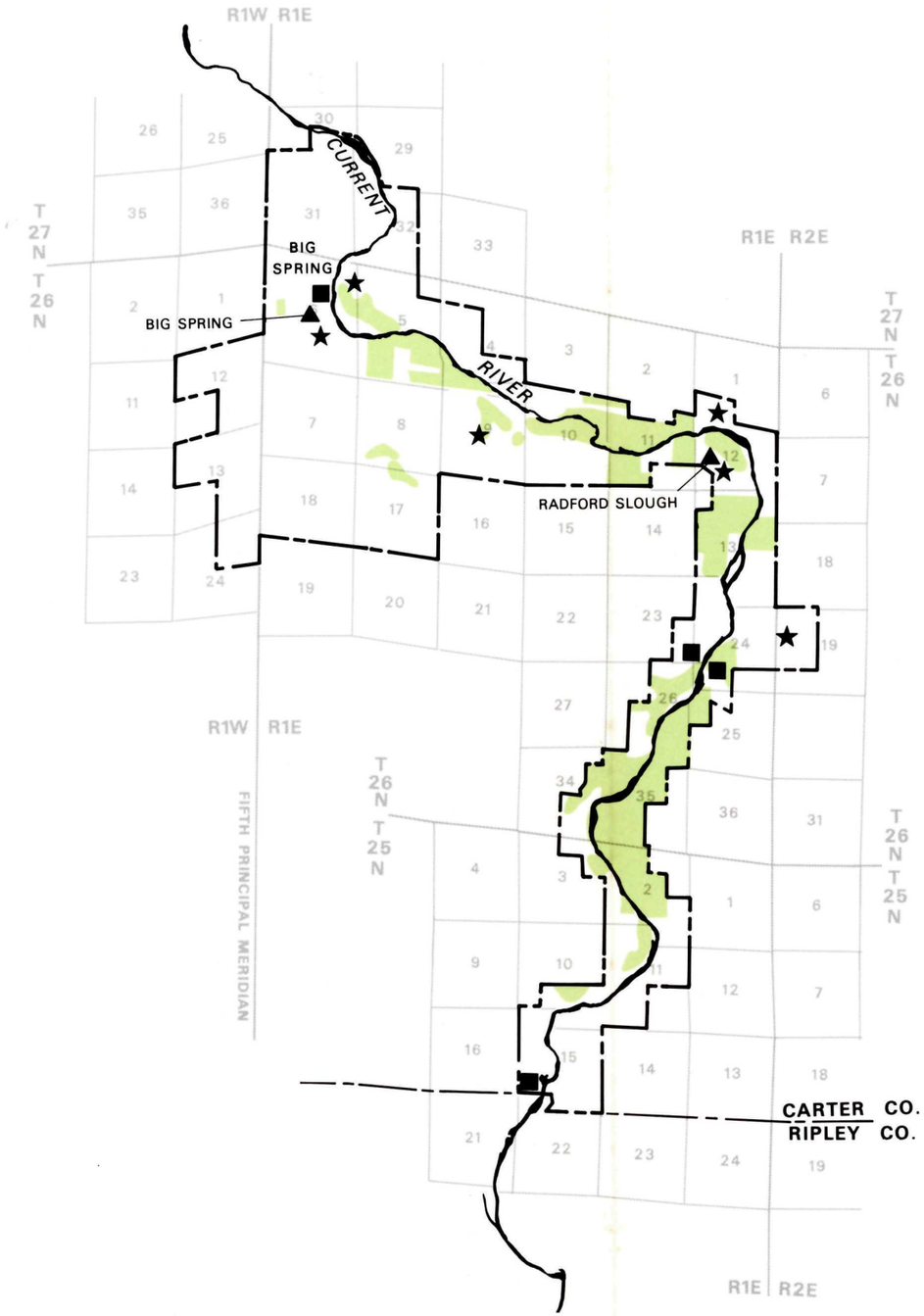
OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

614	20,012B
DSC	SEPT 81



ZONE

- NATURAL
- ▲ OUTSTANDING NATURAL FEATURE SUBZONE
- SPECIAL USE
- ■ DEVELOPMENT
- ★ HISTORIC

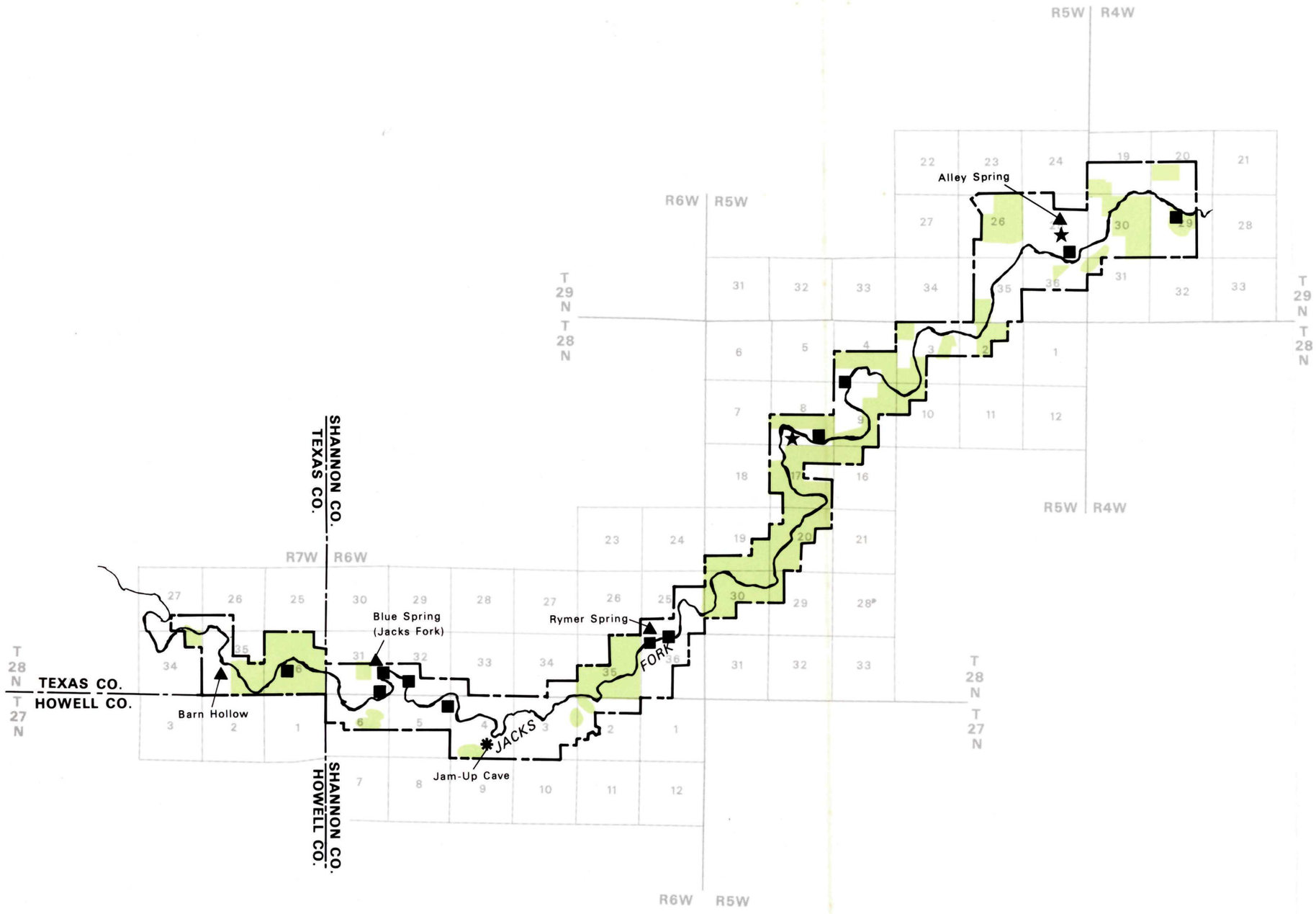
N

4 MILES
6 KILOMETERS

MANAGEMENT ZONING

OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

614 | 20,012B
DSC | SEPT 81



ZONE

- NATURAL
- ENVIRONMENTAL PROTECTION SUBZONE
- OUTSTANDING NATURAL FEATURE SUBZONE
- SPECIAL USE
- DEVELOPMENT
- HISTORIC

N

0 1 2 3 4 MILES

0 1 2 3 4 5 6 KILOMETERS

MANAGEMENT ZONING

OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

614	20,012B
DSC	SEPT 81

State-owned Lands Subzone. There are 14,062 acres in the riverways that are owned and managed by the Missouri Department of Conservation. Management of these lands is the responsibility of this state agency, which is regulated by a land management agreement that ensures management practices will be compatible with NPS management objectives.

Private Lands Subzone. Approximately 6,458 acres in the riverways are under private ownership and are not subject to NPS management control.

Habitat Management Subzone. Approximately 75 parcels ranging from 1 acre to 170 acres (roughly 2,800 acres) are managed either by the riverways or under agricultural lease to preserve certain pastoral scenes and to improve wildlife habitat in and along the riverways.

RESOURCES MANAGEMENT

Natural Resources

Caves. It is estimated that there are between 100 and 300 caves in the riverways. Eight caves, including an open sinkhole, are listed as outstanding natural features.

Cave ecosystems are unique and delicately balanced, with major changes possibly occurring from relatively slight disturbances. Geologic formations in some caves are quite fragile, easily damaged by vandalism or visitor overuse. Their formation is extremely slow, and physical damage may remain in evidence for generations. Some caves have been used by man and animals since prehistoric times, and evidence of this use and artifacts may be easily obliterated. Some Ozark caves, which are better known or more easily reached, have received considerable visitation, and more damage and site deterioration have occurred. Caves may contain unsuspected hazards to visitors unfamiliar to such alien environments, and the threat of serious injury or death from falls or drowning in watercourses is always present. To protect the visitor, as well as the caves, adequate safety measures (such as signs and gates) are necessary. Low level background radiation naturally occurs in cave environments. Round Spring Cavern was monitored during 1977, and additional monitoring will continue as funds are available.

Management objectives for cave resources include the protection of irreplaceable resources while providing for visitor use, promoting appreciation through interpretation, and furthering education and scientific research. The proposed course of action for cave resources is to complete inventories and management plans for all caves, with increased development and maintenance of some for visitor use.

This management program will expedite the inventory and classification of cave resources, develop comprehensive management plans for individual caves or groups of caves, and emphasize development and access of caves that are of feasible size, interest, and location for public use.

At the present time, preliminary cave surveys have been completed by contract on approximately 80 caves in a priority order to determine resource significance, present use, and basic management needs. This survey will be extended to other caves to establish interim protection requirements and compatible use levels for the entire resource. A projected research need is to obtain an adequate data base for those caves that are most important and threatened and appropriate to manage. These studies are to include mapping, faunal surveys, archeological inventories, hydrological investigations, endangered species, and various other aspects of cave ecology. In addition, studies may be required to evaluate management practices, such as access controls, signing, and other regulations.

Aquatic Ecosystems. The main recreational medium in the riverways is its aquatic ecosystem. The perpetuation of this system, including its physical scene and recreational value, is of the utmost importance in the overall management of the riverways. The continued management of this resource, so as to ensure a stable quality of water, will be a primary goal of the resource management program.

Numerous abandoned wells are located throughout the area, remnants of the land inhabitation prior to establishment of the riverways. All known abandoned wells are being sealed, because the open shafts are recognized as possible sources of water pollution. Lack of information about the extent of the subsurface system has in the past resulted in the poor placement of sewer systems, landfills, and dumps both inside and outside the park. The riverways is extremely narrow in places and does not take in either entire surface drainages or entire subsurface drainages, which are the sources of springs. The management of water is subsequently limited by restrictions in the range of options in taking corrective actions.

Present aquatic resource management of the riverways involves hydrological studies and periodic water quality sampling at six-month intervals for nonpoint sources of pollution. Periodic sampling of well water from producing wells has continued in addition to sampling of surface water and a program to fill abandoned wells. This program has resulted in what has so far been an adequate sampling capability at reasonable cost. However, it may be less responsive than necessary for adequate protection of the resource, particularly in view of increasing development adjacent to the boundaries and subsequent potential for serious contamination.

Proposed management of the aquatic ecosystems is to increase the frequency of taking well and surface water samples. Hydrological studies will be expanded to include spring recharge area delineation and will be continually updated to determine potential contamination sources. Projected research needs also include resource-modeling studies to improve management capabilities. This program will result in increased ability to detect any measurable change in water quality that might otherwise be dissipated by the time currently scheduled water samples are taken. The new program will cost more for sampling and additional studies; sampling activities may cause minor, short-term disturbances of the natural environment.

In addition to the aquatic resource studies, there is a need to develop a comprehensive watershed management plan to assist in the efforts to preserve existing quantity and quality of water resources, both surface and underground. To accomplish this, a great deal of interagency and intergovernmental assistance will be required to assemble an effective plan.

Open Fields. With the establishment of the riverways in 1964, the National Park Service acquired approximately 6,000 acres of cleared fields, the condition of which ranged from cultivated to scrub-covered. Where cultivation has stopped, many fields were being taken over by black locust, hawthorn, box elder, sassafras, and persimmon. Dense cover, such as multiflora rose, blackberry, and buckbrush, was becoming too dense for wildlife travel. Johnson grass and fescue, which have little wildlife value, had matted the ground.

The National Park Service has undertaken a program to maintain many of the open fields that were present in 1964 and to keep them in various stages of succession.

The objectives of the open field program are to maintain a varied and interesting pastoral scene for the aesthetic benefit of visitors and to manage the flora in these open fields to provide a diversification favorable to wildlife, both game and nongame species. Another objective is established in a memorandum of understanding with the Missouri Department of Conservation, which calls for the National Park Service "to practice those forms of resource management that will benefit fish and wildlife and enhance opportunities for their harvest by the public."

The 100 separate tracts currently being managed under this program contain 140 fields, which vary in size from 1 to 100 acres scattered throughout the riverways. The fields are maintained by local farmers, under special use permits, or by NPS personnel. To achieve the objectives of providing diversified crops and arresting succession, a variety of operations are involved: chain sawing, brush hogging, plowing, discing, and cultivating; seeding to legume hay, grass, cereal grains, or other wildlife food crops; mowing or allowing crops to lie fallow; and controlled burning. Field lime and standard fertilizers are used in seed bed preparation and top dressing; use of herbicides must be approved and is generally restricted. A 300-foot buffer zone is maintained between the fields and both banks of the Current and Jacks Fork rivers.

The open field program will be limited to maintenance of a selected number of cultivated fields and clearings. This limited program will provide a varied pastoral scene to benefit visitors and crop diversification favorable to wildlife, but at less cost than if all fields were maintained. Methods used will continue as at present.

A limited program will not appreciably affect the riverways' landscapes and wildlife. Fields will be selected to sustain a variety of scenic features and habitat types. The fields of lesser quality and accessibility will not be cultivated. Because these fields are the least desirable for contract farming, their exclusion from the program will not greatly affect those persons seeking special use permits.

Projected research needs for the continuation of any level of the open field program include studies to document the impact of operations on the riverways and the effectiveness in meeting wildlife habitat objectives. Research is also needed to find ways of maintaining the benefits of the open field program at reduced costs, find effective alternatives to herbicides, and develop more natural means of maintaining the food and cover plants that foster wildlife diversity. Despite the fact that these fields have traditionally been cultivated, there is also a projected need for archeological survey and evaluation.

Forests. The Ozark forests are part of the central hardwood region, where the dominant tree species belong to the oak-hickory and oak-pine associations. Tree species reflect a wide range of acidic to basic soils. The ridgetops are dominated by acid-preferring pines and the lower slopes by alkaline-based hardwoods. The forest cover is primarily second- and third-growth timber with a scattering of old-growth trees.

The riverways comprises 81,216 acres of land. Of this total, approximately 73,000 acres are forested, including deciduous forest, mixed evergreen and deciduous forest, brushland and old fields, cut or sprayed forest, and partially forested public use areas. Approximately 9,179 acres are in scenic easements, some having retained timber rights or held in less-than-fee ownership, in which case the National Park Service has limited options for management. In all, about 44,000 acres of land are available for forest management activities by the National Park Service. The majority of the park's forested land lies in narrow strips, in some places only a few hundred yards wide, along both sides of the Current and Jacks Fork rivers. This narrow configuration, along with steep topography and limited access, increases the difficulty of forest management.

The objectives of forest management are generally to promote the natural reforestation of all of the natural zone and to implement the existing agreements with the Missouri Department of Conservation in regard to fire suppression.

Present management activities allow natural succession of all forested areas. Manipulation is limited to replacement of natural species near public use areas, planting for screening or shade, removing hazardous trees, and maintaining trees or small vegetative communities essential to wildlife. Restricted thinning or removal of host trees is a management option used if insects or disease threaten adjacent trees. Because of irrevocable legal agreements, some owners of scenic easement tracts are allowed to selectively harvest their forests, which present minimal threat to aesthetic or recreational values. Inventory and monitoring is being done to provide necessary data.

The result of this program has been the continuing succession to climax forest conditions. Despite past exploitation of timber resources in the Ozarks, this type of management offers visitors a sense of pristine forest conditions over a large area of the riverways, an effect that will increase with time. Relatively little cost is involved for forest management activities.

The present course of action in managing forest resources will continue. Because of the potential for adjacent development and disturbances, an increase in monitoring and research is needed to improve the base data on forest ecosystems and the ability to detect and evaluate threats. Specifically, the riverways needs an updated aerial photo file and an aerial photo inventory study to consist of species typing, drainage delineation, cultural resources inventory, stand health evaluation, and access mapping. Some field examinations will be necessary to follow up both aerial and satellite photography.

Rare, Endangered, or Threatened Species. The riverways encompasses the most diversified flora, including the greatest number of species, of any part of the state. The region features many rare and uncommon plants because of its general floristic wealth and great variety of habitats (see appendix C). There are no plant species listed by the U.S. Fish and Wildlife Service (Federal Register 45(242):82480; 12/15/80), and 41 species are listed by the state of Missouri as rare, threatened, or endangered. Three species are listed by the Fish and Wildlife Service as under study for formal designation.

The riverways contains many sites where rare or uncommon plants may occur. The habitats of the individual species are quite diversified and scattered. Examples are several rare species found on the talus slope and bluffs near Jam-Up Cave, the orchids of the bottomlands and seeps, a member of the lily family that is found on the uplands, and several mosses that occur on the bluffs along the rivers.

Two mammals and two birds listed as endangered species by the U.S. Fish and Wildlife Service have been recorded in the riverways. An additional species, the ivory-billed woodpecker, which may be extinct now, is thought to have been present recently. Also, six mammals, five birds, three invertebrates, one fish, and one amphibian recorded in the riverways are listed as rare or endangered by the state of Missouri. Some additional species listed by the state may occur, but their presence has not yet been documented. Data regarding the present status of most of the listed species are limited.

Management of all rare and endangered species must comply with provisions of the Endangered Species Act of 1973. In addition, the management objectives for natural resources at the riverways prescribe maintenance of a diverse natural environment, perpetuation of natural processes, and special attention to the preservation of native plant and animal species considered rare, endangered, or threatened, nationally or in Missouri.

Current management activities for rare or endangered plant and animal species include monitoring and protecting identified species and habitats, implementing direct actions to improve onsite conditions when necessary, and reviewing all management actions for effect on listed species.

Proposed management is a continuation of present actions to comply with the Endangered Species Act of 1973, plus an increase in inventory, survey, and research activities to expand the data base concerning uncommon species and their status. Projected research needs include

basic data on life histories, population densities, distribution, habitat availability, status in the riverways, and updated information on the status of the species elsewhere. These data will be coordinated with information from adjacent landowners, other NPS offices, and other agencies through the U.S. Fish and Wildlife Service.

Additional data derived from expanded survey and research efforts will better enable detection of resource problems at the onset, provide more knowledge and experience in implementing corrective measures when they become necessary, and extend awareness and knowledge of uncommon species and habitats in the riverways.

Fisheries. Management of the Current and Jacks Fork fisheries has been based on legislation and existing agreements with the state of Missouri. Enabling legislation for the riverways (the Act of 1964, 16 USC 460 m) states that hunting and fishing will be permitted in accordance with state regulations. An agreement with the Missouri Department of Conservation stipulates that the National Park Service has primary responsibility for habitat management, although the state will regulate the harvesting and taking of fish and wildlife. These two agencies have also mutally agreed to jointly evaluate fish and wildlife resources and to initiate and carry out approved management programs, such as the restocking and introduction of game fish and wildlife species. Servicewide management policies provide basic guidelines for fisheries management programs. The National Park Service will perpetuate native animal life and natural ecosystems where recreational fishing programs are authorized by law and consistent with riverways objectives. Objectives of fisheries management are (1) to meet agreement responsibilities by cooperating with the state in the joint enforcement of game and fish laws, (2) to practice forms of resource management that will benefit fish populations and provide recreational opportunities to the public, and (3) to evaluate fishery resources in order to initiate and carry out jointly approved management programs.

The existing fisheries management program strives for a natural maintenance of the resource, including all species, and utilization of the allowable harvest of those species sought for food and recreation. This program provides full recreational fishing opportunity for consumptive use and utilizes all of the naturally occurring surplus. Maintenance of existing populations and natural environmental conditions has precedence over fish production for harvest; no effort is made to manipulate habitat for increased production or to correct for lows in fish populations unless these are man-caused. The program will result in utilization of the fishery to the limit of its natural productivity and will involve little manipulation of the fishery, which will reduce some of the costs.

The program proposes to continue present fisheries activities, including the cooperative trout management program with the state on the upper reaches of the Current River, and to continue a monitoring and research program including fish behavioral and population studies in order to evaluate effect of increased river use and impact from outside development.

Wildlife. It is the objective of the National Park Service to maintain the natural abundance, behavior, diversity, and ecological integrity of native

animals in natural portions of the riverways and to rely primarily on natural processes to regulate populations of these species. The "Statement for Management" for the riverways classifies most of the land as a natural zone, including the rivers themselves, where natural resources and processes will remain largely unaltered by human activities. Servicewide policies provide basic guidelines for wildlife management programs. These policies state that in the areas where recreational hunting, trapping, and fishing activities are authorized by law and are consistent with riverways objectives, management programs may be directed toward the maintenance and enhancement of habitat for game animals. In the areas where there are legal requirements for wildlife and fish management, the National Park Service will still perpetuate native animal life and protect the integrity of natural ecosystems.

Wildlife management in the riverways is based on legislation and a cooperative agreement with the state. Enabling legislation for the riverways states that hunting and fishing will be permitted in accordance with federal and state laws. An agreement with the Missouri Department of Conservation stipulates that the National Park Service has primary responsibility for habitat management, and the state will regulate the harvesting and taking of fish and wildlife. These agencies have also mutually agreed to evaluate fish and wildlife resources and to initiate and carry out jointly approved management programs, such as the restocking and introduction of game fish and wildlife species. Close coordination of activities with management programs of the state is, therefore, an important part of the wildlife management effort.

It is proposed to continue the present wildlife management programs in the riverways, which are designed to maintain the ecological integrity of the natural areas and resident populations of game and nongame species. No direct manipulative actions will be taken in the area defined as a natural zone, where, aside from areas designated as refuges, hunting is permitted according to federal and state law. Basic research will continue on all game and nongame species to determine present numbers, conditions, and trends but will not include investigations directed toward game enhancement in the natural zone. Cooperation will continue with the Missouri Department of Conservation to evaluate and implement regulatory measures to protect wildlife and habitat and to control harvest.

This program is based on the rationale that the present characteristics of the riverways, including the river environment, open fields, and the maturing woodlands, offer adequate and sufficiently diversified habitat to support wildlife and allow normal reproduction. Further implied is that this condition offers a natural and appropriate array of both game and nongame species, and that numbers are sufficient to continue to provide both traditional hunting opportunity and other recreational benefits. The emphasis of this program will be on natural ecological processes with the least possible involvement of man in the natural zone. Additional monitoring and research will be done to improve base data in regard to wildlife habitat, limiting factors, protection needs, populations, and harvest. Contract faunal studies will be continued to determine effects of increased recreational use and development.

Extirpated Wildlife Species. Species extirpated from the riverways include four mammals and three birds (bison, elk, red wolf, and grey wolf; ivory-billed woodpecker, red-cockaded woodpecker, and ruffed grouse). The ruffed grouse is the only feasible candidate for reintroduction at this time, and efforts to restore this species are underway. However, other species will be considered for reintroduction as data become available.

Present NPS policies encourage the reintroduction of native species under certain conditions, including the important stipulation that any such program be carried out in cooperation with other parties and agencies affected. Management objectives are to maintain a diverse natural environment and to perpetuate native wildlife species for the use and enjoyment of the public. Reestablishment of extirpated species is considered to be compatible with these objectives.

Present management of the above identified species is to consider selected reintroductions. This program emphasizes reintroduction of those species suited to present conditions and offering reasonable hope of success. It considers other possible reintroductions and allocates some funds for feasibility studies, but it minimizes efforts to provide habitat or special conditions necessary for such projects. Other species will be considered, and full cooperation will be sought with the state and other landowners.

The present level of activities directed toward these species will continue. Continual compilation of resource basic data will provide information on former and present habitat and the historical distribution of extirpated species. Research needs will include thorough feasibility studies of biological, social, and economic factors before recommendations can be made regarding future reintroductions.

Herbicides/Pesticides. The riverways has numerous utility line corridors with rights-of-way requiring maintenance to ensure uninterrupted public service. Herbicides are routinely used on these corridors, subject to NPS restrictions. The National Park Service maintains strict controls on the use of herbicides within its boundaries. Use prohibitions are in effect for areas within 300 feet of rivers or major tributaries, major public use areas, or shoulders of public roadways.

Potential targets for pesticide use are the structures located throughout the riverways. The National Park Service has responsibility for approximately 254 historic structures, ranger stations, maintenance buildings, and concession facilities. Many of these are heated with LP gas and have propane tank enclosures adjacent to the structures. The enclosures have become overgrown with weeds, creating a fire hazard. A variety of spiders and insects, including the brown recluse and black widow spiders, wasps, and termites, pose problems to building maintenance and safety of visitors.

At least two major activities of the riverways are directly affected by the availability of approved herbicides. The popular sorghum-making demonstration was cancelled in 1977 because of loss of the sorghum crop as a result of a heavy infestation of Johnson grass. Proper herbicide treatment could have saved the crop. The open field program of the

riverways is dependent on economy of the operations by holders of special use permits. The rivers flood many of the fields, bringing seeds from other areas. Herbicide restrictions and cost of eradication make it difficult for farmers to profitably work the open tracts under contract with the riverways, as well as affecting production of fields worked by NPS personnel as food plots for wildlife or for demonstrations.

Present servicewide management policies permit use of pesticides and herbicides only when feasible alternatives are not available or acceptable, and then only by approval of the director and in accordance with applicable laws, USDI and NPS guidelines, regulations of the Environmental Protection Agency, and Occupational Health and Safety Administration.

It is proposed to continue the present limited use of pesticides and herbicides within the regulations and guidelines outlined above and to substitute natural controls and other alternatives wherever possible. Lowered efficiency of food plots and maintenance of open fields may be expected, along with greater difficulties in preserving structures and controlling vermin in cases where chemical agents can not be justified by significance of the resource or threat to persons. More intensive maintenance and increased research on natural pest controls will be required but will have long-range environmental benefits.

Fire. Most wildfires in the riverways occur during the late winter and early spring, although they have occurred during all seasons of the year. While some fires are caused by lightning, a large majority are man-caused. Carelessly left campfires, leaf burning, and arson all contribute to the number of yearly fires. Man's history in the riverways includes the use of fire as a tool to clear the woods of underbrush, slash, and vermin during the periods of intensive logging. Since then the trend has been one of complete suppression, which has allowed young growth to flourish and fuel loads to build to dangerous levels.

With the establishment of the riverways, the National Park Service entered into an agreement with the Missouri Department of Conservation in which it is specified that all wildfires will be extinguished by the state, with assistance from the riverways staff. The National Park Service maintains several pieces of fire-fighting equipment stationed throughout the area, and fire training is given to ranger and maintenance personnel.

Because aggressive fire suppression carried out over a number of years has caused an increase in ground fuels and other undesirable environmental changes, the National Park Service has considered the extent and the significance of such changes and the desirability of restoring the role of natural fire to the forest. Practices such as controlled burning and allowing naturally caused fires to run their course, providing that no threat to life or private property will occur and that the end result will be ecologically beneficial, will be considered.

When controlled fires are intentionally used to meet management objectives, they are termed managed or prescribed fires. As long as a fire, whether natural or man-caused, is burning within predetermined

limitations, such as inside a prepared firebreak and under low risk fuel and weather conditions, it is said to be within prescription. Such prescriptions will be prepared for appropriate areas of the riverways. Suppression will continue for all fires not meeting those prescriptions.

Adoption of these policies will involve the development of comprehensive fire management plans and will require vegetational studies and fire-modeling research. The managed fire program will be continually evaluated in its objectives and effects by public involvement and coordination with adjacent agencies and landowners.

CULTURAL RESOURCES

General Policies

The letter and spirit of relevant laws, regulations, and other mandates (e.g., the National Historic Preservation Act of 1966 (16 USC 470), as amended by PL 96-515; Executive Order 11593 of 1971, Protection and Enhancement of the Cultural Environment; the American Folklife Preservation Act of 1976 (PL 94-201) 89 Stat 1130-120, USC 2101-2107; the Archeological Resources Protection Act of 1979 (PL 96-96), as implemented by NPS "Management Policies" and "Cultural Resource Management Guideline," NPS-28) will be reflected in the management of cultural resources in the riverways.

The National Park Service will continue to identify, record, and evaluate cultural resources. Sites or districts that may meet the eligibility criteria of the National Register of Historic Places will be nominated. Cultural resources acquired with land, easements, or term estates will be professionally evaluated for eligibility to the National Register or the NPS List of Classified Structures. Careful consideration will be given to the type and extent of property rights needed to ensure the preservation of historic structures and archeological sites. Management alternatives for acquired cultural resources will be evaluated on a case-by-case basis in consultation with appropriate NPS regional cultural resource personnel.

All cultural resources will be preserved, if possible, and all projects will be designed to avoid or minimize adverse effects upon cultural resources, including the historic scene and significant cultural landscapes. Systematic monitoring of indirect and cumulative impacts upon cultural resources--and mitigation of such impacts--will be supervised by appropriate regional or riverways staff.

Riverways staff, concessioners, and holders of special use permits will receive regular orientation to historic preservation laws, to relevant NPS policies and guidelines, and to the types of cultural resources.

Cultural resources will be vigilantly maintained and protected to prevent alteration or loss before the full implementation of this plan. Further studies and specific plans will be programmed and prepared as recommended in the "Future Studies" section of this document.

Compliance with section 106 of the National Historic Preservation Act of 1966 (16 USC 470, as amended by PL 96-515) and the regulations in "Protection of Historical and Cultural Properties" (36 CFR 800) will be accomplished for all actions detailed in this plan in accordance with the programmatic memorandum of agreement between the National Park Service, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers. All actions taken pursuant to this plan must be certified as consistent with NPS policies, directives, and guidelines by the regional cultural resource professionals. Informational copies of the form entitled "Assessment of Actions Having an Effect on Cultural Resources" (January 1980), which will be utilized during this regional certification, will be provided to the Missouri State historic preservation officer.

Archeological Resources

Management of archeological resources--both historic and prehistoric--will continue in accordance with NPS policies and guidelines. Prior to ground disturbance, the affected area will be examined by professional archeologists to identify and evaluate archeological sites. If adverse effects upon archeological resources cannot be avoided or otherwise mitigated, professional retrieval of data will be accomplished by controlled surface collections, excavations, or other means acceptable to the NPS regional cultural resource personnel. The standards detailed in the NPS "Cultural Resource Management Guideline" will apply to all archeological research. Data recovery will be programmed in timely advance of construction starts (a minimum of one fiscal year is recommended).

An archeological resources preservation guide (to become part of the cultural resources preservation guide) will be prepared. The guide will include (1) a list of research problems currently recognized in the Ozark region and a general research design for the riverways; (2) a summary and assessment of present knowledge, with recommendations for future research; and (3) an analysis of special problems affecting archeological resources in the riverways, with suggested corrective measures (e.g., impact monitoring, staff training, fencing, interpretation, data recovery). Specific management recommendations will be given for all known archeological sites.

Historic Structures

Proposals for the treatment of historic structures will include preservation (maintaining the existing form and material of a structure), stabilization (reestablishing structural stability), adaptive use, neglect, and removal.

Modern additions (e.g., security equipment, lightning protection, fire detection and suppression, handicapped access) will be permitted in selected structures, provided that these additions can be concealed and do not damage significant original fabric.

Preservation maintenance of the Alley Spring roller mill will be guided by a proposed historic structure preservation guide, whereas treatment of

other structures will follow the proposed cultural resources preservation guide. Pending completion of these guides, maintenance will be guided by the standards in the "Cultural Resource Management Guideline" and supervised by the NPS regional historical architect.

The Alley Spring roller mill will be stabilized and preserved in accordance with the "Historic Structure Report" and a proposed historic structure preservation guide. The concession operation will be removed, some interpretive exhibits will be relocated to a proposed visitor contact facility, and nonhistoric intrusions will be removed or minimized, as possible. The milling demonstration will continue. Some original machinery may be reinstalled, and an operating plan (visitor circulation, capacity, etc.) will be developed in accordance with addenda to the report and a proposed historic furnishings report.

Cultural Cyclic Maintenance Program funds will be programmed for preservation treatment.

The carrying capacities of selected historic resources will be professionally determined, and visitation or other use will be limited by this capacity.

Major alteration, neglect, or removal of structures over 50 years of age will require prior review by NPS regional cultural resource personnel, approval by the regional director, and concurrence of the associate director, Management and Operations, Washington, D.C.

The Lower Parker school and Nichols cabin will be allowed to deteriorate. Welch Cave hospital will receive preservation maintenance; the nonhistoric (intrusive) window bars of the hospital will be removed. The hospital ruins will be interpreted by a wayside exhibit.

The Maggard cabin will have previously removed original fabric (pinned rafters) reinstalled and will be interpreted by a wayside exhibit. Additional historical research may contribute to the interpretive story. Preservation maintenance will be provided.

Mt. Zion church will be adaptively used. Preservation maintenance of the church and of the Pulltite cabin will follow the guide.

The Round Spring store will continue to be adaptively used for maintenance storage.

Living history interpretation will continue in the Storys Creek school, and it will receive preservation maintenance.

At the Chilton-Williams farm complex, the Chilton house will be stabilized and preserved. The other structures will be neglected (allowed to deteriorate) following regional and Washington review and recordation. Some removal of hazardous elements may be necessary for public safety. Visitors will be alerted to the potential hazards associated with the deteriorating structures. Similarly, the Buttin school and Macy cabin will be neglected.

Table 4 summarizes the treatments proposed for the historic structures and complexes of the park.

Table 4: Historic Structure Treatments

Structure or Complex	Treatment	Required Action Plans/Research
Lower Parker school	neglect	--
Nichols cabin	neglect	--
Welch Cave hospital	preservation; wayside interpretation	CRPG[1]
Maggard cabin	preservation; replace fabric; wayside interpretation	CRPG; historic study
Mt. Zion church	adaptive use	CRPG
Pulltite cabin	preservation	CRPG
Round Spring store	adaptive use	CRPG[2]
Alley Spring roller mill	preservation; remove intrusions; adaptive use	HSPG[2]; HFR[4]
Storys Creek school	adaptive use	CRPG
Chilton-Williams farm		
Chilton house	stabilization/preservation	CRPG
other structures	neglect	--
Buttin school	neglect	--
Macy cabin	neglect	--
Ramsey barn	adaptive use	CRPG
Klepzig-Brandt farm	stabilization/preservation; wayside interpretation	CRPG
Big Spring CCC		
dining lodge	preservation; continue use; remove intrusions	CRPG
other structures	preservation; continue or adaptive use	CRPG

[1]Cultural resources preservation guide, a proposed guide for the ongoing preservation of cultural resources.

[2]Historic structure preservation guide, a proposed specific guide for maintenance of a historic structure.

[3]Historic structure report, an investigative report upon which the treatment of a historic structure is based.

[4]Historic furnishings report, which directs the accurate furnishing of a historic structure.

The Ramsey barn will continue to be used for storage and as part of the scene for the living history demonstrations; it will also receive preservation maintenance.

Minimal stabilization, primarily for public safety, at the Klepzig-Brandt complex will be supervised by the regional historical architect. Stabilization will be followed by wayside interpretation of the Ozark Trail, and preservation maintenance will occur.

The Big Spring CCC complex will continue to be utilized for the concession operations and maintenance storage. Preservation maintenance will occur, and the regional historical architect will be consulted regarding the removal or minimizing of nonhistoric intrusions, especially at the dining lodge.

Other Historic Resources

Historic cemeteries in the riverways will be preserved and protected. The National Park Service will continue to allow public access to cemeteries. Known cemeteries will be recorded; legible markers will be photographed and sketched to record historic, demographic, and stylistic data.

Traces of historic roads or railroad grades are common throughout the riverways. Road remnants near Pulltite and Buttin Rock and the railroad bed in the Big Spring vicinity are best known. Care will be taken to avoid obliteration of significant road remains, and a proposed road and trail study will recommend alternative uses of such features (e.g., conversion to hiking or horseback riding trails).

Three memorial plaques--the Harry B. Hawes plaque on the Chub Hollow Trail, the Cotton family plaque near Big Spring, and a plaque near Round Spring commemorating the establishment of Round Spring as a state park--will be maintained by the National Park Service at their present locations.

Folklife Resources

The riverways will continue to interpret regional folklife. Living history demonstrations will continue to emphasize the production of material culture (quilting, milling, blacksmithing, johnboating), whereas expressive culture (music, dance, folk metaphors, legends, tales) will continue to be interpreted at music festivals and other special events. The interpretive staff will seek out appropriate folklife demonstrators and will develop innovative means for communicating folklife themes.

In order to provide an adequate data base for such interpretation--thus discouraging stereotypical treatment--the National Park Service will encourage and support the study of Ozark folk culture per the American Folklife Preservation Act of 1976 (PL 94-201 89, Stat 1130-120, USC 2101-2107). The historian, interpretive staff, and other pertinent personnel will actively pursue the development of professional contacts and cooperative arrangements for the exchange of personnel, data, or

ideas with individuals and organizations interested in Ozark folklife (e.g., the Center for Ozark Studies at Southwest Missouri State University, Missouri Friends of the Folk Arts, the Ozark Folk Center in Mountain View, Arkansas). Appropriate staff of the Forest Service, Army Corps of Engineers, Buffalo National River (National Park Service, Southwest Region), National Council for the Traditional Arts, and the states of Missouri and Arkansas will be contacted by NPS riverways or regional staff; and information exchange and cosponsored research efforts will be investigated. A cooperative regional research facility (as discussed in the Environmental Assessment), although not currently economically feasible, may be reconsidered in the future.

The riverways staff will encourage and support efforts to stimulate the avocational study of regional folklife. Such programs may include high school students in the Foxfire (Wigginton 1972) and Bittersweet (Massey 1978) approach. Results of such studies will be shared with visitors via interpretation. The riverways staff will actively promote local programs that encourage pride in folk identity and NPS rapport with local communities.

Objects And Documents

Acquisition of objects, documents, and collections will be guided by the riverways scope of collections statement and limited by the amount of controlled environment exhibit or storage space. Objects and documents will be curated in accordance with the NPS Museum Handbook "Part 2: Museum Records" and Manual for Museums.

Collections will be used in a beneficial but nonconsumptive manner, such as for scholarly study or interpretation.

All archeological site location records will be made available only to those with authorized managerial or professional interests in archeological resources (Archeological Resources Protection Act of 1979, PL 96-95). Irreplaceable records, archives, objects, or collections will not be kept in the 500-year floodplain.

The riverways will retain collection copies of records that may be significant in its administrative history. Collection management and maintenance requirements will be outlined by the NPS regional curator and appropriate riverways staff and included in the cultural resources preservation guide.

VISITOR USE AND INTERPRETATION

Access and Circulation

The riverways is within a day's drive of the major metropolitan areas of St. Louis, Louisville, Nashville, Memphis, Little Rock, Tulsa, Springfield, Kansas City, and Columbia/Jefferson City. Major highways servicing the riverways region are depicted on the Public Road and Utility map. Public (bus) transportation is available to Van Buren on a route from Springfield, Missouri, and Paducah, Kentucky.

The rivers provide the most direct route to get from one place to another in the riverways. There are more than 50 river access points reached from state and county roads. Roads designated by a county name and letter(s) are often called county roads but are actually maintained by the state. Many of these roads are primitive, and some are accessible only by four-wheel-drive vehicles during much of the year. Although regulations prohibiting camping in undesignated areas could be enforced by the National Park Service within the riverways boundary, it is almost impossible to do so because of the number of public roads and the difficulty in patrolling them.

Handicapped Access. The National Park Service recognizes its obligations to provide public facilities and programs that are accessible to and usable by all segments of the visitor population. Accessibility to and use of visitor facilities by physically and mentally handicapped visitors will be provided in conformance with applicable laws and regulations. To the greatest extent possible, commensurate with visitors' physical abilities, handicapped visitors will be able to enjoy the park and participate in recreational activities, using many of the same facilities and programs as other visitors.

Trails. The need for an extensive road and trail study has been identified for the riverways. Where appropriate, horses, hiking, and bicycle trails will be considered, based on the recommendations of this study and on regional opportunities, needs of visitors, and resource impacts.

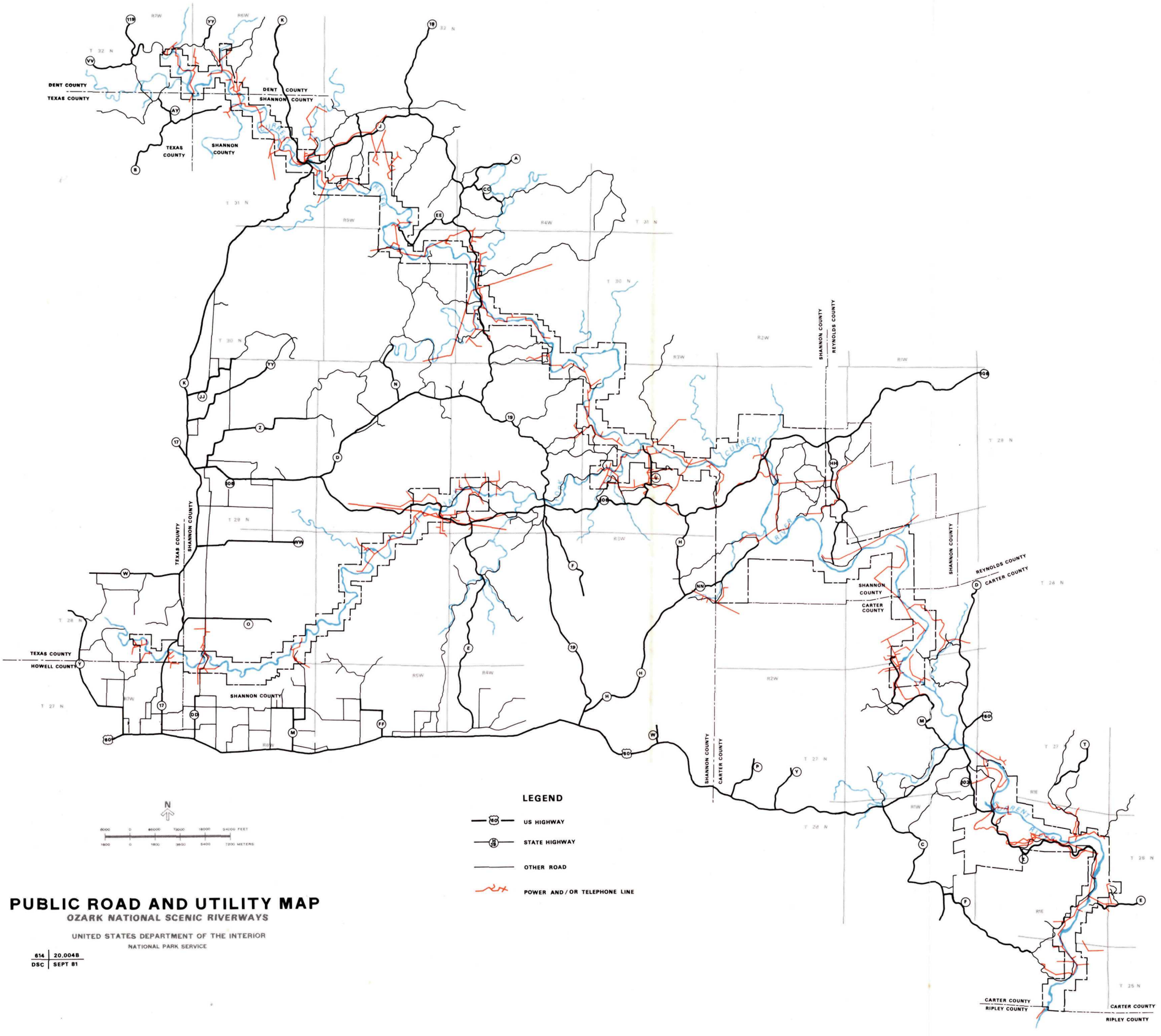
Floodplain Considerations

Because the riverways is subject to flooding, the development sites have been evaluated for these hazards, as required by NPS policy. Most of the developed major visitor use areas are located at least partially in the 100-year floodplain, and several are in potential flash flood zones. Under existing NPS policy, such areas might typically be relocated. However, moving these areas would not allow for visitor use and management called for in the authorizing legislation, for several reasons.

First and foremost, the riverways was established to facilitate the use and enjoyment of the river resource. The predominant visitor activities involve direct access to and use of the rivers. In order to allow for such use, some visitor facilities must obviously be located in the 100-year floodplain.

Placement of visitor facilities is confined by the topography of the riverways. A typical Ozark valley is narrow and confined by steep, dissected bluffs that are far too rugged for facility development. The narrow corridor of federally owned lands in the riverways further limits possible development locations. In nearly all cases, the only feasible location for required facilities is in areas that are subject to flooding.

Acknowledging the flood hazards associated with existing and proposed development sites and having determined that in most cases no reasonable alternative locations exist that would meet the needs of visitors, this plan



N

8000 0 80000 72000 16000 24000 FEET

1800 0 1800 3600 5400 7200 METERS

LEGEND

- US HIGHWAY
- STATE HIGHWAY
- OTHER ROAD
- POWER AND/OR TELEPHONE LINE

PUBLIC ROAD AND UTILITY MAP

OZARK NATIONAL SCENIC RIVERWAYS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

614	20,004B
DSC	SEPT 81

includes a series of guidelines to be followed in all areas of known or suspected flood hazard (in accordance with Executive Order 11988, Floodplain Management, and NPS implementation procedures for this order).

Campgrounds and picnic grounds, their support facilities, access roads, and parking areas are not prohibited in floodplain areas by NPS policy. However, all additional facilities proposed in the riverways that include concessioner buildings, NPS maintenance and storage areas, and employee housing will be located outside identified potential flash flood zones wherever feasible.

Flash flooding requires a localized storm cell to become stationary over a given watershed and releases a large enough volume of rain to cause rapid rise in runoff levels. This condition is rare but usually occurs to some degree once or more each year in the riverways. In areas of established floodplains and floodways, signs will be conspicuously posted warning of the hazard, as well as detailing potential evacuation plans. Areas of suspected danger will be treated similarly. During periods of flood or flash flood probability, the riverways staff will constantly monitor weather conditions and issue "flood alert" bulletins to all field staff and visitors. In the event a flood or flash flood condition is viewed as likely, a "flood warning" will be issued, and NPS personnel will be immediately dispatched to require visitors in risk areas to move to safer ground. (The specific areas of potential flash flood hazard and the 100-year floodplain areas are noted on the 14 development concept plan maps.)

River Recreation

Collectively, the various forms of river recreation make up a large and important part of the total visitor use at the riverways. The principal activities include canoeing, swimming, tubing, boating, fishing, and to a lesser extent, skin diving. Of these, canoeing has shown the most dramatic increase in popularity over the last decade. The most rapid increase in canoeing use occurred in the mid-1970s; the overall increase has been about 10 percent annually since 1970. Some localized physical environmental damage, increased perceptions of crowding by river users, and conflicts between users are some of the negative effects resulting from rapidly increasing recreational use of the riverways by the public.

The development of river recreation has followed about the same course since the establishment of the area.

Heavily used zones have increased in use at about the same proportional rate as have the low density zones. This trend in zone popularity has occurred in part because of location, differing physical characteristics of the river areas, and the development of visitor use facilities. The result of this has been the development of three distinctly different river use areas in the riverways.

The Upper Current River (Tan Vat to Two Rivers) is a high density canoe use area. This condition has developed because of the close

proximity of the area to population centers, the shallow depth and narrow winding course of the river, and the availability of user facilities. River accesses are frequent enough to allow float trips of one day or less. Services and facilities are numerous and available to the needs of river users.

Other river activities in the Upper Current area include swimming, fishing, and tubing. Boating, particularly motorboating, increases progressively downstream, as river conditions become more suitable. Swimming and tubing activities are more common near major developments. The area is characterized by high density use throughout the summer season, particularly on weekends.

The Lower Current River (Two Rivers to Gooseneck) supports a variety of mixed recreational activities. Canoe use levels are far below those on the Upper Current, and trips are generally longer in duration. Motorboating is heaviest in this area because of the deeper, wider character of the river.

Fishing is popular, and swimmers and tubers are numerous around developed areas during the summer. Conflicts here are becoming more commonplace between tubers, canoeists, and boaters. Major facility developments are located at Big Spring and Powder Mill. Numerous primitive river accesses are found throughout the Lower Current area.

The Jacks Fork River also offers a variety of recreational opportunities to visitors. The upper section from Missouri 17 to Alley Spring is especially attractive to floaters during the spring high flow, and intensive use is common on weekends. The lower section, from Alley Spring to Two Rivers, is suitable for floating during most of the year and receives intensive use for one-day floats. Fishing can be intensive in the spring and fall seasons. Boating is not heavy and is mostly confined to the lower section of the Jacks Fork. With the exception of Alley Spring, developments are limited and are of the primitive type.

The use patterns described above have evolved with little or no controls imposed by NPS management of river use. In an attempt to limit the uncontrolled and rapidly burgeoning growth of canoe rental operations, the National Park Service attempted to impose controls in the riverways in the 1970s by placing a moratorium on the issuance of any new canoe concession permits and by placing a ceiling on the number of canoes for each individual concession. However, the National Park Service's authority to limit commercial use of roads considered "public" by Missouri law was challenged. In the 1976 case of the United States vs. Irby Williams, a court ruling prevented the National Park Service from enforcing its own concession policies and opened the door for unlimited canoe use.

Research data and public response during this planning effort have identified several issues or problems relative to uncontrolled river recreation in the riverways. As canoe densities increase, a larger percentage of floaters perceive crowding as a problem. Conflicts between various visitor groups are common and can be expected to increase as visitation increases. Localized short-term resource degradation has

occurred at existing use levels and undoubtedly will become a larger problem as user densities increase.

Over the past decades, the National Park Service has found that National Park System areas, which are to be "conserved for public use" because of their unique resources, will continue to attract more people each year. At some point, the sheer numbers of visitors detract from a quality recreational opportunity and can contribute to long-term natural resource degradation. The major role of the National Park Service is (1) to determine the level of recreational use an area may experience without degradation of its resources and/or the quality of the visitor experience and (2) to develop and implement a management program to maintain public use below that level.

After careful review of existing levels of river recreation at the riverways, results from the research program, and public responses, the National Park Service has concluded that control of river recreation is required to minimize existing problems and preserve the quality of recreational experiences. A 1980 court decision involving the Forest Service, United States vs. Jerry C. Richard, offers a favorable precedent for the National Park Service to regain control over commercial canoe use in the riverways. In this case, the court ruled that a federal agency has authority to control commercial operations affecting public use on lands and waters administered by that agency. A test case will be brought before the courts by the National Park Service, and the outcome will determine the range of options available for the control of river recreation. The National Park Service will implement a two-phase management program for that purpose.

Use densities vary throughout the riverways--depending on the area, time of day, day of the week, time of year, and other factors related to facility availability. Opportunities exist for a wide range of river use experiences, ranging from high density canoeing to primitive river recreation depending on the variables listed above.

Phase I will include control measures designed to distribute and limit canoe use to reasonable levels throughout the riverways. These measures will include distribution of information to visitors to encourage self regulation, and if the National Park Service is successful in its test case to obtain the court's concurrence on its authority to control concessions, the National Park Service will regulate canoe concessions.

An education/information program will be initiated to inform visitors about recreational opportunities, including the types of recreation available in each river area, predicted use densities, the best put-in times, and the best put-in locations for different types of river experiences. This program will also serve to educate visitors regarding existing problems and needs for use control measures, as well as to create a public awareness that will facilitate implementation of further river use regulations as the need arises.

Concession control measures will be developed in detail by the riverways staff and may include such things as limitations on numbers of canoes rented per day, a requirement for float trip itineraries, designated areas

of operation, allocation of put-ins and take-outs during certain time periods, and others as required. No controls over use of privately owned canoes will be implemented under phase I.

A monitoring program will be carried out concurrent with the implementation of phase I controls. If necessary, subsequent phase II controls will be developed following analysis of the monitoring data.

If the National Park Service is unable to gain control over canoe concessions, it is unlikely that the phase I program would be effective in controlling numbers of canoes on the riverways, because all restrictions on canoe concessioners based inside and outside the riverways boundary would be nullified. In this case, the National Park Service would develop and implement a revised control program under phase II that could include an individual permit system.

Motorboating. A 40-hp limit will be placed on all motorized watercraft used in the riverways, whether equipped with conventional outboard motors or an outboard motor fitted with a lower jet unit. This limit is compatible with the rivers, which are not wide or deep enough for safe use by watercraft with large motors. The majority of existing boaters will remain largely unaffected by this action. Implementation of this regulation will be delayed for five years in order to minimize any social or economic hardships that might result as larger motors are phased out.

All official watercraft involved in search and rescue, patrol, and other emergency and administrative operations will be exempt from horsepower restrictions. The riverways staff will work with the Missouri Department of Public Safety to develop compatible restrictions for use in the Eminence and Van Buren 4-mile gaps.

Canoe Lashing. A common practice of lashing two or more canoes together exists on the riverways. This practice impedes free navigation and introduces a safety hazard, particularly at the "chutes." A new regulation prohibiting the lashing of canoes together is proposed.

Water Skiing. The very nature of the rivers makes water skiing extremely hazardous. The rivers are winding, shallow, obstacle-strewn, and often crowded. Because of these conditions, a new regulation prohibiting water skiing throughout the riverways is also proposed.

Tubing. Tubing is a rapidly increasing activity in the riverways. Problems associated with tubing are water safety, litter, sanitation, and competition with boats for space. Educational material and programs will be developed to inform the visitor of the hazards involved in tubing and to recommend safety precautions.

Litter. The existing cleanup program will continue to include summer cleanup crews, an annual NPS/canoe concessioner cleanup day in March, and periodic cleanup programs by volunteer groups. Litter awareness decals will be required on all concession canoes. Additional correctional measures will include continuing public education, litter bag systems, and sheltered industries recycling with handicapped and volunteer labor.

Human Waste. Comfort stations will be maintained at all major and many primitive development sites where they currently exist. No new comfort stations specifically for river users will be provided between put-in/take-out points. Programs will be developed to educate visitors on proper methods of human waste disposal in these areas.

Land Recreation

Hunting. Hunting will be managed in accordance with the riverway's enabling legislation and Missouri state law. Hunting will be permitted in season within the riverways except as posted near major developed areas and in the old state wildlife refuge that was Big Spring State Park, where hunting is forbidden for safety reasons. Discharge of firearms within 100 feet of buildings and from operating motorcraft is forbidden by state law.

Camping. Camping will be allowed and managed essentially as described in the "Existing Conditions" section except that some sites may be redesigned within existing capacities, and 25 additional sites will be added at Powder Mill.

Picnicking. Additional picnicking facilities and shelters will be provided.

ORV Use. Areas and roads opened to ORV use will be specified in the road and trail study.

Horseback Riding. Horseback riding will be allowed on designated trails throughout the riverways. A 25-site campground for horses and riders will be provided at the location of the former Cross-Country Trail Ride now described as Horse Camp in the "Development Concept Plan" section.

Hiking. Following the recommendations of the road and trail study (see "Visitor Use and Interpretation" section), the National Park Service will construct hiking trails through appropriate areas of the riverways. Some hiking trail concepts to be considered include trails for backpacking and additional interpretive trails, including trails accessible to the disabled visitor.

Bicycling. Bicycling opportunities in the riverways will remain as at present, with new bicycle trails and management actions dependent on the findings of the road and trail study.

Climbing. Except where specifically prohibited to protect fragile resources or to provide visitor safety, climbing will be allowed without permits.

Caving. Over 100 known caves are currently being studied; eventually, individual management guidelines will be completed for all the caves. Most caves will remain accessible to visitors, subject to the guidelines. Recreational caving will be directed toward those caves most appropriate for this use, but access to some caves will be restricted.

Concessions

Currently, 18 concession permits and 2 concession contracts are in effect. Actions dealing with canoe concessioners were discussed under the "River Recreation" section, and actions dealing with construction, removal, or upgrading of concession facilities are discussed under the "Development Concept Plan" section. The gift shop operation at the Alley Spring roller mill will be relocated to a proposed concession store at this developed area. No more than one canoe concession will be based at any major developed area.

Interpretive Programs

The goal of the interpretive program will be to ensure that visitors have all the information available to fully enjoy and experience the riverways and its resources. The program will be designed to (1) promote individual awareness of the facilities, features, and activities available; (2) reflect and explain the cultural, historic, and natural features of the area to the public, including riverways neighbors; (3) catalog and preserve historical items as well as utilize them for interpretation to the public; and (4) educate visitors on the safe and proper utilization of the resources.

Interpretive Themes

Interpretive concepts for the riverways were described in detail in the "Interpretive Prospectus" (1975). These concepts are, for the most part, still valid. Major interpretive themes are listed by area in table 5.

Table 5: Major Interpretive Themes

Area	Theme
Cedargrove	Cedargrove historic village
Welch Cave hospital	area history
Maggard cabin	folk architecture (further study will be done on Jesse James association)
Devils Well	sinkhole geology
Akers	modern day river recreation
Pulltite	modern day river recreation; spring ecosystems
Round Spring	geology of springs and caves and their relationship to the river
Jerktail	origin of Jerktail
Two Rivers	confluence of Two Rivers
Owls Bend/Powder Mill	prehistory and Ozark folklife
Rocky Falls	area geology
Klepzig-Brandt farm	area history
Headquarters (Van Buren)	Ozark scenes and activities
Big Spring	river transportation system; Ozark culture
Alley Spring	mill village community life
Jam-Up Cave	stream piracy

FUTURE STUDIES

Visitor Use Monitoring/Capacity Studies

A considerable data base exists on crowding in the riverways. Research conducted during the 1970s served to varify the existence of crowding and congestion problems and to measure the magnitude of change in visitors' perception over a period of time (Marnell et al. 1978). Now that the problem has been identified, data are needed by which river carrying capacities can be set and methods of use control can be evaluated. Specific monitoring methodology will not be determined here, but the study objectives and needs will be given in order to guide the development of an effective methodology.

The monitoring program may include one or more of the following to provide the desired information:

Determine the fluctuations in river use throughout the day and the season on selected sections of the riverways

Determine the travel patterns of river users and how different put-in rates at river access points affect the fluctuations in use downstream

Determine the number of other users a visitor encounters during a river trip

Determine how river use and put-in rate fluctuations affect visitors' feelings of crowding and the quality of their recreational experience

Establish management objectives that specify the type of experience being managed on each river section, acceptable levels of crowding, and maximum levels of use

Determine the most effective control mechanisms that will achieve the management objectives and recommend a system to be implemented

Provide data applicable to the road and trail study for recommending river access actions

Provide data applicable to the river visitor education/information program to inform visitors of river use conditions and opportunities

Action Plans

A cultural resources preservation guide will be required to provide guidance for the ongoing preservation of cultural resources that are not covered by a specific historic structure preservation guide. This guide will address (1) all historic structures except the Alley Spring roller mill and those structures that will be removed or neglected, (2) archeological resources, and (3) a specific collections preservation guide. It is expected that the guide will be a compilation of three separate guides,

each one addressing historic architecture, archeological sites, and collections.

A specific historic structure preservation guide will be required to guide the preservation maintenance of the Alley Spring roller mill. Addenda to the "Historic Structure Report" for the roller mill will address handicapped access and visitor safety and protection of the structure and its contents. These addenda, along with a historic furnishings report, will guide the development of the roller mill interior according to NPS guidelines. Also required is additional historical research regarding the Maggard cabin.

Road and Trail Study

A road and trail study will be conducted as follows:

Survey and inventory all riverways roads and trails and assess the physical condition and types of use occurring on them

Determine relationship of roads and riverbank use to the quality of river users' experiences

Coordinate with river use monitoring and carrying capacity studies to meet river use objectives and needs

Determine specific areas suitable for ORV use

Recommend road and river access management

DEVELOPMENT CONCEPT PLAN

DEVELOPMENT CONCEPT PLAN

The following section contains the development concept plans for the riverways. General descriptions of the headquarters and the primitive areas are presented first. Development concept plans for the individual developed areas follow. A general overview of all development is presented on the General Development Plan map. No new major developed areas are proposed in these plans, only redesign, replacement, relocating, or upgrading of facilities. Maps of each developed area depict the existing conditions and proposed improvements. Comprehensive design plans will be prepared for these areas prior to construction. Those plans will accurately describe dimensions and locations of proposed improvements and identify any archeological surveys and engineering studies that may be necessary prior to construction.

HEADQUARTERS

The existing headquarters building in Van Buren will be expanded from approximately 4,775 square feet to approximately 5,775 square feet. This expansion will accommodate public restrooms and additional conference room space. The attached warehouse is approximately 2,200 square feet and will be expanded to 4,200 square feet to provide for much needed storage space.

PRIMITIVE AREAS

More than 40 regularly used primitive camping (see appendix F) and river access sites are scattered throughout the riverways. Where such camping and onroad or offroad use has caused environmental degradation, campgrounds will be temporarily closed to allow revegetation and site restoration through natural processes. Where severe erosion and drainage problems have developed, riverways day labor crews will take unobtrusive erosion control measures to hasten restoration.

DEVELOPED AREAS

Cedargrove

Located at the north end of the Current River, the Cedargrove primitive campground lies in Dent and Shannon counties. Access to Cedargrove is via county road ZZ and the undesignated county road that follows White Oak Hollow. (County roads with letter designations are actually owned and maintained by the state of Missouri.) At the junction of the White Oak Hollow road and road ZZ are two major concrete low-water crossings constructed by the National Park Service. The concrete was poured over the existing structures to raise the elevations of the crossings so visitors could have access during a greater portion of the year.

The old town of Cedargrove is still evident. This town existed during the timber boom of the early 19th century. The town never had a

population of more than several hundred people, and all that remains today is a school and some deteriorating foundations. The one-room school is situated on one-seventh of an acre that belongs to Missouri school district 8.

A wayside exhibit near the school will explain what Cedargrove was like in its prime, why it was there, what people's occupations were, and why the town died.

The topography of the area is typical of the Ozark river bottoms, a narrow river valley with angular mountains. Two major tributaries intersect the Current River in this area. Although streamflow is seasonal, Big Creek and White Oak Hollow could have the potential to flash flood if a localized storm cell became stationary over these watersheds. Flash floods are recognized as a design problem. The major river access and the low-water crossings are at the mouth of White Oak Hollow.

The areas subject to flash flooding will be signed at access points. Information will be posted to inform the public what to do in flood conditions. As far as possible, the resident ranger will provide a warning service when severe weather conditions are known. Warnings will be given to campers to advise them to pack up and move to higher ground.

A major portion of random primitive camping takes place at the mouth of Big Creek. Primitive camping at Big Creek and along the banks of the Current River predates the existence of the riverways. The public has emphasized maintaining Cedargrove as a primitive area. A new primitive camping area will be developed north of the Current River. The traditional use pattern will be continued but not expanded. Adaptive use of barricades and vegetative plantings will be initiated to discourage random development of ORV trails.

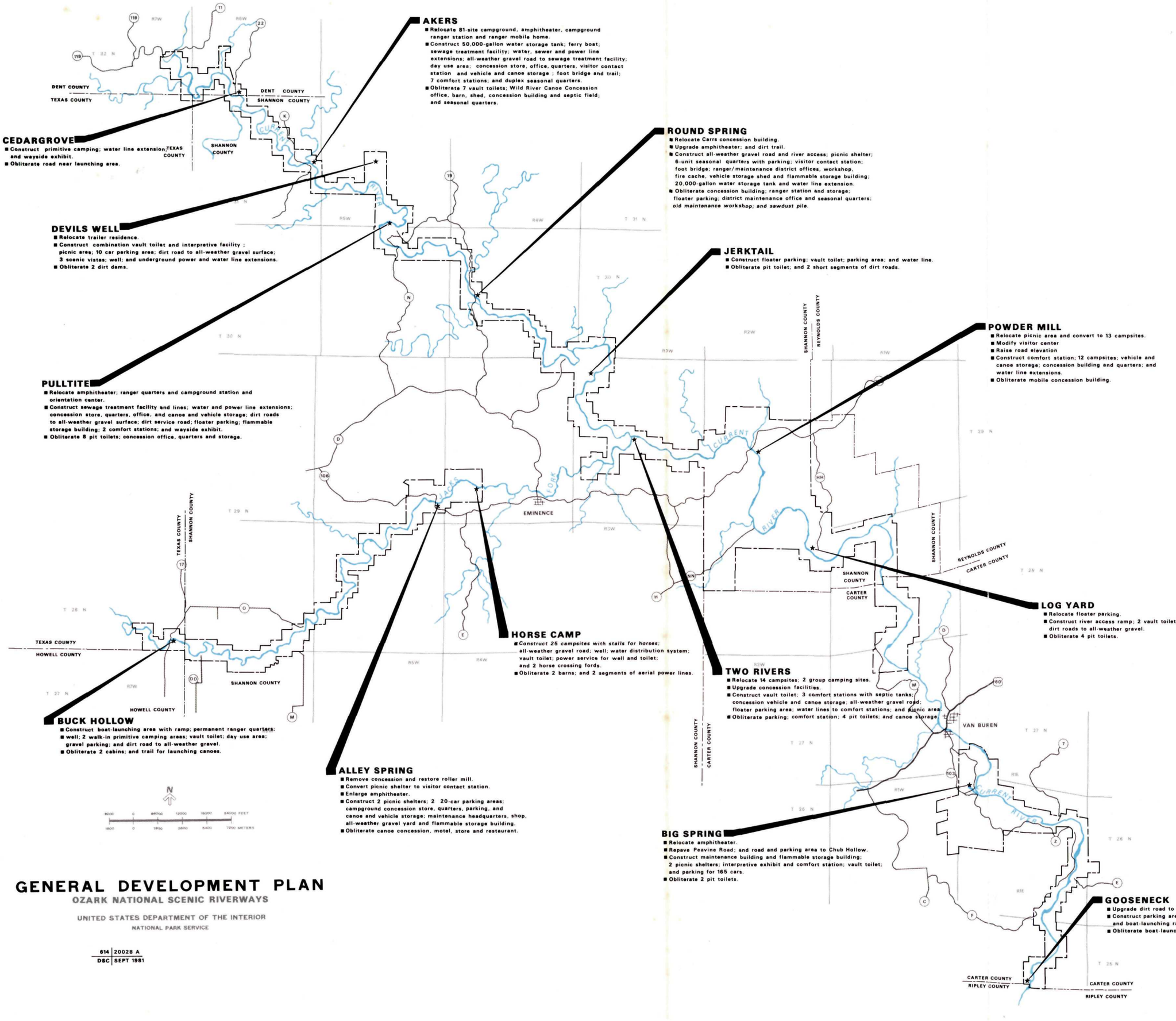
Cedargrove is also a favorite canoe put-in area. The heaviest use is during the spring and early summer when water levels are high for easy floating. The two features necessary for a canoe put-in area are already available at Cedargrove. Adequate floater parking is available above the 100-year design flood level, and the road near the launching area will be obliterated.

Other existing facilities include two vault toilets, a well, and a water distribution system. A mobile home houses the resident ranger stationed at Cedargrove.

The existing waterline will be extended north across the river to accommodate campers.

Akers

The Akers area is located near the north end of the Current River. Currently, the main campground lies at the junction of Gladden Creek and the Current River. Because Akers is situated on the first and second



AKERS

- Relocate 81-site campground, amphitheater, campground ranger station and ranger mobile home.
- Construct 50,000-gallon water storage tank; ferry boat; sewage treatment facility; water, sewer and power line extensions; all-weather gravel road to sewage treatment facility; day use area; concession store, office, quarters, visitor contact station and vehicle and canoe storage ; foot bridge and trail; 7 comfort stations; and duplex seasonal quarters.
- Obliterate 7 vault toilets; Wild River Canoe Concession office, barn, shed, concession building and septic field; and seasonal quarters.

CEDARGROVE

- Construct primitive camping; water line extension; and wayside exhibit.
- Obliterate road near launching area.

ROUND SPRING

- Relocate Carrs concession building.
- Upgrade amphitheater; and dirt trail.
- Construct all-weather gravel road and river access; picnic shelter; 6-unit seasonal quarters with parking; visitor contact station; foot bridge; ranger/maintenance district offices, workshop, fire cache, vehicle storage shed and flammable storage building; 20,000-gallon water storage tank and water line extension.
- Obliterate concession building; ranger station and storage; floater parking; district maintenance office and seasonal quarters; *old maintenance workshop; and sawdust pile.*

DEVILS WELL

- Relocate trailer residence.
- Construct combination vault toilet and interpretive facility ; picnic area; 10 car parking area; dirt road to all-weather gravel surface; 3 scenic vistas; well; and underground power and water line extensions.
- Obliterate 2 dirt dams.

JERKTAIL

- Construct floater parking; vault toilet; parking area; and water line.
- Obliterate pit toilet; and 2 short segments of dirt roads.

POWDER MILL

- Relocate picnic area and convert to 13 campsites.
- Modify visitor center
- Raise road elevation
- Construct comfort station; 12 campsites; vehicle and canoe storage; concession building and quarters; and water line extensions.
- Obliterate mobile concession building.

PULLTITE

- Relocate amphitheater; ranger quarters and campground station and orientation center.
- Construct sewage treatment facility and lines; water and power line extensions; concession store, quarters, office, and canoe and vehicle storage; dirt roads to all-weather gravel surface; dirt service road; floater parking; flammable storage building; 2 comfort stations; and wayside exhibit.
- Obliterate 8 pit toilets; concession office, quarters and storage.

LOG YARD

- Relocate floater parking.
- Construct river access ramp; 2 vault toilets; dirt roads to all-weather gravel.
- Obliterate 4 pit toilets.

HORSE CAMP

- *Construct 25 campsites with stalls for horses;* all-weather gravel road; well; water distribution system; vault toilet; power service for well and toilet; and 2 horse crossing fords.
- Obliterate 2 barns; and 2 segments of aerial power lines.

TWO RIVERS

- Relocate 14 campsites; 2 group camping sites.
- Upgrade concession facilities.
- Construct vault toilet; 3 comfort stations with septic tanks; concession vehicle and canoe storage; all-weather gravel road; floater parking area; water lines to comfort stations; and picnic area.
- Obliterate parking; comfort station; 4 pit toilets; and canoe storage.

BUCK HOLLOW

- Construct boat-launching area with ramp; permanent ranger quarters; well; 2 walk-in primitive camping areas; vault toilet; day use area; gravel parking; and dirt road to all-weather gravel.
- Obliterate 2 cabins; and trail for launching canoes.

ALLEY SPRING

- Remove concession and restore roller mill.
- Convert picnic shelter to visitor contact station.
- Enlarge amphitheater.
- Construct 2 picnic shelters; 2 20-car parking areas; campground concession store, quarters, parking, and canoe and vehicle storage; maintenance headquarters, shop, all-weather gravel yard and flammable storage building.
- Obliterate canoe concession, motel, store and restaurant.

BIG SPRING

- Relocate amphitheater.
- Repave Peavine Road; and road and parking area to Chub Hollow.
- Construct maintenance building and flammable storage building; 2 picnic shelters; interpretive exhibit and comfort station; vault toilet; and parking for 165 cars.
- Obliterate 2 pit toilets.

GOOSENECK

- Upgrade dirt road to all-weather gravel.
- Construct parking area for 10 cars with boat trailers; and boat-launching ramp.
- Obliterate boat-launching area.

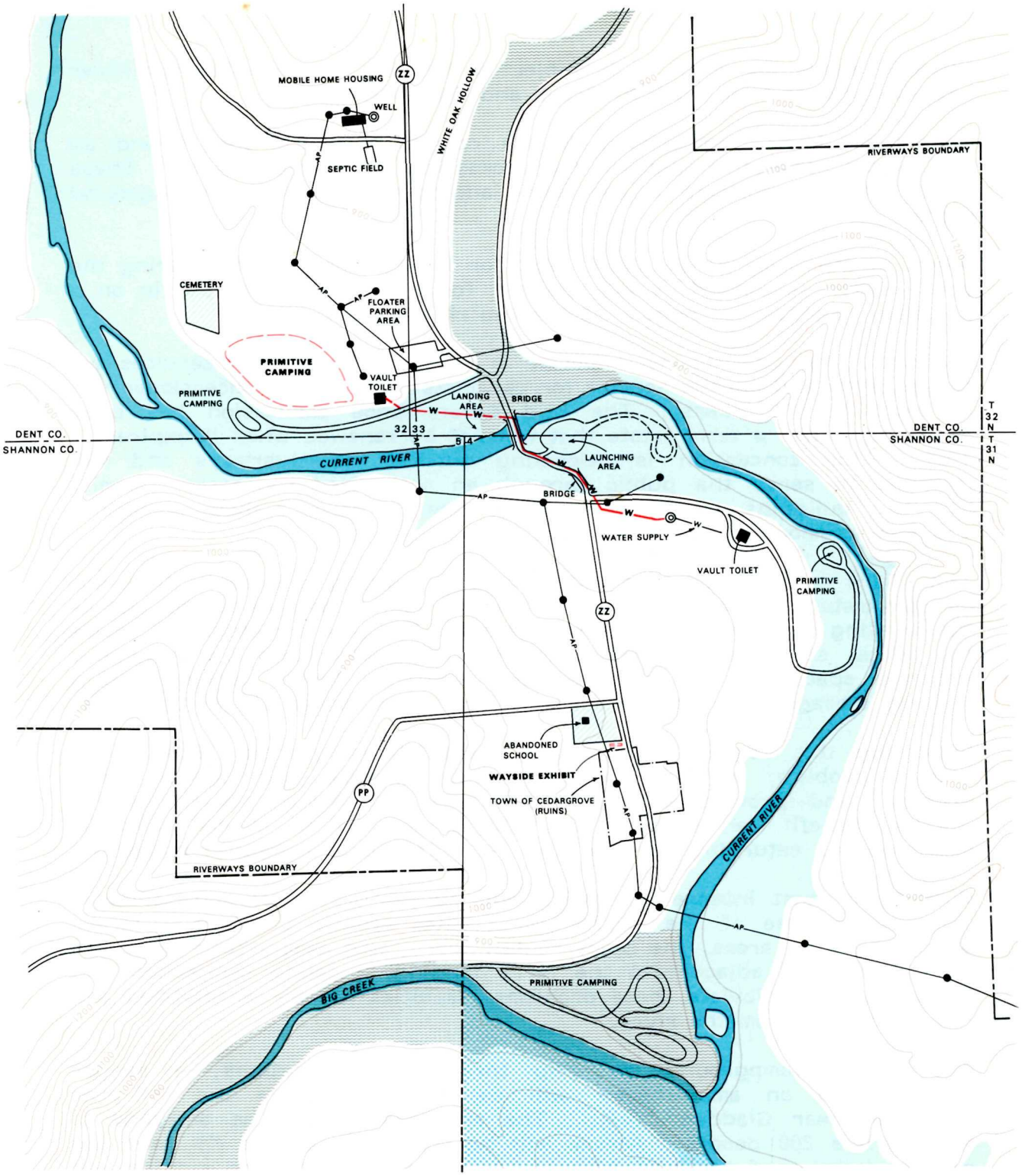
GENERAL DEVELOPMENT PLAN

OZARK NATIONAL SCENIC RIVERWAYS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

614	20028 A
DSC	SEPT 1981



PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

N

0 200 400 600 800 1000 FEET

100-YEAR FLOOD PLAIN

POTENTIAL FLASH FLOOD ZONE

SCENIC EASEMENT

PRIVATE LAND

UNDERGROUND POWER OR AERIAL POWER AND POLE —UP— —AP—

WATER LINE —W—

CEDARGROVE

DEVELOPMENT CONCEPT PLAN

OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614|20014A
SEPT 81|DSC

terraces above the river, it is subject to flooding from the Current River and flash floods from Gladden Creek and Dooley Hollow.

Access to Akers campground is via county road KK and K and an NPS-owned concession-operated ferry crossing the Current River. These roads intersect adjacent to the ferry landing and the Akers campground store.

Akers is the major canoe put-in point on the Current River. During the peak visitor season, it is not unusual for 1,000 canoes to put in on a Saturday, Sunday, or holiday at the two river access points.

Currently, two concessioners operate in Akers. The primary services are canoe rental and shuttle service for canoeists. Only one concessioner will be permitted in Akers. The Wild River canoe concession has been operating under a term estate that will not be renewed when it expires in 1981. This concession is relocating outside the riverways and will continue to serve the public through an authorized concession permit. The four buildings used by this concessioner (a barn, a shed, an office, and a concession) will be obliterated.

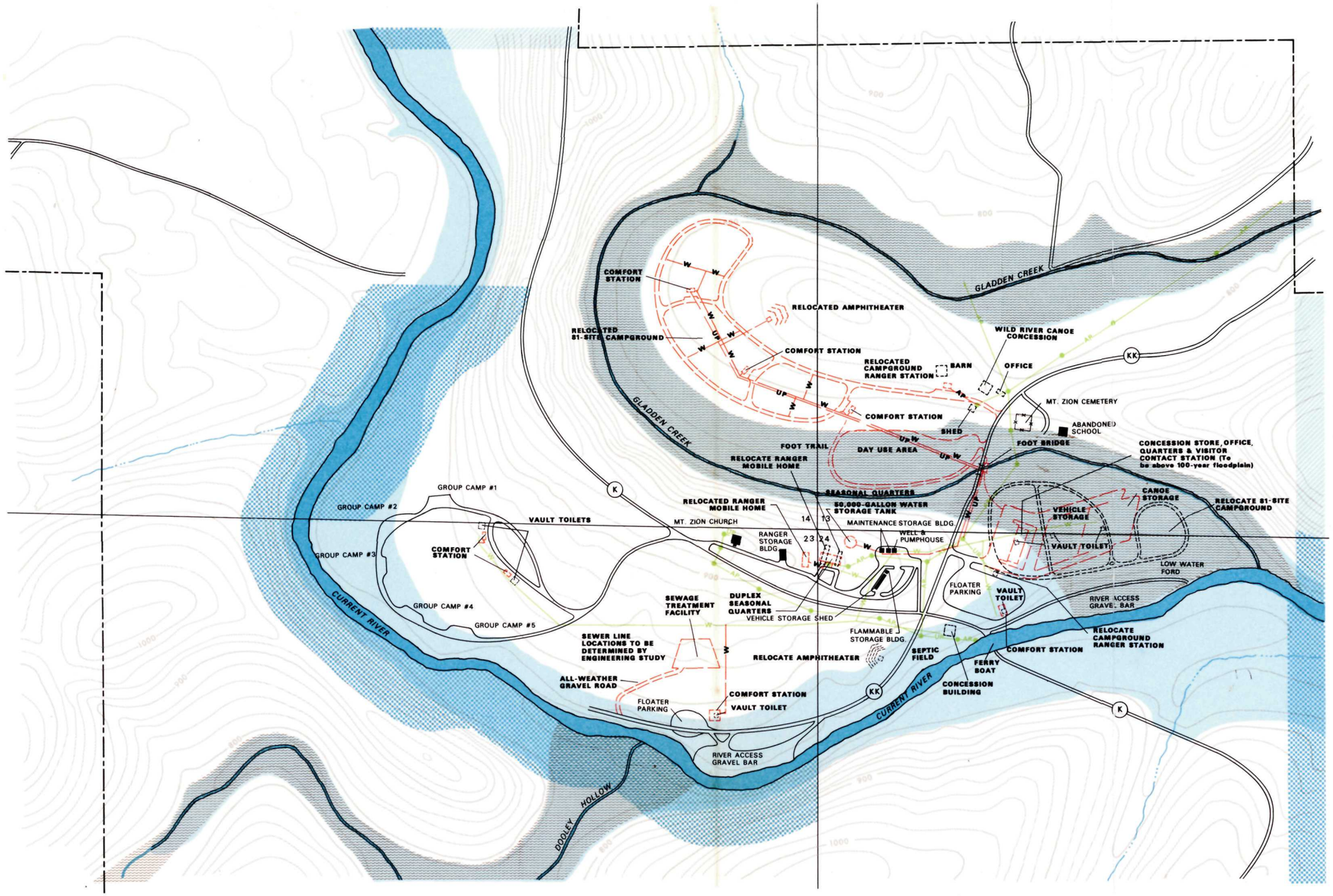
The Akers canoe rental area and concession building with septic field will be obliterated and replaced above the 100-year floodplain to the site of the existing single-family unit campground. The new structure will house the office, store, and quarters for the concessioner and also provide a separate space for a visitor contact station. Visitor parking and a secured storage area for concession vehicles and canoes will be provided.

Relocating this concession facility will alleviate congestion, eliminate an erosion problem, eliminate an increasing sanitary and public health problem, and provide a new facility that will better serve visitors. Another benefit derived from this change will be an overall aesthetic improvement, returning more of the river fringe to a natural condition.

Camping is most intense on spring and summer weekends and holidays. This intense use of the Akers area creates several problems. Access points, parking areas, the canoe rental, ferry, and campground store are all concentrated adjacent to the ferry landing, creating congestion and confusion. To alleviate these problems, facilities will be consolidated and relocated away from the river.

The 81-site campground including three comfort stations, a ranger station, and an amphitheater will be relocated above the 100-year floodplain near Gladden Creek. The amphitheater will be designed to accommodate 200 people. Access will be from county road KK near the present location of the Wild River canoe rental. Flash flood signing will be provided.

A day use area and foot trail will be developed near the relocated campground. This area will have picnic facilities and a maintained open area for unstructured recreation. The foot trail will connect the relocated campground with the proposed concession operation. A pedestrian bridge will be constructed across Gladden Creek to eliminate vehicular/pedestrian conflict.



100-YEAR FLOODPLAIN

POTENTIAL FLASH FLOOD ZONE

SCENIC EASEMENT

PRIVATE LAND

UNDERGROUND OR AERIAL POWER AND POLE

WATER LINE

PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

N

0 200 400 600 800 1000 FEET

AKERS

DEVELOPMENT CONCEPT PLAN
OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614|20016B

SEPT 81|DSC

A sewage treatment facility, with access over an all-weather gravel road, and sewer, water, and powerline extensions are proposed. An engineering study will be made to determine the proper type of sewage treatment system required. The recommended location for the facility is a remote, undeveloped area between the group campsites and the Akers ferry.

A 50,000-gallon water storage tank will be constructed behind the maintenance complex and screened from public view to provide an adequate water supply in the event of fire or temporary emergency shutdowns.

Seven vault toilets scattered throughout the area will be obliterated; seven comfort stations will be constructed to replace the vault toilets. Three of these will be in the relocated campground.

The present maintenance complex consists of two 12-foot by 20-foot storage sheds, a 10-foot by 18-foot well house, a 12-foot by 12-foot block storage building for flammable material, and a 24-foot by 60-foot vehicle storage shed. This semisecluded central location of the maintenance compound will facilitate maintenance activities of the area.

Two mobile homes are adjacent to the maintenance complex--one houses the resident ranger and the other provides seasonal quarters. The seasonal quarters will be eliminated, and the resident ranger's mobile home will be relocated. Quarters for a resident ranger is necessary for monitoring the early-warning flood alarm system. When this has been accomplished, a duplex will be constructed on this site to accommodate seasonal help.

A new ferry will be constructed, with a metal hull and wooden decking to increase its life expectancy.

The interpretive features are somewhat limited.

The Mt. Zion church and cemetery are both located at Akers. The National Park Service has been contacted about using the church as a structure for housing cemetery records.

Pulltite

The Pulltite campground extends along the meandering Current River for approximately three-quarters of a mile. Access to Pulltite, in Shannon County, is from Missouri 19 via county road EE and an undesignated county road that fords the river at the campground.

Just prior to entering the area, visitors decend a steep hill and round a tight curve. This curve has been the scene of many accidents. Shannon County claims ownership and maintenance responsibility for this section of road, and the riverways staff will continue to encourage Shannon County to modify this curve. If the county is unable to make the needed modifications, the National Park Service will request that ownership of

this section of road be turned over to the Park Service so that a safer realignment could be developed.

Upon entering the area, visitors are confronted with a confusing maze of roads. This entrance has been designed to clearly distinguish the access route to the campground from the route to the river and day use facilities.

The concession building, located immediately at the entrance, encourages visitors to park along the entrance road, contributing to the traffic confusion and congestion. This building, which is an old house partially converted to a store with quarters, and the concession storage will be obliterated. A combination concession store, quarters, and office will be constructed immediately adjacent to the proposed new campground access. Adequate visitor parking, concession vehicle parking, and canoe storage space will be provided near the new facility.

Facilities for campers include 55 single-family campsites, 3 group sites, an amphitheater, a comfort station, a vault toilet, and eight pit toilets. These facilities will be upgraded. The amphitheater will be relocated to a more central location in the campground and constructed to seat 150 people. The eight pit toilets will be obliterated and replaced with two modern comfort stations. These comfort stations will be sited to serve group and single-family campsites.

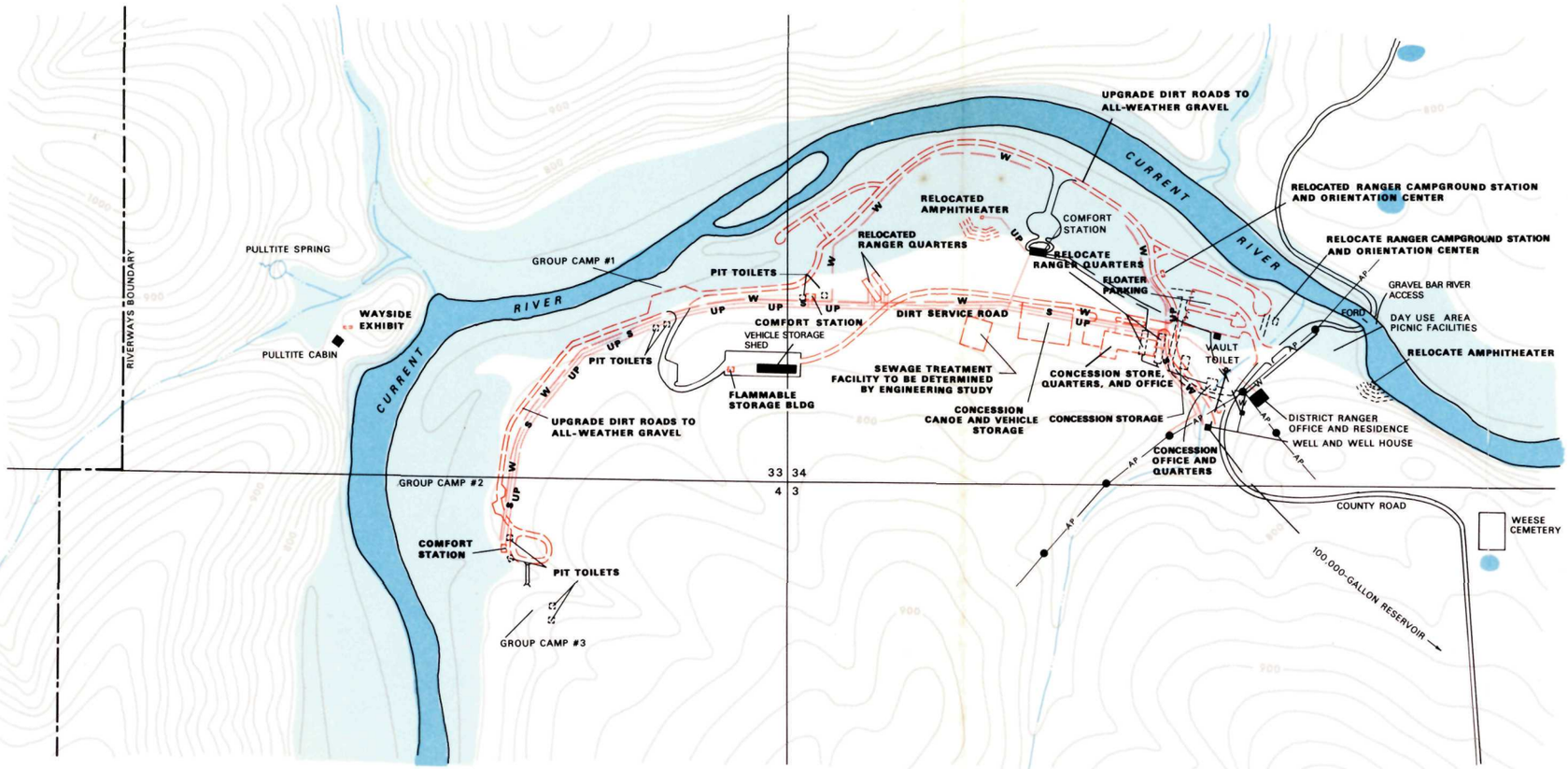
The ranger campground station and orientation center building will be relocated to a nearby more suitable site. The roads through the campground are compacted sandy loam--typical river bottom soil. During wet periods, these soils soften and rut easily, and during dry periods they are extremely dusty. These roads will be upgraded to all-weather gravel surfaces to improve access and maintenance.

The river access and floater parking area near the campground will be retained. The floater parking will be expanded to handle more cars.

Access to the maintenance area is currently through the campground. To separate maintenance traffic from visitor traffic, a new dirt road will be constructed along the upper terrace from the entrance to the maintenance area. A storage building for flammable material will be constructed near the existing vehicle shed.

The proposed location for the new concession store, quarters, and office building is the present location of the mobile homes occupied by the area rangers. These mobile homes will be relocated along the proposed maintenance access road and screened from public view. The quarters for the upriver district ranger will remain immediately adjacent to the entrance.

The high water table causes percolation problems in the various septic fields. An engineering study will be made, and a sewage treatment facility and sewer lines will be constructed.



100-YEAR FLOODPLAIN

UNDERGROUND OR AERIAL POWER AND POLE —UP—●—AP—

WATER LINE —W—

SEWER LINE —S—

PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

N

0 200 400 600 800 1000 FEET

PULLTITE

DEVELOPMENT CONCEPT PLAN
OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

614|20020A
SEPT 81 | DSC

The existing water distribution system will be expanded to include the group sites, concession building, maintenance area, and relocated residences. This will entail the placement of lines, installation of hose bibs, and attachment to quarters.

The electrical distribution system will be extended to serve the new concession operation, the relocated campground station and new orientation center, the amphitheater, the new comfort stations, and the relocated quarters. All electrical service lines will be buried.

Pulltite cabin is on the riverways' List of Classified Structures. The cabin is located adjacent to Pulltite Spring across the river from the campground. A wayside exhibit will describe the unspoiled character of the spring and spring branch ecosystem. This exhibit will emphasize the spring's fragility and aesthetic value.

Two Rivers

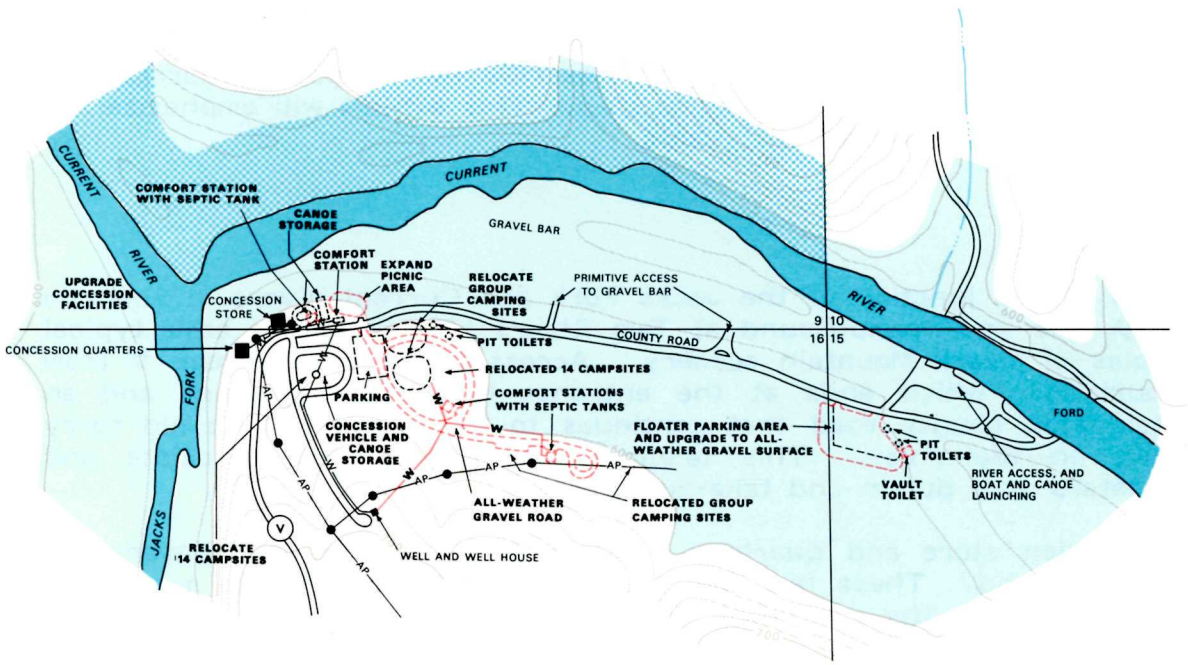
Located at the junction of the Jacks Fork and Current rivers in Shannon County, the small campground at Two Rivers offers visitors some typical examples of Ozark Mountain scenery. Access is via county road V from Missouri 106, which ends at the entrance to the campground, and an undesignated county road that continues to the location of an old ferry landing on the river. This landing is now used by canoeists and johnboaters as a put-in and take-out point.

A concession store and quarters building is situated at the entrance to the campground. These facilities will be upgraded to provide more room and flexibility for the concession operation.

Existing campground facilities include 14 single-family campsites, 2 group sites, a comfort station, 4 pit toilets, and a water distribution system. To reduce congestion in the campground, the 14 single-family sites will be relocated to the area now occupied by the group sites, and 2 new group sites will be developed to the east. An all-weather gravel access road will be constructed to the group sites, and parking for 20 cars will be provided at each site. Two new comfort stations will be developed to serve the single-family campground and group sites, and the present pit toilets will be removed. The water distribution system will be expanded to serve the new sites, and hose bibs will be installed.

A small day use/picnic area exists adjacent to the comfort station that will be obliterated, and a new comfort station will be constructed closer to the existing concession canoe vehicle storage area that will be relocated to the existing camping area. The picnic area will be expanded in its present location. The parking area near the old comfort station will be obliterated.

The present floater parking area adjacent to the ferry landing will be expanded, clearly delimited, and upgraded to an all-weather gravel surface. Two pit toilets will be obliterated and replaced with a vault toilet.



PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

100-YEAR FLOODPLAIN

SCENIC EASEMENT

AERIAL POWER AND POLE —AP—

WATER LINE —W—

N

0 200 400 600 800 1000 FEET

TWO RIVERS

DEVELOPMENT CONCEPT PLAN

OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614 | 20025A

SEPT. 1981 | DSC

Alley Spring

Alley Spring is one of the three state parks that were transferred from state to federal ownership when the riverways was established. Located 6 miles west of Eminence on the Jacks Fork River in Shannon County, Alley Spring was partially developed by the CCC crews in the 1930s. A major portion of the campground was developed during the 1974 NPS construction program.

The Alley Spring roller mill is a major attraction. This historic mill, which used the abundant waters from Alley Spring to power its gristmills, has been nominated for inclusion on the National Register.

During the CCC era, several structures were built as part of Alley Spring State Park. These structures include three houses now used as quarters, a picnic shelter, a headquarters office now used as a ranger station/office, and a horse and carriage shed converted to a maintenance shop.

The campground has 209 single-family campsites, 23 walk-in sites, 3 group sites, and 10 comfort stations--1 of which is equipped with hot showers and 2 with cold showers. A sewage dumping station is available at the entrance to the campground for recreational vehicles. No additional sites or comfort stations are proposed, as these meet the present demand for camping facilities. If the demand increases, visitors will be referred to other campgrounds in the riverways or to private campgrounds in the vicinity.

An existing amphitheater south of the campground will be enlarged to a 200-seat capacity.

As with all areas throughout the riverways, Alley Spring is subject to flooding. Alley Hollow has the potential for flash flooding. Those areas will be signed for visitor protection. The early warning system will provide advance notice of an expected rise, and the area rangers will have adequate time to evacuate visitors from the campgrounds.

Currently, the permitted concession operations in the Alley Spring area are a laundry, showers, gift shop, and firewood service. The gift shop, currently located in the roller mill, will be relocated to a new campground store. This structure will be constructed in the vicinity of the present campground entrance and will be the base of concession operations, including quarters, vehicle parking, and canoe storage for the concessioner.

A permitted canoe concession is operated out of Harvey's store, which is a commercial operation under a term estate. The commercial operation (canoe concession, restaurant, store, motel) will be demolished when the term estate expires.

A huge gravel bar adjacent to the Missouri 106 bridge serves as a beach and river access point. A nearby paved boat-launching ramp has become

obsolete because the river continues to deposit gravel at the entrance to the ramp. The river will be allowed to naturally fill this launch ramp, and boat launching will be redirected to the gravel bar.

Two day use areas exist at Alley Spring, one primitive and one developed. The primitive area, known as Ole' Swampy, is located behind the walk-in campsites along the river. It has no facilities, but visitors can drive to the river at this point over county roads. Land adjacent to this access has been compacted, and steps will be taken to alleviate this problem and restore the area. The developed day use area at Burr Oak has numerous picnic facilities and childrens' play equipment.

There is a recognized need for more picnic shelters. Two shelters will be constructed at Burr Oak, and parking will be provided for 20 cars at each shelter. An existing picnic shelter near the Storys Creek school, which was constructed by the CCC, will be converted to a visitor contact station. It is close to the interpretive sites, and its new use will enhance the interpretive program.

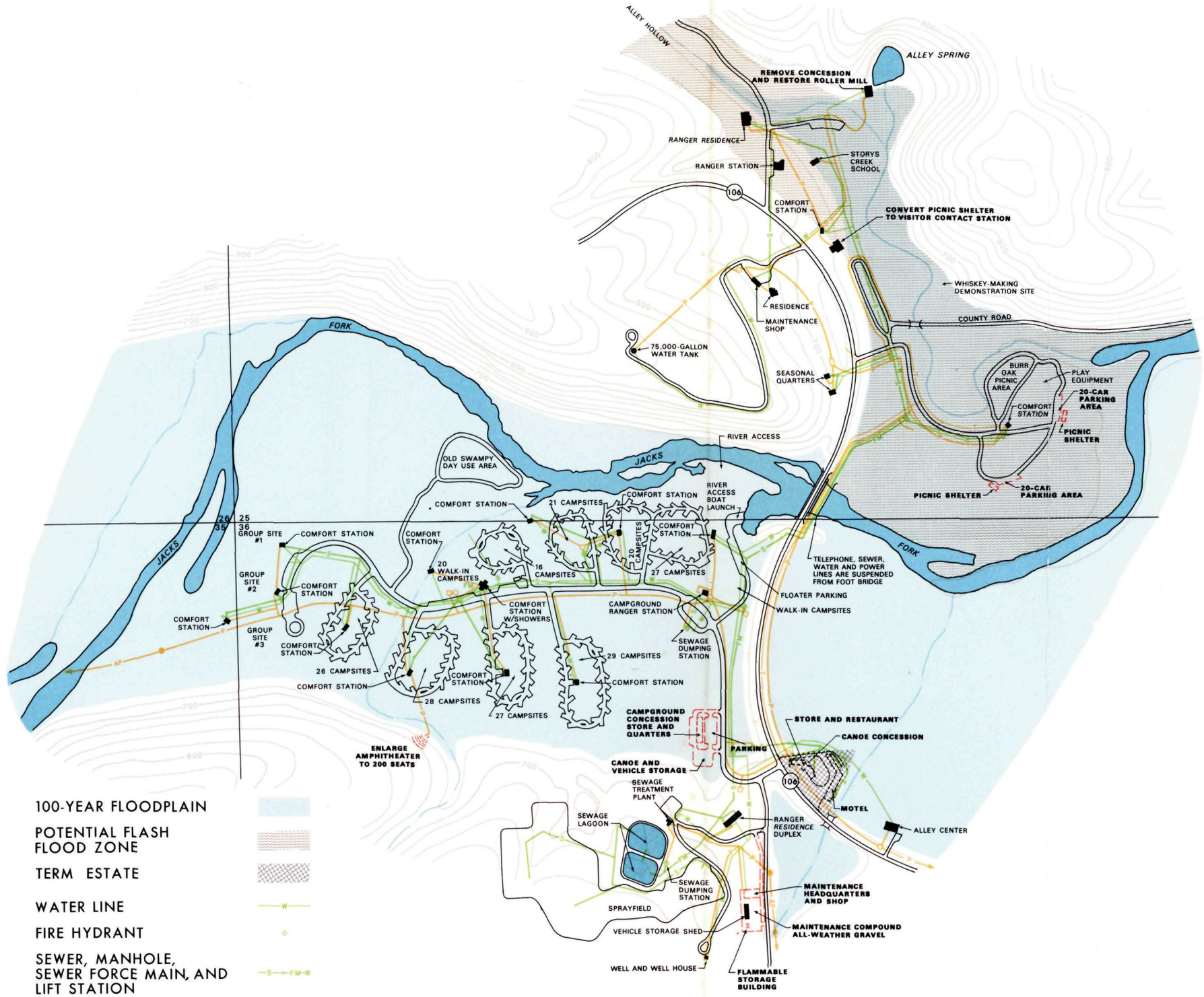
The Alley Spring sewage treatment facility easily handles the load from the campground and other local facilities, but it becomes overloaded when receiving sewage hauled in from other areas. During the peak visitor season when the sewage treatment facility at Round Spring is operating at capacity, the sewage from Akers is trucked approximately 40 miles to Alley Spring for treatment. To prevent the Alley Spring system from becoming overcharged and turning septic, a grinder pit has been installed to store pretreated sewage before injection into the sewage lagoon, but this is a short-term, stop-gap procedure. Sewage treatment facilities will have to be constructed at Akers and Pulltite to meet future demands.

The present water distribution system consists of a well and a 75,000-gallon storage tank that adequately serves the Alley Spring complex.

Because the existing maintenance shop is inadequate at Alley Spring, a new district maintenance headquarters and shop are proposed south of the quarters area. This compound will include a 50-foot by 100-foot office, shop, fire cache, and storage area. A 12-foot by 16-foot storage building for flammable material is proposed for this compound. A vehicle storage shed currently exists at this location. The maintenance compound will be upgraded to an all-weather gravel surface. All needed utility lines have been installed for this facility since the 1974 construction program.

Five structures in the Alley Spring complex serve as seasonal or permanent quarters for NPS employees. No new housing is proposed.

During the procurement of lands for the riverways, a former restaurant was purchased. This centrally located structure has been converted to a meeting and conference facility for the riverways staff. It is located along Missouri 106 approximately one-quarter mile from the entrance to



100-YEAR FLOODPLAIN

POTENTIAL FLASH FLOOD ZONE

TERM ESTATE

WATER LINE

FIRE HYDRANT

SEWER, MANHOLE, SEWER FORCE MAIN, AND LIFT STATION

POWER AND JUNCTION BOX

TELEPHONE LINE

N

200 400 600 800 1000 FEET

PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS. EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

ALL UTILITY LINES ARE UNDERGROUND UNLESS SHOWN AS AERIAL WITH AN A. AP SHOWS AN AERIAL POWER LINE. THE LOCATIONS OF UNDERGROUND POWER LINES ARE ASSUMED.

ALLEY SPRING

DEVELOPMENT CONCEPT PLAN

OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614 | 20,024A
SEPT 1981 | DSC

the campground. The use of this structure for this purpose will continue.

Much has been accomplished in the interpretive program at Alley Spring. Emphasis has been placed on three features, the roller mill, the Storys Creek school, and the whiskey-making demonstration. These features provide visitors with a variety of cultural and historical information. Further restoration work on the roller mill at Alley Spring will be done.

Powder Mill

Powder Mill is located in Shannon County approximately 14 miles east of Eminence and an equal distance from Ellington on Missouri 106. This is the site of the old ferry crossing. This crossing was discontinued with the construction of the new Missouri 106 bridge.

The existing Powder Mill campground contains 27 single-family campsites on the first terrace above the Current River. Because of increased demand, 25 additional campsites will be developed on the second terrace, 12 to the west and 13 to the east of the old highway 106. A new comfort station will be provided for the new campsites. This structure will be adjacent to the floater parking area and compliment the existing vault toilet in the present campground. The two existing group sites will remain unchanged. Waterlines will be extended to service the new developments.

Although several of the existing picnic sites will be converted to 13 campsites, 6 additional picnic sites will be developed at the visitor center and Powder Mill spring.

A new all-weather gravel surfaced road will provide access to the existing picnic area. A loop road will be developed to solve some of the traffic problems of access and egress.

A concession operation, which includes a mobile concession building that is to be obliterated, offers campground supplies and canoe rental services. With increased campsites, a new concession building with quarters will be developed to better serve the public. This facility will be constructed in the same general location as the existing building, as will new facilities for canoe and concession vehicle storage.

Currently, a two-story converted school building across the Current River from the concessioner serves as the maintenance shop for the Powder Mill area. This structure will continue to be used in that capacity, and a 24-foot by 60-foot vehicle storage shed and 12-foot by 16-foot storage building for flammable material will be constructed at this location.

It is recognized that the new concession building and the comfort station will be built in the 100-year floodplain. Topography and present site development preclude any other decision without completely redesigning and relocating the components.

Powder Mill Creek has the potential for flash flooding, as experienced in 1977. Evacuation was difficult because of the inability of a present bridge structure to handle the volume of water in the creek. The culverts were too small, causing water to back up and "boil" over this bridge structure, making egress impossible. An engineering study will be made on this section of road, with the purpose of raising the road and bridge elevation and enlarging the culverts. Signs will be erected advising the public of the potential for flooding.

Three structures in the Powder Mill area serve as quarters. One of the two structures on the west side of the river houses the resident area ranger. The other structure, a summer cabin, provides seasonal quarters. The Powder Mill visitor center includes an apartment and a fire cache.

The Powder Mill visitor center will provide an interesting look at the cultural river-oriented activities offered in the riverways. At present, the visitor center serves a minimal amount of visitors that travel to the riverways. This problem will be further studied, and possibly a new theme, concept, or modification will be developed.

Two living history demonstrations have been developed, the blacksmithing and sorghum demonstrations. During the summer months, a farrier demonstrates the making of horseshoes and forges metal objects by the methods used 100 years ago. Sorghum is planted in a field adjacent to the blacksmith shop and the sorghum-processing sheds. It is grown, cut, processed, and boiled down at this site to demonstrate the various steps in the making of sorghum molasses.

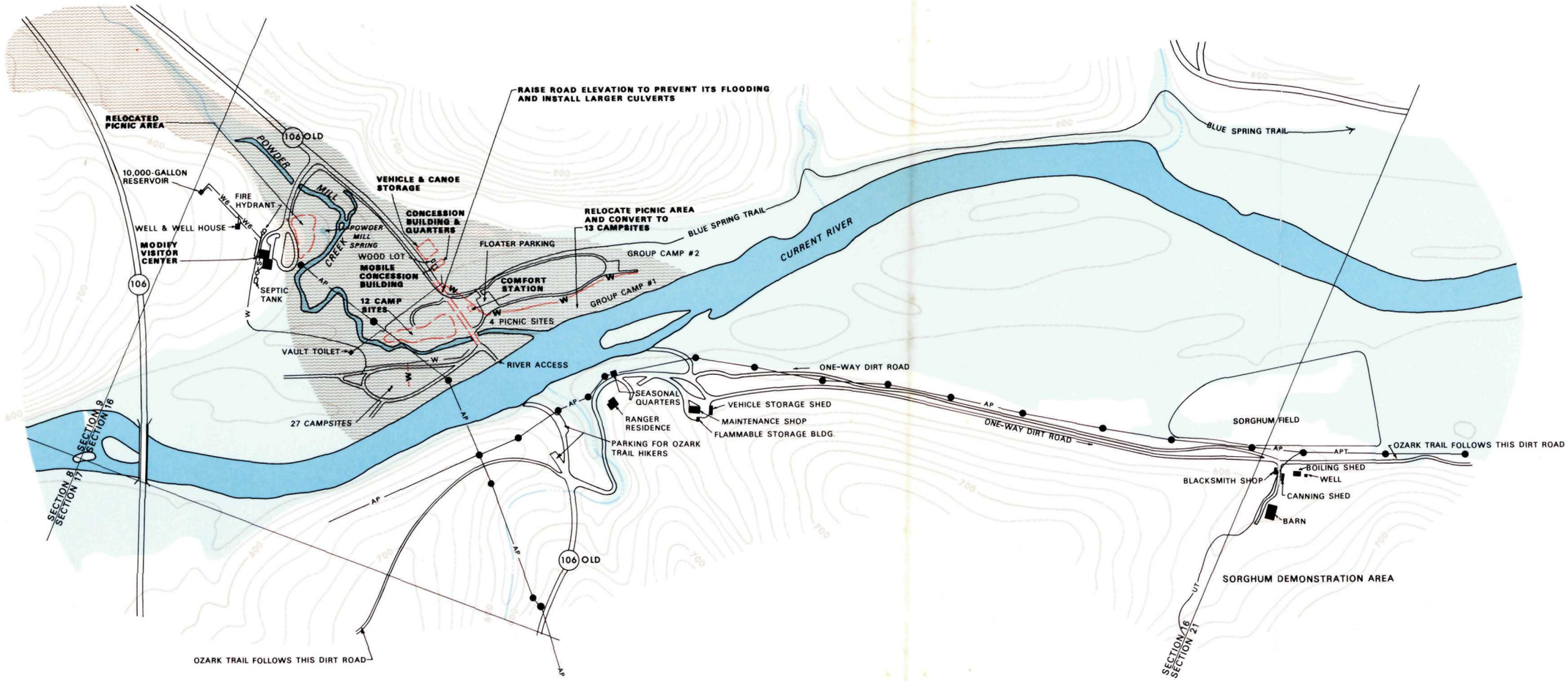
Buck Hollow

Buck Hollow is located in Texas County near the headwaters of the Jacks Fork River. This area has been developed as a traditional canoe put-in point, with development on both sides of the Missouri 17 bridge. The topography, where the bridge crosses the Jacks Fork, is steep and narrow. This neck in the river channel causes a greater fluctuation of the river level during flood stage.

At present, the only uses available at Buck Hollow are primitive camping, a primitive river access point, and random parking.

There has been no new development because of reoccurring major vandalism problems. The vault toilet continually required maintenance because of vandalism. The structure was burned by vandals and has not been reconstructed. Signing has also been a problem. Most signs in the area have been shot up, pulled out, stolen, or destroyed.

Littering and trash dumping is a continuous growing problem for the maintenance crews. The riverways has received cooperation from the Missouri Highway Department in signing the area, but this has had little or no effect.



100-YEAR FLOODPLAIN

POTENTIAL FLASH FLOOD ZONE

SEWER LINE —— S ——

WATER LINE —— W ——

AERIAL POWER AND TELEPHONE —— APT ——

UNDERGROUND TELEPHONE —— UT ——

PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

N

0 200 400 600 800 1000 FEET

POWDER MILL

DEVELOPMENT CONCEPT PLAN

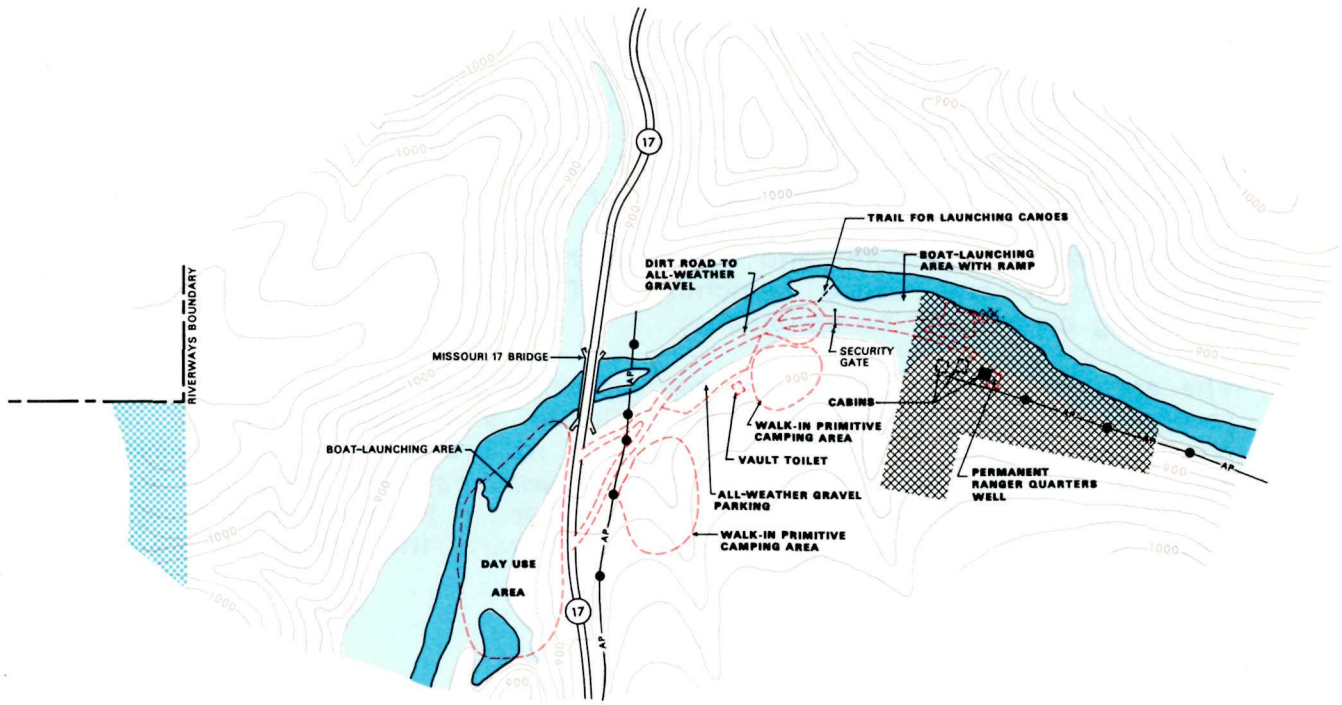
OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614 | 20019A

SEPT. 1981 | DSC



PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

100-YEAR FLOODPLAIN

SCENIC EASEMENT

TERM ESTATE

AERIAL POWER AND POLE —AP—

N

0 200 400 600 800 1000 FEET

BUCK HOLLOW

DEVELOPMENT CONCEPT PLAN
OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614 | 20023A
SEPT. 1981 | DSC

Physical site abuse is increasing. ORV vehicles are climbing slopes and highway shoulders creating erosion problems. Corrective actions have been tried, but barriers have been removed or destroyed.

To eliminate these problems, Buck Hollow will be the residence for the Jacks Fork subdistrict ranger. This will not be possible until a term estate, which will expire in 1994, has been vacated. When this property becomes available, the main structure will be upgraded, with a 16-foot by 35-foot addition, to permanent quarters, and two adjacent summer cabins will be demolished. A water well will be developed nearby. With this security present, a major upgrading of Buck Hollow can then be initiated.

No developed campsites will be installed, but two areas will be designated to accommodate 15 to 20 primitive walk-in campsites. One vault toilet will be constructed adjacent to the campsites.

No controlled circulation pattern has been established in this area. An organized circulation system will be improved, with 20 to 30 parking spaces developed adjacent to the vault toilet. All roads and parking will be upgraded to an all-weather gravel surface.

A new river access point and boat-launching ramp will be constructed to improve boat and canoe launching. The present primitive trail for launching canoes will be obliterated.

The area west of the bridge will be converted to a day use area. This is recommended to eliminate long-term floater and fishing parking. The river rises quickly in this area because of its proximity to the headwaters and the narrow river channel. In the past, rangers have had to tow unattended cars to safety from rising waters. Renewed efforts will be made, through signing, to educate and warn the public of potential flooding problems.

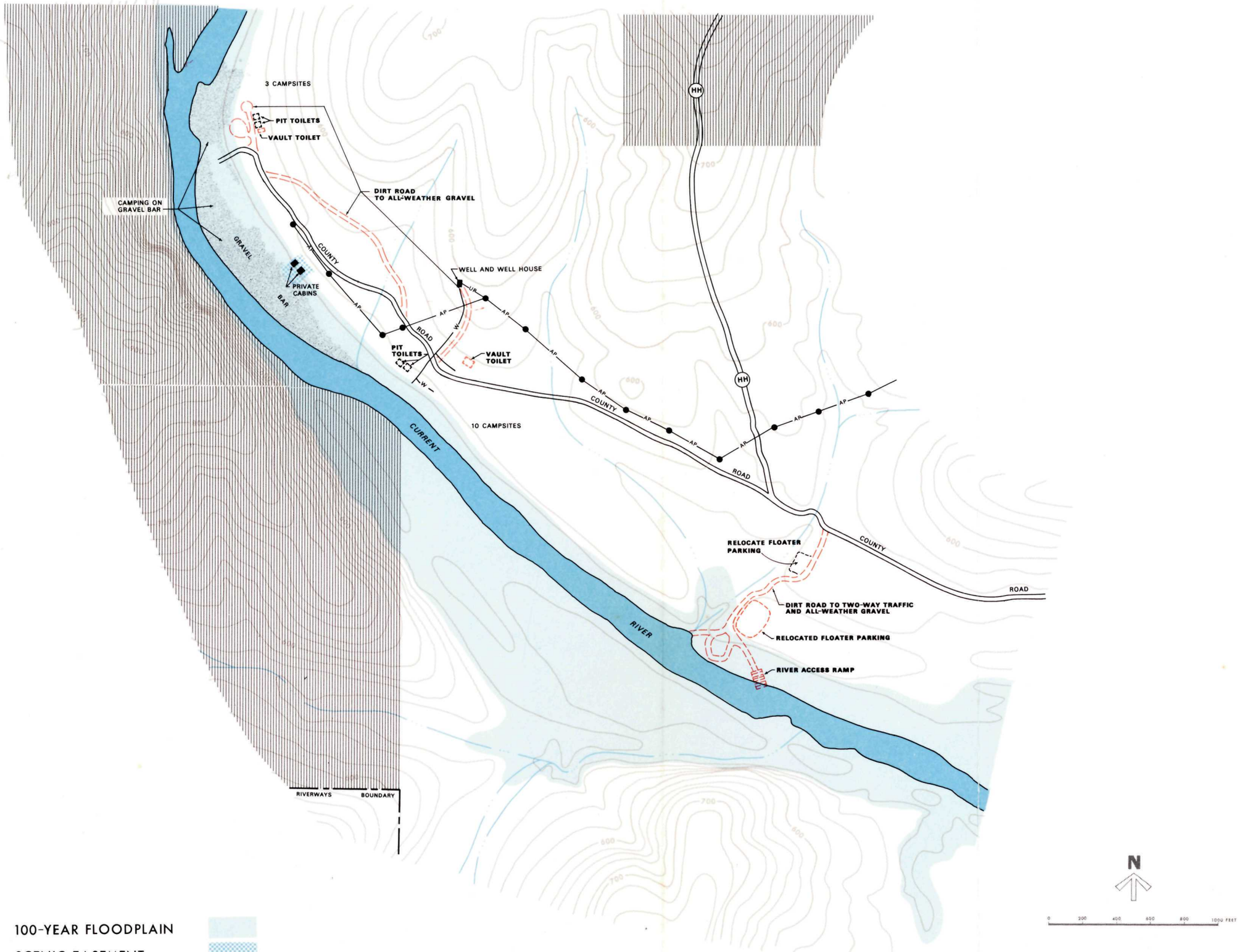
Log Yard

Log Yard is located in Shannon County downriver from the Powder Mill area. Access to Log Yard is via county road HH from Missouri 106. Road HH ends at a tee intersection, and an undesignated county road parallels the river east to Paint Rock and west from the tee intersection to the campground. The road west from the tee intersection to the campground is a county road. Three short segments of dirt NPS roads will be upgraded to an all-weather gravel surface.

Two cabins remain in private ownership in the Log Yard area.

Log Yard is primarily visited by the long-term user. Thirteen defined campsites with tables and fire pits are available. Two vault toilets will be constructed at the campground. Many primitive campsites are also available, and the four existing pit toilets will be obliterated.

A well and pump house are in the vicinity of the designated campground. Recently, maintenance crews have installed a water distribution system throughout the designated campground.



100-YEAR FLOODPLAIN

SCENIC EASEMENT

STATE LAND

UNDERGROUND AND AERIAL POWER AND POLE —UP—AP—

WATER LINE —W—

PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

N

0 200 400 600 800 1000 FEET

LOG YARD

DEVELOPMENT CONCEPT PLAN
OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614 | 20,022-A
SEPT 81 | DSC

The road to the lower river access point needs to be widened and upgraded to an all-weather gravel surface. The existing floater parking area will be abandoned, and a new area will be designated closer to the river. A concrete boat-launching ramp will be constructed to facilitate johnboats.

Horse Camp

This campground is located in Shannon County on the eastern edge of the riverways boundary on the Jacks Fork River. Access to this area is via 2.5 miles of undesignated county road from Missouri 106.

This site was the previous location of the Cross-Country Trail Ride. The operator's lease expired in January 1981. The National Park Service offered to negotiate for a 15-year concession contract that would require upgraded sanitation and safety facilities. The operator elected to move the operation outside the riverways. The operator's temporary structures and utilities have been removed, leaving the area in a semiprimitive condition.

The site is 100+ acres of gently terraced river bottom land and is very appealing to the public. Controlling visitor use in this area is recognized as a major management problem. It is readily accessible by vehicle and widely known because of the previous trail ride operation.

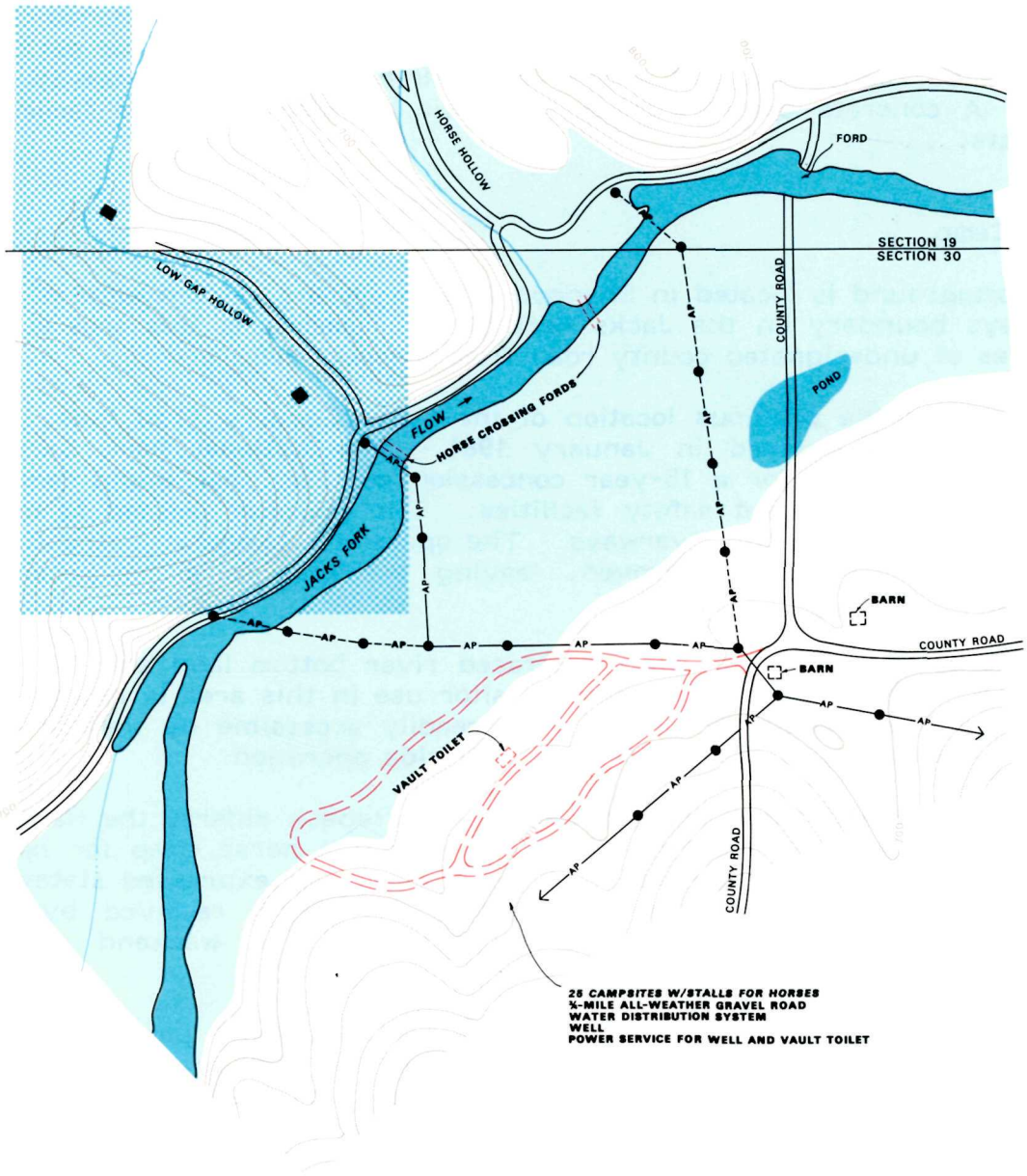
In conjunction with an expressed need by horseback riders, the National Park Service will develop this site as a primitive horse camp for horse clubs and families owning horses. This interest was expressed statewide at public meetings and from the written statements received by the public. This area will be used by the week or weekend on an unstructured basis.

The existing facilities in this area are two barns, primary power service, and an unapproved shallow well. When in use this well produces potable water, but the well cannot be certified because of its shallow depth. The utility company servicing this area will be requested to remove all aerial power not in use. The two existing barns will be removed.

The proposed facilities will be 25 primitive campsites with stalls for 2 to 4 horses per site, a vault toilet, a new well, a water distribution system, an electric distribution system to the well and vault toilet, and a three-quarter-mile all-weather gravel road to the campsites.

Although this campground will be located at least 500 yards from the river, a portion of this campground could flood if the 100-year flood level was reached. Signs will be placed to advise campers of this possibility.

Many trails and old logging roads radiate from this area, so there is no need to develop new trails. Some signing will be required as a public information service. Two horse-crossing fords will be developed across the Jacks Fork north of the proposed campground.



PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

100-YEAR FLOODPLAIN

SCENIC EASEMENT

AERIAL POWER AND POLE —AP—

N

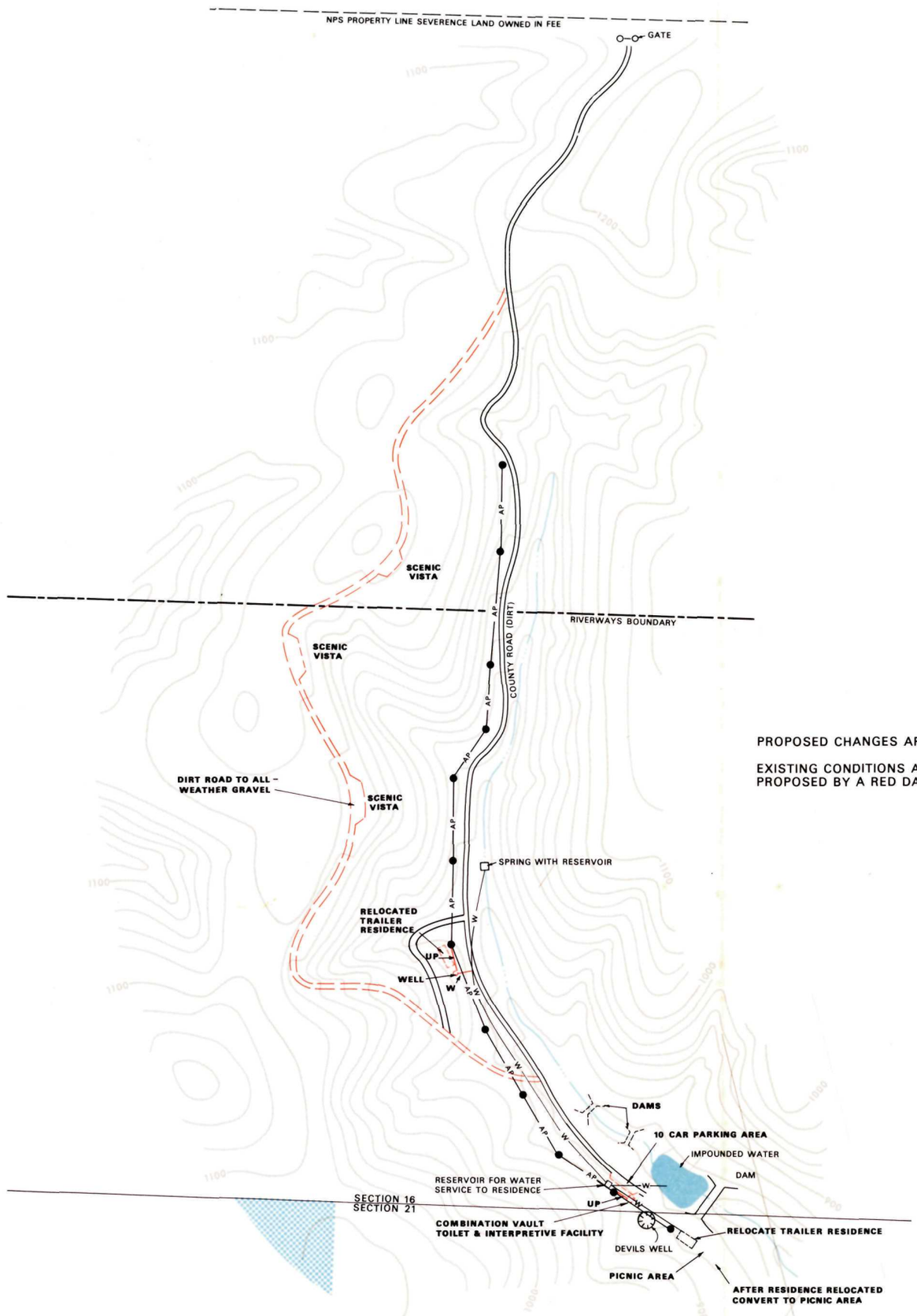
0 200 400 600 800 1000 FEET

HORSE CAMP

DEVELOPMENT CONCEPT PLAN
OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

614 | 20021A
SEPT. 1981 | DSC



SCENIC EASEMENT

AERIAL POWER AND POLE —AP—

WATER LINE —W—

PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE,
PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

N

0 200 400 600 800 1000 FEET

DEVILS WELL

DEVELOPMENT CONCEPT PLAN
OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

614|20015A
SEPT 81|DSC

Devils Well

Devils Well is located in Shannon County. Access is via one and three-quarter miles of an undesignated county road from county road KK. Partway along this access road is a three-quarter-mile spur that rejoins the county road within one-quarter mile of the well site. This spur road follows a ridgeline and provides visitors with many scenic vistas and panoramic views of the Ozark Mountains. Some selective clearing at three vistas will be required to enhance the viewing opportunity on this ridgeline drive. This spur road will require upgrading before it can be used by visitors. Drainage structures will be required, and the road surface will be upgraded to all-weather gravel.

Devils Well is a large cone-shaped sinkhole about 40 feet deep and 150 feet in diameter. At the bottom of this sinkhole is an entrance slot to a bell-shaped chamber. This chamber is about 400 feet long and 100 feet wide, with a total vertical depth of 300 feet. Of this vertical depth, 200 feet is filled with water.

In late fall 1980, park maintenance crews removed the unsafe electrical wiring and deteriorated steps from the sinkhole to the well. New steps and electrical service were installed to develop a safe access to the entrance slot for viewing.

At present, an area ranger lives in a mobile home within 50 yards of Devils Well. This structure is a doublewide trailer that will be relocated to a less obtrusive site approximately three-eights of a mile up the county road. The water service to the present quarters is a spring-fed gravity system. To meet public health codes, a well will be drilled at the site where the ranger quarters will be relocated.

A vault toilet and interpretive facility will be constructed adjacent to Devils Well. This structure will conform to the architectural motif established for the park. The present site for these facilities will require regrading and reshaping. A parking area for 10 cars will be provided next to the vault toilet. Some minor site preparation will be required to shape this area. Existing aerial power service is available at the site. Underground service will be extended to the well, vault toilet, and interpretive facility. A water connection from the proposed well to an existing waterline will be constructed.

Prior to the National Park Service acquiring Devils Well, the previous owners had constructed three small ponds next to the county road at the well site. Two of these impoundments do not hold water, and this area will be regraded to remove the breastworks. The third pond will remain and be developed as the center of a proposed picnic area, which will be located at the existing site of the trailer residence.

The interpretive program will be largely self guiding and explain the geology of sinkholes and springs of the karst terrain. The interpretive facility near the well will reflect the relationship of Devils Well, Cave Spring, and Wallace Well.

Jerktail

This primitive campground is located in Shannon County on the Current River. Jerktail sprawls over a large gravel bar that has been deposited by the river. A 75-foot to 100-foot bluff across the river creates a picturesque backdrop. Access is via a 7-mile dirt road from Missouri 19. This dirt road is under the maintenance and ownership of the county.

Jerktail is a favorite campground for local residents. As a primitive campground, a random use pattern has developed. The major camping activities are concentrated on the gravel bar and the first terrace above the river. A persistent attitude of visitors to drive to all points possible creates random roads and trails over the gravel bar and terrace; fortunately, the river heals these scars. When the river rises to flood stage, it is self-cleaning and removes most of the evidence of gravel bar use. Two short segments of dirt roads near the well will be obliterated.

The existing facilities at Jerktail include an old pit toilet, a well, a water distribution system, a boat ramp, and three fire grills. Jerktail will remain in this primitive condition with some minor improvements. The pit toilet will be removed and replaced with a vault toilet. A waterline will be constructed connecting the well to this proposed vault toilet. A gravel parking area will be constructed above the 100-year floodplain for floater parking. Another gravel parking area will be constructed near the Current River for visitors using the proposed vault toilet.

The entire Jerktail campground lies in the 100-year flood profile, except for the well and pit toilet. This is not considered a problem because adequate warning time can be given to the camper to pack up and seek higher ground. Signs will be erected to warn visitors of the possibility of flooding.

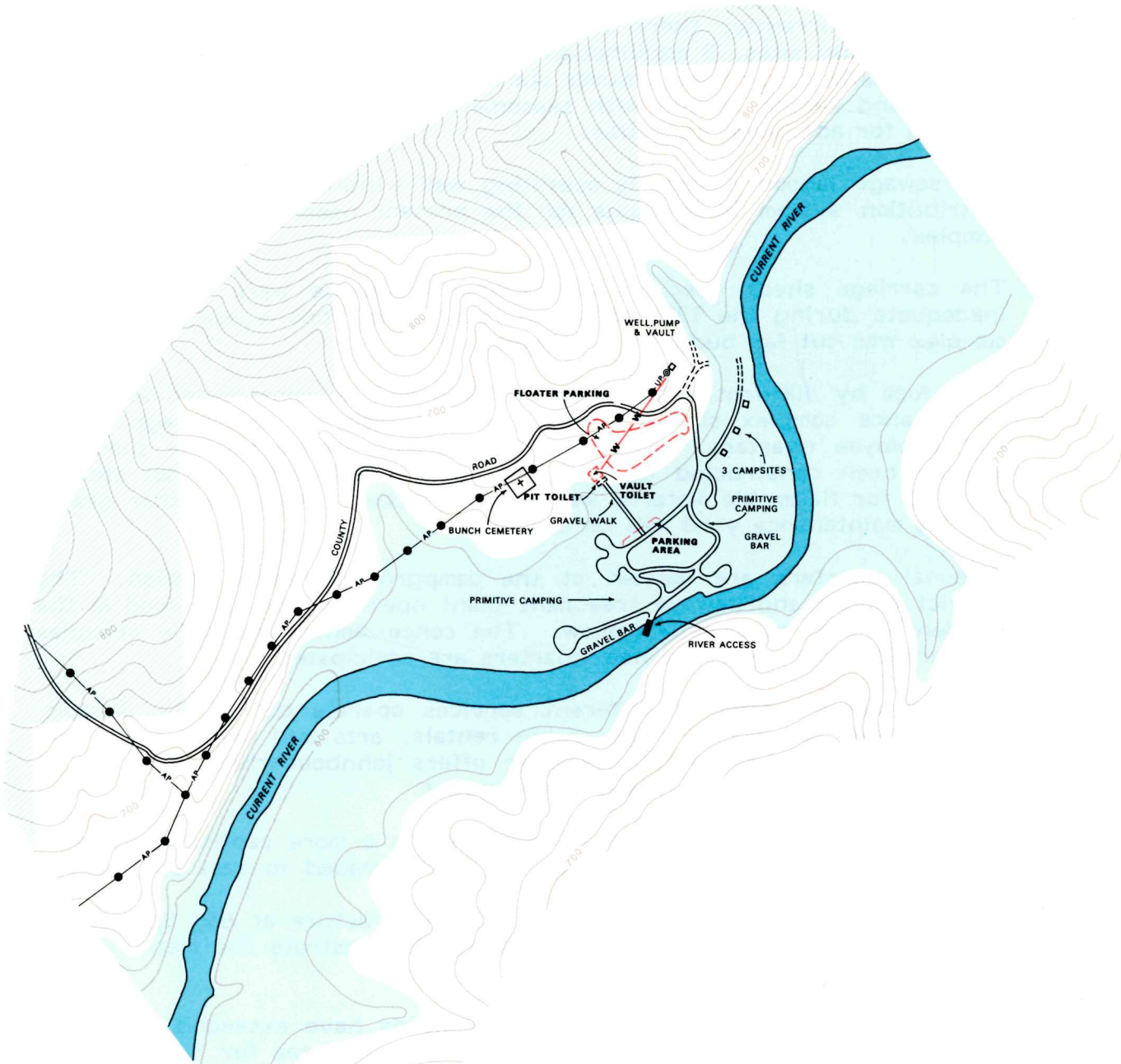
Big Spring

The Big Spring complex is located in Carter County approximately 4 miles from Van Buren on Missouri 103.

Recognized and set aside for its beauty and scenic qualities in the early 20th century, the Big Spring State Park was constructed under the CCC program. The Big Spring complex is listed on the National Register of Historic Places.

Big Spring is one of the three state parks transferred from state to federal ownership at the authorization of the riverways. In 1974, a major redevelopment was begun. At present, a major portion of that construction program has been completed, but a few items were not completed because of lack of funds.

The Big Spring CCC complex consists of 14 cabins, a caretaker's house, a dining lodge, a gatehouse, 2 picnic shelters, a manager's office, a superintendent's house, and a series of carriage sheds now used as maintenance buildings. In addition to these structures, the CCC crews constructed rock walls, laid stone surfaced paths, rocklined drainage structures, and developed several miles of hiking trails.



PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

100-YEAR FLOODPLAIN

PRIVATE LAND

UNDERGROUND OR AERIAL POWER AND POLE —AP—●—UP—

WATER LINE —W—

N

0 200 400 600 800 1000 FEET

JERKTAIL

DEVELOPMENT CONCEPT PLAN
OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

614 | 20,018-A
SEPT 81 | DSC

The 1974 construction program developed a full complement of campground elements. Currently, there are 195 single-family campsites, 10 walk-in sites, 6 group sites, 3 combination comfort stations with cold showers, 13 comfort stations, a sewage dump station for recreational vehicles, and a campground ranger station with seasonal quarters. At this time there is no need for additional campsites.

The sewage lagoon system is operating well within capacity. The water distribution system is adequate for the present needs of the Big Spring complex.

The carriage sheds used as maintenance buildings were recognized as inadequate during the 1974 construction program, but a new maintenance complex was cut for budgetary reasons.

A 50-foot by 100-foot maintenance building will be constructed at a new maintenance complex site at Sweezie Hollow, west of the sewage lagoon and employee quarters. A 24-foot by 100-foot vehicle storage shed has already been constructed at this site, and a 12-foot by 16-foot storage building for flammable material will be constructed. An all-weather gravel surface maintenance yard will be constructed.

Seasonal quarters are located at the campground ranger station. The district ranger and sewage treatment plant operator are quartered in the residential area at Sweezie Hollow. The concessioner seasonally occupies the caretaker's house. No new quarters are anticipated.

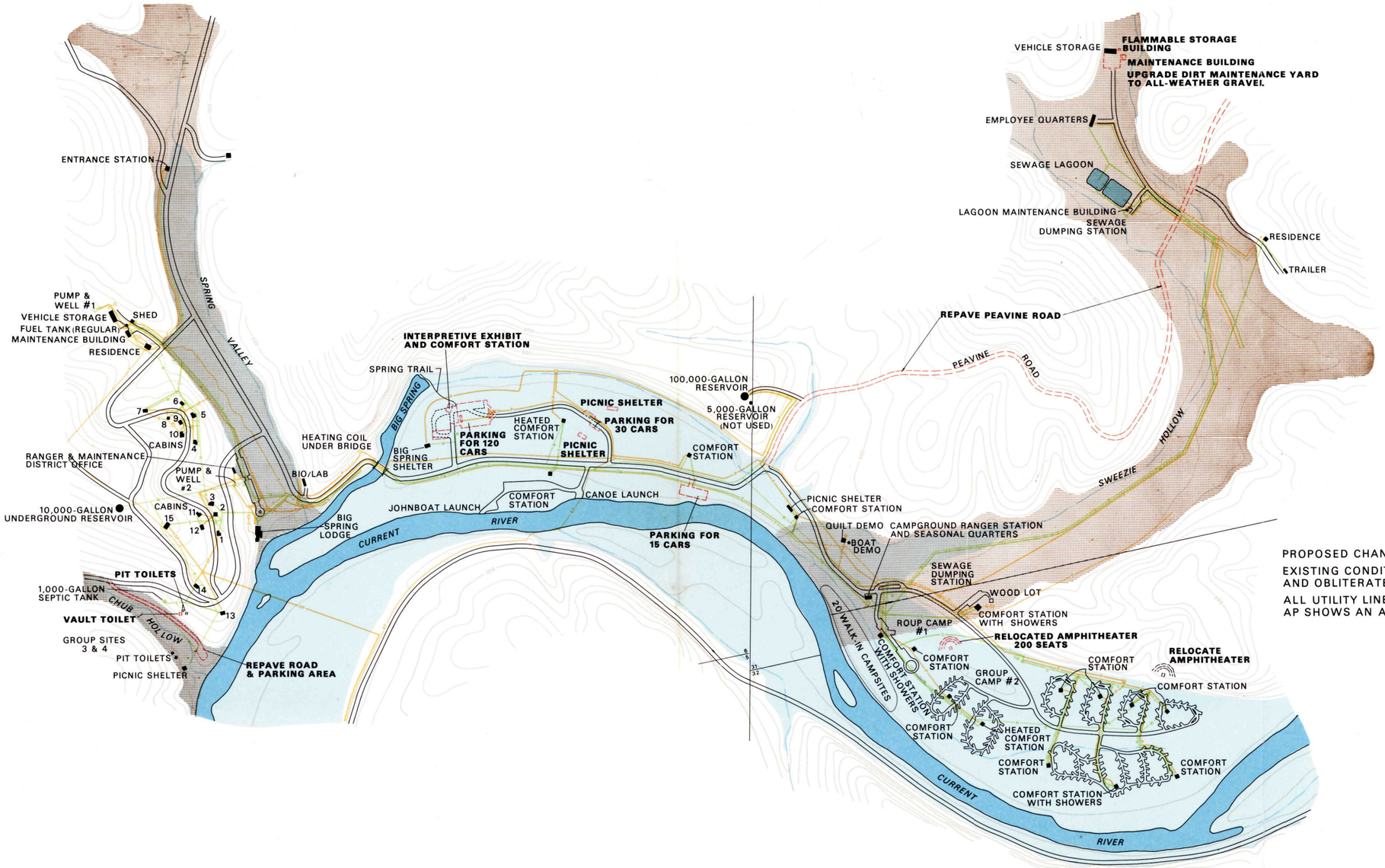
Two concessions offering different services operate out of Big Spring. One operates the dining lodge, cabin rentals, arts and crafts shop, and firewood sales. Another concessioner offers johnboat river tours. No additional concession services are anticipated.

The existing amphitheater will be relocated to a more central location in the vicinity of group camp 2 and will be upgraded to seat 200 people.

An interpretive exhibit and comfort station structure at Big Spring will be constructed. The interpretive exhibit will illustrate the mechanics of Big Spring.

At the Big Spring site, visitor parking needs have exceeded the space available in the present system. A major parking area for 120 cars was proposed but omitted because of the lack of funds in the 1974 construction program. However, two paved parking areas will be constructed to accommodate 120 additional vehicles. In the interim, it is recommended to make some minor site adjustments to organize circulation and parking to help overcome this crowding problem.

There is a recognized need to construct two additional picnic shelters. These were anticipated in the earlier construction program but omitted because of lack of funds. These proposed structures will be located in the day use area in the vicinity of Big Spring, and each will have a paved 15-car parking area.



100-YEAR FLOODPLAIN

POTENTIAL FLASH FLOOD ZONE

WATER LINE

PUMP AND WELL

FIRE HYDRANT

SEWER MANHOLE
SEWER FORCE MAIN
AND LIFT STATION

POWER AND JUNCTION BOX

TELEPHONE LINE

PROPANE GAS AND TANK

PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

ALL UTILITY LINES ARE UNDERGROUND UNLESS SHOWN AS AERIAL WITH AN A. AP SHOWS AN AERIAL POWER LINE.

BIG SPRING

DEVELOPMENT CONCEPT PLAN

OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614 | 20026A
SEPT. 1981 | DSC

The Peavine road access to the Big Spring area will require repaving 2.8 miles of overlay shoulder and installing drainage ditches and drainage structures.

A paved parking area in the vicinity of the Peavine shelter will be developed for viewing the river. Parking space will be provided for 15 cars, and handicapped parking will be designated.

Chub Hollow will continue to be managed for group camping and day use at the existing picnic shelter. A new vault toilet will be constructed at the group sites to replace the two existing pit toilets that will be removed. The existing road and parking area will be repaved.

Many of the facilities at Big Spring are subject to flooding if the river rises, but adequate precautions will be taken because of advance notice by an early flood-warning system. Sweezie Hollow appears to have the potential to flash flood if certain weather conditions exist. These areas will be signed to warn visitors of this potential.

Many opportunities exist for the interpretive program, and many have been developed. At the visitor contact station, a quilting demonstration will be offered, and at the adjacent structure a johnboat-building demonstration will be given.

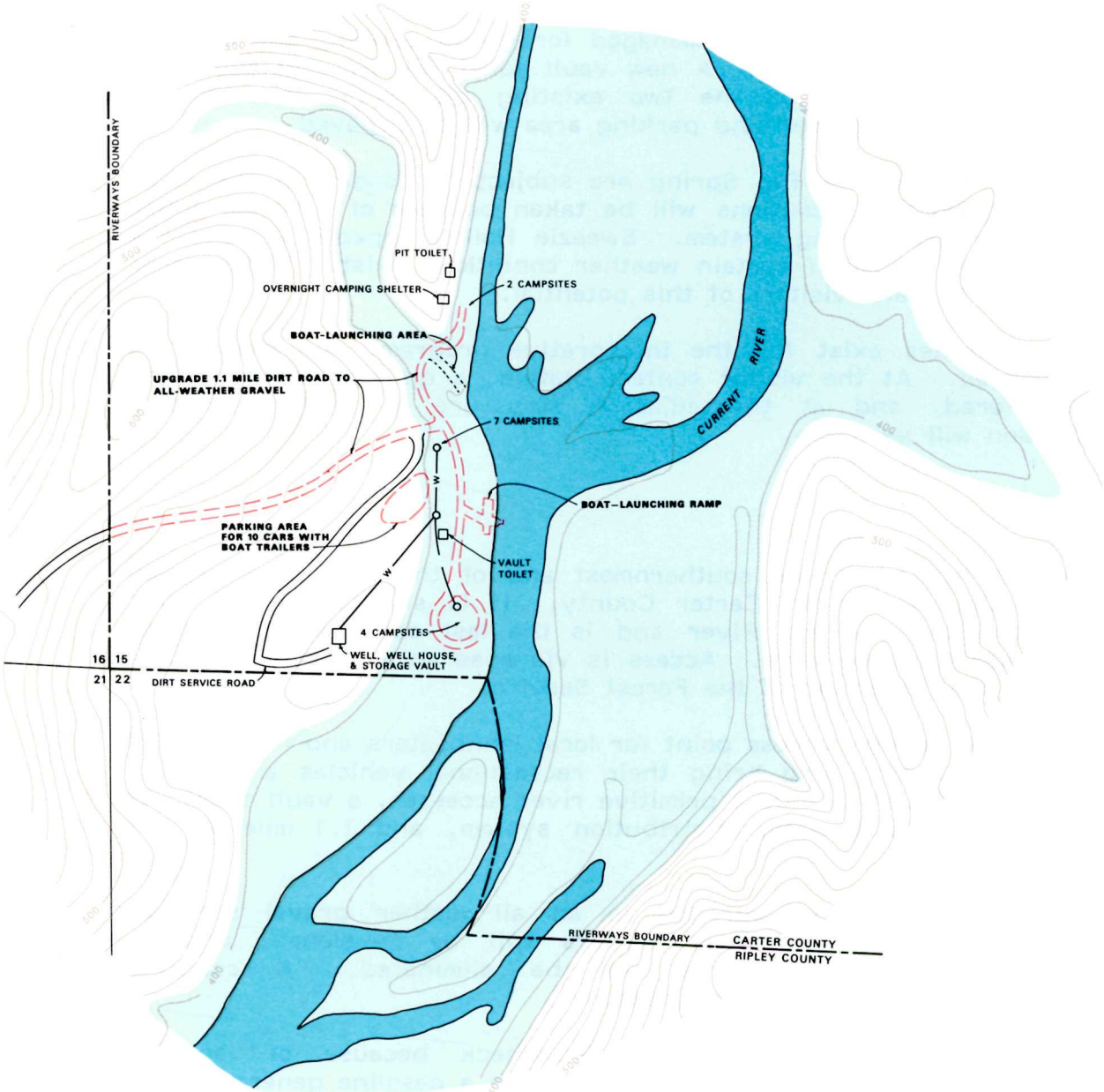
Gooseneck

Gooseneck is located at the southernmost end of the park boundary on the Ripley County line in Carter County. It is situated on the first terrace above the Current River and is the last canoe take-out point before leaving the riverways. Access is via a series of dirt and gravel roads under the ownership of the Forest Service.

Gooseneck is a popular access point for local johnboaters and is also used by long-term campers who bring their recreational vehicles and boats. The existing facilities include 2 primitive river accesses, a vault toilet, 13 campsites, a well and water distribution system, and 1.1 mile of dirt road.

This dirt road will be upgraded to an all-weather gravel surface. Parking for 10 cars with boat trailers will be developed, and an unimproved boat-launching area will be eliminated. A concrete boat-launching ramp will be constructed.

There is no electrical service to Gooseneck because of lack of right-of-way. The existing well is operated by a gasoline generator that is periodically brought to the site. A 2,000-gallon cistern type holding tank is filled, and the water distribution system to the campground works by gravity power. The National Park Service will work with the local power company to have electrical service extended to the Gooseneck area.



PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY A RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

100-YEAR FLOODPLAIN

WATER LINE —W—

N

0 250 400 600 800 1000 FEET

GOOSENECK

DEVELOPMENT CONCEPT PLAN
OZARK NATIONAL SCENIC RIVERWAYS
MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614 | 20027A
SEPT 81 | DSC

Round Spring

Round Spring is located 13 miles north of Eminence on Missouri 19. It is one of the three original state parks converted from state ownership to federal ownership when the riverways was established.

Much of the development at Round Spring was completed during the 1974 construction program. This development concept plan will complete many of those features that were cut from the earlier program because of budgetary factors.

Round Spring has 54 single-family campsites, 10 cluster sites, 5 walk-in sites, and 3 group sites. No new campground development is proposed. The existing vault toilet and comfort stations are adequate. One comfort station has showers and laundry; a second comfort station is located in the campground. There is a comfort station in the day use picnic area and another at the cluster sites, the latter has showers. The upriver boat launch area is served by a comfort station, and the adjacent group sites are served by a vault toilet. All major utilities are in, and stubs have been run for the proposed development that was omitted in the 1974 construction program.

The existing sewage treatment facility does not have adequate capacity to handle the sewage from the upriver campgrounds as it is currently doing. During the summer season, this system is operating at capacity with the sewage from Round Spring.

To keep the Round Spring system from being overcharged or turned septic, grinder pits were installed in 1980. These grinder pits receive the raw sewage and superaerate it before it is injected into the sewage lagoon. These pits are limited in capacity, and the quantity of sewage that can be injected into the lagoon is limited.

One of the major cuts in the 1974 construction program was maintenance facilities. Currently, the maintenance crews are operating out of inadequate facilities. A one-room store has been converted to a district maintenance office, and an old house has been converted to a maintenance workshop. These two buildings, along with the existing NPS seasonal quarters, will be obliterated.

A new 40-foot by 60-foot ranger/maintenance district office, workshop, and fire cache will be constructed. Two additional buildings, a 24-foot by 80-foot vehicle storage shed and a 12-foot by 16-foot storage building for flammable material will complete the maintenance complex. Space will be provided in the maintenance complex for the fire cache.

Two concessions, the Sullivan canoe rental and the Carr store, serve the public in Round Spring. The Sullivan canoe operation will relocate outside the park boundary in 1982. A new concession store and quarters will be constructed northwest of the existing Carr store. The existing store structure and fire cache will be removed.

Three river access points exist at Round Spring. The upper access was originally chosen for launching johnboats. However, this has proved to be a poor choice because of low water depth and the strong current. The launch ramp has proved hazardous and is being removed. Future use of this ramp area will be for canoes only.

The middle river access is on a dirt road, which will be upgraded to an all-weather gravel surface. A floater parking area nearby will be obliterated, as well as a ranger station and storage. Only the cluster sites will remain in this area. Access to this area is at a dangerous curve on Missouri 19. The Missouri Highway Department will be contacted and requested to assist in alleviating this problem by installing yellow caution lights north and south of the intersection.

The lower river access has a paved ramp ideal for launching johnboats. The major drawback is the limited parking space for boats and trailers. The topography has eliminated all available space above the floodplain for additional parking.

Only the three group campsites, ten cluster sites, and the picnic areas are affected by a river rise. Spring Valley has the potential to flash flood, which could cause problems at the day picnic area. Signs will be erected to warn the public of this potential.

Single-family picnic facilities are available at Round Spring, but the public response has indicated a need for an additional picnic shelter, which will be constructed west of the existing picnic parking area. A dirt trail to the existing shelter across the spring branch will be upgraded to an all-weather gravel surface, and a new foot bridge will be constructed.

Existing seasonal quarters and the district maintenance office will be removed. A new six-unit efficiency quarters structure will be constructed for seasonal employees at the residential area in Spring Valley. Each unit will be approximately 500 square feet.

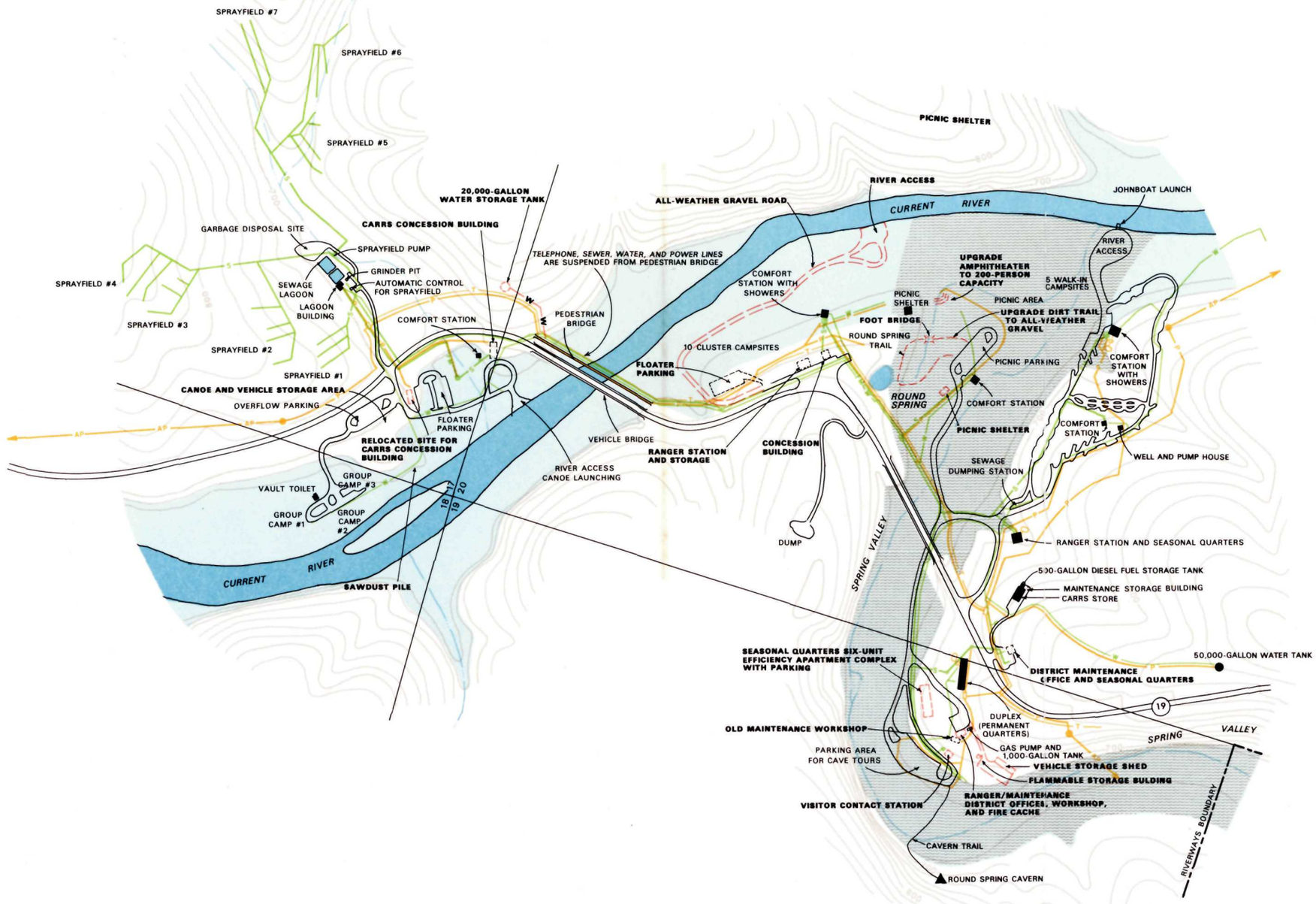
A hugh sawdust pile behind the overflow parking area to the Carr concession will be removed. This space is needed to expand the canoe and vehicle storage area.

Presently, major interpretive emphasis is placed on guided tours at Round Spring Cavern. Other existing interpretive services and facilities are an amphitheater and wayside exhibit.

A visitor contact station will be constructed adjacent to the cave parking area. This facility will have office space for interpretation, an exhibit information area, and an audiovisual facility to accommodate 60 people. The existing amphitheater will be upgraded to accommodate 200 people.

The existing water supply is from a well in the campground, and storage is in a 50,000-gallon tank near the Spring Valley maintenance area. Water service to the northern portion of Round Spring is by a waterline suspended from the pedestrian bridge over the Current River. During the winter, the suspended pipe segment is heated electrically to prevent

the water in the line from freezing. Electric service failures are common, especially in the winter, because of ice storms and falling trees that break the aerial powerlines. Something must be done to ensure dependable water service to the northern portion of Round Spring and to prevent possible rupture of the suspended water main. Possible solutions include the construction of a 20,000-gallon water storage tank and suitable waterline extension near the sewage lagoon and the development of a well on the north side of the river, negating the need for the suspended main. Before accomplishing this development, an engineering feasibility study should be prepared so as to identify the most practicable and economical solution to this problem.



100-YEAR FLOODPLAIN

POTENTIAL FLASH FLOOD ZONE

WATER LINE

FIRE HYDRANT

SEWER,MANHOLE, SEWER FORCE MAIN AND LIFT STATION

POWER AND JUNCTION BOX

TELEPHONE LINE

PROPANE GAS AND TANK

PROPOSED CHANGES ARE SHOWN IN BOLDER LETTERING THAN EXISTING CONDITIONS.

EXISTING CONDITIONS ARE SHOWN BY A SOLID LINE, PROPOSED BY RED DASHED LINE, AND OBLITERATED BY A DASHED LINE.

ALL UTILITY LINES ARE UNDERGROUND UNLESS SHOWN AS AERIAL WITH AN A. AP SHOWS AN AERIAL POWER LINE.

N

0 200 400 600 800 1000 FEET

ROUND SPRING

DEVELOPMENT CONCEPT PLAN

OZARK NATIONAL SCENIC RIVERWAYS

MISSOURI

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

614 | 20017A

SEPT. 1981 | DSC

OPERATION COSTS

Table 6 presents a list in priority order of additional annual operating costs resulting from full implementation of the plan.

Table 6: Annual Operation Costs*

Alley Spring	
1 Miller helper, GS-4, .5 person/yr	$ 5,300
Uniforms, supplies, and materials	1,000
1 Vehicle	1,000
Round Spring	
1 Receptionist, GS-4, .6 person/yr	6,600
1 Interpreter, GS-5, .2 person/yr	1,800
1 Vehicle	2,000
Supplies and materials	300
1 Maintenance worker, WG-6, .6 person/yr	7,640
Support Costs	1,100
Akers	
1 Receptionist, GS-4, .4 person/yr	4,800
1 Interpreter, GS-5, .3 person/yr	4,100
Supplies and materials	500
1 Vehicle	3,000
1 Sewage plant operator, WG-8, 1 person/yr	17,084
Support cost, 1 pickup	3,900
Plant operation (utilities, supplies, materials)	5,000
1 Maintenance worker, WG-6, .6 person/yr	7,640
Horse Camp	
Park technician, GS-5, 1 person/yr	13,000
Support costs (horses, tack, trailers, radio, vehicle)	15,500
1 Maintenance worker, WG-6, 1 person/ yr	15,280
1 Pickup	2,800
Devils Well	
Park technician, GS-5, .5 person/yr	6,500
Support costs (radio and vehicle)	5,500
1 Maintenance worker, WG-6, 1 person/yr	15,280
1 Pickup	2,800

Powder Mill

Park technician, GS-5, .5 person/yr	$ 6,500
Support costs (radio and vehicle)	4,500
1 Maintenance worker, WG-6, 1 person /yr	15,280
1 Pickup	2,800

Pulltite

1 Sewage plant operator, WG-8, 1 person/yr	17,084
Support costs, 1 pickup	2,800
Plant operation (utilities, supplies, materials)	5,000
Seasonal laborer, WG-2, .5 person/yr	6,200

Big Spring

1 Maintenance worker, WG-6, .6 person/yr	7,640
Support costs	1,100
Annual Operation Cost	$218,328

*Based on 1981 costs.

Table 7: General Development Priorities and Construction Costs (1981 dollars)

PRIORITY 1 - ALLEY SPRING	
Restore roller mill	$469,400
Construct new campground store and quarters	219,000
Construct concession, canoe, vehicle storage area	11,700
Obliterate store, restaurant, quarters, motel	15,000
Relocate canoe concession	5,000
PRIORITY 2 - AKERS	
Construct sewage treatment facility and access road	657,000
Construct vault toilet	11,300
Construct ferry boat	100,000
Construct 50,000-gallon water storage tank	60,000
PRIORITY 3 - PULLTITE	
Construct sewage treatment facility and collection system and access road	657,000
Extend water distribution system	233,600
Construct comfort stations (2)	146,000
Upgrade roads to all-weather gravel	130,000
Extend power distribution system (underground)	50,000
Obliterate pit toilets (8)	4,000
PRIORITY 4 - ALLEY SPRING	
Construct picnic shelters (2)	40,000
Convert existing picnic shelters to visitor contact station and concession gift shop	124,100
Construct maintenance complex (headquarters office, shop; maintenance yard to be all-weather gravel)	756,300
Enlarge amphitheater to 200 seats	40,000
Construct 20-car parking areas (2)	18,000
Construct storage building for flammable material	19,000
PRIORITY 5 - ROUND SPRING	
Construct concession campground store	250,000
Remove two old concession buildings and ranger station	10,000
Construct 20,000-gallon water storage tank and waterline extension	41,000
Upgrade footbridge on spring branch	12,000
Upgrade trail to spring	3,000
Obliterate the Carr store	3,000
PRIORITY 6 - ROUND SPRING	
Construct picnic shelter	20,000
Construct visitor contact station	42,000
Upgrade amphitheater	73,000
Remove old maintenance buildings	5,000
Construct district ranger and maintenance complex	408,800
Upgrade access road to cluster sites to all-weather gravel	80,000

Provide seasonal quarters (6-unit apartment complex w/parking)	189,000
Construct storage building for flammable material	19,000
Construct vehicle storage shed	40,000
Obliterate the Sullivan store and old ranger station	7,000
Obliterate floater parking at cluster sites	2,000
Obliterate middle landing	2,000
Obliterate district maintenance office and seasonal quarters	3,000
Remove sawdust pile	80,000
PRIORITY 7 - BIG SPRING	
Construct picnic shelters w/parking (2)	40,000
Construct interpretive exhibit and comfort station	129,900
Repave, widen, and install drainage structure on 2.8 miles of the Peavine road	394,000
Construct maintenance complex (50' x 100' district maintenance headquarters, storage building for flammable material, all-weather gravel maintenance yard)	683,300
Construct 200-seat amphitheater	20,000
Construct parking areas (river vista, 15 cars; picnic area, 30 cars; Big Spring, 120 cars)	153,000
Repave road and parking in Chub Hollow	40,000
Construct vault toilet in Chub Hollow	25,000
Obliterate pit toilets (2)	1,000
PRIORITY 8 - AKERS	
Demolish store, barn, house, sheds, office	30,000
Extend water distribution line	25,000
Relocate 81-site campground	289,000
Construct 65' footbridge	15,000
Construct 1/4-mile foot trail	8,000
Relocate campground ranger station	1,000
Relocate ranger mobile home	1,000
Construct store, office, quarters, visitor contact station	292,000
Construct concession vehicle and canoe storage	162,000
Construct comfort stations (7)	420,000
Construct all-weather gravel road to sewage treatment plant, water, sewer and underground power extensions	287,000
Construct day use area	38,000
Obliterate vault toilets (7)	7,000
Obliterate concession building	3,000
Abandon septic field	-0-
PRIORITY 9 - AKERS	
Upgrade amphitheater	73,000
Construct duplex/seasonal quarters and relocate mobile home	144,000
Obliterate seasonal quarters	1,000
Abandon septic field	-0-

PRIORITY 10 - PULLTITE	
Construct combination office, concession building, quarters	292,000
Demolish existing concession building	20,000
Relocate ranger station and quarters (mobile homes)	5,000
Relocate campground ranger station and construct attached orientation center	4,000
Relocate ranger quarters (2 mobile homes)	2,000
Construct concession canoe and vehicle storage	77,000
Construct wayside exhibit at Pulltite Spring and cabin	5,000
Construct storage building for flammable material	19,000
Obliterate concession storage, office, quarters	4,000
PRIORITY 11 - PULLTITE	
Enlarge and relocate amphitheater	75,000
Enlarge floater parking area	12,000
PRIORITY 12 - TWO RIVERS	
Redesign and relocate campgrounds (2)	75,000
Construct new comfort stations w/septic fields (2)	166,000
Upgrade concession facilities	100,000
Expand and improve floater parking area	10,000
Relocate group campsites (2)	6,000
Construct vault toilets (3)	25,000
Construct comfort stations w/septic tanks (3)	249,000
Construct 1/2-mile all-weather gravel road	76,000
Upgrade floater parking to all-weather gravel	46,000
Extend waterlines to comfort stations	12,000
Construct concession vehicle and canoe storage area	27,000
Obliterate comfort station	3,000
Obliterate pit toilets (4)	2,000
Obliterate parking and canoe storage	2,000
PRIORITY 13 - POWDER MILL	
Redesign access road to prevent flooding; install culverts	146,000
Add campsites (25)	25,000
Install water distribution system	25,000
Construct comfort station	83,000
Relocate picnic area	5,000
Modify visitor center	20,000
Relocate picnic area	5,000
Construct concession building and quarters	196,000
Construct vehicle and canoe storage area	20,000
Remove existing mobile concession building	1,000
PRIORITY 14 - HORSE CAMP	
Develop primitive campsites w/ horse stalls (25)	25,000
Develop water distribution system and well	55,000
Construct vault toilet	11,300
Construct 3/4-mile gravel access roads	165,000
Develop utilities	3,000
Remove barns (2)	5,000

PRIORITY 15 - DEVILS WELL	
Construct vault toilet and interpretive exhibit	25,000
Relocate ranger residence	2,000
Upgrade loop road to all-weather gravel w/scenic vistas (3)	200,000
Develop well	10,000
Develop all-weather gravel parking for 10 cars	2,000
Remove dams	500
Develop picnic area	4,000
Provide underground power extensions to well, residence, interpretive facility	1,000
Provide waterline extension from existing lines to new well	1,000
PRIORITY 16 - JERKTAIL	
Construct vault toilet and 4-car gravel parking area	12,800
Construct floater parking area	20,000
Remove pit toilets	500
Construct waterline from well to vault toilet	7,000
PRIORITY 17 - LOG YARD	
Construct vault toilets (2)	22,600
Construct river access ramp	7,300
Improve gravel access road and parking	240,900
Remove pit toilets (4)	2,000
PRIORITY 18 - GOOSENECK	
Obliterate old launching area	500
Improve river access boat-launching ramp	7,300
Improve 1.1-mile gravel road and parking	109,500
Construct parking area (10-car w/boat trailers)	9,000
PRIORITY 19 - BUCK HOLLOW	
Construct vault toilet	11,300
Develop canoe landing river access	4,400
Improve gravel access road	36,500
Improve gravel parking	24,800
Define primitive camping area	5,000
Improve day use area	25,000
Develop well	3,000
Upgrade ranger quarters	28,000
Remove cabins (2)	2,000
PRIORITY 20 - CEDARGROVE	
Develop primitive camping	3,000
Extend water distribution system	25,000
Provide wayside exhibit	5,000
Obliterate road near launching area	3,000
PRIORITY 21 - HEADQUARTERS	
Add conference room and public restrooms (1,000 sq ft)	100,000
Add warehouse storage (2,000 sq ft)	120,000
Add parking spaces (12)	18,000

APPENDIXES

A: Legislation

B: Management Objectives

C: Rare, Threatened, or Endangered Species

D: Archeological Sites

E: Land Identified as Possessing Wilderness Potential

F: Primitive Campsites

Public Law 88-492
88th Congress, S. 16
August 27, 1964

An Act

78 STAT. 608.

To provide for the establishment of the Ozark National Scenic Riverways in the State of Missouri, and for other purposes.

Ozark National Scenic Riverways, Mo. Establishment.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, for the purpose of conserving and interpreting unique scenic and other natural values and objects of historic interest, including preservation of portions of the Current River and the Jacks Fork River in Missouri as free-flowing streams, preservation of springs and caves, management of wildlife, and provisions for use and enjoyment of the outdoor recreation resources thereof by the people of the United States, the Secretary of the Interior (hereinafter referred to as the "Secretary") shall designate for establishment as the Ozark National Scenic Riverways the area (hereinafter referred to as "such area") generally depicted on map numbered NR OZA 7002 entitled "Proposed Ozark National Rivers" dated December 1963 which map is on file for public inspection in the office of the National Park Service, Department of the Interior: *Provided*, That the area so designated shall not include more than sixty-five thousand acres of land now in private ownership and that no lands shall be designated within two miles of the present boundaries of the municipalities of Eminence and Van Buren, Missouri. The Secretary, with the concurrence of the State, shall designate for inclusion in the Ozark National Scenic Riverways, the lands composing Big Springs, Alley Springs, and Round Spring State Parks, and the Secretary is hereby directed to negotiate with the State for the donation and the inclusion of such park lands in the Ozark National Scenic Riverways.

Acquisition of land, etc.

SEC. 2. The Secretary may, within the area designated or altered pursuant to section 4, acquire lands and interests therein, including scenic easements, by such means as he may deem to be in the public interest: *Provided*, That scenic easements may only be acquired with the consent of the owner of the lands or waters thereof: *And provided further*, That any parcel of land containing not more than five hundred acres, which borders either the Current River or the Jacks Fork River, and which is being primarily used for agricultural purposes, shall be acquired by the Secretary in its entirety unless the owner of any such parcel consents to the acquisition of a part thereof. Property so acquired which lies outside the boundary generally depicted on the map referred to in section 1 of this Act may be exchanged by the Secretary for any land of approximately equal value within the boundaries. Lands and waters owned by the State of Missouri within such area may be acquired only with the consent of the State. Federally owned lands or waters lying within such area shall, upon establishment of the area pursuant to section 4 hereof, be transferred to the administrative jurisdiction of the Secretary, without transfer of funds, for administration as part of the Ozark National Scenic Riverways.

SEC. 3. Any owner or owners, including beneficial owners (hereinafter in this section referred to as "owner"), of improved property on the date of its acquisition by the Secretary may, as a condition to such acquisition, retain the right of use and occupancy of the improved property for noncommercial residential purposes for a term ending at the death of such owner, or the death of his spouse, or at the death of the survivor of either of them. The owner shall elect the term to be reserved. The Secretary shall pay to the owner the fair market value of the property on the date of such acquisition less the fair market value on such date of the right retained by the owner.

78 STAT. 609.

Publication in Federal Register.

SEC. 4. When the Secretary determines that lands and waters, or interests therein, have been acquired by the United States in sufficient quantity to provide an administrable unit, he shall declare establishment of the Ozark National Scenic Riverways by publication of notice in the Federal Register. The Secretary may thereafter alter such boundaries from time to time, except that the total acreage in the Ozark National Scenic Riverways shall not exceed sixty-five thousand acres, exclusive of land donated by the State of Missouri or its political subdivisions and of federally owned land transferred pursuant to section 2 of this Act.

Cooperative land development programs.

SEC. 5. (a) In furtherance of the purposes of this Act, the Secretary is authorized to cooperate with the State of Missouri, its political subdivisions, and other Federal agencies and organizations in formulating comprehensive plans for the Ozark National Scenic Riverways and for the related watershed of the Current and Jacks Fork Rivers in Missouri, and to enter into agreements for the implementation of such plans. Such plans may provide for land use and development programs, for preservation and enhancement of the natural beauty of the landscape, and for conservation of outdoor resources in the watersheds of the Current and Jacks Fork Rivers.

(b) The Secretary shall permit hunting and fishing on lands and waters under his jurisdiction within the Ozark National Scenic Riverways area in accordance with applicable Federal and State laws. The Secretary may designate zones where, and establish periods when, no hunting shall be permitted, for reasons of public safety, administration, or public use and enjoyment and shall issue regulations after consultation with the Conservation Commission of the State of Missouri.

Administration.

SEC. 6. The Ozark National Scenic Riverways shall be administered in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535), as amended and supplemented, and in accordance with other laws of general application relating to the areas administered and supervised by the Secretary through the National Park Service; except that authority otherwise 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.

16 USC 1-4.

Commission, establishment.

SEC. 7. (a) There is hereby established an Ozark National Scenic Riverways Commission. The Commission shall cease to exist ten years after the date of establishment of the area pursuant to section 4 of this Act.

Members.

(b) The Commission shall be composed of seven members each appointed for a term of two years by the Secretary as follows:

(1) Four members to be appointed from recommendations made by the members of the county court in each of the counties in which the Ozark National Scenic Riverways is situated (Carter, Dent, Shannon, and Texas), one member from the recommendations made by each such court;

(2) Two members to be appointed from recommendations of the Governor of the State of Missouri; and

(3) One member to be designated by the Secretary.

(c) The Secretary shall designate one member to be chairman. Any vacancy in the Commission shall be filled in the same manner in which the original appointment was made.

Reimbursements.

(d) A member of the Commission shall serve without compensation. The Secretary shall reimburse members of the Commission for travel, subsistence, and other necessary expenses incurred by them in the performance of the duties vested in the Commission.

(e) The Secretary or his designee shall from time to time consult with the members of the Commission with respect to matters relating to the development of the Ozark National Scenic Riverways, and shall consult with the members with respect to carrying out the provisions of this Act.

(f) It shall be the duty of the Commission to render advice to the Secretary from time to time upon matters which the Secretary may refer to it for its consideration.

SEC. 8. There are hereby authorized to be appropriated such sums (but not more than $7,000,000 for the acquisition of lands or interests in lands) as are necessary to carry out the purposes of this Act. Appropriation.

Approved August 27, 1964.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 1241 accompanying H. R. 1803 (Comm. on Interior & Insular Affairs).
SENATE REPORT No. 575 (Comm. on Interior & Insular Affairs).
CONGRESSIONAL RECORD:
Vol. 109 (1963): Oct. 22, considered and passed Senate.
Vol. 110 (1964): Aug. 11, considered and passed House, amended, in lieu of H. R. 1803.
Aug. 14, Senate concurred in House amendments.

GPO 35-139

B: MANAGEMENT OBJECTIVES

NATURAL RESOURCE MANAGEMENT

The purpose of natural resource management is to maintain as far as possible a diverse natural environment for public use and enjoyment by applying the principles of total ecosystem management. Caves, springs, riparian soils, vegetation, and other outstanding natural features require special consideration in order to preserve their natural integrity. Research and management policies are directed toward the perpetuation of natural processes to minimize irreversible impacts upon them. Special attention is being given to the maintenance of water quality at or above the quality measured in a comprehensive study conducted between 1973 and 1975; the perpetuation of native wildlife species for the benefit of the recreational user by providing diverse wildlife habitat; the perpetuation of native plant and animal species considered rare or endangered, nationally or in Missouri; and the maintenance and perpetuation of natural biological communities of unusual quality or interest throughout the riverways.

INTERPRETATION AND VISITOR SERVICES

To enrich recreationists' awareness, understanding, and appreciation of the Ozarks natural and cultural resources through preservation and interpretation is a management objective. Special attention is given to the documentation of the circumstances that account for man's activities and his consequences (man-made fabric or incidents) within the riverways area; the intrinsic suitability of the resource for river-oriented outdoor recreation and the opportunity for utilization of the resource to benefit visitors; maintain an equitable and reasonable balance in accommodating the recreational needs of regional urban populations and local riparian users; provide a mix of outdoor recreational opportunities at an acceptable level of quality through actions that may involve intensive management of certain activities and/or areas, that may result in some compromise to the enjoyment and perceptions of certain visitor groups, and that may cause some degree of alteration to the physical resource; and thoughtfully consider the attitudes, values, and desires of visitors in the information of recreational use plans and subsequent actions.

LAND ACQUISITION

To secure an adequate land base, through acquisition, scenic easement, or other means, and to ensure long-term protection and perpetuation of the riverways' natural and cultural resources as well as diverse opportunities for interpretation and recreational activities is the purpose of land acquisition.

Another objective of management is to ensure accurate delineation of the riverways boundary in order to prevent unauthorized encroachment of timber harvesting or other land uses in the riverways' vicinity onto riverways' land.

DEVELOPMENT

The management objective for development is to ensure that park developments are visually compatible with each other and with the natural environment and that facilities are located in environmentally compatible areas.

It is also the purpose of management to minimize the adverse effects of flooding on the riverways' developments through thoughtful planning and designing of facilities.

CULTURAL RESOURCES

Cultural resource management objectives are to preserve and protect the archeological and historic resources of the Ozarks and to foster public awareness and appreciation for the unique heritage of the region.

The continuation of historical and archeological research is directed toward acquiring additional knowledge and understanding of existing and future cultural resources.

Special attention for cultural resources is given to implement a cultural resource maintenance program so as to reduce the adverse effects of structural deterioration caused by natural or man-made agents and to monitor construction projects to minimize irreversible impacts on potential archeological sites.

COOPERATION

Cooperation with other federal, state, and local agencies, private organizations, and members of the public will ensure that land uses in the park vicinity are compatible with long-term perpetuation of the riverways' natural, cultural, and recreational values; will develop coordinated regional programs for informing visitors of the availability of recreational opportunities and visitor services in the riverways and its vicinity; and will coordinate the development of recreational and visitor service facilities in the riverways and surrounding region.

The National Park Service will cooperate with the state of Missouri in developing programs for managing wildlife habitats, in regulating the harvesting and taking of wildlife, and in managing highway access to the riverways.

The National Park Service will also cooperate with private developers and local governmental agencies to ensure that municipal sewage treatment, solid waste disposal, industrial development, and other activities are implemented in a manner that does not adversely affect the riverways' groundwater and does not increase flooding and sedimentation or impact water quality in the riverways' surface aquatic resources.

The National Park Service will work with private interests providing canoe rental and related services to give visitors a broad range of river-oriented recreational opportunities and high quality recreational experiences.

C: RARE, THREATENED, OR ENDANGERED SPECIES

Missouri State List: Animals

Common Name	Scientific Name	Status
Blind crayfish	Cambarus hubrichti	Undetermined
Caddisfly	Hydropsyche piatrix	Undetermined
Lefevre's riffle shell	Epioblasma lefevrei	Endangered
Mussel	Fusconia ozarkensis	Endangered
Curtis' riffle shell	Epioblasma curtisi	Endangered
Western fan shell	Cyrogenia aberti	Rare
American brook lamprey	Lampetra lamottei	Rare
Lake chubsucker	Erimyzon succetta	Rare
Canebrake rattlesnake	Crotalus horridus atricaudatus	Endangered
Sharp-shinned hawk	Accipiter striatus	Endangered
Cooper's hawk	Accipiter cooperii	Endangered
Red-shouldered hawk	Buteo lineatus	Endangered
Barn owl	Tyto alba	Endangered
Marsh hawk	Circus cyaneus	Endangered
Bachman's sparrow	Aimophila aestivalis	Rare
Northern bald eagle	Haliaeetus leucocephalus alascensis	Rare
Osprey	Pandon haliaetus	Endangered
Indiana bat	Myotis sodalis	Endangered
Gray bat	Myotis grisecens	Endangered
Keen's bat	Myotis keenii	Rare
Black bear	Euarctos americanus	Rare
Long-tailed weasel	Mustela frenata	Rare
River otter	Lutra canadensis	Endangered
Cougar	Felis concolor	Endangered

Missouri State List: Plants

Common Name	Scientific Name	Status
Moss	Barbula convoluta	Endangered
Moss	Trichostomum tenuirostre	Endangered
Moss	Ephemerum coharens	Endangered
Moss	Rhytidium rugosum	Endangered
Moss	Rhytidiadelphus triquetrus	Endangered
Moss	Homaliadelphus sharpii	Endangered
Moss	Fontinalis hypnoides	Endangered
Fern	Dryopteris celsa	Rare
Naiad (pondweed)	Najas gracillima	Rare
Grass	Tridens chapmani	Rare
Black-seeded mountain rice	Oryzopsis racemosa	Rare
Panic grass	Panicum annulum	Rare
Panic grass	Panicum spaerocarpon	Rare
Straw sedge	Carex straminea	Endangered

Common Name	Scientific Name	Status
Water sedge	Carex aquatilis	Endangered
Star duckweed	Lemna trisulca	Rare
White camas	Zigadenus elegans	Rare
Ozark wake robin	Trillium pusillum	Endangered
Showy lady-slipper	Cypripedium reginae	Rare
Pale green orchid	Habenaria flava	Endangered
Prairie white fringed orchid	Habenaria leucophaea	Rare
Purple fringeless orchid	Habenaria peramoena	Rare
Green adder's mouth	Malaxis unifolia	Rare
Loesel's twayblade	Liparis loesselii	Endangered
American elm	Ulmus americana	Endangered
Knotweed, smartweed	Polygonum densiflorum	Rare
False bugbane	Trautvetteria caroliniensis	Rare
Tall larkspur	Delphinium exaltatum	Rare
American barberry	Berberis canadensis	Rare
Golden currant	Ribes odoratum	Undetermined
Barren strawberry	Waldsteinia fragariodes	Rare
Southern gooseberry	Vaccinium stamineum	Endangered
Missouri lowbush blueberry	Vaccinium vacillans	Rare
Climbing milkweed	Matelea obliqua	Rare
Carolina phlox	Phlox carolina	Undetermined
Wild sweet william	Phlox maculata	Rare
Hedge hyssop	Gratiola viscidula	Endangered
Northern bedstraw	Galium boreale	Endangered
Limber honeysuckle	Lonicera dioica	Rare
Harebell, bluebell	Campanula rotundifolia	Endangered
Marsh bellflower	Campanula aparinoides	Endangered

Federal List: Animals

Common Name	Scientific Name	Status
Gray bat	Myotis grisescens	Endangered
Indiana bat	Myotis sodalis	Endangered
Bald eagle	Haliaeetus leucocephalus	Endangered
Ivory-billed woodpecker	Campephilus principalis	Endangered (probably extinct)
Red-cockaded woodpecker	Dendrocopos borealis	Endangered (extirpated in Missouri)

Federal List: Plants

Common Name	Scientific Name	Status
Prairie white fringed orchid	Habenaria leucophaea	Under study
Heart-leafed plaintain	Plantago cordata	Under study
Ozark least trillium	Trillium pusillum var. ozarkanum	Under study

D: ARCHEOLOGICAL SITES

Site No.*	Time Period(s)	Site No.*	Time Period(s)
23SH65	unknown	23SH99	unknown
23SH21	unknown	23SH101	Archaic, historic
23SH22	unknown	23SH80	unknown
23SH23	Archaic, Woodland, Mississippian	23SH81	Archaic, Woodland,
23SH94	Archaic	23SH10	Archaic, Woodland, Mississippian
23SH97	Paleo Indian?, unknown	23SH75	Woodland
23SH71	unknown	23SH76	Woodland
23SH72	Woodland, historic	23SH74	Archaic, unknown
23SH70	Woodland, historic	23SH79	unknown
23SH19	Archaic, Woodland, Mississippian	23SH78	unknown
23SH82	unknown	23SH77	Woodland, unknown
23SH73	Woodland	23SH__	unknown
23TE51	unknown	23SH98	unknown
23SH8	unknown	23SH100	Archaic, historic
23SH7	unknown	23CT95	unknown
23SH6	unknown	23CT65	unknown
23SH4	unknown	23CT8	unknown
23SH5	unknown	23CT74	unknown
23SH17	unknown	23CT7	unknown
23SH16	unknown	23CT36	unknown,Mississippian
23SH57	unknown	23CT106	Archaic, historic
23SH61	unknown	23CT107	unknown
23SH62	unknown	23CT105	Woodland, historic
23SH60	unknown	23CT38	unknown
23SH58	unknown	23CT109	unknown
23SH59	unknown	23CT108	unknown
23SH93	Archaic, historic, unknown	23CT3	unknown
23SH14	unknown	23CT104	Archaic, Woodland, Mississippian, historic
23SH18	unknwon	23CT2	unknown
23SH11	unknown	23CT1	unknown
23SH37	Archaic, unknown	23CT54	Mississippian

* Archeological sites are assigned trinomial numbers in which the 23 indicates the state of Missouri; SH, TE, or CT indicates Shannon, Texas, or Carter counties; and the following number is merely a sequential numbering of sites in a county.

E: LAND IDENTIFIED AS POSSESSING WILDERNESS POTENTIAL

Tract	Approximate Acreage
Akers (Devils Backbone)	less than 100
Barn Hollow	500
Big Spring	3,300[1]
Blue Spring (Current River)	500[2]
Cardareva	12,000[2]
Devils Well	500
Owls Bend/Powder Mill Creek	1,200[2]
Prairie Hollow	less than 100
Rocky Creek/Stegall Mountain	1,000[2]
Schaefer Spring	less than 100
Thorney Creek	1,000
Upper Jacks Fork/Jam-Up Cave	4,000

---

[1] Approximately 5,600 acres when considered in conjunction with adjacent Forest Service lands.

[2] Includes lands managed by the Missouri Department of Conservation within the authorized boundary of the riverways.

F: PRIMITIVE CAMPSITES

Upper Current

Tan Vat, Parker Hollow, Big Creek, Vogel Tract, Cave Spring, Lipps Tract, Pot Hole, Boyd's Creek, Wide Ford, Sinking Creek, Woods Hole/Grassy, Williams Landing, Bee Bluff, Wayion's Landing, Broadfoot Tract, Shawnee Creek

Lower Current

Gage Hole, Goose Bay, Martin Bluff, Roberts Field, Ant Hole, Beal Sugar Camp, Paint Rock, Pin Oak, Waymeyer Chute, Raft Yard, Chilton Landing, Big Tree, Clubhouse Landing, Cataract Landing, Cave Spring, Panther Spring, Grubb Landing

Jacks Fork

Royal Hole, McCubbin Spring, Baptizing Hole, Blue Hole, Flat Rock, Rymer, Fifteen Foot Hole, Nickeloff Field, Bee Bluff to Bay Creek, Buffington's

BIBLIOGRAPHY

ALEY, THOMAS
1978 "Hydrological Studies of Springs, Ozark National Scenic Riverways, Missouri." Prepared for U.S. Department of the Interior, National Park Service, Midwest Region.

ALLGOOD, FERRIS P., and PERZINGER, IVAL D.
1979 Missouri General Soil Map and Soil Association Descriptions. Prepared for U.S. Department of Agriculture, Soil Conservation Service.

ANDREWS, MICHAEL
1978 "Perceptions of Crowding by Canoe Floaters in Relation to the Floating Base Line Concept." Unpublished M.S. thesis, Southern Illinois University, Carbondale, Illinois.

BARKS, JAMES H.
1978 "Water Quality in the Ozark National Scenic Riverways, Missouri." USGS Water Supply. Paper No. 2048. Prepared for U.S. Department of the Interior, National Park Service, Midwest Region.

BIRD, RONALD, and MILLER, FRANK
1960 "Contribution of the Tourist Trade to the Incomes of People in the Ozarks of Missouri." Missouri Agricultural Experimental Station. Bulletin 799.

BORN, PHILIP L., and CHAPMAN, CARL H.
1972 "Reconnaissance, Testing and Evaluation of Archeological Resources in the Alley Spring Portion of the Ozark Scenic Riverways National Park." Report submitted to the National Park Service by the University of Missouri. Columbus.

BRAY, ROBERT T.
1964 "Report on Excavation of Indian Skeleton, Round Springs State Park." Report to Director, Missouri State Parks.

BROWN, MARVIN
1976 "A Population of Local Fishermen and Their Perceptions of Change in a River Environment." Unpublished M.S. thesis, Southern Illinois University, Carbondale, Illinois.

CHAPMAN, CARL H.
1960 "Archeology. An Appendix to a Proposal for the Ozark Riverways National Monument." Prepared for U.S. Department of the Interior, National Park Service, Denver Service Center.

CHILMAN, KENNETH C.
1979a "A Remeasurement of Perceptions of Crowding at Ozark National Scenic Riverways." Prepared for Annual Meeting of the Rural Sociological Society, San Francisco, California.

CHILMAN, KENNETH C.
1979b "Remeasurement of Perceptions of Determination." Unpublished paper, Southern Illinois University, Carbondale, Illinois.

CLIFFORD, H.F.
1966 "Some Limnological Characteristic of Six Ozark Streams." Missouri Department of Conservation, Division of Fisheries, D-J serial no. 4.

DOLL, W.L.
1938 "Hydrology of the Larger Springs of the Ozark Region of Missouri." Unpublished M.S. thesis, University of Missouri at Rolla. Cited in Harvey and Gann, 1969.

FUNK, JOHN L.
1969 "Current River, Its Aquatic Biota and Fishery." Prepared for U.S. Department of the Interior, National Park Service, Office of Natural Science Studies.

GARRISON, ERVAN G.; TIPPITT, V. ANN; WEAKLY, WARD F.; and GRAHAM, JOHN
1976 "Archeological Investigations of the Ozark National Scenic Riverways Park." Report submitted to the National Park Service by the University of Missouri. Columbia.

HABERMEHL, JAMES M.
1973 "Determining Visitor Perceptions of Crowding on the Ozark National Scenic Riverways." Unpublished M.S. thesis, University of Missouri. Columbia.

HARVEY, E.J., and GANN, E.E.
1969 "Hydrology and Water Resources of the Current River Basin, Missouri." Prepared for U.S. Department of the Interior, National Park Service, Office of Natural Science Studies.

HASLAG, LEONARD
1959 "Recent Archaeological Discoveries-Missouri State Parks." Missouri Archaeological Society Newsletter 132.

LARSON, JAMES W., Ed.
1969 "Basic Natural Resource Data for the Ozark National Scenic Riverways." Prepared for U.S. Department of the Interior, National Park Service, Office of Natural Science Studies.

LIPSCOMB, ROBERT G.
1969 "Flowering Plants of the Major Springs in the Ozark National Scenic Riverways." Prepared for U.S. Department of the Interior, National Park Service, Office of Natural Science Studies.

LOWE, JAMES L.
1940 "Archaeological Survey of Carter County." Missouri Archeologist 7:2:5-10.

MARNELL, LEO; FOSTER, DAVID; and CHILMAN, KENNETH
1978 "River Recreation Research at Ozark National Scenic Riverways 1970-1977." On file at Ozark National Scenic Riverways. Van Buren, Missouri.

MASSEY, ELLEN GRAY, ED.
1978 Bittersweet Country. Garden City, New Jersey: Anchor Books.

NORDSTROM, GARY R.; PFLIEGER, WILLIAM L.; SADLER, KENNETH C.; and LEWIS, WALTER H.
1977 Rare and Endangered Species of Missouri. Missouri Department of Conservation and U.S. Department of Agriculture, Soil Conservation Service.

OBERBECK, CHARLES D.
1977 "The Economic Impact of the Ozark National Scenic Riverways." Unpublished M.S. thesis, University of Missouri, Columbia.

PRICE, CYNTHIA R., and PRICE, JAMES E.
1978 "Investigation of Settlement and Subsistence Systems in the Ozark Border Region of Southeast Missouri during the First Half of the Nineteenth Century: The Widow Harris Project." Paper presented at the annual meeting of the society for Historic Archaeology, San Antonio, Texas.

REDFEARN, PAUL L.; DYRAH, GRANT L.; WEBER, WALLACE R.; WITHERSPOON, JOHN T.
1969 Botany (Exclusive of Freshwater Springs), Ozark National Scenic Riverways. Prepared for the National Park Service. Springfield: Southwest Missouri State College.

ROBERS, JOHN M.
1977 Directory of Manufacturing. Ozark Foothills Regional Planning Commission, Ellsinore, Missouri.

SMITH, BRUCE D.
1971 "Excavations at the Gooseneck Site (23CT54): A Preliminary Report submitted to the Smithsonian Institution." University of Michigan, Museum of Anthropology.

1975 "Middle Mississippi Exploitation of Animal Populations." Anthropological Paper No. 57. University of Michigan, Museum of Anthropology.

U.S. DEPARTMENT OF COMMERCE, BUREAU OF THE CENSUS
1977 Population Estimates and Projections. P-25 Series. Washington, D.C.: Government Printing Office.

U.S. DEPARTMENT OF COMMERCE, BUREAU OF ECONOMIC ANALYSIS
1978 Quarterly Reports. Washington, D.C.: Government Printing Office.

U.S. DEPARTMENT OF COMMERCE, NATIONAL CLIMATIC CENTER
1975-76 Climatological Data.

U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
1958 Climatic Summary of the United States Supplement for 1931 thru 1952. Washington, D.C.: Government Printing Office.

1965 Climatic Summary of the United States Supplement for 1951 through 1960. Washington, D.C.: Government Printing Office.

U.S. DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE
1969 "History Basic Data, Ozark National Scenic Riverways; Dent, Shannon and Carter Counties, Missouri," by Lenard E. Brown, Denver Service Center.

1970 "Investigations of Historic Structures at Ozark National Scenic Riverways," by Donald F. Dosch. Mimeographed. Midwest Region.

1971 "An Evaluation of the Historic Resources of Ozark National Scenic Riverways and Recommendations for Their Preservation," by Lenard E. Brown and Merrill Mattes. Mimeographed. Denver Service Center.

1975 "Construction-Related Archeological Assessment of the Akers Ferry Campground, Ozark National Scenic Riverways, Missouri," by Robert K. Nickel. On file at the Midwest Archeological Center, National Park Service, Lincoln, Nebraska.

1976 "Interpretive Prospectus for Ozark National Scenic Riverways."

1979a Assessment of Alternatives, Natural Resources Management, Ozark National Scenic Riverways.

1979b "Historic Resource Study." Denver Service Center.

VINEYARD, JERRY D.
1969 "Geological Report on the Ozark National Riverways." Prepared for U.S. Department of the Interior, National Park Service, Office of Natural Science Studies.

WIGGINTON, ELIOT, Ed.
1972 The Foxfire Book. Garden City, New Jersey: Anchor Books.

WILLIAMS, RAY
1968 "A Preliminary Evaluation of the Owls Bend Area in Shannon County, Missouri." Report submitted to the Midwest Region, National Park Service.

PLANNING TEAM AND CONTRIBUTORS

PLANNING TEAM

Arthur Sullivan, Superintendent, Ozark National Scenic Riverways
Dan Huff, Team Captain, Denver Service Center
Jack Strain, Chief, Environmental Quality and Compliance, Midwest Regional Office
David Foster, Chief Biologist, Ozark National Scenic Riverways
David Given, Park Planner, Midwest Regional Office
John Hoesterey, Geographer, Denver Service Center
Larry Knowles, Landscape Architect, Denver Service Center
Kenneth Miller, Chief Ranger, Ozark National Scenic Riverways
Alex Outlaw, Chief Interpreter, Ozark National Scenic Riverways
James Simpson, Resource Management Specialist, Ozark National Scenic Riverways
Gayle Smith, Planning Technician, Denver Service Center
David Stuart, Cultural Resources Specialist, Denver Service Center
Dale Tomrdle, Environmental Specialist, Denver Service Center

CONTRIBUTORS

Marcel Crudele, Landscape Architect, Natchez Trace Parkway
David Fritz, Historian, Denver Service Center
Joel Kussman, Senior Environmental Specialist, Denver Service Center
Dave Laux, Landscape Architect, Denver Service Center
Marc Lynott, Archeologist, Midwest Archeological Center
Roy Smith, Chief of Maintenance, Ozark National Scenic Riverways
Jan Harris, Outdoor Recreation Planner, Denver Service Center
Jonathon Wager, Senior Lecturer in Town and Country Planning, University of Manchester, Manchester, England

Publication services were provided by the graphics and editorial staff of the Denver Service Center. NPS 1838

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, 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.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1981—777-027/33