roads and trails study
and environmental assessment

OZARK

NATIONAL SCENIC RIVERWAYS - MISSOURI

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and environmental assessment

draft

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OZARK NATIONAL SCENIC RIVERWAYS

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

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SUMMARY

The purpose of this study was to inventory and evaluate the road and trail systems in Ozark National Scenic Riverways (NSR) in meeting visitor use needs while protecting the natural resource values for which the park was established. This study is one component of a Land Use Management Plan being developed by the National Park Service (NPS) to guide management and development actions within the park. The study was divided into three sections: roads and traces (traces are roads created through informal use and were neither designed nor created as a public road), horse trails, and foot trails. Issues and tasks were identified for each section and a range of alternative management approaches to addressing those issues were developed for each section. Environmental, cultural, and socioeconomic impacts of each alternative were evaluated in each section.

NPS PROPOSAL

The NPS proposal is a compilation of one alternative from each section (Roads Alternative-3, Horse Trails Alternative-2, and Foot Trails Alternative-2). It was created after examining the benefits and impacts of each alternative relative to the park mandate of providing recreation opportunities while preserving and protecting resources for future generations. The recommendations are summarized below and in tables 1 through 6.

The roads and traces section of this proposal recommends closure and revegetation of little-used or abandoned traces which clearly show evidence of severe erosion, or are safety hazards. The proposal further recommends the removal from inventory of those roads which duplicate other access roads and excludes vehicles from sensitive areas known to possess endangered plants or animals. Of the 466 miles of roads within the Ozark NSR, 36.97 miles, or 8%, would be affected by these recommendations.

The horse trails section identifies and recommends actions to existing problems on horse trails, sets the horse use threshold at present use levels during a four-year trails monitoring program, and sets criteria by which to evaluate requests for group ride permits. No new horse trails are recommended at this time.

The foot trails section identifies and recommends actions to correct foot trail problems. Redesign of the trail systems around three existing developed areas is recommended to accommodate higher use volumes without resource damage. Location and themes for potential interpretive trails, will be developed as funding is made available.

Table 1. Summary of road and trace alternatives

Alternatives	Traces/Roads Closed	Maintenance Schedule	Maps
Alternative-1 Continuation of Existing Conditions (No Action).	0 traces/roads (0 miles)	No change.	Available for review at park headquarters.
Alternative-2 Close traces which demonstrate resource damage or jeopardizes threatened and endangered species.	38 traces/roads (30.56 miles, 6.5% of system)	Add remaining backcountry roads to maintenance schedule.	Same as Roads Alternative-1.
(PREFERRED ALTERNATIVE) **Alternative-3** Close traces which have resource damage, jeopardizes threatened and endangered species and provide duplicate access, have no NPS identified use or function or which present safety hazards.	16 additional traces/roads closed (total 54 traces/roads closed - 37.44 miles, 8% of system)	Same as Roads Alternative-2.	Same as Roads Alternative-1.
Alternative-4 Close traces which have resource damage, jeopardizes threatened and endangered species, provide duplicate access, have no NPS identified use or function or which present safety hazards, and close all roads to primitive campsites.	42 additional traces/roads closed (total 96 traces/roads - 61.12 miles, 13% of system)	Same as Roads Alternative-2.	Same as Roads Alternative-1.

Table 2. Summary of road and trace impacts

Soils and* Vegetation	Wildlife	Threatened/ Endangered Species	Floodplain & Wetlands	Water Resources	Cultural Resources	Socioeconomic
Alternative-1 Continued erosion causing river sedimentation and riparian vegetation damage. Additional roads may be developed to go around erosion areas.	Wildlife pattern would remain same.	Access would continue to endanger bat habitat, Missouri listed plants threatened at Jam Up Cave.	Park roads exempt from compliance.	Sediment loading continues in surface water, no affect on groundwater.	No impact on known cultural resources.	No impact to socioeconomic environment.
Alternative-2 30.56 miles (44.45 acres) would be revegetated, imported soils may be necessary for revegetation.	Short term disturbance during revegetation, lower sediment loading to streams.	Protects known threatened and endangered species and their habitat.	Same as Roads Alternative-1.	Reduce sediment loading in streams, no impact on groundwater.	Same as Roads Alternative-1.	11 river access points, and 3 primitive areas closed to vehicular access, vehicular hunting access reduced, minuscule economic impact.
(PREFERRED ALTERNATIVE) Alternative-3 An additional 6.88 miles (10.0 acres) would be closed and revegetated over the amounts identified in Roads Alternative-2. (37.44 miles, 54.45 acres total)	Same as Roads Alternative-2. An additional 10 acres of habitat would be revegetated.	Same as Roads Alternative-2.	Same as Roads Alternative-1.	Same as Roads Alternative-2.	Same as Roads Alternative-1.	In addition to Roads Alternative-2, an additional 20 river access points and 2 primitive areas would be closed to vehicular access. (31 river access points, 5 primitive areas total)
Alternative-4 An additional 23.68 miles (34.44 acres) would be closed and revegetated over the amounts identified in Roads Alternative-3. (61.12 miles, 88.89 acres total)	Same as Roads Alternative-3. An additional 34.44 acres of habitat would be revegetated.	Same as Roads Alternative-2.	Same as Roads Alternative-1.	Same as Roads Alternative-2.	Same as Roads Alternative-1.	In addition to Roads Alternative-3, an additional 42 river access points and 47 primitive areas would be closed to vehicular access. (73 river access points, 52 primitive areas total)

*No prime or unique farmland affected in any alternative.

Table 3. Summary of horse trail alternatives

Corrective Actions	Maintenance and Use Monitoring Program	Develop Horse Camp	Regional Coordination	Study Trail Maps	Group Permit
Alternative-1 Continuation of Existing Conditions (No Action).					
Continue trail maintenance.	Sporadic.	No.	Informal and sporadic.	Available for review at park headquarters.	Continue present use.
(PREFERRED ALTERNATIVE) **Alternative-2** Repair/reroute existing trails.					
Implement corrective actions.	Four year program.	Yes.	Scheduled annual meeting.	Same as Horse Trails Alternative-1.	Limit very large group rides to existing levels during 4 year monitoring program. No limit on small groups.
Alternative-3 Repair/reroute existing trails and harden trails to accept more use.					
Implement corrective actions plus construct 4 bridges, harden trails.	Annual review to determine construction needs.	Yes.	Same as Horse Trails Alternative-2.	Regional trails coordination group (Federal, state & local) would be encouraged to cooperate in printing regional trails map.	No limit on number of group rides.

Table 4. Summary of horse trail impacts

Soils and Vegetation*	Wildlife	Threatened/ Endangered Species	Floodplains and Wetlands	Water Resources	Cultural Resources	Socioeconomic
Alternative-1						
Overgrowth of 0.31 miles of trail, minor erosion would continue.	Minor impact.	No federally listed species would be threatened.	No direct adverse impacts.	Minor impact for surface water, no impact on ground water.	No impact on known cultural resources.	Safety problems continue, orientation problems not addressed, no economic impacts.
(PREFERRED ALTERNATIVE) **Alternative-2**						
0.38 acres vegetation cleared, water bars reduce erosion.	Wildlife temporarily displaced during vegetation clearing.	Same as Horse Trails Alternative-1.	Same as Horse Trails Alternative-1.	Sedimentation in surface water reduced, no impacts to groundwater.	Same as Horse Trails Alternative-1.	Eliminate safety hazards, orientation problem addressed through signs.
Alternative-3						
13.6 miles (32.97 acres) hardened and widened, some bank recontouring at river crossings, 4 bridge construction cause local soil disturbance.	Same as Horse Trails Alternative-2.	Same as Horse Trails Alternative-1.	Same as Horse Trails Alternative-2.	Same as Horse Trails Alternative-2.	Same as Horse Trails Alternative-2.	Same as Horse Trails Alternative-2. Map publication would reduce orientation problems.

*No prime or unique farmland affected in any alternative.

Table 5. Summary of foot trail alternatives

Alternative	Trail Problems	Interpretive Trails	Maps
Alternative-1 Continuation of Existing Conditions (No Action).	Correct identified trail problems as existing funding permits.	No change.	Study maps available for review at park headquarters.
(PREFERRED ALTERNATIVE) **Alternative-2** Repair and upgrade foot trail system.	Solicit funding to repair identified problems, upgrade to meet standards.	Develop 16 potential interpretive trails as funding permits, no new hiking trails planned.	Study maps available for review at park headquarters, develop map for Big Spring area.

Table 6. Summary of foot trail impacts

Soils and Vegetation	Wildlife	Threatened / Endangered Species	Floodplains and Wetlands	Water Resources	Cultural Resources	Socioeconomic
Alternative-1						
2.14 miles (7.78 acres) overgrown, 1.94 miles (2.36 acres) eroding, continued shortcutting, no prime or unique farmland impacted.	Minor sedimentation into aquatic habitat.	No federally listed species affected.	No adverse floodplain impact, 530 feet of trail through wetland.	Sedimentation into surface water, no impacts to groundwater.	No impacts on known resources.	Some safety hazards continue, obscured scenic vistas, trail orientation problems, no economic impacts.
Alternative-2						
Clear 2.14 miles (7.78 acres) of vegetation, reduced shortcutting, treadway erosion reduced on 1.94 miles (2.36 acres), no prime or unique farmland impacted.	Animals temporarily disturbed during 7.78 acre brush clearing and tree removal, reduce sediment in aquatic habitat.	No impacts to federally listed species, several Missouri listed species afforded greater protection.	Sediment and erosion control measures on 8 acres.	530 feet of stepstones in wetland would afford protection to wetlands.	Same as Foot Trails Alternative-1.	Safety hazards corrected, scenic vistas improved, minor short term economic impact during construction.

ROAD AND TRAILS COST SECTION

Table 7 details costs for the proposed alternatives for roads and trails (Roads tables 14 and 15, Horse Trails table 21, Foot Trails table 22). Costs are separated for one-time actions such as road grading, trail brush clearing, and trail water bars. In addition, annual maintenance costs are shown for roads currently under park maintenance.

Table 7. Roads and trails cost summary

Road Actions	One-Time Costs	Annual Maintenance Costs
Gate Installation		
$ 1,000 x 11 each =	$ 11,000	--
Barricade Installation		
$ 250 x 42 each =	$ 10,500	--
Revegetation/Stabilization		
Closed roads		
$ 1,210/acre x 30 acres =	$ 36,300	--
Maintenance paved roads		
$10,000/mi/yr x 25 mi =	--	$250,000 year
Maintenance gravel roads		
$ 1,500/mi/yr x 73 mi =	--	$124,500 year
Total Road Costs:	**$ 57,800**	**$374,500 year**

Table 7. Roads and trails cost summary (continued)

Trail Action (Horse and Foot)	One-Time Cost	Annual Maintenance Costs
Maintenance Horse Trails		
$800 x 13.6 mi =		$10,880
Maintenance Foot Trails		
$800 x 48.2 mi =		$38,560
Brush and tree clearing		
Brush: .50/ft x 9,000 lf =	$ 4,500	
Tree: $5.00/ft x 3,000 lf =	15,000	
Water bars and risers		
Water bars: $25 each x 171 =	4,275	
Risers: $20/ft x 3,250 ft =	65,000	
Block unwanted trail		
$1,500 for 3,000 ft = $.50/ft x 1,050 ft =	525	
Signs $200 installed x 20 =	4,000	
Safety costs		
Big Spring		
Barriers and warning signs (already installed)	n/c	
Warning sign/crosswalk	700	
Jam Up Cave		
Install steps & primitive trail	7,000	
Round Spring		
Three barriers	1,500	
Boggy treadway		
Alter trail/stepstones $30/ft x 530 ft =	15,900	
Vista clearing $30/ft x 400 ft =	12,000	
Primitive horse camp (25 units)		
Parking vehicle/trailers $800 x 10 =	8,000	
Primitive camp sites $700 x 25 =	17,500	
Vault Toilet (two room)	35,000	
Water well	10,000	
Total Trail Costs:	**$200,900**	**$49,440**

INTRODUCTION

PARK ESTABLISHMENT

Impetus for establishment of Ozark NSR began in 1949 with a proposal by the United States Army Corps of Engineers, to construct dams on the Current River. Public opposition to the plan prompted consideration to preserve the river in its free-flowing state. Subsequently, a national recreation area (1959) and a national monument (1961) were alternatively proposed and rejected by the NPS in favor of a national scenic riverway.

Ozark NSR was authorized by an Act of Congress on August 24, 1964 (P.L. 88-492, 78n Stat.608) 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 and Jacks Fork Rivers 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. . . .

This legislation emanated from U.S. Senate and House Bills S. 16 and H.R. 1803, respectively, both dated January 14, 1963. Changes made in the initial bills, and reflected in P.L. 88-492, give some insight as to the intent of Congress for managing the area. They are as follows:

1. In Section 1, after "enjoyment" the words "of the outdoor recreation resources" were added to "make clear that recreation is a purpose of the bill." (House Report No. 1241, March 18, 1964).

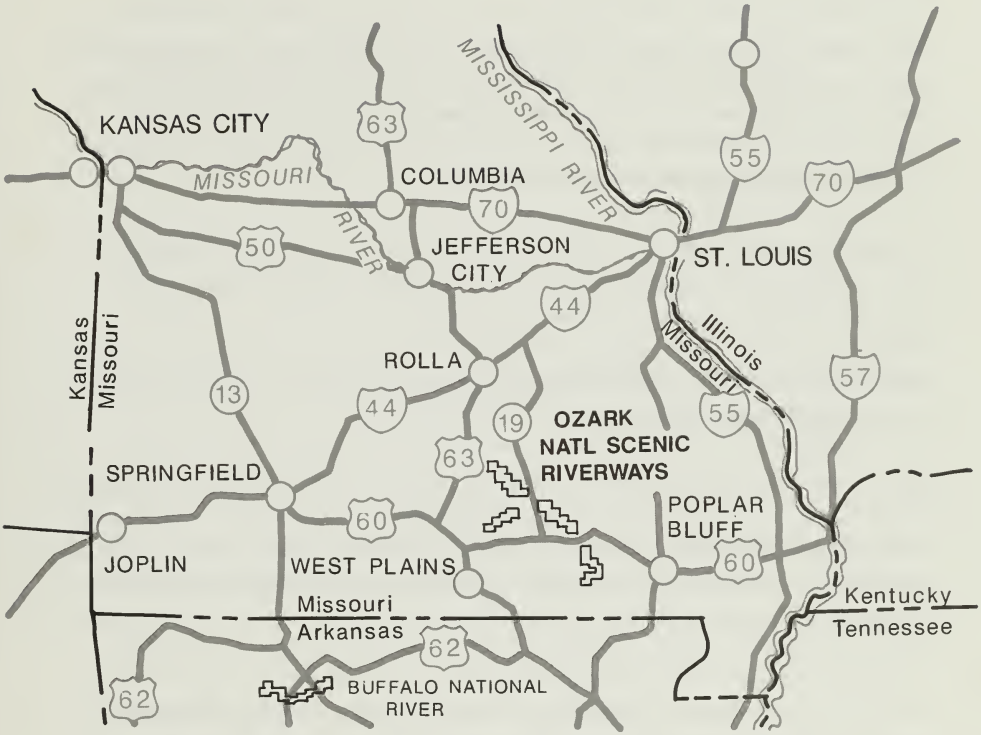
2. The name of the area was changed from "Ozark National Rivers" to "Ozark National Scenic Riverways."

PARK DESCRIPTION

The park extends along 134 miles of the Current and Jacks Fork rivers in the Ozark Highlands of southeastern Missouri (see figure 1). The clean, clear waters of the riverways provide excellent opportunities for johnboating, canoeing, swimming, and fishing. Hunting is an authorized use within the

Riverways' boundary. The landscape remains predominantly rural, with broadleaf forests and occasional open fields.

The park's authorized boundary encompasses 81,216 acres; 51,517 acres have been acquired in fee simple and 9,179 acres have been preserved under scenic easement. In addition, 14,062 acres of state of Missouri lands and waters are being managed by the Missouri Department of Conservation through a memorandum of understanding with the NPS; 6,458 acres within the authorized boundary remain in private ownership.



NORTH

0 10 20 30 MILES

LOCATION MAP

OZARK NATIONAL SCENIC RIVERWAYS

DSC/JUNE 89-614/40,038

PURPOSE AND NEED FOR THE STUDY

The purpose of planning is to develop ways for people to see, understand, and enjoy the features that make the riverways unique while fulfilling the primary purpose of protecting park values. The primary natural resource at Ozark NSR is the Current River and its major tributary the Jacks Fork River. Protection and preservation of this resource while providing for the use and enjoyment of visitors is the principal mandated responsibility of the NPS (PL 88-492).

The General Management Plan, approved in 1984, recommended a study to inventory, classify, and develop management strategies for the roads and trails system. The purpose of this study is to provide that information, develop management action alternatives, assess the impacts of each alternative, and develop a NPS proposal. It inventoried the roads, traces, and trails and evaluated the effectiveness of this system in meeting visitor use needs while protecting the natural resource values for which the park was established.

More than 466 miles of roads and traces, 13.6 miles of horse trails, and 48.2 miles of foot trails provide for visitor access and circulation within the authorized boundary of the Ozark NSR. A comprehensive inventory depicting jurisdiction, function and use, and condition of each road and trace has never been compiled. This information is critical for the NPS to develop strategies to be able to manage effectively the riverways' resources for visitor use and resource protection according to stated park management objectives.

It should be noted that the Roads and Trails Study is but one component of a larger planning effort focusing on all land-based activities within the Ozark NSR. The Roads and Trails component and future components of the expanded land management plan will serve to improve access and interior circulation; enhance the full spectrum of camping opportunities ranging from fully developed campgrounds to primitive sites; provide access for hunting and fishing, and provide for other land-based recreational activities while also assuring protection and preservation of the natural and cultural resources of the Riverways.

Park specific management objectives that are pertinent to this study include:

> **Natural Resource Management.** To maintain to the extent possible a diverse natural environment for public use and enjoyment by applying the principles of total ecosystem management.

Interpretation and Visitor Services. To enrich recreationists' awareness, understanding, and appreciation of the Ozark NSR natural and cultural resources through preservation and interpretation; 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 formation of recreational use plans and subsequent actions.

Land Protection 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.

Development. 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.

Cooperation. To ensure that land use in the park vicinity is compatible with long-term perpetuation of the Riverways' natural, cultural, and recreational values, cooperate with federal, state, and local agencies, private organizations, and members of the public.

ORGANIZATION OF THE STUDY

The study has been divided into three sections: roads and traces, horse trails, and foot trails. Each section is structured as follows: introduction, issues and tasks, methodology, management action alternatives, and environmental, cultural, and socioeconomic impacts for each alternative. The NPS proposal consists of one alternative from each of the three sections and is summarized beginning on page 2.

AFFECTED ENVIRONMENT

NATURAL RESOURCES

Soils

This section describes the soil series that are mapped for the park. Table 8, page 17, lists the soils by county, distinguishing between upland and bottomland within the park. Table 9, page 18, lists each soil suitability as to its limitations for topsoil and road construction. None of the soils found in the park are designated as prime or unique farmlands. Soils in the riverways were derived from weathering of residual parent rock, mostly cherty limestone and dolomite.

Poynor cherty silt loam. The Poynor soils consist of deep, well drained, moderately permeable soils of the uplands. They formed in residuum from cherty dolomite and clay shales or cherty limestone. These soils are found on narrow ridge tops and steep side slopes. They exhibit medium to rapid runoff. More than half of these soils are in second-growth timber. Principal species are oak, hickory, ash, maple, dogwood, and pine. Meadows are found on about 25% of these soils.

Clarksville very cherty silt loam and Clarksville stony silt loam. The Clarksville soils consist of deep, somewhat excessively drained soils formed in residuum and locally transported colluvial/alluvial materials weathered from cherty dolomite or cherty limestone on steep side slopes and narrow ridge tops. Runoff is medium to rapid with permeability moderately rapid. Most of the soil is in second growth timber similar to the original forest. The native vegetation is forest of black oak, white oak, blackjack oak, post oak, hickory, ash, sugar maple, and dogwood.

Wideman fine sandy loam. The Wideman soils consist of deep, excessively drained, moderately permeable soils formed in sandy recent alluvium. These soils are on floodplains and natural levees along streams. This soil floods occasionally. Most of these soils are used for pasture and meadows with limited use for cultivated crops. Native trees are eastern cottonwood, american sycamore, sweetgum, and other bottomland hardwoods.

Gladden loam. This soil consists of deep, well drained soils formed in acid alluvium in floodplains in narrow upland valleys. Permeability is moderate in the upper part and rapid or very rapid in the

lower part. Runoff is slow and this type of soil is subject to occasional flooding. This soil is commonly planted to corn, small grains, grain sorghum, and hay. Native vegetation is made up of mixed hardwoods and shortleaf pine.

Table 8. Soils by county

Carter County

Upland & Steep Slopes
* Poyner cherty silt loam
Clarksville very cherty silt loam

Bottomland
* Wideman fine sandy loam
Gladden loam

Dent County

Upland
* Clarksville cherty silt loam
Clarksville stony silt loam

Bottomland
* Wideman fine sandy loam
Gladden loam

Texas and Shannon County

Upland
* Poynor cherty silt loam
Clarksville cherty silt loam

Bottomland
* Wideman fine sandy loam
Gladden loam

*These soils are the major soils group in that county for that land class.

Table 9. Soil suitability

Soil Name	Suitability as Top Soil	Suitability for Road Maintenance	Suitability as Roadfill
Poynor cherty silt loam	Slope 2-15%+: Poor – small stones	Slopes 8-15%: Moderate – due to slope, frost action	Slopes 2-25%: Poor – low strength 25%+: Poor – low strength, slope
Clarksville cherty silt loam	2-15%: Poor – small stones	2-15%: Moderate – slope, frost action 15%+: Severe – slope	2-15%: Good 15-25%: Fair – slope 25%+: Poor – slope
Clarksville stony silt loam	2-15%: Poor – small stones 15%+ Poor – small stones	2-8%: Moderate – frost action 8-15%: Moderate – slope, frost action 15%+: Severe – small stones, slope	2-15%: Good 15-25%: Fair – slope 25%+: Poor – slopes
Wideman fine sandy loam	Good to poor depending on gradation from fine sandy loam to fine sand	Severe – flooding	Good
Gladden loam	Poor – small stones	Severe – flooding	Good

Vegetation

The Ozark NSR lies within the oak-hickory forest region. Hills are steepsided and ridges are narrow with draws and ravines produced by tributaries to the Jacks Fork and Current rivers, adding to the rugged nature of the area. The park encompasses the most diversified flora, including the greatest number of species, of any part of the state. Present forests are composed of second growth timber. While the continuity of these forests have been interrupted by man's activities, composition of individual stands is variable due to successional phenomena as well as topography and lithology. Four major vegetation communities comprised of 12 vegetation associations are found within the Ozark NSR. These communities and vegetation associations are composed predominately of forests communities, except for some open vegetation areas and cultivated sites (table 10, page 20).

The first vegetation unit, the gravel bar community, consists of the Ward's Willow/Witch hazel association commonly found with alder and sycamore trees. These trees help to stabilize the gravel bars and allow other plants such as swamp dogwood, water-willow, and chairmaker's rush to flourish.

The second major vegetation unit is the stream bank community, which is broken into three vegetation groups consisting of silver maple/cottonwood, American elm/green ash, and sugar maple/bitternut hickory associations. As gravel bars become subject to less inundation caused by stream cutting, the silver maple/cottonwood association appears on deeper alluvial deposits. Many herbaceous species are found within these associations; a few common species are clearweed, greenheaded cone flower, and leatherwood.

As richer soil develops and the area receives less frequent flooding, the American elm/green ash association appears. Understory plants include trumpet creeper, spice bush, blackbrush, poison ivy, and blue phlox. The climax forest of the stream bank community is the sugar maple/bitternut hickory association. Herbaceous species consist of wild ginger, bloodroot, wood nettle, and maidenhair fern.

The third major vegetation unit, the upland plant community, is found on the upper slopes and ridges along the park. This community contains four different climax forests and two distinctive types of open upland sites. Variations of developmental or successional stages within each of these associations accounts for the gradation from dense forest to open grasslands.

The first association is sugar maple/white oak. This association may dominate on west and south facing slopes due to intense solar radiation. On the wetter east and north facing slopes successional stages continue to develop into the climax forest of sugar maple, white oak, northern red oak, and red ash. Understory species include paw-paw, bladdernut, flowering dogwood, and wild geranium. The most common upland association along the river system is the oak/hickory association found on dryer, more acid upper slopes and ridges. This association is comprised of black oak and Ozark pignut hickory with predominant species of shagbark hickory, mockernut hickory, white and northern red oak. Understory species includes high and low-bush huckleberry, smooth sumac, sassafras, cinquefoil, and dwarf iris. On narrower ridges where acid soils are derived from sandstone, chert, and felsite rocks, the oak/pine association develops. This is a mixed oak and pine forest with a considerable variation of hardwoods. The understory is dominated by low-bush huckleberry and farkleberry. In upper slopes of hills and ravines and at the head of tributaries of streams, the white oak/red maple association is found. Successional stages show a predominance of red maple and white oak with a codominance of species such as winged elm and mockernut hickory. The rock ledge association is striking and is found

scattered throughout the park. Succession is complex and depends in part on the type of rocks exposed. Common species found in this association are red cedar, blue ash, chinquapin oak, poison ivy, and golden current. The last upland vegetation group is called the open glades or "barrens" association and is found on felsite exposures and ridges. Characteristic species are hairy lip fern, spikemoss, early saxifrag, pine weed, and woodrush.

The last vegetation unit is made up of cultivated agricultural lands divided between lowland and upland farm sites. In both of these areas the land is relatively poor and often very rocky. Left uncultivated, these lands will take on a weedy appearance because of the invasion of such species as honey locust, bitterweed, dwarf fleabane, yarrow, crabgrass, and horseweed. No prime or unique farmlands are found within the riverways.

Table 10. Major vegetation communities in the Ozark oak-hickory forest

Gravel bar community	Ward's Willow/Witch Hazel Association
Stream bank community	Silver maple/cottonwood association American elm/green ash association Sugar maple-bitternut hickory association
Upland plant community	Sugar maple-white oak association Oak-hickory association Oak-pine association White oak-red maple association Bluff or rock association Glade association
Agricultural land	Lowland farm sites Upland farm sites

Wildlife

The diversified habitats of the park, including the riparian environment, open fields, and woodlands, offer adequate cover for supporting many wildlife game and nongame species. The fauna is typical of the eastern Ozark region with species common to both the western prairie and eastern deciduous forests. The most common observed species include the white-tailed deer, gray and fox squirrel, eastern chipmunk, muskrat, beaver, cottontail rabbit, raccoon, and striped skunk.

Hunters concentrate on squirrels, rabbits and white-tailed deer; however, game birds, waterfowl, turkey, red and gray fox, coyotes, and other small mammals are also hunted. Trapped species include red and gray fox, raccoon, coyote, mink, skunk, bobcat, opossum, beaver, and muskrat.

Birds of this region are abundant, diverse, and provide excellent recreational bird-watching opportunities. Water-oriented species include the belted kingfisher, great blue heron, green back heron, and the Louisiana waterthrush. Seven species of woodpeckers reside in the area; most spectacular is the large pileated woodpecker. Resident birds of prey include six species of hawks and six species of owls, with the bald eagle as a migratory winter resident. About 50 species of songbirds migrate through or into the area; consisting mostly of warblers, sparrows, grosbeaks, and finches.

The Current and Jacks Fork Rivers have a large and diverse fish fauna; 125 of approximately 260 species occurring in the entire Mississippi Valley have been recorded from the watershed. This diversity results from a unique blending of fishes characteristic of uplands, lowlands, and large rivers.

Amphibian and reptile species in the riverways include 23 snakes, 8 lizards, 18 turtles, 14 salamanders and newts, and 13 frogs and toads. Of the 23 snake species recorded in the riverways, four are poisonous pit vipers, with the copperhead being relatively common. Frogs and toads residing in the riverways commonly include the tree frogs, peepers and chorus frogs, which produce distinctive sounds in spring.

Threatened and Endangered Species

Through federal government legislation (Endangered Species Act of 1973 and amendments), the federal government and the state of Missouri are required to identify all plant and animal species in danger of extirpation (the loss of a species from the state) and provide these species with certain statutory protection.

Federal designations of endangered and threatened species are as follows:

Endangered: Those species which are in danger of extinction throughout all or a significant portion of their range.

Threatened: Those species which are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

The state of Missouri employs the following designations:

Endangered: Species whose prospects for survival within the state of Missouri are in immediate jeopardy. Endangered species must have help or extirpation probably will follow.

Rare: Species that are present in Missouri in small numbers. If suitable habitat is reduced, their continued presence in the state may become endangered. This designation "rare" is not necessarily synonymous with "threatened" as used in federal legislation.

Status Undetermined or Watch-Listed: Species that have been suggested by competent authority as possibly rare or endangered, but about which there is not enough information to determine its status. Until more information is available, they should be treated as rare or threatened.

The region features many rare and uncommon plants because of its great variety of habitats. Currently, there are no known federally designated threatened or endangered plant species listed by the U.S. Fish and Wildlife Service (USFWS), while 42 species are listed by the state of Missouri as rare or endangered (appendix 7).

Two mammals and one bird, listed as endangered by the USFWS, have been recorded in the park (appendix 1). The endangered mammals are the Gray bat (*Myotis grisescens*) and the Indiana bat (*Myotis sodalis*). These bats are generally found in the numerous caves, bluffs, and forests of the area. The gray bat is a cave dweller and permanent resident, while the Indiana bat is primarily a winter resident of the caves but may remain in other retreats during the summer. Also, one cave has been designated by the USFWS as part of the critical habitat for the Indiana bat. The one bird species that is listed as endangered and occurs in the park is the bald eagle (*Haliaeetus leucocephalus*). The bald eagle is strictly a winter resident. In addition, the state has listed 28 rare or endangered animal species that occur within the park (appendix 1).

Roads 4-3153 and 4-219 are located in areas known to include critical habitat for the Missouri state listed endangered Swainson's warbler. Further study of these areas will be needed to determine the impacts of these roads on this endangered species.

Water Resources/Floodplains and Wetlands

The park extends along 134 miles of the free-flowing Current and Jacks Fork rivers. Underground springs produce most of the normal flow in these rivers, which retains remarkable clarity and a more uniform temperature than streams in most other locations. Because of the interconnected underground springs, transwatershed groundwater flows are important to the maintenance of good water quality. Influences outside of park boundaries can dramatically affect water quality within the park. Water quality of the rivers and springs is excellent, but some pollution is associated with heavy visitation areas, storm runoff, privies in the floodplain, and concentrated horse/watering and crossing areas. The rivers flow through steeply graded watercourses periodically lined with dolomite bluffs where many caves and some of the nation's largest springs are found. Big Spring, the largest spring in the park, releases an average of 270 million gallons of water per day to the Current River.

Flooding is common on the rivers and is an important force in shaping the face of the river corridor. Floodwaters may rise rapidly as indicated by a 2.8 feet per hour record during the 1985 flood of the Current and Jacks Fork rivers. Water levels 6 to 10 feet above the mean low-water mark are common during the rainy season, from March to May. Floodwater may be expected to rise 19 feet once every 10 years (average frequency), 22 feet once every 25 years, and 24 feet once every 50 years. The record 1904 flood produced a rise of 30 feet, and flooding of the proximal floodplain occurs every year. All roads, traces, and trails within 5 to 10 feet above the low-water level would be subject to periodic flooding while the 100-year and 500-year floodplain water levels would impact roads, traces, and trails approximately 21 to 36 and 22 to 37 feet above the low-water point, respectively. Such rapid flooding in the drainage basins of the Jacks Fork and Current rivers has resulted in implementation of a visitor-warning system by the NPS.

There are numerous wetlands throughout the park generally found within the floodplains of the river valleys and at springs, seeps, and low depressions within the rugged terrain.

CULTURAL RESOURCES

Prehistory and History Overview

The cultural history of the park begins approximately 15,000 years ago with Paleo-Indian big game hunters, as evidenced by scattered discoveries of their distinctive spear points. By about 7,000 B.C., the Archaic lifeway began to develop as groups settled in and adapted to local environments through

the use of a broad range of wild plants and animals. Knowledge of horticulture and pottery was introduced from the lower Mississippi Valley about 1 A.D., denoting the start of the Woodland period. Because of the geographical isolation and the nature of the natural resources, the native Americans of the Ozark Highlands largely retained a more primitive hunting and gathering lifestyle. The cultural elaborations of the Hopewell culture in southern Ohio seems not to have influenced the prehistoric Ozarkians, but the later (A.D. 900 to 1500) Mississippian culture centered at the prehistoric metropolis of Cahokia (near present St. Louis, Missouri) certainly stimulated the conservative highlanders. There is increasing evidence of Mississippian villages and ceremonial centers throughout southeastern Missouri. The Osage and Quapaw used the area primarily for seasonal hunting. The Shawnee and Delaware passed through the area in the early 1800's following displacement from their traditional homelands to the east. Western immigration and settlement continued to push these tribes west and by 1830, they were beyond the Missouri border.

Although earlier Spanish explorers may have traveled through the area, French hunters, fur traders, and miners first began exploiting Ozark resources in the 1700's. However, it was not until after 1803 – when the United States acquired the area through the Louisiana Purchase and moved the Osage farther west that Euro-American settlement began. By the 1830's, the settlers, mainly frontiersmen from the hills of Tennessee and Kentucky, established towns such as Van Buren and Eminence. Gristmills, sawmills, and schoolhouses became commonplace in the area.

The opening of the Civil War in April 1861 found the Ozarks largely cleared and settled. The war brought destruction and population displacement as a result of guerrilla warfare and bushwhacking. The lumber industry growth after the war briefly stimulated the local economy. By the early 1900's, land use practices resulted in timber depletion, soil erosion, and a decline in the populations of fish, game, and furbearers.

The economy of the Ozarks continued to decline through the first decades of the 20th century. This portion of the Ozarks became part of the national park system in 1964 and has retained its rich folk culture that can be traced back to the Appalachians and Elizabethan England.

Archeological Resources

The archeological potential of the eastern Ozark region was greatly underestimated prior to the initiation of surveys in response to the National Historic Preservation Act in the 1970's. The archeological potential of Ozark National Scenic Riverways first became apparent during a parkwide

survey of development areas. A multi-year contract with Southwest Missouri State University and on-going work conducted by the Midwest Archeological Center have produced evidence that this area is one of the richest archeological regions in the midwestern United States. The archeological resources at Ozark NSR are the product of long and intensive use of the region by prehistoric and historic human groups. The earliest evidence of occupation in the valley is attributed to the Clovis culture. Until the recent discovery of Clovis artifacts at the Two Rivers site, the only evidence of Clovis occupation was limited to several surface finds. Much remains to be learned about the Clovis culture in southeast Missouri, but evidence from the Kimmswick site near St. Louis indicates that these people survived by hunting big game, primarily mastodons. The Clovis culture is believed to date to about 12,000 B.C., and is the earliest, well documented culture in North America.

About 8500 B.C. there is evidence of the first widespread human occupation of the Current River valley. The Dalton culture is known throughout the southeastern United States, and projectile points which are diagnostic of the Dalton culture have been found at many sites in Ozark NSR. Evidence of Dalton occupation has been recorded at several sites in the Akers Ferry area and at Two Rivers. The Dalton occupation appears to be an adaptation to climate and vegetation similar to that encountered by the first Europeans in this region. The exploitation of a wide range of native plants and animals began with the Dalton culture and continued for nearly 10,000 years in the Current River valley.

The Middle Archaic period in southwestern Missouri is characterized by changes in the types of plants and animals exploited. Evidence from that era indicates increased exploitation of grassland resources at the expense of woodland resources, indicating a possible change in climate. Little is known about this period in Ozark NSR, but Middle Archaic components have been identified at both the Akers Ferry and the Two Rivers sites. These sites clearly have the potential to contribute a better understanding of this stage of prehistory.

During the Late Archaic period in Ozark NSR, archeological evidence indicates a continued pattern of exploitation of native plants and animals. This forging strategy was established during the Dalton occupation and became more refined as population density in the region increased. There is evidence that during the Late Archaic period, people made the greatest use of upland resources. Sites adjacent to upland sinkhole ponds indicate these areas were occupied for short periods of time.

The first evidence for sedentary communities in Ozark NSR occurs during the Woodland period. The Akers Ferry area was intensively utilized during this stage. The area adjacent to the modern ferry contains a dense midden from what was probably a village located in the modern campground. At

least five rock cairns are present on the ridge overlooking the confluence of Gladden Creek and Current River. Excavations in other areas of the Ozarks have shown that these cairns are burial features of the Meramec Spring culture. Ceramics collected from test excavations in the Akers campground suggest that the burial cairns were associated with by the Meramec Spring culture.

Prior to the initiation of NPS sponsored research in Ozark NSR, it was widely believed that the Mississippian culture developed in the nearby Mississippi River valley, never occupied the Ozark highlands. NPS sponsored research has shown that evidence of the formative stage of Mississippian culture (called Emergent Mississippian) is abundant in Ozark NSR, and that this region indeed participated in the early development of the most advanced prehistoric culture in North America. Evidence indicates that during the Emergent Mississippian stage in Ozark NSR, the population was probably substantially greater than the current human population of the region.

There is evidence some of the people living in the eastern Ozarks left the region about 1300 A.D. This coincides with widespread population increases and the development of towns in the Mississippi River alluvial valley. The reason for the abandonment of the region is not known at this time, but there are no prehistoric sites in Ozark NSR which can be confidently dated to the period from 1300 A.D. to 1700 A.D.

Ozark NSR contains an abundance of archeological sites related to the settlement of the Ozark frontier. Farmsteads, mills, roads, stores, military encampments and even the original county seat of Shannon County have been located and recorded. Since many of the settlers of this region were illiterate, historic records of life during the early 19th century are very limited. The archeological sites from this time period represent an extremely valuable record of lifestyles and adaptations to the Ozark frontier.

Historic Resources

An historic resource study of the Ozark National Scenic Riverways is currently being prepared (draft finished February 1990) by Donald L. Stevens, Historian, Midwest Region, NPS. This document entitled "A Homeland and a Hinterland - the Current and Jacks Fork Riverways" presents a brief description of the prehistory occupation of the area and its importance in delineating the cultural landscape. The document concentrates on the initial settlement of the Riverways, tracing the evolution of human history through subsequent adaptations of the homeland, for example: federal land policies, transportation innovations, corporate land development, and government intervention.

The significance of Ozark Riverways' historic resources can be seen and realized throughout its boundary by a knowledge of its existing structures and the abundance of archeological sites related to the historic period. As part of a multi-year contract with Southwest Missouri State University a study was conducted to document above and below surface historic sites within the Riverways. Approximately three hundred sites were found and categorized into 25 sections including Pre-1800 Settlement, Historic Indian, Mills, Towns/Communities, Stores, Cemeteries/Graves, Civil War Camps/Skirmishes, Lumber Boom/Logging, Schools, Churches, Fish Traps, Copper Mines, Blacksmith Shops, Resort/Tourist, and Ferries.

Based on a field survey and earlier historic structure surveys, such as Brown (1969), Dosch (1970), and Brown and Mattes (1971) an inventory of historical structures was conducted in 1975 resulting in an initial list of seventy-eight structures - Ozark Riverways' List of Classified Structures. As a result of these studies a number of units, among them the Alley Roller Mill and the Big Spring Historic District, were placed on the National Register of Historic Places. Subsequently, the park's list of classified structures has been revised with additional sites and structures nominated or in the process of being nominated to the National Register. Some of these sites are Klepzig Mill, Nichols Farm and the Shannon county Hunting and Fishing Club.

SOCIOECONOMIC ENVIRONMENT

The Ozark NSR is located in the southeast section of Missouri, approximately 120 miles southwest of St. Louis. In 1989, over 1.5 million visits were recorded.

The region surrounding the park is rural in nature and is characterized by a low population density. The timber products industry remains the mainstay of the local economy, although light manufacturing and tourism are also important. The area's lack of marketable natural resources and its distance from major trade and cultural resource centers have served to inhibit economic growth.

The park is in Carter, Dent, Shannon, and Texas counties. The population of these counties totals approximately 49,400. Population in the local area experienced a significant increase from 1970 to 1980 but has leveled off during the early and mid 1980's. The average per capita income for the four local counties is $8,751, which is below the state average of $13,916. Current unemployment rates for the local area range from 5.6% to 8.7%. Table 11, page 30, presents a summary of selected population and economic statistics for the local area.

Several small towns are within 20 miles of the park, including Birch Tree, Ellington, Eminence, Mountain View, Winona, Salem, and Van Buren which is the site of the park headquarters. In addition, four metropolitan areas are within three hours drive of the riverway. These areas include St. Louis, Springfield, and Columbia, Missouri, as well as Memphis, Tennessee. The total population within three-hours drive of the park is in excess of 4.5 million people.

Table 11. Population and economic profit highlights of local area

County	1980[1] Pop.	1970[1] Pop.	Percent Change 1970-1880	1986[2] Pop. Est.	Percent Change 1980-1986	1986[2] Per Capita Income	Apr.[3] 1988 Unemploy. Rate
Carter	5,400	3,900	40	5,800	7	$ 7,265	7.8%
Dent	14,500	11,500	27	14,300	-1	10,109	5.6%
Shannon	7,900	7,200	10	7,800	-1	6,658	8.7%
Texas	21,100	18,300	15	21,500	2	9,011	6.3%
Local Area Total	**48,900**	**40,900**	**20**	**49,400**	**1**	**$ 8,751**	–

1. Source: Dept. of Commerce, Bureau of Census (Rounded to nearest 100)
2. Source: Missouri Dept. of Economic Development
3. Source: Missouri Economic Security Commission

Local and regional residents, however, do account for over 90% of total visits to the park. Table 12, shows that 19% of visits originate from the four counties in which the park is located. Another 72% of total visits originate in the region, which is within a maximum of three-hours drive from the park. Only 9% of visits originate in areas more than three hours from the park.

Table 12. Point of origin for total visits

Percent	Point of Origin
19%	Local Residents: (People who live in the immediate area of the park, specifically Carter, Dent, Shannon, and Texas counties.)
72%	Regional Residents: (People that live within a maximum three-hour drive. They can, if they wish, visit the park and return home the same day.)
8%	National: (Visitors residing in the U.S. outside of the local or regional area.)
1%	International: (Visitors residing outside of the United States.)
100%	**Total**

Source: Ozark National Riverway Statement for Interpretation (1987).

ROADS AND TRACES

INTRODUCTION

Visitors can gain access to the Ozark NSR through a network of more than 466 miles of roads. Over 25 miles are primary state highway routes while the remainder are numerous secondary public roads and backcountry roads or traces. Traces, often referred to as "two tracks," are paths through the riverway which were created through informal use by passing animals, people, or vehicles and do not meet the criteria for establishment as a public road. In Missouri, public roads are established in one of the following ways:

1) by prescription (road must have been in use by the public for a ten-year period, however such roads had to have been established before March 30, 1887),

2) by dedication (dedication occurs when the owner of the property intends to devote a portion of the property for use by the public as a road, the intention of the owner is critical when determining if dedication has occurred), or

3) by County Commissioners' action combined with public use (the first is by order of the county commissioners followed by use of the road by the public for ten years, the second is by continuous public use for at least ten years, accompanied by the expenditure of public monies and labor on the road).

Many of the traces are located on steep slopes with highly erodible soil types typical of the region. When resource damage is occurring, the federal government has the responsibility and authority to close traces to vehicular use under the establishing legislation, Public Law 88-492 " . . . for conservation of outdoor resources in the watersheds of the Current and Jacks Fork Rivers."

This study identifies the Ozark NSR road system. The study also identifies all state and county roads over which the NPS exercises no maintenance or improvement functions except through cooperative agreements with the counties. A list of roads maintained by NPS is in appendix 2. Lastly, this document identifies all accesses to private property within the Ozark NSR and roads crossing private properties which are outside the responsibility of the NPS with respect to maintenance and improvement.

ISSUES AND TASKS

The issues and tasks identified for the roads section of the study are:

ISSUES	TASKS
A complete inventory of all roads and traces identifying their location, condition, and jurisdiction has never been compiled. There is no consistent road numbering system.	Inventory, map, and assess condition of all roads and traces within the riverways boundaries. Identify jurisdiction and develop road and trace inventory numbering system.
Several informal traces duplicate access to identical locations within the riverway.	Identify primary access to areas served by more than one road or trace.
Many traces were once private roads to property that has since been purchased by the federal government and no longer serve an identified NPS use or function.	Classify park road and trace system by user function using NPS road standards.
Many traces evolved through informal use and exhibit problems (such as soil and vegetation loss) inherent with poor road design in areas with steep slopes and highly erodible soil types.	Identify roads and traces with erosion and safety problems. Document using field notes and video taping.
Many roads and traces provide access to the rivers, promoting riverbank activity in areas prone to erosion or where such activity may detract from the experience of the river floater or promote safety problems.	Identify roads and traces with problems. Document with field notes and video taping.

METHODOLOGY

The map section of the document is the result of an NPS concentrated inventory and analysis effort. In the fall of 1986, Rieley & Associates, under NPS contract, conducted an inventory of Ozark NSR roads and trails. Field data were compiled and maps developed showing location and condition of each road and trace. The maps were then field checked for accuracy. Jurisdiction of the roads and traces was determined through a review of park records of NPS and privately maintained roads, meetings with representatives of Shannon, Dent, Carter, and Texas counties to develop lists of county maintained roads, and correspondence with the Missouri State Highway Department concerning roads maintained by the counties.

Once an accurate inventory and mapping of the roads and traces was available, the planning team met with park staff to evaluate existing road use. This information was used to assign a functional classification to each road or trace based on the Park Road Standards (NPS, 1984) as it applies to Ozark NSR. The assignment of a functional classification to a park road is based on its intended use or function, not traffic volumes or design speed (appendix 3). For purposes of functional classification, the routes that make up the park road system are grouped, based on use, into two categories: public use park roads and administrative park roads.

ROAD FUNCTIONAL CLASSIFICATION

Public Use Park Roads

All park roads that are intended principally for access and circulation are placed in this category. This includes all roads that provide access to boat launches, points of scenic or historic interest, campgrounds, and picnic areas. County, state, and U.S. numbered highways maintained by the Park Service are included in this category. Public use park roads are subdivided into the following four classes:

Class I: **Principal Park Road.** Roads that constitute the main access route, circulatory tour, or thoroughfare for park visitors.

Class II: **Connector Park Road.** Roads that provide access within a park to areas of scenic, scientific, recreational or cultural interest, such as overlooks and campgrounds.

Class III: **Special Purpose Park Road.** Roads that provide circulation within public use areas, such as campgrounds, picnic areas, visitor center complexes, concessioner facilities, etc. These roads generally serve low-speed traffic and are often designed for one-way circulation.

Class IV: **Primitive Park Road.** Roads that provide circulation through remote areas and/or access to primitive campgrounds and undeveloped areas. These roads frequently have no minimum design standards, and their use may be limited to specially equipped vehicles.

Administrative Park Roads

The Administrative Park Road category consists of all public and nonpublic roads intended to be used principally for administrative purposes. It includes roads servicing employee residential areas,

maintenance areas, and other administrative developments, as well as restricted patrol roads, truck trails, and similar service roads. Administrative park roads are subdivided into two classes:

Class V: **Administrative Access Road.** All public roads intended for access to administrative developments or structures such as park offices, employee quarters, or utility areas.

Class VI: **Restricted Road.** All roads normally closed to the public, including service roads, hayfield accesses, and other similar roads.

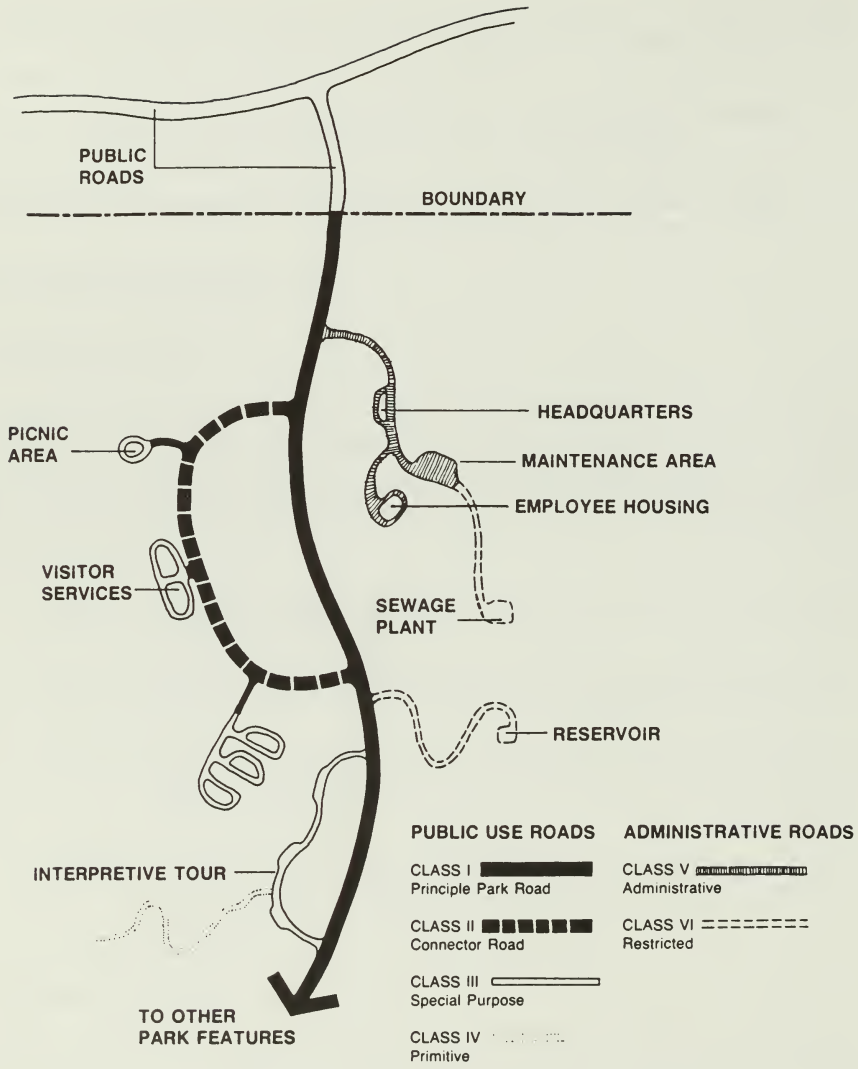


Figure 2. Park roads functional classification schematic

Each of the roads and traces were assigned a road identification number (appendix 4). The first number in the series identifies the district. The Upper Current District is 2, the Lower Current District is 4, and the Jacks Fork District is 5. The numbers following the district number indicate the functional classification of the road or trace.

Table 13. Road series numbers for functional classification

Class Number	Type of Road	Series Number
Class I	Principal park roads	10-99
Class II	Connector roads	100-199
Class III	Special purpose	200-299
	One way loops	500-599
Class IV	Primitive roads	3000-3999
Class V	Administrative roads (headquarters/park housing)	400-499
Class VI	Administrative roads (restrictive)	same as Class V

After the roads received a functional classification, the Federal Highway Administration began an engineering study of all roads over which the federal government has jurisdiction. The purpose of the study was to evaluate the condition of the existing park roads and to recommend improvements to maintain safe vehicle access to the park's resources. These recommendations form the basis for determining priorities for distribution of Federal Lands Highway Program funds.

Some roads and traces did not have an identified use and function. The alternatives evaluated various management strategies for them.

ALTERNATIVES

Based upon the information gathered and the issues identified, four management action alternatives were developed for the roads and traces section.

Roads Alternative-1

No Action (continuation of existing conditions)

Visitors to the Ozark NSR would continue to use the present road and trace network. No additional road or trace will be added or deleted from the existing network as identified on the attached maps. Existing maintenance schedules prescribed for the road system would continue and no additional roads or traces would be added to the schedule. Park staff would continue to monitor and document the condition of traces. Development of new traces would be discouraged.

Road and trace maps from this study would be available for examination at the Ozark NSR's headquarters in Van Buren.

Roads Alternative-2

Close roads and traces which exhibit severe erosional problems or jeopardizes Missouri state listed threatened and endangered species (minimum action).

Visitors to the Ozark NSR would continue to use most of the road and trace network. Thirty-eight traces comprising 30.56 miles, or 6.5% of the road and trace system, would be closed to vehicular access and would be reclaimed to control severe erosion. Vehicular access would still be available to most areas by other routes. Traces identified for closure would be blocked and would be obliterated and reclaimed.

Table 14, page 37, identifies problems, proposed actions, and traces to be close. Detailed justification statements for each identified road and trace are in appendix 5. The NPS will cooperate with other land managing agencies and private landowners wishing to extend the closure of a riverway trace that also crosses their land.

It is anticipated that most road and trace closures would be achieved by scarifying and allowing natural revegetation to occur. In some steep slope areas, natural revegetation of the roadway would not be possible due to the severity of soil erosion. The NPS would include stabilization, seeding and replanting activities to accelerate revegetation and recovery in these areas. Existing road maintenance schedules would remain unchanged.

Road and trace maps from this study would be available for examination at park headquarters.

Table 14. Roads Alternative-2 road and trace closures

				PROBLEM							ACTION			
Road Number	Name	Map Number	Distance closed (miles)	Steep, eroding slope	Duplicate access	No NPS use and function	Erosion presents safety concern	Erosion causes instability of river corridor	Threatened and endangered species, state natural area	Overgrown	Barricade	Revegetate	Gate and restrict access for open field management	Comments
2-105	Howell Ford Road	4	0.65			X		X			X	X		coordinate with pvt. landowner
2-400	Blevin's Access Road	1	1.00	X		X						X	X	provide parking for hunters
2-3001	Boyher Tract Road	1,2	0.43	X	X	X			X			X	X	coordinate with Mo. Dept. of Conservation/threatened plant species
2-3003	Schaefer Spring Road	2	0.31	X	X	X	X				X	X		coordinate with Dent County/ pvt. landowner
2-3004	Jim Tom Trace	2	0.12	X		X		X			X	X		lower portion-scarify lower portion-grade
2-3014	Hoffmen/Ferris Road	4	0.50	X	X	X					X	X		coordinate with Shannon Co./ pvt. landowner
2-3025	Lipp's Spur Trace	5	0.23		X	X					X	X		coordinate with Mo. Dept. of Conservation
2-3057	Brushy Creek Road	9	0.96	X	X	X	X		X		X	X		coordinate with private landowner/ threatened plant species
2-3063	Broadfoot Tract Road	10,11	0.78			X				X	X	X		
2-3185	Herrison Hollow Trace	5	0.22	X	X	X				X	X	X		
4-420	Goose Bay Primitive Area Road	14	1.32	X		X	X				X	X		
4-3069	Wheatly Field Trace	12	0.34		X	X	X				X	X		remove old wooden bridge
4-3070	Weston Road	12	1.75	X		X					X	X		coordinate with Mo. Dept. of Conservation
4-3071	Peter Mooney Mountain Trace	12	0.38	X		X					X	X		
4-3073	Moloney Road	12	1.13			X		X	X		X	X		open as horse trail only
4-3074	Devil's Back Bone Trace	12	0.25	X	X	X	X				X	X		
4-3077	Blair Creek Trace	12,14	0.75			X		X			X	X		coordinate with pvt. landowner
4-3094	Blue Spring Cut-off Trace	14	1.06	X	X	X					X	X		coordinate with Mo. Dept. of Conservation
4-3099	Slick Rock Ridge Hollow Trace	15	0.63	X	X	X						X		
4-3136	Alphen Hollow Trace	19	0.62	X		X							X	provide parking for hunter access

Table 14. Roads Alternative-2 road and trace closures (continued)

				PROBLEM							ACTION				
Road Number	Name	Map Number	Distance closed (miles)	Steep, eroding slope	Duplicate access	No NPS use and function	Erosion presents safety concern	Erosion causes instability of river corridor	Threatened and endangered species, state natural area	Overgrown	Barricade	Revegetate	Gate and restrict access for open field management	Comments
4-3146	Keathley Tract Road	21	1.19	X		X						X	X	provide parking for hunter access
4-3151	Campbell Tract Trace	22,24	0.97	X		X					X	X	X	lower portion gated-upper portion closed/private parking for hunters
4-3152	Beaver Pond Area Traces	22,24	3.94	X	X	X	X		X		X	X		closed at juncture with 4-3153 (Old Tram Road)/threatened plant species
4-3156	Chalk Bank Trace	25	0.25			X						X	X	administrative access to telephone substation upper portion closed
4-3164	Coal Bank Cave Road	26	0.50			X	X		X		X	X		grey bat *(myotis grisecens)* sink hole at cave entrance
4-3166	Lost Man Cave Road	26	1.00	X		X	X				X	X	X	eastern portion gated, western portion closed
4-3169	Panther Spring Road	27	0.25			X	X			X	X	X		road remain open to primitive area – closed past there
4-3175	Gooseneck Hollow Trace	28	0.31			X		X			X	X		
4-3196	Granite Quarry Trace	22	0.25	X		X					X	X		
5-3065	Shed Tract Trace	11	0.78	X		X					X	X		coordinate with private landowner
5-3177	Girl Scout Camp Trace	29	0.75	X		X					X	X		coordinate with easement holders
5-3184	Bacher Landing Road	30	0.28		X	X	X	X	X		X	X		threatened plant species
5-3186	Red Bluff Trace	30	0.81	X		X					X	X		
5-3188	Harley Basin Road	30	0.88	X		X			X		X	X		area accessed through private property and locked gate/threatened plant species
5-3189	Simms Tract Road	30	2.78	X		X			X			X	X	threatened plant species
5-3192	Fifteen Foot Hole Trace	31	0.69	X		X	X		X		X	X		threatened plant species
5-3203	Effie Smith Bluff Trace	34	0.75	X		X					X	X		
5-3205	Culpepper Trace	34	0.75	X	X	X					X	X		

Roads Alternative-3 (Preferred Alternative)

Close roads and traces which have severe erosion, jeopardizes Missouri listed threatened or endangered species, provide duplicate access, have no NPS identified use or function, or which present safety hazards.

The actions of this alternative would be similar to those in Roads Alternative-2 except the criteria for closure would be expanded to include: roads and traces providing duplicate access to an area, or having no identifiable NPS use or function, such as private property access roads where the land has been acquired by the federal government and access is no longer required. As in Roads Alternative-2, the NPS will cooperate with other land management agencies and private landowners wishing to extend the closure of a riverway trace that crosses their land. Traces identified for closure will be barricaded and will either be obliterated and reclaimed or allowed to revegetate naturally.

Table 15, page 40, identifies 16 traces (6.88 miles) to be closed that are in addition to the 38 traces (30.56 miles) identified in Roads Alternative-2, table 14 (page 37), for a total of 54 traces (37.44 miles) comprising 8% of the road and trace network. Detailed justification statements for each identified trace are in appendix 5. Extensive opportunities for backcountry use on all other roads and traces remain available to visitors.

Road and trace maps from this study would be available for examination at park headquarters.

Table 15. Roads Alternative-3 road and trace closures

				PROBLEM							ACTION			
Road Number	Name	Map Number	Distance closed (miles)	Steep, eroding slope	Duplicate access	No NPS use and function	Erosion presents safety concern	Erosion causes instability of river corridor	Threatened and endangered species, state natural area	Overgrown	Barricade	Revegetate	Gate and restrict access for open field menagement	Comments
2-3031	Lipp's Road	5	0.12		X	X					X	X		
4-3097	North Little Booming Shoal Trace	14	0.50			X				X	X	X		
4-3098	South Little Booming Shoal Trace	14	0.50			X				X	X	X		
4-3105	Robert's Field Trace	15	0.65		X	X					X	X	X	provide parking for hunting access
4-3107	Boss Green Tract Trace	15,16	0.34			X			X		X	X		coordinate with Mo. Dept. of Conservation/threatened plant species
4-3118	Yeager Trace	16	0.13			X					X	X		
4-3148	Dusenberry Ridge Trace	21	1.26			X					X	X		
4-3161	Radford Tract Trace	25	0.44		X	X					X	X		
4-3163	Cataract Hill Trace	26	0.16			X					X	X		only eastern portion closed
4-3165	Wilson Tract Trace	26	0.19			X							X	parking area developed for hunters
4-3168	Conner Lake Trace	28	0.09			X					X	X		
4-3170	Hooper Hollow Road	27	0.31		X	X							X	parking area developed for hunters
4-3181	Aldridge Valley Trace	25	0.25			X					X	X		
5-456	Jam Up Cave Road	30	1.65						X		X	X		threatened plant species
5-3150	Bear Cave Spur Trace	29	0.16			X			X		X			threatened plant species/ state natural eree
5-3202	Old Cooley Road	34	0.13			X					X	X		

Note: These closures are in addition to those listed in Table 14.

Roads Alternative-4

Close roads and traces which have severe erosion, jeopardize Missouri listed threatened or endangered species, provide duplicate access, have no NPS identified use or function, present safety hazards, or are NPS roads leading to primitive campsites.

The actions in this alternative would be similar to those in Roads Alternative-3 except the criteria for closure would be expanded to include NPS roads leading to primitive campsites. This alternative is based upon visitor comments and letters concerning the environmental impacts and visual intrusions of large numbers of vehicles along the riverways

There are 80 primitive areas in the park. Of these, 9 of the primitive areas do not have road access. Of the remaining 71, 9 primitive areas are accessible by 8 roads leading to private property or which provide easement access. Thirteen primitive areas are accessible by 11 roads owned and maintained by either state or county. Motorized access to two primitive areas was eliminated with the closure of three traces in Roads Alternative-3, and the remaining 47 primitive areas are accessible by 42 roads managed by NPS.

Table 16. Nine primitive areas without road access

Primitive Area	Map No.	Primitive Area	Map No.
Samon Hole	1	Court House	7
Woods Bluff	1	Big Creek	9
Andy Johnson	1	Ant Hole	15
Summer Tract Shelter	1	Philips Bay Bluff	28
Lower Cave Spring	5		

Table 17. Nine primitive areas served by 8 roads providing access to easements and private property

Primitive Area	Map No.	Road No.	Road Name	Total Length (miles)	Length Closed (miles)
Ashley Creek	1	2-3000	Love Cabins Road	1.28	0.25
Parker Ford	2	2-3002	Susie Nichols Road	1.25	0.33
Banks Ford	4	2-3016	South Lewis Hollow Road	0.62	0.45
Upper Grassy	8	2-3046	Wood's Hole Road	0.12	0.12
Lower Sutton Creek	10	2-3061	South Powell Road	0.12	0.12
Bat Cave	29	5-3179	Bat Cave Road	0.25	0.25
Middle Loader	31	5-3191	Middle Loader Road	0.88	0.88
Nickeloff (2)	32	5-3193	Nickeloff Field Road	0.60	0.60
		TOTAL:		**5.12**	**3.00**

Table 18. Thirteen primitive areas served by 11 state or county roads

Primitive Area	Map No.	Road No.	Road Name	Total Length (miles)	Length Closed (miles)
Moneysunk	4	2-3017	Moneysunk Cabins Road	0.12	0.10
Moyer Hole	5	2-3026	Moyer Road	0.68	0.20
Grassy Creek	8	2-108	Grassy Road	1.25	1.00
Lower Grassy	8	2-3049	Bay Branch Road	0.25	0.25
Williams Landing	9	2-119	Williams Landing Road	1.62	0.20
Bee Bluff	9	2-3056	Bee Bluff Road	0.68	0.68
Sutton Creek (2 Areas)	10	2-3060	Sutton Creek Road	2.25	2.25
Chilton Creek	25	4-3158	Chilton Creek Road	0.22	0.22
Bluff View & Spring View	29	5-138	Blue Spring Road	1.88	1.88
Bacher Landing	30	5-3184	Bacher Landing Road	1.53	1.53
Church Cave	30	5-3190	Bill Hollow Road	1.13	0.50
		TOTAL:		**11.61**	**8.81**

Table 19. Two primitive areas served by 3 traces closed in Roads Alternative-3

Primitive Area	Map No.	Road No.	Road Name	Total Length (miles)	Length Closed (miles)
Jam Up Cave	30	5-3188	Harley Basin Road	0.88	0.88
(two roads to Jam Up Cave)	30	5-3186	Red Bluff Trace	0.81	0.81
Fifteen Foot Hole	31	5-3192	Fifteen Foot Hole Trace	0.69	0.69
		TOTAL:		**2.38**	**2.38**

Table 20. Forty-Seven primitive areas served by 42 NPS managed roads

Primitive Area	Map No.	Road No.	Road Name	Total Length (miles)	Length Closed (miles)
Summer Bluff	1	2-201	Summers Tract Road	1.25	1.25
Big Creek	3	2-204	Big Creek Camp Road	0.19	0.19
Gould Smith Hole	3	2-3011	Gould Smith Tract Road	1.00	1.00
Sam Steelman Hole	3	2-3006	Flying W Road	1.81	0.15
Dock Rock & Welch	3	2-3010	Carter Riley/Dock Rock Roads	1.37	1.37
Upper Cave Spring	5	2.3019	Upper Cave Spring Road	0.56	0.25
Lipp's Tract	5	2-3031	Lipp's Road	0.93	0.40
Pot Hole	5	2-3029	Pot Hole Road	0.75	0.25
Boyd's Creek	6	2-3008	Boyd's Creek Spur Road	0.03	0.03
Wide Ford	6	2-3033	Wide Ford Road	0.06	0.06
(2 roads to Lower Grassy)	8	2-3047	Lower Grassy Road	0.56	0.40
Brush Creek	9	2-3057	Brush Creek Road	0.96	0.20

Table 20. Primitive areas served by NPS managed roads (continued)

Primitive Area	Map No.	Road No.	Road Name	Total Length (miles)	Length Closed (miles)
Twin Rocks	10	2-3058	Twin Rocks Road	0.65	0.65
Upper & Lower Broadfoot	10/11	2-3063	Broadfoot Tract Road	1.65	1.65
Two Rivers	12	4-123	Two Rivers Road	0.59	0.59
Martin Bluff	12	4-3072	Martin Hole Road	0.25	0.25
Martin Landing	14	4-3082	Goose Bay Creek Road	0.94	0.30
Goose Bay	14	4-420	Goose Bay Primitive Area Road	1.65	0.75
Powder Mill	14	4-212	Powder Mill Campground Road	0.03	0.03
Robert's Field	15	4-213	Robert's Field Primitive Cmpgrd Acc Rd	0.94	0.55
Log Yard	19	4-129	Log Yard Camp Road	2.25	0.60
Beal	19	4-3132	Beal Landing Road	0.03	0.03
Paint Rock	18/20	4-3129	Paint Rock Road	3.00	3.00
Waymeyer Landing	21	4-215	Waymeyer River Access Road	0.25	0.25
Peach Orchard	21	4-3141	Peach Orchard Primitive Cmpgrnd Rd	0.13	0.13
Pin Oak	21	4-3142	Pin Oak Primitive Campground Road	0.44	0.44
Big Tree	25	4-219	Big Tree Primitive Campground Road	0.80	0.80
K.C. Clubhouse	25	4-3157	K.C. Clubhouse Road	0.84	0.84
(2 roads to K.C. Clubhouse)	25	4-3153	Old Tram Road	7.19	0.75
K.C. Clubhouse Landing	25	-	Same as above	-	-
Hickory Landing	26	4-221	Hickory Landing Access Road	0.44	0.44
Bear Camp & Panther Spring	27	4-3169	Panther Spring Access Road	0.56	0.56
Cedar Spring	28	4-3176	Cedar Spring Primitive Cpgrnd Rd	0.22	0.22
Grubb Landing	28	4-223	Grubb Hollow Primitive Cpgrnd Rd	0.30	0.30
Buck Hollow	29	5-225	Buck Hollow Landing Road	0.53	0.25
Royal Hole	29	5-3180	Royal Hole Road	1.06	1.06
Baptizing Hole	29	5-3182	Baptizing Hole Road	0.16	0.16
Flat Rock	30	5-3187	Shannon Co Hunt & Fish Club Road	0.94	0.20
Rymers	30	5-139	Rymers Landing Access Road	1.18	1.18
Bee Bluff, Searcy, & Upper & Lower Dixon	32	5-140	Bay Creek Road	2.31	2.31
Horse Camp	34	5-230	Horse Camp Primitive Cpgrnd Rd	1.33	0.50
Keaton	34	5-3204	Keatons Campground Road	0.34	0.34
		TOTAL:		**40.47**	**23.68**

Only the 42 roads or segments of roads managed by NPS which total 23.68 miles would be closed to vehicular access in this alternative in addition to the 37.44 miles in alternative-3 for a total of 61.12 miles. Thirty-three primitive campsites served by non-NPS managed roads would remain open for vehicular access. Primitive areas would continue to be available for camping use by hikers and boaters.

As in the other alternatives, NPS would cooperate with other land management agencies and private landowners wishing to extend the closure of a riverway road or trace that crosses their land. Roads and traces identified for closure that provide access for primitive campsites would be barricaded and would either be obliterated and reclaimed or allowed to revegetate naturally.

ENVIRONMENTAL ASSESSMENT FOR ROAD AND TRACE ALTERNATIVES

NATURAL RESOURCE IMPACTS

Soils and Vegetation

Roads Alternative-1 All roads and traces would remain open under this alternative resulting in continued erosion patterns. Soil erosion would add substantial sediment loading to small creeks that empty into the Jacks Fork and Current rivers. Increased sediment loading would reduce water quality and would adversely impact selective areas of riparian vegetation. Severe eroded areas would be bypassed by vehicles creating new traces. These new routes would add to existing soil erosion problems.

Roads Alternative-2 The majority of the traces recommended for closure in this alterative are found on slopes greater than 8% and over half the roads have slopes greater than 15%. The major soils groups in the uplands locations for each county are either Poyner cherty silt loam or Clarksville cherty silt loam (table 8, page 17). These soils groups are less stable when the percent grade of the slope increases past 8%. The steep slope topography that the majority of the backcountry roads traverse would result in moderate to severe erosion damage (table 9, page 18).

The closure and reclamation of 30.56 miles of traces would allow approximately 44.45 acres of the Riverways to return to native forests of black and white oak, Blackjack oak, hickory, ash, sugar maple, and dogwood. Trees would become established on the slopes in 5 to 15 years and eventually close in the road swath. Closure activities, such as gating, rock or log barriers, would involve minimal surface disturbance at the points of road closure. Imported soil may be necessary to aid revegetation on severe erosional problem areas. No prime or unique farmland would be affected by road closures.

Roads Alternative-3 (Preferred Alternative) In addition to the impacts identified in Roads Alternative-2, 6.88 additional miles would be closed to vehicular access and an additional 10.0 acres reclaimed 37.44 miles, 54.45 acres total).

Roads Alternative-4 In addition to the impacts identified in Roads Alternative-3, 23.68 additional miles would be closed to vehicular access and an additional 34.44 acres reclaimed (61.12 miles, 88.89 acres total).

Wildlife

Roads Alternative-1 Wildlife use patterns would remain the same except in those cases where backcountry travelers created new access to skirt badly eroded traces. The new routes and their subsequent vehicle traffic would disturb wildlife in these locations. Riparian soils that erode into streams and creeks would reduce the use of the areas by riparian wildlife such as beavers, muskrats, ducks, frogs, toads, and other amphibians. Long term erosion into streams and rivers would adversely impact aquatic habitat for fish.

Roads Alternative-2 There would be minor short term disturbance to wildlife from construction associated with closure and reclamation activities. The increase of 44.45 acres of revegetated forest habitat would be made available for both large and small wildlife and would reduce erosion which would lower sediment loading to streams. This would result in improvements to aquatic habitats for fish, amphibians, and reptiles. Wildlife would return when road closure activities were completed. Expanded annual maintenance activities would intrude on backcountry wildlife activities with a greater degree of regularity, which would result in different wildlife use patterns than have been historically recorded. It is anticipated that backcountry use should not greatly change so that any difference in wildlife use patterns would not be detrimental. Some road closures would result in the rerouting of hunter traffic due to the closure of 30.56 miles of backcountry access, which could result in differential hunting pressure. Most road closures are limited to spur roads or duplicate access roads. Therefore, only small areas within the park would be impacted by lower vehicular hunting access.

Roads Alternative-3 (Preferred Alternative) The impacts on wildlife will be similar to those in Roads Alternative-2 but will include 6.88 additional miles and 10.0 additional acres (37.44 miles, 54.45 acres total) of reclaimed forest habitat being made available for wildlife use.

Roads Alternative-4 The impacts on wildlife would be similar to those in Roads Alternative-2 but would include an additional 23.68 miles and 34.44 acres (61.12 miles, 88.89 acres total) of reclaimed forest habitat.

Threatened and Endangered Species

Roads Alternative-1 Coal Bank Cave Road (4-3164) would continue to provide access to a cave known to house the federally endangered gray bat (*Myotis grisescens*). Continued vehicular access to

the Jam Up Cave area would threaten the habitats and plants identified by the state of Missouri as rare, endangered, or watch-listed. The species that would be impacted are as follows:

Common Name	Scientific Name	State Status
Forked Aster	*Aster furcatus*	Rare
Harebell	*Campanula rotundifolia*	Endangered
Northern Bedstraw	*Galium boreale-hyssopifolium*	Endangered
Royal Catchfly	*Silene regia*	Watch listed
False Bugbane	*Trautvetteria caroliniensis*	Endangered
White Camas	*Zigadenus elegans*	Endangered
Showy Lady-Slipper	*Cypripedium reginae*	Rare
Heartleaf Plantain	*Plantago cordata*	Watch listed
Moss	*Rhytidiadelphus triquetrus*	Watch listed

Roads Alternative-2 One of the specific purposes of trace closure in this alternative is to protect threatened and endangered species and their habitat. Closure of Coal Bank Cave Road (4-3164) to vehicles would reduce visitor-related impacts to a cave known to house the federally endangered gray bat (*Myotis grisescens*). No endangered, rare, or watch-listed species for the state of Missouri would be impacted in a negative fashion by the proposed road closures. Certain species recognized by the state of Missouri as rare, endangered, or watch-listed would be afforded greater protection by the closure of roads and traces that lead to Jam Up Cave. The closure of these roads would limit vehicular access to Jam Up Cave and thereby reduce visitation impacts on those plant species identified in the above list.

Roads Alternative-3 (Preferred Alternative) Same as Roads Alternative-2.

Roads Alternative-4 Same as Roads Alternative-2.

Floodplains and Wetlands

Roads Alternative-1 Park roads are exempt from compliance with E.O. 11988 "Floodplain Management" under NPS procedures for implementation.

The majority of roads within Ozark NSR do not cross wetlands; therefore, the continuation of existing conditions would neither harm nor benefit wetlands.

Roads Alternative-2 Same as Roads Alternative-1.

Roads Alternative-3 (Preferred Alternative) Same as Roads Alternative-1.

Roads Alternative-4 Same as Roads Alternative-1.

Water Resources

Roads Alternative-1 Continuation of existing conditions would result in perpetuating and increasing erosion patterns of backcountry roadways. Eroding roadways would contribute sediments to surface hydrology and waterways. Sediment loading would increase given the continuation of low or no maintenance to these backcountry roadways, resulting in the degradation of surface hydrology waterways caused by increased sediments. No impacts to groundwater hydrology are anticipated.

Roads Alternative-2 Road closures and subsequent reclamation would result in reducing erosion on 44.45 acres of roadway. Reclamation would benefit surface water quality by reducing sediment loading of waterways. Road closures would have no impact on groundwater hydrology. Additional maintenance and graveling activities for backcountry roads would reduce sediment loading of streams and riverways.

Roads Alternative-3 (Preferred Alternative) The impacts will be the same as Roads Alternative-2, except an additional 10.0 acres would be reclaimed and revegetated further reducing sediment loading.

Roads Alternative-4 The impacts would be the same as Roads Alternative-2, except an additional 34.44 acres would be reclaimed and revegetated.

CULTURAL RESOURCE IMPACTS

Roads Alternative-1 No impacts on known cultural resources would occur. Routine maintenance work on roads could prove destructive to undiscovered archeological sites as well as historic road features such as bridges, culverts, and retaining walls. The unchecked deterioration of backcountry roads and traces could potentially destroy their historical significance.

Roads Alternative-2 The closures proposed would not affect any known cultural resources. The small area of ground disturbance caused by revegetation might impact unknown subsurface cultural material. Archeological surveys would be conducted before reclamation and closure activities occurred. If cultural material was found, the reclamation and closure activities would be done in such a

manner as to avoid impacting this material. If this were not feasible, the park would develop a mitigation plan in consultation with the cultural resource staff of the NPS Midwest Region and the Missouri State Historic Preservation Office.

Proposed Mitigation The entire road system should be evaluated for eligibility of nominating individual roads, road segments, or road features to the National Register of Historic Places. This study should be completed in consultation with the Missouri State Historic Preservation Office and the Midwest Region's cultural resources staff. Priority on research should be given to those roads and traces that might be reclaimed. If eligibility is determined, then a plan would be developed to manage and preserve those roads and road features eligible for inclusion on the National Register. This plan might only require the updating of the List of Classified Structures and Cultural Resource Management Plan to reflect the new information.

Roads Alternative-3 (Preferred Alternative) Same as Roads Alternative-2.

Roads Alternative-4 Same as Roads Alternative-2.

SOCIOECONOMIC IMPACTS

Roads Alternative-1 No impacts to the socioeconomic environment would result from the continuation of existing conditions.

Roads Alternative- 2 A small number of park users would be affected by the proposals in this alternative. The general population of the region, except for those who actually use the park, would not experience any positive or negative effects from the proposed road closures. The proposed road and trace closures would result in the elimination of 11 river access points. This impact would not be significant since alternative accesses exist in the vicinity of all proposed closures.

Three primitive camping areas (Panther Springs, Jam Up Cave, Fifteen Foot Hole) would be closed to vehicular access. Each area includes only one camping site. Studies show that 80% of primitive area users access the site via land vehicles. Closure of three of the 80 primitive areas in the park should not dramatically affect this user group. The affected sites would continue to be accessible to hikers, or from the rivers and would be available to canoeists, floaters, and power boaters.

Closures would eliminate routes to some backcountry areas that hunters use. However, for every trace proposed for closure, an alternate route lies in close proximity. The economic impact of the closures would be limited to the minor costs associated with the physical blockage of the traces.

Roads Alternative-3 (Preferred Alternative) The additional closures proposed in Roads Alternative-3 will affect 9 additional river access points beyond those identified in Roads Alternative-2. No additional primitive areas would be affected. Impacts will be the same as Roads Alternative-2.

Roads Alternative-4 Since 80% of primitive area users access sites via land vehicles, restricting vehicular access to 47 of the 71 primitive areas (66%) presently accessible by vehicles would dramatically affect this user group. The affected sites would remain open to hikers and river users. Closures would eliminate routes to some backcountry areas that hunters use.

HORSE TRAILS

INTRODUCTION

The horse trail system within the Ozark NSR is part of a larger regional trail system extending beyond the Riverways' boundary onto Missouri Department of Conservation land, and Pioneer Forest and other private land. The regional nature of the horse trail system dictates that a trail user's ride would not remain on land managed by only one agency. The Ozark NSR horse trail system contains portions of 12 horse trails, comprising 13.6 miles, which circulate within and across the park's boundaries (appendix 6). The designated horse trails are located in the Two River's area (see maps 10, 11, and 12).

Horse trail use within the Riverways can be divided into two categories: individual, or small casual groups of horses and riders; and the larger more organized groups of horses and riders presently associated with the four popular one-week-long cross-country trail rides. Individual and casual group riders comprise less than 5% of horse trail use in the park and tends to circulate within the entire park horse trail system throughout the year. Trail impacts caused by this category of rider are minimal. Over 95% of park horse trail users are associated with the more organized groups of riders involved with the four existing cross-country trail rides. The cross-country trail rides' base camp is near the town of Eminence and uses trails located in the Two Rivers and Alley Springs area. Most of the maintenance on the horse trails is done by the Cross Country Trail Ride company staff as a condition in the group permit.

Existing Conditions

Individual/Small Group Rides - Individuals, or small groups of riders (25 horses or less) have unmonitored access to the park horse trails. These riders are not required to contact the park, apply for group permits, or make any type of arrangement with park staff prior to their rides. Because of the informal nature of this type of trail user it is difficult for the park staff to know how many individual or small groups utilize the trails. Through observations of park staff and the Cross Country Trail Ride company, it is estimated that no more than 5 % of trail use or trail damage is attributable to this group of riders. Therefore, this study considered management alternatives which deal with the larger group rides containing more than 25 horses. The group rides also provide the best avenue for gathering statistical information about resource issues.

Organized Trail Rides - There is currently one cross-country trail ride company operating on an approved park group permit. The Cross Country Trail Ride company is based on private property near the town of Eminence. Participants ride trails that loop through the Riverways, State Department of Conservation land, privately owned Pioneer Forest, and other private land. Permits to use the trails are obtained by organizers of the ride from each of the managing agencies. The rides use horse trails in the park primarily in Two Rivers (maps 10, 11, and 12) and Alley Spring (map 34). A cross-country trail ride is held four times a year and each ride last for one week. The rides can range in size from 600 to 2500 riders. The first ride of the year is held in May. It is the least popular ride, ranging from 600 to 1000 riders. May weather is cool and wet but pleasant. The next ride is held in June and is popular, ranging from 1500 to 2000 riders. The weather is similar to the May ride but warmer. The August ride appears to be the most popular and ranges in size from 1500 to 2500 people and horses. It is hot and dry during this period of the year. The last ride of the year is held in October and ranges in size from 1500 to 2000 people. Warm days followed by cool evenings typify the October weather.

People attend the trail rides not only to ride horses, but also to swim, camp, and socialize. Some riders like to participate in a formal all-day ride, while others prefer to ride on their own. Approximately 13% of the total number of trail riders participate in all-day group rides each day. The remainder either do not ride at all or ride trails within a two-mile radius of the base camp near Eminence and rarely enter the park. Due to the many variables involved, it is difficult to determine how many riders actually enter and use the trails within the park boundary.

Future Group Requirements

Currently, individual and casual group riders have unmonitored access to the entire NPS horse trail system. These riders comprise 5% of horse trail use. Issuance of group permits by the park for groups of 25 horses or more, will allow park staff to designate appropriate horse trails, monitor use and impacts on these trails, and estimate trail maintenance costs. Issuance of the appropriate permit by the park is contingent upon the requestor complying with a series of negotiable and non-negotiable agreement criteria as outlined here:

Non-negotiable Permit Conditions

Riders will be limited to use of existing river crossings.

No trail riders in sensitive areas such as:
- archeological sites,
- state and federal threatened and endangered species and their habitats,
- state natural areas,
- wetlands, springs, glades.

Permit holders will complete an after-ride visitor use report.

Permit holders will attend an end-of-season meeting with park staff to determine:
- trail maintenance requirements,
- establish future permit fees (if applicable).

Negotiable Permit Conditions

Identify and mitigate conflicts with other users.

Rider information such as:
- size of each group,
- number of group(s) in a trail ride,
- guided vs. unguided group ride.

Season, day of week, time of day.

Overnight horse camping in park.

Sanitation measures.

Trail maintenance expectations.

Trails used.

Number and location of river crossings

Coordination with adjacent landowners

Upon park approval, the requestor will be granted the appropriate group permit and assessed a permit fee. Factors affecting the amount of the fee will include park staff monitoring of trail conditions and trail maintenance costs directly attributable to damage resulting from the group ride(s).

Carrying Capacity

Because of the linear nature of the park and the multiple access points of the horse trail system, it is difficult for park staff to collect accurate statistics on the use of these trails. Additionally, because of inadequate data on the use of the horse trails, it is difficult to determine the exact types and severity of impacts that use could be imposing on park resources.

As previously indicated, estimates suggest that about 95% of horse use is attributable to four, one-week organized trail rides. This use-pattern further complicates the assessment of impacts. Such a heavy concentration of activity tends to exaggerate the impacts that would be expected from a more even distribution of use.

Nonetheless, it is desirable to determine the level of use the horse trail system can support without suffering unacceptable resource damage. Because existing data on the use and resultant impacts of horses are insufficient, it is necessary to establish a formal information collection program. This program will be designed to gather the data required to establish the most appropriate level of use of the horse trail network.

To facilitate the successful collection and interpretation of baseline data, it is recommended that the number of organized trail rides be maintained at or near the current level of four per year for a period of four years from the time that this plan is implemented. This will allow for the systematic and controlled collection of information on use patterns and resource impacts. Data collection and associated activities would be phased as follows:

Year 1: Verify Existing Conditions

- Continue the permit system for all groups with 25 or more horses. The issuance of permits would be contingent upon the requestor agreeing to comply with the following criteria:

  1) Use only existing river crossings.

  2) Perform adequate trail maintenance particularly where conditions would worsen if left uncorrected.

3) Avoid sensitive areas such as archeological sites, threatened and endangered species habitats state natural areas, and wetlands.

4) Complete a post-ride use report to include information on the total number of horses and people using the Riverway, the duration of their visits, general routes of travel while in the park, general information on resource conditions encountered, and a brief summary of any problems or unusual circumstances encountered.

5) Participate in an end-of-season meeting with park staff to determine trail maintenance requirements and to establish future permit fees.

6) Perform any required trail maintenance as agreed to in the end-of-season meeting.

Additional criteria that might be considered on a case-by-case basis include:

1) Restrictions of use by time-of-day or day-of-week.

2) Provisions for overnight camping in the park.

3) Special sanitation requirements.

4) Special restrictions requested and/or agreed to by adjacent landowners.

5) Restrictions on the use of specific river crossings. Also restrictions on the number of river crossings.

6) Restrictions on specific routes of travel.

7) Special trail maintenance expectations.

- Install registration boxes at key access points and encourage individual and casual group riders to record the date of their visit, group size, and other pertinent information.

- Continue existing resource management and trail stabilization/rehabilitation activities.

- Establish resource monitoring stations to record information on impacts relating to treadway and streambank erosion, vegetation trampling, and tree damage/root exposure,. Also establish a monitoring system for recording occurrences of horse feces in pedestrian areas and litter throughout the system.

Year 2: Continue Monitoring, Harden Resources

- Continue monitoring visitor use patterns and resource impacts as detailed in Year 1. Continue the permit system.

- Initiate hardening of certain resources as indicated by year-end review of Year 1 use patterns and resource impacts. Closely monitor the effectiveness of the hardening activities in reducing resource impacts.

Year 3: Continue Monitoring and Hardening

- Continue monitoring of visitor use patterns and resource impacts. Continue the permit system.

- Continue to evaluate the effectiveness of Year 2 resource hardening activities. Initiate additional hardening procedures if necessary.

- At the end of the year, assess if conditions that have resulted from a constant known level of use and resource hardening are acceptable (high quality and compatible with management objectives).

Year 4: Establishment of Limits of Acceptable Change

- If it is determined that resource conditions are acceptable in consideration of a known use-level, management will discontinue the ceiling on use of the horse trail system. Monitoring will continue on a systematic schedule. Park staff will establish threshold indicator levels for all monitoring variables (treadway erosion, vegetation trampling, tree damage/root exposure, streambank erosion, litter, and horse feces in pedestrian areas). These indicator levels will reflect the amount of change in baseline conditions that will be considered acceptable. It is possible that some or all of the indicators could be set at or near existing condition levels.

- If increased use should threaten or exceed indicator thresholds, management will then initiate actions to ensure that resource impacts are confined within acceptable levels. The range of actions that might be implemented would vary from situation-to-situation, and is only limited by the inventiveness of park staff. However, the typical response to correct a threat to resources would begin with an action that would be least intrusive to the visitor experience. If that action were to be unsuccessful, management would progress through a series of increasingly aggressive actions until the impacts were under control and within acceptable limits.

- If day-to-day use of the horse trail system by individuals and casual groups increases significantly, it may become necessary to establish threshold indicators to protect the social aspects of this visitor experience. Initially, this would involve interviewing visitors to determine their perception and preferences of use-levels. This would enable staff to establish a threshold indicator for social conditions and, if necessary, to manage use to preserve the quality of the visitors' experience.

- If it is determined that resource conditions are not acceptable in consideration of a known use-level, management will begin to lower the ceiling on use of the horse trail system. Monitoring will continue on a systematic schedule. Frequent evaluation of the use-ceiling will occur. When it appears that the ceiling has been lowered enough to ensure resource protection, park staff will establish threshold indicator levels for all monitoring variables. Management of the horse trail system will then proceed as outlined above.

ISSUES AND TASKS

A number of horse trail issues and their associated tasks were identified during this study. These issues and tasks are:

ISSUES	TASKS
A comprehensive inventory of horse trails has never been compiled.	Compile a horse trail inventory.
Some sections of the horse trails within the park boundary exhibit soil erosion, widening, and loss of vegetation.	Identify horse trail problems and recommend corrective actions
The threshold use level at which the trail sustains resource damage is unknown.	Establish a methodology to determine horse trail carrying capacity and recommend monitoring activities.
Horse trail construction and maintenance standards have never been established.	Establish and apply trail construction and maintenance standards.
Facilities do not currently exist for riders to camp with their horses within the park.	Include overnight camping proposal in each of the alternatives.
The NPS role and relationship to adjacent agencies and landowners on whose land the horse trails cross has never been established.	Define relationship between Ozark NSR and adjacent landowners.
Riders are easily lost because of poor trail signing and lack of accurate maps.	Develop recommendations for signing and maps.

METHODOLOGY

In the fall of 1985, Rieley & Associates, under NPS contract, conducted a road and trails inventory in the Ozark NSR. The consultant combined existing data from soils maps, aerial photos, topographic maps, local conservation groups, and other users with field observations to produce maps of the horse and foot trail system. Additional recorded information included identification and evaluation of trail problems, mitigation for trails problems, trail length, trail use, trail standards, and related environmental information. Identification numbers were assigned to each trail, and problem areas were identified along each trail segment.

In August 1986 and February though September of 1989, additional trail monitoring programs were undertaken by the park. Trails were inventoried, mapped, their condition assessed and problems areas identified. This information was gathered through on-site observations, meetings with park personnel, and talking with the permit holder for the Cross Country Trail Ride company.

These reports inventory and document the condition of a trail system totaling 61.8 miles which consists of 13.6 miles of horse trails and 48.2 miles of foot trails mapped within the Riverway's boundary. These reports were used to identify the construction and maintenance actions recommended to repair and/or reroute trails.

The following table lists the currently known problems and corrective actions required for the entire horse trail system.

Table 21. Horse trail maintenance problems and corrective action required.

Trail Name	ID #	Map #	Distance in Feet	Trail Problem	Trail Action
Twin Rocks	11 110	10 10	500 900	Treadway Erosion	Correct erosion with water bars (50' intervals) and risers (plate with rock)
*Two Rivers Jerktail	02 36	12 10	1,640 30	Trail obscured by vegetation and tree fall	Clear vegetation, remove trees
Jerktail	36	10	100	Trail located in flood plain	Establish alternate route
*Alley Spring Area (foot trail)	54	34	--	Horses in pedestrian area and on the highway	Provide hitching posts and signs
Horse Camp Primitive Area	--	34	--	Multiple river crossings	Establish one river crossing
*Two Rivers Area	01	12	--	Trail is washed out forcing horses to use highway	Establish alternate route
*Two Rivers Area	17	11	1000	Treadway erosion	Switchbacks, harden trail
*Two Rivers Area	19	11	500	Steep Slope	Switchbacks, harden trail
*Two Rivers Area (Shawnee Campground)	--	11	--	Area has been trampled by horses	Provide hitching posts at restrooms

* - No horses are allowed in campgrounds/day use areas.

ALTERNATIVES

Three alternatives were examined for the horse trail network.

Horse Trails Alternative-1

No Action (Continuation of Existing Conditions)

The group permit issued to Cross Country Trail Ride would remain at the present level of four per year. As a condition of the permit, trails would continue to be maintained by the Cross Country Trail Ride staff in accordance with Ozarks NSR standards (appendix 7) with some assistance from NPS maintenance crews. Trail maintenance would include actions such as trail brushing, reworking of gravel, clearing of vegetation from the trail, and removal of fallen trees. The group permit fee would include some of the costs of major trail repair resulting from group rides whenever the impacts to trails are directly attributable to their rides. Costs and schedules for maintenance would be established through agreements negotiated at the end-of-season meeting between park staff and group permit users. Monthly trail ride status reports would be made to the park. The end-of-season meeting between the Cross Country Trail Ride company group permit user and the park would determine trail conditions and establish maintenance requirements and costs. Monitoring horse trail use and documenting related trail impacts would continue on an informal basis. Recommended corrective actions to horse trail problems identified in table 21 (page 59) would be implemented as funding becomes available. There would be no limit on small group ride permits unless routine monitoring identifies trail impacts in excess of those normally expected.

Until such time as an NPS horse camp is developed, visitors wishing to camp with their horses would continue to find facilities outside of the Riverways boundaries.

Coordination with other agencies and private landowners would continue on an informal basis.

Directional trail signs would not be placed along trails.

The maps prepared for this study would be available for review at the Riverways headquarters, but would not be published for distribution.

Horse Trails Alternative-2 (Preferred Alternative)

Repair/reroute existing trails

The Cross Country Trail Ride company would continue to use the park trails under permit as described in Horse Trails Alternative-1 except a four year monitoring system would be established as described in the Carrying Capacity section.

Coordination with other agencies and private landowners whose land the horse trails cross would be encouraged at least annually to discuss trail impacts and maintenance issues.

As recommended in the General Management Plan, a 25-site campground would be developed at Horse Camp Primitive Area (map 34), site of the former base camp for the Cross Country Trail Ride company, to permit individuals and small groups of trail riders to camp with their horses. Facilities would include vehicle and trailer parking, tie stalls, tent pads, fire grates, water and restroom facilities.

Directional trail signs would be placed along trails.

The maps prepared for this study would be available for review at Riverways headquarters, but would not be published for distribution.

Horse Trails Alternative-3

Repair/reroute existing trails and harden trails to accept more use

This alternative would be the same as the second alternative except there would be no horse use threshold level set. Horse trails and river crossings would be designed and hardened to accommodate increased riding demands. Trails would be hard surfaced and bridges would be constructed at four drainage areas. Routine monitoring would continue to determine maintenance needs.

The visitor experience changes under this alternative. Visitors would receive a more structured experience rather than the exploratory backcountry experience of the other alternatives. The number of trails available for horse use would initially be reduced due to high construction costs of hardening the trails. Costs of hardening and maintaining the horse trails would be partially offset by increased permit fees paid by group permit holders.

As in Horse Trails Alternative-2, the 25-site horse camp would be constructed and all identified trail problems (table 21, page 59) would be corrected according to NPS standards.

Staff from the riverways would meet at least annually with adjacent public and private landowners to discuss trail impacts and maintenance issues. This group would be encouraged to develop regional trail plans and to produce regional trail maps.

ENVIRONMENTAL ASSESSMENT FOR HORSE TRAIL ALTERNATIVES

NATURAL RESOURCE IMPACTS

Soils and Vegetation

Horse Trails Alternative-1 Trail conditions and maintenance would remain status quo under this alternative. Reduction in viewshed and reduced trail visibility would continue, resulting in overgrowth of 0.31 miles of trail within a few years. Vegetation encroachments would obscure trail paths, reducing their use and ultimately resulting in segments of trail loss. Erosion on 0.27 miles of trail would continue, directly impacting over 0.32 acres of vegetation in the surrounding areas. Lack of proper signs on trails would lead to visitor confusion, which would result in off-trail impacts to vegetation. Shortcutting between trail switchbacks and use of blind leadout trails would contribute to soil erosion and increase soil losses in the surrounding vegetated areas.

Maintaining the trails at their status quo level would result in minor soil erosion on trails as well as some loss of surrounding vegetation. The steep slopes on the upland areas of the park are primarily composed of Poyner cherty silt loam and Clarksville cherty silt loams which exhibit poor stability on steep slopes.

No prime or unique farmland would be impacted under this alternative.

Horse Trails Alternative-2 (Preferred Alternative) Under this alternative, 0.31 miles of trail obscured by tree fall and overgrown brush would be cleared so that trail direction and location could be discerned. This vegetation clearing would result in removing 0.38 acres of forest habitat from the park. The improvement of signs along the trail system would aid in delineating trail segments and would correct off-site trail use and trampling of surrounding vegetation.

Treadway erosion problems would be reduced on 0.45 miles, or approximately 0.55 acres of trail, by constructing water bars and risers over the area at approximately 50 foot intervals. Properly installed water bars would contribute to long-term trail stability and would reduce off-trail erosion of adjacent vegetation. Installation of water bars would cause minor short-term soil disturbance. No prime or unique farmland would be impacted.

Horse Trails Alternative-3 This alternative would involve hardening and widening 13.6 miles of horse trails. This would result in 32.97 acres of vegetation removal and additional soil compaction within the horse trail treadway. Soil compaction would increase surface runoff of rainwater. Bridges constructed at 4 locations would involve localized soil disturbance for bridge support and minimal vegetation clearing. Some bank recontouring may be required at river crossing points.

No prime or unique farmland would be impacted.

Wildlife

Horse Trails Alternative-1 Some soil erosion is occurring on horse trails, however the amount is so small as to have an impact on wildlife.

Horse Trails Alternative-2 (Preferred Alternative) Wildlife species such as squirrels, rabbits, rodents, and birds would be temporarily displaced from their habitats near the trail borders during brush clearing and tree removal.

Horse Trails Alternative-3 Wildlife would be temporarily displaced during construction, but should return once construction is completed.

Threatened or Endangered Species

Horse Trails Alternative-1 No federally listed threatened or endangered species would be affected by the continuation of existing conditions and use of the horse trails.

Horse Trails Alternative-2 (Preferred Alternative) Same as Horse Trails Alternative-1.

Horse Trails Alternative-3 Same as Horse Trails Alternative-1.

Floodplains and Wetlands

Horse Trails Alternative-1 Continuation of present trail conditions would have no direct floodplain or wetlands impacts.

Horse Trails Alternative-2 (Preferred Alternative) Under this alternative, the corrective actions for trails would have no adverse effect on floodplains. This action would not adversely affect wetlands and is categorically excluded (Dept. Manual 516DM6, Appendix 7.4C.(12).

Horse Trails Alternative-3 Same as Horse Trails Alternative-2.

Water Resources

Horse Trails Alternative-1 Continuation of existing conditions would perpetuate erosion patterns that are present on the trails. Soil erosion would result in minor, short term sediment loading of adjacent waterways from increased sediments following rain events. No impacts to groundwater hydrology are anticipated under this alternative.

Horse Trails Alternative-2 (Preferred Alternative) Various sediment and erosion control measures such as trail hardening, water bars, and the installation of risers are proposed under this alternative. Erosion control would reduce sediment loading of adjacent streams and creeks and improve surface water hydrology. These mitigative actions would have no impact on groundwater hydrology.

Horse Trails Alternative-3 Same as Horse Trails Alternative-2.

CULTURAL RESOURCE IMPACTS

Horse Trails Alternative-1 No impact would occur on known cultural resources. Routine maintenance work on trails could prove destructive to unknown archeological sites or to historic features such as bridges, culverts, and retaining walls. The unchecked deterioration of backcountry trails could potentially destroy any archeological and historical significance that these trails contain.

Horse Trails Alternative-2 (Preferred Alternative) Trail modifications would not affect any known cultural resources. The acreage of ground disturbance that would result from the proposed trail modification might impact unknown subsurface cultural material; however, archeological surveys would be conducted before trail modifications. If cultural material is found, the trail modifications and other actions for this alternative would be done in such a manner as to avoid impacting this material. If this is not feasible, the park would develop a mitigation plan in consultation with the cultural resource staff of the Midwest Region and the Missouri State Historic Preservation Office. The impact on trails not modified would be the same as described in Horse Trails Alternative-1.

Horse Trails Alternative-3 Same as Horse Trails Alternative-2.

Proposed Mitigation. Currently no effort is underway to evaluate the park's trail system for unknown cultural resources. The entire trail system should be evaluated for eligibility of individual trails, trail segments, or trail features for possible nomination to the National Register of Historic Places. This evaluation would be conducted in consultation with the Missouri State Historic Preservation Office and the Midwest Region cultural resources staff. Research priority should be given to those trails that may be impacted. Once this has been accomplished, a plan may be needed to protect the trail system's significant resources.

SOCIOECONOMIC IMPACTS

Horse Trails Alternative-1 The continuation of existing trail conditions would result in the perpetuation of visitor safety concerns. Examples of such conditions include areas of unsafe footing, unstable treadways, unmarked and unbarricaded overlooks, and trail obstruction due to tree fall.

Appropriate trail signing and adequate trail orientation maps would not be supplied which would create problems related to trail orientation . Several trails and sections of trails are wholly or partially obscured by tree fall, and overgrowth vegetation. Additionally, certain trail junctions are not marked or are poorly signed, making orientation difficult.

No economic impacts would occur under this alternative.

Horse Trails Alternative-2 (Preferred Alternative) This alternative would eliminate several hazardous conditions that pose a potential threat to visitor safety (table 21, page 59). Unsafe treadways would be stabilized and fallen tree would be removed. Barricades and signs would be erected at certain overlooks.

Upgrading trails would also decrease the likelihood of crowding and the chance of user conflict, which in turn would enhance aesthetics.

Orientation problems would be corrected by clearing obscured trails and erecting directional signs and trail intersection markers.

The economic impact of the proposed alternative would be largely short term and limited to the cost of trail improvements. However, these increased costs should be offset by other proposed improvements which would reduce the need for maintenance on separate trail sections.

Horse Trails Alternative-3 Same as Horse Trails Alternative-2. In addition, the potential of publishing a regional trails map would reduce orientation problems.

FOOT TRAILS

INTRODUCTION

Whether planned or not, in the view of current users, there is indeed a foot trail system within the park (appendix 8). Current demand has created significant resource management problems. To some extent, there is a "chicken or egg" dilemma. There has been little activity in trail development due to relatively low trail use. Yet hikers claim there would be more use if there were more well-developed trails. Clearly, hiking ranks far below water use and horse riding activities. Clearly, there is potential for an increase in visitors participating in hiking activities.

ISSUES AND TASKS

A number of foot trail issues and their associated tasks were identified during this study. These issues and tasks are:

ISSUES	TASKS
A comprehensive inventory and statement of foot trails condition has never been compiled.	Inventory, map, and assess the condition of foot trails. Identify problem areas and recommend corrective action.
Many trails in the Ozarks are regionally oriented and traverse land managed by more than one agency or landowner. Coordination between these agencies and landowners is informal and irregular.	Define relationship between in-park trail segments to out-park trail segments. Explore possibilities for coordination with adjacent landowners.
Developed spring areas attract many visitors and the adjacent trail systems are deteriorated.	Determine if the trails system around the developed springs is adequate to accommodate use volumes without significant resource damage, and then recommend corrective actions.
One of the primary purposes of the park is to interpret the Ozark culture. Interpretive trail opportunities in the park are limited.	Identify potential interpretive trail themes and locations throughout the park that tell the cultural story of the park.

METHODOLOGY

Until recently, no comprehensive inventory of foot trails was ever completed. In August 1986, the trails were mapped, their condition evaluated, and specific problems identified.

Hiking trails fall into three major categories: (a) trails around the developed springs, (b) the Ozark Trail, and (c) loop and connecting trails in the Big Spring area. These are discussed in order of priority.

Spring Area Trails These are by far the most used trails in the park. For the most part, retaining walls, culverts, and sub-base structures are still useable and should be utilized in restoring these trails. In addition to minimizing erosion and improving the appearance of the springs, there are problems of safety.

Rehabilitation efforts are needed to upgrade trails around the developed springs to prevent further damage to the riparian resources. This effort will involve erosion control, drainage, treadway reconstruction, and closure of unplanned "short cuts". Specific recommendations are in tables 22 and 23. These short trails receive approximately 90% of all hiking trail use in the park.

Table 22. Foot trail problems

Trail Problem	Trail Actions	Trail Name	ID #	Map #	Distance (feet)
Trail obscured by vegetation and tree fall	Clear vegetation, remove trees	Big Spring	212	22	2,904
			23	23,24,35	1,220
			25	24	2,000
			250	24	500
			27	24	50
			251	23	20
			20	24,35	200
		Ozark	50	15,16	2,650
			51	14,15	1,500
		Welch Spring	32	3	30
		Alley Spring	56	34	100
		Chub Hollow	24	23,24,25	20
		Chilton Creek Loop	26	23,24	420
				Total:	**11,814**
Boggy Treadway	Alter trail out of boggy area to surrounding vegetation, install stepstones	Big Spring	21	35	60
		Chilton Creek Loop	26	23,24	200
		Spring Branch	55	34	150
		Alley Spring	56	34	120
				Total:	**530**
Treadway Erosion	Correct erosion with water bars and risers (plate with rock)	Big Spring	20	24,35	900
			23	23,24,35	-
		Chub Hollow	24	23,34,35	2,000
		Welch Spring	31	3	1,300
			32	3	800
		Chilton Creek Loop	26	23,24	1,300
		Akers Ferry	33	4	1,800
		Rocky Falls Spur	59	16	500
		Ozark	51	14,10	400
		Spring Branch	55	34	50
		Round Spring	71	7	100
		Alley Spring	54	34	1,100
				Total	**10,250**

Table 22. Foot trail problems (continued)

Trail Problem	Trail Actions	Trail Name	ID #	Map #	Distance (In feet)
Unwanted trail (blind leadout on switchback; old, abandoned)	Block trail and confine use to existing trail	Big Spring	20	24,35	100
			201	24,35	100
			203	24,35	200
			204	24,35	50
			21	35	25
		Chub Hollow	24	23,24,35	25
		Ozark	50	15,16	50
			51	14	100
		Blue Spring	52	14	150
		Alley Spring	54	34	100
		Spring Branch	55	34	150
				Total:	**1,050**

Safety Problem	Safety Actions	Trail Name	ID #	Map #	Distance (Feet)
Rock Overhang	Install barrier and warning sign	Big Spring	20	24,35	200
Auto/pedestrian traffic problem	Install warning sign and crosswalk (one each)	Big Spring	20	24,35	--
Unstable treadway	Construct steps	Jam Up Cave	90	30	200
				Total:	**400**

Table 23. Summary of foot trail actions

Trail ID #	Map #	Trail Name	Clear Vegeta-tion	Water Bars, Risers	Confine Traffic to Trail	Boggy Tread-ways	Safety Issues
20	24,35	Big Spring	X	X	X		X
21	35	Big Spring			X	X	
23	23,24,35,	Big Spring	X	X			
24	23,24,25	Chub Hollow	X	X	X		
25	24	Big Spring	X				
26	23,24	Chilton Creek Loop	X	X		X	
27	24	Big Spring	X				
31	3	Welch Spring		X			
32	3	Welch Spring	X	X			
33	4	Akers Ferry		X			
50	15,16	Ozark	X		X		
51	14,15	Ozark	X	X	X		
52	14	Blue Spring			X		
54	34	Alley Spring		X	X		
55	34	Spring Branch		X	X	X	
56	34	Alley Spring	X			X	
59	16	Rocky Falls Spur		X			
71	7	Round Spring		X			X
90	30	Jam Up Cave					X
201	24,35	Big Spring			X		
203	24,35	Big Spring			X		
204	24,35	Big Spring			X		
212	22	Big Spring	X				
250	24	Big Spring	X				
251	23	Big Spring	X				

The Ozark Trail - When completed, the Ozark Trail will stretch approximately 306 miles across southern Missouri. The most serious problem along the Ozark Trail is identification. The plaques nailed to trees are being removed by vandals and collectors.

Loop Trails in Big Spring Area - The present trail map being distributed to hikers is inadequate. Maps, clear trail marking, and minor trail maintenance are the main instruments for making these trails attractive to many hikers.

Interpretive Trails - Table 24, Proposed Interpretive Trails, outlines the purpose, length, user group, and interpretive media for 16 trails throughout the riverways. These trails will be developed as funding becomes available.

Table 24. Proposed interpretive trails

Name	Purpose	Location	Length	Use	Interpretive Media
Parker Hollow	The trail demonstrates the remoteness of the various hollows in the region, the role of the one-room schoolhouse, and the isolated nature of a subsistence farm.	Parker Hollow-Upper Current	1-1/2 mile loop	River and Road accessible, special interest visitors	Wayside, brochure, and numbered posts
Alley Community	The landscape primarily reflects the Alley Roller Mill and its associated social and commercial community. Story to reflect the evolving role of the landscape from one of industry to recreation.	Alley-Jacks Fork River	3/4 mile loop	Road accessible, general park and special interest visitors	Wayside, brochure, numbered and/or labeled posts
Floodplain	Reflects the dynamics of moving water on the landscape - geological and historical. Intreprets the unique ecosystem found within boundaries of frequently flooded land.	Alley - Jacks Fork River and Big Spring - Lower Current	1/2 mile	Road and River accessible, general park and special interest visitors	Labeled sign posts (moveable)
Campground	Provide campers with short loop trail - reflects overview of a typical Ozark ecosystem(s), e.g., Oak-Hickory/Pine, Open Field, Floodplain, and Old Farmstead.	Alley Spring, Big Spring, and Round Spring Campground(s)	1/2 mile	Campground user	Brochure, numbered and/or labeled posts
Brandt/Klepzig Farm Site	The landscape of this farm site dates to the pre-Civil War ear; existing structures date to the first decade of this century. The evolution of farming from the pst-lumber era to present day open field management would be explained. Specific references would be changing land use techniques and rural life.	Along Rocky Creek - Lower Current	1 mile loop	Road and Ozark Trail Accessible, special interest visitors	Wayside, labeled sign posts
Cedargrove	The landscape reflects a once bustling timer-boom community along the riverways. Trails will allow discussion of the sort "life" life of this town, its people, and its demise.	Cedargrove - Upper Current	1 mile loop	River and Road accessible, special interest visitors	Wayside, brochure, and numbered posts

Table 24. Proposed interpretive trails (continued)

Name	Purpose	Location	Length	Use	Interpretive Media
Logging Era	Trail interprets the historic lumber industry of the region, its bearing on the development of our nation, the social culture of the region, and the present day landscape.	Big Spring - Lower Current	3/4 mile loop	Road accessible, general park, and special interest visitors	Wayside, brochure, numbered and/or labeled posts
Pulltite Spring and Cabin	Resource reflects hydrological and karst themes as well as cultural, i.e., how the perceived role-function of a river (basically a static resource) changes as regional and national social-cultural needs change.	Upper Current	3/4 mile loop	River accessible	Wayside, brochure, numbered and/or labeled posts
CCC Historic District	The depressed social and economic conditions of the late 1920's and early 1930's set the stage for implementing the "New Deal." The CCC District at Big Spring is an excellent example of how one program, via resource sensitive planning and worker intense projects was able to produce a useful product reflecting high workmanship and positive social impact.	Big Spring - Lower Current	1 mile loop	Road accessible, general park, and special interest visitors	Wayside, brochure, numbered and/or labeled posts
Devils Well	Resource reflects hydrological and karst themes.	Upper Current	1/8 mile	Road accessible, special interest visitors	Wayside, brochure, numbered and/or labeled posts
Maggard-Howell Cabin	Built prior to 1876, cabin is of log construction. A Jesse James story can be related to the structure. Its present day remoteness denotes the economic-social changes that have evolved in the Ozarks over the last one hundred years.	Upper Current	1/4 mile	River accessible, special interest visitors	Wayside at site, location marker at river
Welch Spring Hospital	Area reflects hydrological resources and the initial settlement of the area (1850). Historic use of the area can be visualized via the hospital (1930's) and resort (Welch Lodge - 1950's).	Upper Current	1/2 mile	Road accessible, general park and special interest visitors	Wayside, brochure, numbered and/or labeled posts

Table 24. Proposed interpretive trails (continued)

Name	Purpose	Location	Length	Use	Interpretive Media
Rocky Falls and Shut-In	Reflects unique geologic outcropping and the subsequent falls and sub-in along Rocky Creek	Lower Current	1/2 mile	Road accessible, general park and special interest visitors	Wayside brochure, numbered and/or labeled posts.
Gladden Creek	Resource reflects human occupation for over ten thousand years spanning from Early Archaic through Emergent.	Akers - Upper Current	1 mile	River and Road accessible, general park and special interest visitors	Wayside, brochure, numbered and/or labeled posts
Round Spring	Reflects interrelationship between springs, caves, and karst topography.	Round Spring - Upper Current	1/4 mile	Road accessible, general park and special interest visitors	Wayside, brochure, numbered and/or labeled posts
Glade Ecosystem	Trail reflects this unique community, its characteristics, how it is able to be maintained indefinitely at an early stage of succession by the substrate or by natural forces, and the unique and specialized plants and animals that live in such a system.	--	3/4 mile	Special interest visitors	Brochure, numbered and/or labeled pos

ALTERNATIVES

Foot Trails Alternative-1

Continuation of Existing Conditions (No Action)

The existing foot trail system would continue to be used, trails would continue to receive routinely scheduled maintenance. Action on solutions to identified foot trail problems in table 22, page 70, would only be implemented as funding became available. No new trails would be developed.

Foot Trails Alternative-2 (Perferred Alternative)

Repair and upgrade foot trail system

Solutions in table 22, page 70, for identified foot trail problems would be implemented. Trail maps would be developed for the Big Spring area. No new hiking trails would be constructed. If hiking demand increased sharply, this decision would be reevaluated. As funding permitted, potential interpretive trails would be developed to encourage more trail use to relieve some river use pressure and to introduce visitors to other aspects of the park (table 24, page 74).

ENVIRONMENTAL ASSESSMENT FOR FOOT TRAILS ALTERNATIVES

NATURAL RESOURCE IMPACTS

Soils and Vegetation

Foot Trails Alternative-1 Trail conditions would remain status quo under this alternative. Lack of maintenance would result in the reduction of viewshed and reduced trail visibility causing an overgrowth of 2.14 miles of trail within a few years. Vegetation encroachments would obscure trail paths, reducing their use and ultimately resulting loss of trails. This loss would be extensive if no corrective action or trail maintenance measures were implemented on steep slopes in upland areas of the park. Foot trails are primarily found on Poyner cherty silt loam and Clarksville cherty silt loams which have poor stability on steep slopes. Erosion on 1.94 miles of trail would continue, directly impacting 2.36 acres of vegetation in the surrounding areas. Lack of proper signs on trails would lead to visitor confusion, which would result in off-trail impacts to vegetation. Shortcutting between trail switchbacks and use of blind leadout trails by visitors would contribute to soil erosion and increase soil losses in the surrounding vegetated areas. No prime or unique farmland would be impacted under this alternative.

Foot Trails Alternative-2 (Preferred Alternative) Under this alternative, 2.14 miles of trail obscured by tree fall and overgrown brush would be cleared so that trail direction and location could be discerned. This clearing would result in the loss of 7.78 acres of forest vegetation. The improving of along the trail system signs would reduce trampling of adjacent vegetation by off-trail visitors.

Treadway erosion problems would be reduced on 1.94 miles or approximately 23.56 acres of trail, by installing water bars and risers. Properly installed water bars would contribute to long-term soil and trail stability and would reduce off-trail erosion of adjacent vegetation. Blocking off 1,050 feet of blind trail leadouts and old abandoned trail segments and confining trail use to established treadways would reduce erosion of 0.24 acre of existing trails, however, the potential for additional erosion of areas adjacent to trails without water bars or closures would be extensive if left unchecked over time. The continual use of trail crosscuts would result in extensive damage to the original trail and surrounding vegetation. No prime or unique farmland would be impacted.

Wildlife

Foot Trails Alternative-1 Maintaining the trails at their status quo level would result in some additional soil erosion on trails as well as loss of surrounding vegetation. Excessive soil erosion is damaging to aquatic habitat.

Foot Trails Alternative-2 (Preferred Alternative) Wildlife species would be temporarily displaced from their habitats near the trail borders during brush clearing and tree removal with no long-term impact on populations. In the areas designated for vista clearing, approximately 7.78 acres of forest vegetation and wildlife habitat would be removed. This vegetation removal would remove some bird habitat but would be a minor short term negative impact due to the small portion of the total forest removed for bird use. Additionally, any area slated for clearing would be surveyed to ensure that bird nesting locations would not be disturbed.

Controlling soil erosion on trails by constructing water bars, closing old leadouts, and diverting water around boggy trails would reduce sediment loading to adjacent streams that would improve aquatic habitats for fish, amphibians, and reptiles.

Threatened or Endangered Species

Foot Trails Alternative-1 No federally listed threatened or endangered species would be affected by the continuation of existing conditions and use of the foot trails. Endangered, rare, or watch-listed plant species for the state of Missouri would be negatively impacted under this alternative. Certain plant species recognized by the state of Missouri as rare, endangered, or watch-listed would be negatively impacted by the open visitor access to the Jam Up Cave area. Continued unrestricted visitor trampling of this area will threaten the continued existence of these plants. A list of the sensitive plant species in the Jam Up area can be found under the threatened and endangered species impact section for roads.

Foot Trails Alternative-2 (Preferred Alternative) No federally listed threatened or endangered plant or animal species within the park would be impacted under this alternative.

No endangered, rare, or watch-listed plant species for the state of Missouri would be negatively impacted by this alternative. Certain plant species recognized by the state of Missouri as rare, endangered, or watch-listed would be afforded greater protection by the construction of stone steps in the Jam Up Cave area. This action would limit visitor impacts to a confined area and would protect sensitive plant species. Construction activities within this area would be managed to ensure the greatest protection to the state protected plant species. A list of the sensitive plant species in the Jam Up area can be found under the threatened and endangered species impact section for roads.

Floodplains and Wetlands

Foot Trails Alternative-1 Continuation of present trail conditions would create no direct adverse floodplain impacts but wetlands impacts would occur. Currently 530 feet of boggy trails located in wetlands are adversely impacted by visitors each year, including trampling and sediment loading of the trail corridor through the wetlands. This trampling could cause compaction of soil that would reduce water availability for plants in the local area. Increased sedimentation would also reduce plant viability.

Foot Trails Alternative-2 (Preferred Alternative) Under this alternative, the corrective actions for trails would have no adverse effect on floodplains. The mitigation for trails found in boggy areas, which are classified as wetlands, include minor trail relocation out of the wetlands on 530 feet of trail. This action would not adversely affect wetlands and is a categorical exclusion (Dept. Manual 516DM6, Appendix 7.4C.(12). The installation of stepstones on 530 feet of boggy trail would result in improving this wetland by providing a stable treadway surface that would allow for the continuation of the wetlands hydrological conditions and at the same time reduce foot traffic on the wetlands. Visitor treadway wear and sediment loading would be reduced.

Water Resources

Foot Trails Alternative-1 Continuation of existing conditions would maintain increasing erosion patterns on 1.94 miles of foot trails, which would result in the degradation of adjacent surface hydrology waterways caused by increased sediments. No impacts to groundwater hydrology are anticipated under this alternative.

Foot Trails Alternative-2 (Preferred Alternative) Various sediment and erosion control measures are proposed under this alternative. They include 1.94 miles or 0.14 acres disturbed for the installation of water bars and risers at an average spacing of 50 feet, blocking off 1,050 feet (0.24 acre) of unwanted blind leadouts on trails and boggy treadway corrections on 530 feet of trail (0.12 acre). These actions would reduce erosion on approximately 8 acres of land, reduce sediment loading of adjacent streams and creeks and improve surface water hydrology. These mitigative actions would have no impact on groundwater hydrology.

CULTURAL RESOURCE IMPACTS

Foot Trails Alternative-1 No impact would occur on known cultural resources. However, routine maintenance work on these trails could prove destructive to undiscovered archeological sites or to historic features such as bridges, culverts, retaining walls, etc. The unchecked deterioration of backcountry trails could potentially destroy their archeological and historical significance.

Foot Trails Alternative-2 (Preferred Alternative) The trail modification discussed in the natural resources section would not affect any known cultural resources. The small area of ground disturbance that would occur under the proposed modification might impact subsurface cultural material; however, archeological surveys would be conducted before trail modifications. If cultural material is found, the trail modifications would be done in such a manner as to avoid impacting this material. If this is not feasible, the park would develop a mitigation plan in consultation with the cultural resource staff of the Midwest Region and the Missouri State Historic Preservation Office to protect or salvage the cultural material. The impact on trails not modified would be the same as described in Horse Trail Alternative-1.

Proposed Mitigation. Currently no effort is underway to evaluate the park's trail system for unknown cultural resources. The entire trail system should be evaluated for eligibility of individual trails, trail segments, or trail features to be nominated to the National Register of Historic Places. This study should be conducted in consultation with the Missouri State Historic Preservation Office and the Midwest Region cultural resources staff. Priority on research should be given to those trails that may be closed or realigned. Once this has been accomplished, a plan should be developed to protect the trail system's cultural resources.

SOCIOECONOMIC IMPACTS

Foot Trails Alternative-1 The continuation of existing conditions for park trails would result in the perpetuation of certain conditions that could tend to compromise the safety of trail users. Examples of such conditions include areas of unsafe footing, unstable treadways, unmarked and unbarricaded overlooks, and tree fall across trails.

Another impact of this alternative would be the perpetuation of diminished aesthetics because of obscured scenic vistas. The aesthetic appreciation of the park might also be diminished by the perception of crowding or conflicts among users, particularly on trails that are below standard. The continuation of existing conditions would not address these concerns.

In addition, problems related to trail orientation would not be addressed. Several trails and sections of trails are wholly or partially obscured by tree fall, overgrowth, and other conditions. Additionally, certain trail junctions are not marked or are poorly marked, making accurate navigation difficult. No economic impacts would occur under this alternative.

Foot Trails Alternative-2 (Preferred Alternative) This alternative would eliminate several hazardous conditions that pose a potential threat to visitor safety. Unsafe treadways would be stabilized and tree fall would be removed.

The proposed alternative would increase the potential for aesthetic appreciation of the park by maximizing scenic vistas throughout the area. Upgrading trail standards would also decrease the likelihood of crowding and the chance of user conflict, which in turn would enhance aesthetics.

Orientation problems would be corrected by clearing obscured trails and erecting directional signs and trail intersection markers.

The economic impact of the proposed alternative would be largely short term and limited to the cost of trail improvements. However, these increased costs should be offset by other proposed improvements which would reduce the need for maintenance on separate trail sections.

REFERENCES

Mendiola, Victoria M.

1986 *Visitor Impacts and Use Patterns at Primitive River Campsites: An Evaluation of the Parkwide System.* Ozark National Scenic Riverways, MO.

Rieley & Associates

1985 *Trails and Roads Inventory: Ozark National Scenic Riverways*. Prepared for the NPS. Denver Service Center. Denver, Colorado.

U.S. Department of Commerce, Bureau of Census

1983 *County and City Data Book*. Washington, D.C.

U.S. Department of the Interior, NPS

1979 "*Assessment of Alternatives, Natural Resources Management, Ozark National Scenic Riverways.*" Midwest Regional Office. Omaha, Nebraska.

1980a *General Management Plan, Environmental Assessment, Ozark National Scenic Riverways.* Denver Service Center, Denver, CO.

1980b "*Statement for Management: Ozark National Scenic Riverways.*" Midwest Regional Office: Omaha, Nebraska.

1981 *Draft General Management Plan/Development Concept Plan: Ozark National Scenic Riverways*. Denver Service Center, Denver, CO.

1987 "*Statement for Interpretation: Ozark National Scenic Riverways.*"

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APPENDICES

APPENDIX 1: FEDERAL AND MISSOURI STATE RARE, THREATENED, AND ENDANGERED SPECIES

COMMON NAME	SCIENTIFIC NAME	STATUS
Federal List: Animals		
Bald eagle	*Haliaeetus leucocephalus*	Endangered
Gray bat	*Myotis grisescens*	Endangered
Indiana bat	*Myotis sodalis*	Endangered
Federal List: Plants		
NONE		
Missouri State List: Animals		
American brook lamprey	*Lampetra lamottei*	Rare
American bittern	*Botaurus lentiginosus*	Rare
Bachman's sparrow	*Aimohila aestivalis*	Rare
Barn owl	*Tyto alba*	Endangered
Black bear	*Euarctos americanus*	Rare
Black-crowned night-heron	*Nyctiocorax nyctiocorax*	Rare
Cooper's hawk	*Accipiter cooperii*	Endangered
Cougar	*Felis concolor*	Endangered
Canebrake rattlesnake	*Crotalus horridus atricaudatus*	Endangered
Double-crested cormorant	*Phalacrocorax auritus*	Endangered
Four-toed salamander	*Hemidactylium scutatum*	Rare
Gray bat	*Myotis grisescens*	Endangered
Indiana bat	*Myotis sodalis*	Endangered
Keen's bat	*Myotis keenii*	Rare
Lake chubsucker	*Erimyzon sucetta*	Rare
Lefevre's riffle shell	*Epioblasma lefevrei*	Endangered
Little purple mussell	*Toxolasma lividus glans*	Endangered
Little blue heron	*Egretta caerulea*	Rare
Long-tailed weasel	*Mustela frenata*	Rare
Marsh hawk	*Circus cyaneus*	Endangered
Northern bald eagle	*Haliaeetus leucocephalus alascensis*	Rare
Northern harrier	*Circus cyaneus*	Endangered
Osprey	*Pandion haliaetus*	Endangered
Red-shouldered hawk	*Buteo lineatus*	Endangered
River otter	*Lutra canadensis*	Rare
Sharp-shinned hawk	*Accipiter striatus*	Endangered
Swainson's warbler	*Limnothlypis swainsonii*	Endangered
Wood frog	*Rana sylvatica*	Rare
Missouri State List: Plants		
American barberry	*Berberis canadensis*	Endangered
American elm	*Ulmus americana*	Endangered
Aster	*Aster dumosus var. strictior*	Rare
Barren strawberry	*Waldsteinia fragarioides*	Rare

Appendix 1: Federal and Missouri State Rare, Threatened, and Endangered Species (continued)

COMMON NAME	SCIENTIFIC NAME	STATUS
State List: Plants (continued)		
Black-seeded mountain rice	*Oryzopsis racemosa*	Rare
Climbing milkweed	*Matelea obliqua*	Rare
False bugbane	*Trautvetteria caroliniensis*	Rare
Fern	*Dryopteris celsa*	Rare
Forked aster	*Aster furcatus*	Rare
Golden currant	*Ribes odoratum*	Undetermined
Grass	*Tridens chapmani*	Rare
Green adder's mouth	*Malaxis unifolia*	Rare
Harebell, bluebell	*Campanula rotundifolia*	Endangered
Heart-leaf plantain	*Plantago regimen*	Watch Listed
Hedge hyssop	*Gratiola viscidula hyssopifolium*	Endangered
Knotweed, smartweed	*Polygonum densiflorum*	Rare
Limber honeysuckle	*Lonicera dioica*	Rare
Loessel's twayblade	*Liparis loesselii*	Endangered
Marsh bellflower	*Campanula aparinoides*	Endangered
Missouri lowbush blueberry	*Vaccinium vacillans*	Rare
Moss	*Barbula convoluta*	Endangered
Moss	*Homaliadelphus sharpii*	Endangered
Moss	*Rhytidium rugosum*	Endangered
Moss	*Ephemerum coharens*	Endangered
Moss	*Fontinalis hypnoides*	Endangered
Moss	*Trichostomum tenuirostre*	Endangered
Moss	*Rhytidiadelphus triquetrus*	Endangered
Naiad (pondweed)	*Najas gracillima*	Rare
Northern bedstraw	*Galium boreale*	Endangered
Ozark wake robin	*Trillium pusillum*	Endangered
Pale green orchid	*Habenaria flava*	Endangered
Panic grass	*Panicum sphaerocarpon*	Rare
Panic grass	*Panicum annulum*	Rare
Poison oak	*Rhus toxicodendron*	Rare
Prairie white fringed orchid	*Habenaria leucophaea*	Rare
Purple fringeless orchid	*Habenaria peramoena*	Rare
Royal catchfly	*Silene regia*	Watch Listed
Showy lady-slipper	*Cypripedium reginae*	Rare
Southern gooseberry	*Vaccinium stamineum*	Endangered
Star duckweed	*Lemna trisulca*	Rare
Straw sedge	*Carex straminea*	Endangered
Tall larkspur	*Delphinium exaltatum*	Rare
Water sedge	*Crex aquatilis*	Endangered
White camas	*Zigadenus elegans*	Rare
Wild sweet william	*Phlox maculata*	Rare

APPENDIX 2: PARK ROAD MAINTENANCE

ROAD NUMBER	ROAD NAME	MAP NUMBER	DISTANCE MAINTAINED (MILES)	CLASS
DISTRICT 2: UPPER CURRENT				
2-11	Cedar Grove Road	2,3	0.80	I
2-15	Pulltite Road	5,6	1.24	I
2-100	Baptist Access Road	1	2.13	II
2-101	White Oak Hollow Road	2	0.50	II
2-102	Dee Murray Camp Area Road	2	0.30	II
2-104	Welch Lodge Road	3	0.82	II
2-106	Devil's Well Access Road	5	1.17	II
2-108	Pulltite Campground Road	5	1.37	II
2-109	Round Spring Group Campsite Road	7	0.25	II
2-110	Round Spring Campground Road	7	0.87	II
2-111	Round Spring Cave Access Road	7	0.59	II
2-112	Round Spring Picnic Access Road	7	0.18	II
2-113	Round Spring Cluster Campground Road	7	0.38	II
2-114	Round Spring Upper River Access Rd	7	0.25	II
2-119	Williams Landing Road	8,9	1.10	II
2-120	Jerktail Road	9,10	6.25	II
2-200	Tan Vat Road	1	0.10	III
2-202	Cedargrove Bluff Hole Camp Road	2	0.20	III
2-203	Cedargrove Cemetery Road	2	0.10	III
2-204	Big Creek Camp Road	3	0.35	III
2-205	Akers Group Campsite Road	4	0.51	III
2-206	Akers Campground Roads	4	0.78	III
2-402	Firing Range Road	3	0.89	VI
2-403	Akers Maintenance Access Road	4	0.33	V
2-407	Pulltite Service Road	5	0.07	VI
2-408	Pulltite Maintenance Road	5	0.09	VI
2-409	Pulltite Floater Camp Road	5	0.07	VI
2-410	Pulltite Water Tower Road	6	0.11	V
2-414	Round Spring Sewage Treat. Road	7	0.56	VI
2-415	Round Spring Water Tower Rd. (No.)	7	0.06	VI
2-416	Round Spring Dump Road	7	0.13	VI
2-417	Round Spring Maintenance Access Road	7	0.05	VI
2-418	Round Spring Watertank Road	7	0.16	VI
2-3006	Flying W Road	3	1.02	IV
2-3014	Hoffman/Farris Road	4	1.78	IV
2-3023	Akers Road	4	0.23	IV
2-3029	Pothole Road	5	0.85	IV
2-3031	Llpp's Road	5	0.81	IV
2-3047	Lower Grassy Road	8	0.71	IV
2-3063	Broadfoot Tract Road	I0, 11	1.25	IV
		Subtotal:	**29.41**	
DISTRICT 4: LOWER CURRENT				
4-22	Pea Vine Road	22,24	3.03	I
4-123	Two Rivers Road	12	0.92	II

APPENDIX 2: Park Road Maintenance (continued)

ROAD NUMBER	ROAD NAME	MAP NUMBER	DISTANCE MAINTAINED (MILES)	CLASS
DISTRICT 4: LOWER CURRENT (cont'd)				
4-124	Blue Spring Road	14,17	2.59	II
4-125	East Old State Route 106	14	0.65	II
4-126	West Old State Route 106	14	1.65	II
4-127	Rocky Falls Road	16	0.30	II
4-128	Rocky Falls Access Road	16	0.03	II
4-129	Log Yard Camp Road	19	2.15	II
4-122	Chilton Creek Road	21	0.15	II
4-131	Big Spring Picnic Area Loop	22,24	0.50	II
4-132	Big Spring Boat Launch Road	22,24	0.32	II
4-133	Big Spring Lodge Road	24	0.17	II
4-134	Chub Hollow Road	24	0.33	II
4-135	Cave Spring Access Road	26	0.50	II
4-136	Grub Hollow Access Road	27,28	1.40	II
4-137	Gooseneck/Hawes Campground Access Road	28	0.45	II
4-209	Two Rivers Campground Road	12	0.29	III
4-210	Ramsey Farm Road	14	2.10	III
4-211	Powder Mill Visitor Center Road	14	0.13	III
4-212	Powder Mill Campground Road	14	0.14	III
4-213	Roberts Field Primitive Campground Access Rd	15	1.15	III
4-214	Log Yard River Access	19	0.20	III
4-215	Waymeyer River Access Road	21	0.23	III
4-216	Big Spring Campground Rd	22	0.84	III
4-217	Big Spring Group Camp Road	22	0.19	III
4-218	Big Spring Cabin Road	24	1.24	II
4-219	Big Tree Primitive Campground Road	25	1.22	III
4-220	Cataract Landing Road	26	0.35	III
4-221	Hickory Landing Access Road	26	0.52	III
4-222	Gooseneck/Hawes Campground Loop	28	0.45	III
4-223	Grubb Hollow Primitive Campground Road	28	0.50	III
4-224	Gooseneck/Hawes Primitive Campground Loop	28	0.09	III
4-420	Goose Bay Primitive Area Road	14	0.33	VI
4-426	Two Rivers Well Access Road	12	0.16	VI
4-429	Lesh Farm Road	14	0.74	VI
4-430	Blue Spring Service Road	14	0.07	VI
4-431	Chilton Farm Road	14	0.25	VI
4-432	Powder Mill Maintenance Area	14	0.12	VI
4-439	Rogers Creek Road	21	0.15	VI
4-440	Raft Yard Road	21	0.82	V
4-442	Water Tank Road	22	0.22	VI
4-444	Big Spring Fire Cache Road	22	0.48	V
4-445	Sweezie Hollow Road	22	0.97	VI
4-446	Iron Mine Road	23,24	0.64	VI
4-447	Big Spring Lookout Tower Road	23,24	1.23	VI
4-450	Big Spring Maintenance Acc. Road	24	0.17	V
4-454	Gooseneck/Hawes Well Access Road	28	0.25	V
4-500	Big Spring Camp Loops	22	2.26	III
4-3070	Weston Road	12,14	0.80	IV

APPENDIX 2: Park Road Maintenance (continued)

ROAD NUMBER	ROAD NAME	MAP NUMBER	DISTANCE MAINTAINED (MILES)	CLASS
DISTRICT 4: LOWER CURRENT (cont'd)				
4-3072	Martin Hole Road	12	0.60	IV
4-3082	Goose Bay Creek Road	14	2.00	IV
4-3088	Owls Bend Access Road	14	0.10	IV
4-3095	Macy Ridge Road	14,15,	1.50	IV
4-3103	Little Rocky Creek Road	15,16	1.39	IV
4-3116	Rocky Creek Road	16	0.10	IV
4-3129	Paint Rock Road	18,19	1.01	IV
4-3132	Beal Landing Road	19	0.07	IV
4-3138	East Chilton Creek Road	20,21	0.60	IV
4-3141	Peach Orchard Primitive Campground Road	21	0.23	IV
4-3142	Pin Oak Primitive Campground Road	21	0.78	IV
4-3153	Old Tram Road	22,24,25	3.50	IV
4-3155	Partney House Road	24	1.50	IV
4-3157	K.C. Clubhouse Road	25	0.87	IV
4-3176	Cedar Spring Primitive Campground Road	28	0.26	IV
		Subtotal:	**48.95**	
DISTRICT 5: JACKS FORK				
5-121	Shawnee Shop Road	11	0.38	II
5-122	Shawnee Creek Road	11	0.17	II
5-138	Blue Spring Road	29	1.99	II
5-139	Rymers Landing Access Road	30	1.35	II
5-140	Bay Creek Road	32,33	2.60	II
5-208	Shawnee Campground Road	11	0.02	III
5-225	Buck Hollow Landing Road	29	0.25	III
5-227	Alley Spring Campground Road	34	0.85	III
5-228	Alley Spring Boat Launch	34	0.13	III
5-229	Alley Spring Picnic Area Road	34	0.75	III
5-230	Horse Camp Primitive Campground Road	34	0.38	III
5-231	Alley Sprin Handicap	34	0.10	III
5-421	Blue Bird Ranch Road	11	0.25	VI
5-458	McCormack Access Road	34	0.15	V
5-459	Alley Spring Residence Road	34	0.40	V
5-460	Alley Spring Maintenance Access Road	34	0.39	V
5-461	Alley Hollow Road	34	0.78	V
5-462	Happy Hollow Road	34	0.30	V
5-501	Alley Spring Campground Loops	34	2.07	III
5-3182	Baptising Hole Road	29	0.24	IV
5-3184	Bacher Landing Road	29,30	1.74	IV
5-3187	Shannon Co. Hunt & Fish Club Road	30	2.78	IV
5-3197	Buffington Boyd Road	33,34	1.10	IV
5-3199	North River Road	34	0.02	IV
5-3204	Keaton's Campground Road	34	0.41	IV
5-3206	Alley Spring Primitive Use Area	34	0.60	IV
		Subtotal:	**20.20**	
		Total:	**98.56**	

APPENDIX 3: USE AND FUNCTION
DISTRICT 2 - UPPER CURRENT

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
2- 10	Dent County Road 667												X	
2- 11	Dent Co. 651-Shannon Co. 421												X	
2- 12	Missouri Highway B													X
2- 13	Missouri Highway K													X
2- 14	Missouri Highway KK													X
2- 15	Pulltite Road	X	X	X										
2- 16	Missouri Highway 19													X
2- 100	Baptist Access Road												X	
2- 101	White Oak Hollow Road												X	
2- 102	Dee Murray Camp Area Road	X	X		X									
2- 103	Parker School Road			X	X									
2- 104	Welch Lodge Road		X			X								
* 2- 105	Howell Ford Road		X				X							
2- 106	Devil's Well Access Road											X		
2- 107	Devil's Well Upper Road											X		
2- 108	Pulltite Campground Road	X												
2- 109	Round Spring Group Campsite Rd.	X												
2- 110	Round Spring Campground Road	X												
2- 111	Round Spring Cave Access Road											X		
2- 112	Round Spring Picnic Access Road											X		
2- 113	Round Spring Cluster Campg'd Road	X												
2- 114	Round Spring Upper River Access		X											
2- 115	Camp Zoe Road									X				
2- 116	Court House Cave Road						X							
2- 117	Jack Peters Road						X			X				
2- 118	Grassy Road	X	X				X							
2- 119	Williams Landing Road	X	X				X							
2- 120	Jerktail Road	X	X											
2- 200	Tan Vat Canoe Access Road		X				X	X						
2- 201	Summers Tract Road	X			X									
2- 202	Cedargrove Bluff Hole Camp Road	X	X	X										

C = Campground **RA** = River Access **RC** = River Crossing **OFM** = Open Field Management **HS** = Historic Site
E = Easement **AP** = Agriculture Permit **PLA** = Private Land Access **PL** = Private Land Accessed Outside Park **SLA** = State Land Access
PAR = Park Administration Road **CRA** = County Road Access **SRA** = State Road Access ***PARTIAL OR COMPLETE CLOSURE**

Appendix 3: Use and Function (continued)
DISTRICT 2 - UPPER CURRENT

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
2- 203	Cedargrove Cemetery Road					X								
2- 204	Big Creek Camp Road	X	X	X			X							
2- 205	Akers Group Campsite Road	X	X											
2- 206	Akers Campground Roads	X	X											
2- 207	Running River Private Campg'd Rd									X				
* 2- 400	Blevin's Access Road		X		X			X						
2- 401	Suzy Nichols Cabin Road					X								
2- 402	Firing Range Road				X									
2- 403	Akers Maintenance Access Road											X		
2- 404	Conrad Cabins Road						X							
2- 405	Doctor Jolly Road						X							
2- 406	Tebbetts Road						X							
2- 407	Pulltite Service Road											X		
2- 408	Pultite Maintenance Road											X		
2- 409	Pultite Floater Camp Area Road											X		
2- 410	Pulltite Water Tower Road		X	X			X					X		
2- 411	Lewis Cabin Road						X							
2- 412	Spurgeon Road						X							
2- 413	Alton Club Road						X							
2- 414	Round Spring Sewage Treat. Rd.											X		
2- 415	Round Spring North Watertank Rd.											X		
2- 416	Round Spring Dump Road											X		
2- 417	Round Spring Cave Access Road											X		
2- 418	Round Spring Watertank Road											X		
2-3000	Love Cabins Road						X							
* 2-3001	Boyher Tract Road	X	X	X	X									
2-3002	Susie Nichols Road						X							
* 2-3003	Schafer Spring Road				X			X		X				
* 2-3004	Jim Tom Trace													
2-3005	Ozro Riley Road				X									

C = Campground **RA** = River Access **RC** = River Crossing **OFM** = Open Field Management **HS** = Historic Site
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Appendix 3: Use and Function (continued)
DISTRICT 2 - UPPER CURRENT

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
2-3006	Flying W Road	X	X	X	X			X						
2-3007	Gouldsmith Ridge Road							X	X					
2-3008	Boyd's Creek Spur Road					X		X						
2-3009	North Howell Hollow Road		X			X	X	X						
2-3010	Carter Riley/Dock Rock Roads	X	X				X	X						
2-3011	Gould Smith Tract Road	X	X					X						
2-3012	Middle Howell Hollow Road					X		X						
* 2-3014	Hoffman/Farris Road								X					
2-3015	North Lewis Hollow Rd									X				
2-3016	South Lewis Hollow Rd	X		X			X							
2-3017	Moneysunk Cabins Road						X							
2-3018	Mildred Bland Tract Road						X							
2-3019	Upper Cave Spring Road	X	X						X					
2-3020	Hahn Fields Road				X									
2-3021	Banks Ford Road		X	X			X							
2-3022	Ford Road									X				
2-3023	Akers Road													
2-3024	Parker Boardtree Road						X		X					
* 2-3025	Lipp's Spur Trace													
2-3026	Moyer Road				X									
2-3027	Blackwell Tract Road			X				X						
2-3028	Sunk Lands Road										X			
2-3029	Pothole Road	X	X					X						
2-3030	Section Field Road							X						
* 2-3031	Lipp's Road	X	X		X									
2-3032	Boyd's Creek Road	X	X	X	X		X			X				
2-3033	Wide Ford Road	X	X	X										
2-3034	Boyd's Creek School House Road													
2-3036	Tyler Tract Road						X							
2-3037	Tedd O'Gwynn Road						X							

C = Campground
E = Easement
PAR = Park Administration Road
RA = River Access
AP = Agriculture Permit
RC = River Crossing
PLA = Private Land Access
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PL = Private Land Accessed Outside Park
SRA = State Road Access
HS = Historic Site
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***PARTIAL OR COMPLETE CLOSURE**

Appendix 3: Use and Function (continued)
DISTRICT 2 - UPPER CURRENT

	ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
	2-3038	Mill Hollow Road		X				X							
	2-3039	Goehler/Stringer Road		X				X							
	2-3040	Jones Hollow Road		X				X							
	2-3041	Upper Sugar Camp Hollow Road								X					
	2-3042	Sinking Cr. Primitive Campg'd Rd	X	X											
	2-3043	Arley Lewis Tract Road				X			X						
	2-3044	McMahan Road						X							
	2-3045	Paul Wood's Tract Road									X				
	2-3046	Woods Hole Road	X	X				X							
	2-3047	Lower Grassy Road	X	X					X						
	2-3048	Ivy Woods Tract Road						X							
	2-3049	Bay Branch Road	X	X											
	2-3050	Williams Cemetary Road						X							
	2-3051	Titus Cabin Road						X							
	2-3052	Cedar Cabin Road						X							
	2-3053	Bee Bluff School House Road								X					
	2-3054	Tip-Top Road						X							
	2-3055	Wind Cave Road						X							
	2-3056	Bee Bluff Road	X	X				X	X						
*	2-3057	Brushy Creek Road	X	X				X							
	2-3058	Twin Rocks Road	X	X				X							
	2-3059	Seldom Seen Road						X							
	2-3060	Sutton Creek Roads	X	X		X		X							
	2-3061	South Powell Road	X	X				X							
	2-3062	Powell Tract Road						X							
*	2-3063	Broadfoot Tract Road	X	X		X			X						
*	2-3185	Harrison Hollow Trace													

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Appendix 3: Use and Function (Continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
4- 17	Missouri Hwy/Shannon Co. V												X	
4- 19	Missouri Hwy/Shannon Co. NN												X	
4- 20	Missouri Hwy/Shannon Co. HH												X	
4- 22	Pea Vine Road	X	X							X				
4- 23	Missouri Hwy/103													X
4- 24	Missouri Highway Z													X
4- 122	Chilton Creek Road	X	X	X	X			X	X	X		X		
4- 123	Two Rivers Road	X	X									X		
4- 124	Blue Spring Road		X								X	X		
4- 125	East Old State Route 106	X	X									X		
4- 126	West Old State Route 106		X								X	X		
4- 127	Rocky Falls Road												X	
4- 128	Rocky Falls Access Road											X		
4- 129	Log Yard Camp Road	X	X									X		
4- 130	Missouri Highway M													X
4- 131	Big Spring Picnic Area Loop											X		
4- 132	Big Spring Boat Launch Road		X									X		
4- 133	Big Spring Lodge Road											X		
4- 134	Chub Hollow Road	X										X		
4- 135	Cave Spring Access Road	X			X									
4- 136	Grub Hollow Access Road	X					X	X						
4- 137	Gooseneck/Hawes Campgr'd Access Rd.	X	X											
4- 209	Two Rivers Campground Road	X												
4- 210	Ramsey Farm Road		X								X			
4- 211	Powder Mill Visitor Center Road											X		
4- 212	Powder Mill Campground Road													
4- 213	Roberts Field Primitive Campgr'd Access Rd.	X	X					X						
4- 214	Log Yard River Access Road		X											
4- 215	Waymeyer River Access Road	X	X											
4- 216	Big Spring Campground Rd	X												

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Appendix 3: Use and Function (Continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
4- 217	Big Spring Group Camp Road	X												
4- 218	Big Spring Cabin Road													
4- 219	Big Tree Primitive Campg'd Rd.	X	X					X						
4- 220	Cataract Landing Road		X					X						
4- 221	Hickory Landing Access Road	X	X					X						
4- 222	Gooseneck/Hawes Campground Loop													
4- 223	Grubb Hollow Primitive Campg'd Rd.	X	X											
4- 224	Gooseneck/Hawes Primitive Campgr'd Loop	X												
* 4- 420	Goose Bay Primitive Area Road	X										X		
4- 424	Red Rock Road						X							
4- 425	Jedlicka Road				X						X			
4- 426	Two Rivers Well Access Road											X		
4- 427	Prairie Hollow Road						X							
4- 428	Coot Mountain Road										X			
4- 429	Lesh Farm Road				X			X						
4- 430	Blue Spring Service Road										X	X		
4- 431	Chilton Farm Road				X			X						
4- 432	Powder Mill Maintenance Area Road											X		
4- 433	Rock Creek Easement Road						X							
4- 434	Mill Mountain Natural Area Road										X	X		
4- 435	Hart Road						X							
4- 436	Warren Bland Road						X	X		X		X		
4- 437	Weaver Tract Road							X				X		
4- 438	Schwartz Tract Road						X		X					
4- 439	Rogers Creek Road						X					X		
4- 440	Raft Yard Road											X		
4- 442	Water Tank Road											X		
4- 444	Big Spring Fire Cache Road											X		
4- 445	Sweezie Hollow Road											X		
4- 446	Iron Mine Road											X		

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Appendix 3: Use and Function (Continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
4- 447	Big Spring Lookout Tower Road											X		
4- 450	Big Spring Maintenance Access Rd.											X		
4- 451	Kelley Cabin Road						X							
4- 452	Yantis Tract Road						X							
4- 454	Gooseneck/Hawes Well Access Rd.								X					
4- 500	Big Spring Camp Loops	X												
4-3067	Mid Ridge Road						X							
4-3068	Colley Lake Road									X				
* 4-3069	Wheatley Field Trace													
* 4-3070	Weston Road	X	X		X		X							
* 4-3071	Peter Mooney Mt. Trace													
4-3072	Martin Hole Road	X	X		X									
* 4-3073	Moloney Road						X							
* 4-3074	Devil's Back Bone Trace													
4-3075	Coot Hollow Road						X							
4-3076	Wildcat Mountain Road									X				
* 4-3077	Blair Creek Trace													
4-3078	Bloom Creek Road		X							X	X			
4-3079	Powder Mill Creek Road										X			
4-3080	Little Bloom Cr. East Ridge Road										X			
4-3081	Little Bloom Cr. West Ridge Road										X			
4-3082	Goose Bay Creek Road	X	X								X			
4-3083	Williams Mountain Road										X			
4-3084	Martin Farm Road				X						X			
4-3086	Knuckles Road													
4-3087	Little Indian Creek Road										X			
4-3088	Owls Bend Access Road		X								X			
4-3089	North Well Hollow Road													
4-3090	Middle Well Hollow Road										X			
4-3091	South Well Hollow Road										X			

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Appendix 3: Use and Function (Continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
4-3092	Divide Road										X			
4-3093	State Ridge Road										X			
* 4-3094	Blue Spring Cut-Off Trace													
4-3095	Macy Ridge Road		X		X	X	X	X			X			
4-3096	State Road 28						X				X			
* 4-3097	North Little Booming Shoal Trace													
* 4-3098	South Little Booming Shoal Trace													
* 4-3099	Slick Rock Ridge Hollow Trace													
4-3100	Mill Hollow Road										X			
4-3101	Indian Creek Road										X			
4-3102	Bockman Road		X								X			
4-3103	Little Rocky Creek Road					X		X						
4-3104	J.R. Bland Road				X						X			
* 4-3105	Robert's Field Trace													
4-3106	Brandt Field Road							X						
* 4-3107	Boss Green Tract Trace													
4-3108	Round Hollow Road		X						X					
4-3109	Cedar Stub Road		X						X					
4-3110	East Bland Road						X							
4-3111	Ant Hole Road	X	X		X									
4-3113	Weaver Field Road				X									
4-3114	Buttin Rock Road											X		
4-3115	Brandewiede Road										X			
4-3116	Rocky Creek Road							X						
4-3117	Thorny Mountain Mine Road									X				
* 4-3118	Yeager Trace													
4-3119	Buzzard Mountain Road										X			
4-3120	State Road 27										X			
4-3121	State Road 26										X			
4-3122	State Road 30										X			

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Appendix 3: Use and Function (Continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
4-3123	State Road 29										X			
4-3124	State Road 25						X				X			
4-3125	Carr Creek Cut-off Road									X	X			
4-3126	Carr Creek Road				X									
4-3127	State Road 24										X			
4-3128	Sugarcamp Hollow Road	X									X			
4-3129	Paint Rock Road	X	X				X				X			
4-3130	State Road 18										X			
4-3131	Beal Cabin Road						X				X			
4-3132	Beal Landing Road	X	X											
4-3133	Whisker Jones Tract Road				X						X			
* 4-3136	Alphen Hollow Trace													
4-3137	Pin Oak Hollow Area Roads						X							
4-3138	East Chilton Creek Road						X			X				
4-3139	Gravel Spring Road				X									
4-3140	Pile's Tract Road						X							
4-3141	Peach Orchard Primitive Campg'd Rd.	X	X					X						
4-3142	Pin Oak Primitive Campg'd Rd.	X	X		X									
4-3143	Dazey Farm Road							X		X				
4-3144	Mill Creek Road							X		X				
4-3145	Waymeyer Easement Road	X	X				X							
* 4-3146	Keathley Tract Road				X									
4-3147	Tuttle Easement Road				X									
* 4-3148	Dusenberry Ridge Trace													
4-3149	Lofton Lake Road									X				
* 4-3151	Campbell Tract Trace													
* 4-3152	Beaver Pond Area Traces													
4-3153	Old Tram Road	X	X		X		X							
4-3154	Montgomery Easement Road						X							
4-3155	Partney House Road							X						

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Appendix 3: Use and Function (Continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
* 4-3156	Chalk Bank Trace													
4-3157	K.C. Clubhouse Road	X	X											
4-3158	Chilton Landing Road	X	X				X							
4-3159	Smith Cabin Road						X							
4-3160	Halferty Tract Road						X							
* 4-3161	Radford Tract Trace													
4-3162	Pistol Range Road											X		
* 4-3163	Cataract Hill Trace									X				
* 4-3164	Coal Bank Cave Road													
* 4-3165	Wilson Tract Trace													
* 4-3166	Lost Man Cave Road											X		
4-3167	Porter Tract Road						X							
* 4-3168	Conner Lake Trace													
* 4-3169	Panther Spring Road	X	X											
* 4-3170	Hooper Hollow Road							X						
4-3171	Bedell Hollow Road						X							
4-3172	Crafton Easement						X							
4-3173	Hooper Field Road						X							
* 4-3175	Gooseneck Hollow Trace													
4-3176	Cedar Spring Primitive Campg'd Rd.	X	X											
* 4-3181	Aldridge Valley Trace													
* 4-3196	Granite Quarry Trace													

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Appendix 3: Use and Function
DISTRICT 5 - JACKS FORK

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
5- 18	Missouri Highway 106													X
5- 25	Missouri Highway 17													X
5- 121	Shawnee Shop Road												X	
5- 122	Shawnee Creek Road												X	
5- 138	Blue Springs Road	X	X	X										
5- 139	Rymers Landing Access Road	X	X											
5- 140	Bay Creek Road	X	X	X			X							
5- 141	Horse Camp Loop Road	X										X		
5- 208	Shawnee Campground Road	X										X		
5- 225	Buck Hollow Landing Road	X	X											
5- 226	Cardinal Akers Road						X							
5- 227	Alley Spring Campground Road											X		
5- 228	Alley Spring Boat Launch Road											X		
5- 229	Alley Spring Picnic Area Road											X		
5- 230	Horse Camp Primitive Campgr'd Rd.													
5- 231	Alley Spring Handicap Parking													
5- 419	Bay Creek Campground Road	X	X											
5- 421	Blue Bird Ranch Road											X		
5- 422	Crancer Tract Road						X							
5- 423	Smith Road				X		X							
5- 455	Smith Tract Road						X							
* 5- 456	Jam Up Cave Road						X							
5- 457	Bunker Hill Easement Road													
5- 458	McCormac Access Rd.						X							
5- 459	Alley Spring Residence Road				X									
5- 460	Alley Spring Maintenance Access Road											X		
5- 461	Alley Hollow Road											X		X
5- 462	Happy Hollow Road									X				
5- 501	Alley Spring Campground Loops	X												
5- 3064	Nelson Tract Road	X			X		X					X		

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APPENDIX 3: Use and Function
DISTRICT 5 - JACKS FORK

ROAD NUMBER	ROAD NAME	C	RA	RC	OFM	HS	E	AP	PLA	PL	SLA	PAR	CRA	SRA
* 5- 3065	Shed Tract Trace													
5- 3066	Powell Springs Road		X				X	X						
* 5-3150	Bear Cave Spur Trace													
5- 3174	Peach Orchard Road									X				
* 5- 3177	Girl Scout Camp Trace									X				
5- 3178	Stoops Road									X				
5- 3179	Bat Cave Road	X	X	X										
5- 3180	Royal Hole Road	X	X											
5- 3182	Baptising Hole Road	X	X											
5- 3183	Mt. View Health & Recreation Road	X	X	X			X							
* 5- 3184	Bacher Landing Road	X	X		X			X						
* 5- 3186	Red Bluff Trace													
5- 3187	Shannon Co. Hunt & Fish Club Road	X	X											
* 5- 3188	Harley Basin Road													
* 5- 3189	Sims Tract Road													
5- 3190	Bill Hollow Road	X	X	X		X								
5- 3191	Middle Loader Road	X					X							
* 5- 3192	Fifteen Foot Hole Trace													
5- 3193	Nickeloff Field Road	X	X				X							
5- 3194	Leatherwood Road			X	X				X					
5- 3195	Center Field Road			X			X	X						
5- 3197	Buffington Boyd Road	X	X		X		X							
5- 3198	Indian Pond Road										X			
5- 3199	North River Road				X		X							
5- 3200	McAdams Access Road						X							
5- 3201	Horse Hollow Road				X									
* 5- 3202	Old Cooley Road													
* 5- 3203	Effie Smith Bluff Trace													
5- 3204	Keaton's Campground Road	X						X						
* 5- 3205	Culpepper Trace													
5- 3206	Alley Spring Primitive Use Area	X	X											

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APPENDIX 4: ROAD CLASSIFICATION
DISTRICT 2 - UPPER CURRENT

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS I			
2-10	Dent County Road 667	1	0.60
2-11	Dent Co. 650-Sannon Co. 421	2,3	1.95
2-12	Missouri Highway B	2,3	0.44
2-13	Missouri Highway K	3,4	2.56
2-14	Missouri Highway KK	4	0.53
2-15	Pulltite Road	5,6	0.94
2-16	Missouri Highway 19	7	3.37
		Subtotal:	**10.39**
CLASS II			
2-100	Baptist Access Road	1	0.87
2-101	White Oak Hollow Road	2	0.50
2-102	Dee Murray Camp Area Road	2	0.25
2-103	Parker School Road	2	0.21
2-104	Welch Lodge Road	3	0.81
2-105	Howell Ford Road	4	0.86
2-106	Devil's Well Access Road	5	1.06
2-107	Devil's Well Upper Road	5	0.78
2-108	Pulltite Campground Road	5	1.25
2-109	Round Spring Group Campsite Road	7	0.25
2-110	Round Spring Campground Road	7	0.81
2-111	Round Spring Cave Access Road	7	0.31
2-112	Round Spring Picnic Access Road	7	0.25
2-113	Round Spring Cluster Campground Road	7	0.09
2-114	Round Spring Upper River Acc. Road	7	0.18
2-115	Camp Zoe Road	7	0.09
2-116	Court House Cave Road	7	0.62
2-117	Jack Peters Road	7	0.03
2-118	Grassy Road	8	2.25
2-119	Williams Landing Road	8,9	1.62
2-120	Jerktail Road	9,10	1.87
		Subtotal:	**14.96**
CLASS III			
2-200	Tan Vat Canoe Access Road	1	0.21
2-201	Summers Tract Road	1	1.25
2-202	Cedargrove Bluff Hole Camp Road	2	0.25
2-203	Cedargrove Cemetery Road	2	0.19

Appendix 4: Road Classification (continued)
DISTRICT 2 - UPPER CURRENT

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS III (continued)			
2-204	Big Creek Camp Road	3	0.19
2-205	Akers Group Campsite Road	4	0.50
2-206	Akers Campground Roads	4	0.65
2-207	Running River Private Campground Rd.	7	0.03
		Subtotal:	**3.27**
CLASS IV			
2-3000	Love Cabins Road	1	1.28
2-3001	Boyher Tract Road	1,2	1.39
2-3002	Susie Nichols Road	2	1.25
2-3003	Schafer Spring Road	2	1.37
2-3004	Jim Tom Trace	2	0.12
2-3005	Ozro Riley Road	3	1.06
2-3006	Flying W Road	3	1.81
2-3007	Gould Smith Ridge Road	3	0.42
2-3008	Boyd's Creek Spur Road	6	0.03
2-3009	North Howell Hollow Road	3	0.18
2-3010	Carter Riley/Dock Rock Roads	3	1.37
2-3011	Gould Smith Tract Road	3	1.00
2-3012	Middle Howell Hollow Road	3	0.35
2-3014	Hoffman/Farris Road	4	1.78
2-3015	North Lewis Hollow Road	4	0.06
2-3016	South Lewis Hollow Road	4	0.62
2-3017	Moneysunk Cabins Road	4	0.12
2-3018	Mildred Bland Tract Road	4	0.03
2-3019	Upper Cave Spring Road	4,5	0.56
2-3020	Hahn Fields Road	4	0.53
2-3021	Banks Ford Road	4	0.44
2-3022	Ford Road	4	0.38
2-3023	Akers Road	4	0.09
2-3024	Parker Boardtree Road	5	0.56
2-3025	Lipp's Spur Trace	5	0.23
2-3026	Moyer Road	5	0.68
2-3027	Blackwell Tract Road	5	1.71
2-3028	Sunk Lands Road	5	0.71
2-3029	Pothole Road	5	0.75
2-3030	Section Field Road	5	0.44
2-3031	Lipp's Road	5	0.93
2-3032	Boyd's Creek Road	6,7	2.45
2-3033	Wide Ford Road	6	0.06
2-3034	Boyd's Creek School House Road	6	0.25
2-3036	Tyler Tract Road	6	0.53

Appendix 4: Road Classification (continued)
DISTRICT 2 - UPPER CURRENT

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS IV (continued)			
2-3037	Tedd O'Gwynn Road	6	0.75
2-3038	Mill Hollow Road	6	0.62
2-3039	Goehler/Stringer Road	6	1.03
2-3040	Jones Hollow Road	6,7	0.50
2-3041	Upper Sugar Camp Hollow Road	6	0.31
2-3042	Sinking Cr. Primitive Campground Road	7	0.28
2-3043	Arley Lewis Tract Road	7	0.93
2-3044	McMahan Road	7	0.09
2-3045	Paul Woods Tract Road	8	1.03
2-3046	Woods Hole Road	8	0.12
2-3047	Lower Grassy Road	8	0.56
2-3048	Ivy Woods Tract Road	8	1.18
2-3049	Bay Branch Road	8	0.25
2-3050	Williams Cemetary Road	9	0.88
2-3051	Titus Cabin Road	9	0.25
2-3052	Cedar Cabin Road	9	0.56
2.3053	Bee Bluff School House Road	9	1.78
2-3054	Tip-Top Road	9	0.87
2-3055	Wind Cave Road	9	0.93
2-3056	Bee Bluff Road	9	0.68
2-3057	Brushy Creek Road	9	0.96
2-3058	Twin Rocks Road	10	0.65
2-3059	Seldom Seen Road	10	0.25
2-3060	Sutton Creek Roads	10,11	2.25
2-3061	South Powell Road	10	0.12
2-3062	Powell Tract Road	10	0.53
2-3063	Broadfoot Tract Road	10,11	1.65
2-3185	Harrison Hollow TRACE	5	0.22
		Subtotal:	**45.77**
CLASS V			
2-403	Akers Maintenance Access Road	4	0.19
2-410	Pulltite Water Tower Road	6	1.25
		Subtotal:	**1.44**
CLASS VI			
2-400	Blevin's Access Road	1	1.06
2-401	Suzy Nichols Cabin Road	2	0.28
2-402	Firing Range Road	3	0.75
2-404	Conrad Cabins Road	4	0.56
2-405	Doctor Jolly Road	4	0.46

Appendix 4: Road Classification (continued)
DISTRICT 2 - UPPER CURRENT

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS VI (continued)			
2-406	Tebbetts Road	5	0.21
2-407	Pulltite Service Road	5	0.03
2-408	Pulltite Maintenance Road	5	0.12
2-409	Pulltite Floater Camp Area Road	5	0.06
2-411	Lewis Cabin Road	6	0.15
2-412	Spurgeon Road	6	0.06
2-413	Alton Club Road	6	0.56
2-414	Round Spring Sewage Treatment Road	7	0.37
2-415	Round Spring North Watertank Road	7	0.06
2-416	Round Spring Dump Road	7	0.09
2-417	Round Spring Cave Access Road	7	0.19
2-418	Round Spring Watertank Road	7	0.18
		Subtotal:	**5.19**
		Total:	**81.02**

Appendix 4: Road Classification (continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS I			
4-17	Missouri Hwy/Shannon Co. V	12	1.13
4-19	Missouri Hwy/Shannon Co. NN	15,16	2.53
4-20	Missouri Hwy/Shannon Co. HH	18,19	1.88
4-22	Pea Vine Road	22,24	3.03
4-23	Missouri Hwy/103	24	0.70
4-24	Missouri Highway Z	23,24,25,26,27	9.99
		Subtotal:	**19.26**
CLASS II			
4-122	Chilton Creek Road	21	1.80
4-123	Two Rivers Road	12	0.59
4-124	Blue Spring Road	14,17	2.53
4-125	East Old State Route 106	14	0.69
4-126	West Old State Route 106	14	1.60
4-127	Rocky Falls Road	16	0.94
4-128	Rocky Falls Access Road	16	0.19
4-129	Log Yard Camp Road	19	2.25
4-130	Missouri Highway M	21	3.38
4-131	Big Spring Picnic Area Loop	22,24	0.28
4-132	Big Spring Boat Launch Road	22,24	0.16
4-133	Big Spring Lodge Road	24	0.10
4-134	Chub Hollow Road	24	0.19
4-135	Cave Spring Access Road	26	0.93
4-136	Grub Hollow Access Road	27,28	1.44
4-137	Gooseneck/Hawes Campground Access Road	28	0.13
		Subtotal:	**17.20**
CLASS III			
4-209	Two Rivers Campground Road	12	0.13
4-210	Ramsey Farm Road	14	1.70
4-211	Powder Mill Visitor Center Road	14	0.19
4-212	Powder Mill Campground Road	14	0.03
4-213	Roberts Field Primitive Cpgrnd. Access Rd.	15	0.94
4-214	Log Yard River Access Road	19	0.13
4-215	Waymeyer River Access Road	21	0.25
4-216	Big Spring Campground Rd	22	0.97
4-217	Big Spring Group Camp Road	22	0.22
4-218	Big Spring Cabin Road	24	0.81
4-219	Big Tree Primitive Campground Road	25	0.80
4-220	Cataract Landing Road	2	0.69

Appendix 4: Road Classification (continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS III (continued)			
4-221	Hickory Landing Access Road	26	0.44
4-222	Gooseneck/Hawes Campground Loop	28	0.30
4-223	Grubb Hollow Primitive Campground Road	28	0.30
4-224	Gooseneck/Hawes Prim. Campground Loop	28	0.13
4-500	Big Spring Camp Loops	22	1.50
		Subtotal:	**9.53**
CLASS IV			
4-3067	Mid Ridge Road	12	0.22
4-3068	Colley Lake Road	12	0.31
4-3069	Wheatley Field Trace	12	0.34
4-3070	Weston Road	12,14	1.75
4-3071	Peter Mooney Mt. Trace	12	0.38
4-3072	Martin Hole Road	12	0.25
4-3073	Moloney Road	12	2.69
4-3074	Devil's Back Bone Trace	12	0.25
4-3075	Coot Hollow Road	12	0.28
4-3076	Wildcat Mt. Road	12	0.19
4-3077	Blair Creek Trace	12,14	0.75
4-3078	Bloom Creek Road	13,14	2.90
4-3079	Powder Mill Creek Road	13,14	1.19
4-3080	Little Bloom Ck. East Ridge Road	13,14	1.06
4-3081	Little Bloom Ck. West Ridge Road	13	0.80
4-3082	Goose Bay Creek Road	14	0.94
4-3083	Williams Mountain Road	14	1.31
4-3084	Martin Farm Road	14	0.10
4-3086	Knuckles Road	14,15	1.60
4-3087	Little Indian Creek Road	14,15	1.30
4-3088	Owls Bend Access Road	14	0.03
4-3089	North Well Hollow Road	14	0.53
4-3090	Middle Well Hollow Road	14	0.60
4-3091	South Well Hollow Road	14	0.69
4-3092	Divide Road	14,15	4.37
4-3093	State Ridge Road	14,15	0.47
4-3094	Blue Spring Cut-Off Trace	14	1.06
4-3095	Macy Ridge Road	14,15,17	5.38
4-3096	State Road 28	14,17,18	2.09
4-3097	North Little Booming Shoal Trace	14	0.50
4-3098	South Little Booming Shoal Trace	14	0.50
4-3099	Slick Rock Ridge Hollow Trace	15	0.63
4-3100	Mill Hollow Road	15	1.72
4-3101	Indian Creek Road	15	1.30

Appendix 4: Road Classification (continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS IV (continued)			
4-3102	Bockman Road	15	0.40
4-3103	Little Rocky Creek Road	15,16	2.43
4-3104	J.R. Bland Road	15,16,18	5.06
4-3105	Robert's Field Trace	15	0.65
4-3106	Brandt Field Road	15	0.53
4-3107	Boss Green Tract Trace	15,16	0.34
4-3108	Round Hollow Road	15	1.50
4-3109	Cedar Stub Road	14,15,18	1.88
4-3110	East Bland Road	15	1.38
4-3111	Ant Hole Road	15	0.25
4-3113	Weaver Field Road	15,16	0.94
4-3114	Buttin Rock Road	15	0.81
4-3115	Brandewiede Road	16	0.31
4-3116	Rocky Creek Road	16	1.70
4-3117	Thorny Mountain Mine Road	16	0.30
4-3118	Yeager Trace	16	0.13
4-3119	Buzzard Mountain Road	16	1.30
4-3120	State Road 27	17	1.30
4-3121	State Road 26	17	1.69
4-3122	State Road 30	17	0.75
4-3123	State Road 29	17	0.50
4-3124	State Road 25	17,18	2.00
4-3125	Carr Creek Cut-off Road	18	1.13
4-3126	Carr Creek Road	18	1.06
4-3127	State Road 24	18	0.70
4-3128	Sugarcamp Hollow Road	18	0.22
4-3129	Paint Rock Road	18,19,20	3.00
4-3130	State Road 18	18	0.09
4-3131	Beal Cabin Road	19	0.28
4-3132	Beal Landing Road	19	0.03
4-3133	Whisker Jones Tract Road	19	1.31
4-3136	Alphen Hollow Trace	19	0.62
4-3137	Pin Oak Hollow Area Roads	20	3.31
4-3138	East Chilton Creek Road	20,21	1.75
4-3139	Gravel Spring Road	20	0.88
4-3140	Pile's Tract Road	20,21	2.94
4-3141	Peach Orchard Primitive Campground Road	21	0.13
4-3142	Pin Oak Primitive Campground Road	21	0.44
4-3143	Dazey Farm Road	21	0.69
4-3144	Mill Creek Road	21	0.31
4-3145	Waymeyer Easement Road	21	0.63
4-3146	Keathley Tract Road	21	2.66
4-3147	Tuttle Easement Road	21	0.38

Appendix 4: Road Classification (continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS IV (continued)			
4-3148	Dusenberry Ridge Trace	21	1.26
4-3149	Lofton Lake Road	21	0.25
4-3151	Campbell Tract Trace	22,24	0.97
4-3152	Beaver Pond Area Traces	22,24	3.94
4-3153	Old Tram Road	22,24,25	7.19
4-3154	Montgomery Easement Road	24	0.63
4-3155	Partney House Road	24	1.31
4-3156	Chalk Bank Trace	25	0.25
4-3157	K.C. Clubhouse Road	25	0.84
4-3158	Chilton Landing Road	25	0.22
4-3159	Smith Cabin Road	25	0.13
4-3160	Halferty Tract Road	25	0.34
4-3161	Radford Tract Road	25	0.44
4-3162	Pistol Range Road	2	0.13
4-3163	Cataract Hill Trace	26	0.29
4-3164	Coal Bank Cave Road	26	0.50
4-3165	Wilson Tract Trace	26	0.19
4-3166	Lost Man Cave Road	26	2.19
4-3167	Porter Tract Road	26	0.44
4-3168	Conner Lake Trace	26	0.09
4-3169	Panther Spring Road	27	0.56
4-3170	Hooper Hollow Road	27	0.62
4-3171	Bedell Hollow Road	27	1.25
4-3172	Crafton Easement	21	0.75
4-3173	Hooper Field Road	27	0.19
4-3175	Gooseneck Hollow Trace	28	0.31
4-3176	Cedar Spring Primitive Campground Road	28	0.22
4-3181	Aldridge Valley Trace	25	0.25
4-3196	Granite Quarry Trace	22	0.25
		Subtotal:	**113.19**
CLASS V			
4-428	Coot Mountain Road	12	0.28
4-440	Raft Yard Road	21	0.81
4-444	Big Spring Fire Cache Road	22	0.25
4-450	Big Spring Maintenance Access Road	24	0.09
4-454	Gooseneck/Hawes Well Access Road	28	0.25
		Subtotal:	**1.68**

Appendix 4: Road Classification (continued)
DISTRICT 4 - LOWER CURRENT

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS VI			
4-420	Goose Bay Primitive Area Rd.	14	1.65
4-424	Red Rock Road	12	0.38
4-425	Jedlicka Road	12,14	0.25
4-426	Two Rivers Well Access Road	12	0.13
4-427	Prairie Hollow Road	12	0.40
4-429	Lesh Farm Road	14	0.28
4-430	Blue Spring Service Road	14	0.09
4-431	Chilton Farm Road	14	1.42
4-432	Powder Mill Maintenance Area Road	14	0.09
4-433	Rocky Creek Easement Road	15	0.19
4-434	Mill Mountain Natural Area Road	16	1.38
4-435	Hart Road	18	0.56
4-436	Warren Bland Road	19	0.84
4-437	Weaver Tract Road	20	1.31
4-438	Schwartz Tract Road	20	0.94
4-439	Rogers Creek Road	21	0.20
4-442	Water Tank Road	22	0.50
4-445	Sweezie Hollow Road	22	0.97
4-446	Iron Mine Road	23,24	2.63
4-447	Big Spring Lookout Tower Road	23,24	1.88
4-451	Kelley Cabin Road	25	0.25
4-452	Yantis Tract Road	26,27	1.50
		Subtotal:	**17.84**
		Total:	**178.70**

Appendix 4: Road Classification (continued)
DISTRICT 5 - JACKS FORK

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS I			
5-18	Missouri Highway 106	13,14,15,17,3	9.25
5-25	Missouri Highway 17	29	1.25
		Subtotal:	**10.50**
CLASS II			
5-121	Shawnee Shop Road	11	0.38
5-122	Shawnee Creek Road	11	0.59
5-138	Blue Spring Road	29	1.88
5-139	Rymers Landing Access Road	30	1.18
5-140	Bay Creek Road	32,33	2.31
5-141	Horse Camp Loop Road	34	2.06
		Subtotal:	**8.40**
CLASS III			
5-208	Shawnee Campground Road	11	0.13
5-225	Buck Hollow Landing Road	29	0.53
5-226	Cardinal Akers Road	29	0.13
5-227	Alley Spring Campground Road	34	0.75
5-228	Alley Spring Boat Launch Road	34	0.13
5-229	Alley Spring Picnic Area Road	34	0.75
5-230	Horse Camp Primitive Campground Road	34	1.33
5-231	Alley Spring Handicap Parking	34	0.25
5-501	Alley Spring Campground Loops	34	1.75
		Subtotal:	**5.75**
CLASS IV			
5-3064	Nelson Tract Road	11,12	1.38
5-3065	Shed Tract Trace	11,12	0.78
5-3066	Powell Springs Road	11	0.94
5-3150	Bear Cave Spur Trace	29	0.16
5-3174	Peach Orchard Road	32	0.50
5-3177	Girl Scout Camp Trace	29	0.75
5-3178	Stoops Road	29	0.28
5-3179	Bat Cave Road	29	0.25
5-3180	Royal Hole Road	29	1.06
5-3182	Baptising Hole Road	29	0.16
5-3183	Mt. View Health & Recreation Road	29	0.88
5-3184	Bacher Landing Road	29,30	1.53
5-3186	Red Bluff Trace	30	0.81
5-3187	Shannon Co. Hunt & Fish Club Road	30	0.94

Appendix 4: Road Classification (continued)
DISTRICT 5 - JACKS FORK

ROAD NUMBER	ROAD NAME	MAP NUMBER	LENGTH (MILES)
CLASS IV (continued)			
5-3188	Harley Basin Road	30	0.88
5-3189	Sims Tract Road	30	2.78
5-3190	Bill Hollow Road	30	1.13
5-3191	Middle Loader Road	31	0.88
5-3192	Fifteen Foot Hole Trace	31	0.69
5-3193	Nickeloff Field Road	32	0.60
5-3194	Leatherwood Road	32	0.94
5-3195	Center Field Road	32	1.57
5-3197	Buffington Boyd Road	33,34	3.13
5-3198	Indian Pond Road	34	0.63
5-3199	North River Road	34	2.75
5-3200	McAdams Access Road	34	0.13
5-3201	Horse Hollow Road	34	0.59
5-3202	Old Cooley Road	34	0.13
5-3203	Effie Smith Bluff Trace	34	0.75
5-3204	Keaton's Campground Road	34	0.34
5-3205	Culpepper Trace	34	0.75
5-3206	Alley Spring Primitive Use Area	34	0.28
		Subtotal:	**29.37**
CLASS V			
5-458	McCormac Access Rd,	34	0.13
5-459	Alley Spring Residence Road	34	0.09
5-460	Alley Spring Maintenance Access Road	34	0.38
5-461	Alley Hollow Road	34	1.63
5-462	Happy Hollow Road	34	0.25
		Subtotal:	**2.48**
CLASS VI			
5-419	Bay Creek Campground Road	33	0.44
5-421	Blue Bird Ranch Road	11	1.19
5-422	Crancer Tract Road	11	0.34
5-423	Smith Road	11	0.66
5-455	Smith Tract Road	29	0.13
5-429	Cardinal Acres Road	29	0.06
5-456	Jam Up Cave Road	30	1.65
5-457	Bunker Hill Easement Road	30,31	1.75
		Subtotal:	**6.22**
		Total:	**62.72**

APPENDIX 5: DETAILED CLOSURE JUSTIFICATIONS

ROAD NUMBER	ROAD NAME	MAP NO.	TOTAL LENGTH	DISTANCE CLOSED (MILES)	COMMENTS
2-105	Howell Ford Road	4	0.86	0.65	This road is eroded from the end of the landing to the river. Howell Ford Road will be NPS maintained to the landing. From the landing to the river this road is a trace and will be closed to vehicles and revegetated. The trace has no NPS use or function. Removing the traffic and revegetating this trace will help stabilize the river corridor and reduce river bank erosion. Most of this trace is federally-owned. The land surrounding the end of this trace is privately owned. Any closure action will require coordination with the land owner.
2-400	Blevin's Access Road	1	1.06	1.00	The upper portion of this road is a trace and provides access to an open field management area. Access to the open field area will remain available to the lessee. Severely eroded areas on the trace will be revegetated. Other erosional areas will be abandoned and allowed to naturally revegetate. This trace was gated to vehicular traffic after September 15th, but walk-in hunting is allowed.
2-3001	Boyher Tract Road	1,2	1.39	0.43	A short spur off this road is proposed for closure. This spur is severely eroded up the hill and provides no NPS use or function. Access to the open field management area will continue to be provided via the Boyer Tract Road. The spur will be blocked and reseeded to control erosion. Duplicate access to the Boyher tract will be eliminated by closure of this spur, located on map 2. Closure will be coordinated with the Missouri Department of Conservation on the adjoining State Forest land. State-listed threatened plant species are found in the area.
2-3003	Schaefer Spring Road	2	1.37	0.31	A portion of this road is a trace which is severely eroded. Duplicate access is provided by a spur to the north. To control erosion this trace will be reclaimed and revegetated. The NPS will need to coordinate with Dent County to repair potential safety hazards on the west portion of the road caused by severe erosion. This trace is not actively used.
2-3004	Jim Tom Trace	2	0.12	0.12	A portion of this road is a trace which contributes to erosion and instability of the river corridor. This trace does not have an NPS use or function and will be barricaded. The trace will be revegetated to stabilize the river corridor. This trace is effectively closed at its lower end by overgrown vegetation. The upper portion of the trace lies on a steep grade and is severely eroded.
2-3014	Hoffman/Farris Road	4	1.78	0.50	This road is park maintained and accesses an NPS agricultural lease field. It also provides access to the Money Sunk primitive area. The spur shown as closed serves no use or function to the NPS and provides duplicate access from 2-3014 to the west. Erosion is present on this portion of the road and corrective action will be required to arrest the erosion. The first part of this road is privately owned. Any closure action will require coordination with both Shannon County and the land owner.

Appendix 5: Detailed Closure Justifications (continued)

ROAD NUMBER	ROAD NAME	MAP NO.	TOTAL LENGTH	DISTANCE CLOSED (MILES)	COMMENTS
2-3025	Lipp's Spur Trace	5	0.23	0.23	This trace provides duplicate access to the river via 2-3031 (Lipp's Road). The trace will be closed through a cooperative agreement with the Missouri Department of Conservation. Steep sections will be revegetated in order to control erosion. This trace has little use because access to this area is provided by a well-maintained adjacent gravel road.
2-3031	Lipp's Road	5	0.93	0.12	A portion of this road is a shortcut and provides duplicate access to Lipp's Tract primitive area. The longer route of Lipp's Road has less severe grades. The shortcut has little use because duplicate access is provided by the well-maintained longer gravel route. The shortcut will be closed and allowed to naturally revegetate.
2-3057	Brushy Creek Road	9	1.92	0.96	A portion of this road past the Brushy Creek primitive area degenerates into a trace. The trace is severely eroded and needs to be closed and reclaimed in order to control erosion. A major reclamation project will be required in order to control existing erosion. State-listed threatened plant species are found in the area. This trace duplicates areas access by the Bee Bluff road. This trace traverses both private and NPS land. Action on private land will require coordination with the landowner.
2-3063	Broadfoot Tract Road	10, 11	1.65	0.78	The southeast portion of this road is a spur that served as access to a now abandoned homestead. The spur now has no NPS use or function. The spur is located on a steep hill and is eroding. The spur will be closed and revegetated to prevent further erosion.
2-3185	Harrison Hollow Trace	5	0.22	0.22	This trace provides duplicate access to the Pothole primitive area. The trace is actively eroding and will be blocked and allowed to naturally revegetate.
4-420	Goose Bay Primitive Area Road	14	1.65	1.32	Over half of this road is a trace which traverses severe slopes with major erosion problems. Deep ruts and erosion presents safety hazard for visitors. In order to control erosion, the trace portion will be barricaded, and revegetated.
4-3069	Wheatley Field Trace	12	0.34	0.34	This trace provides duplicate access to the river. The trace provides no identifiable NPS use or function. The trace has effectively closed itself on the other side of the old wooden bridge which presents a safety hazard. This trace will be barricaded and allowed to naturally revegetate.

Appendix 5: Detailed Closure Justifications (continued)

ROAD NUMBER	ROAD NAME	MAP NO.	TOTAL LENGTH	DISTANCE CLOSED (MILES)	COMMENTS
4-3070	Weston Road	12	2.25	1.75	A portion of this road is a trace which lies on steep slopes that are actively eroding. It will be closed and revegetated in order to control erosion. A portion of this trace is already blocked by a large tree. The majority of the trace is federally-owned land with a small portion of the trace occupying state land. All closure activities will be coordinated with the Missouri Department of Conservation. The road leading to Martin Bluff and Martin's landing primitive area will remain open to the public.
4-3071	Peter Mooney Mountain Trace	12	0.38	0.38	This trace has no use or function within the park boundary and is severely eroded. Reclamation will be required in order to halt erosion.
4-3073	Moloney Road	12	2.69	1.13	This road is severely eroded in close proximity to the river and contributes to river corridor instability. The western portion of this road is a trace and will be closed at the east and west locations designated on the map. The trace will then be revegetated in order to provide river corridor stability. The rest of the road will remain open to access other locations along the riverway. Part of this trace is a horse trail, therefore the trace will be closed only to vehicular traffic. An additional reason for closure of this trace is to protect rare and endangered species in the area.
4-3074	Devil's Back Bone Trace	12	0.25	0.25	This trace is on a steep slope and is severely eroded and serves no NPS use or function. The trace will be closed, and revegetated in order to control erosion.
4-3077	Blair Creek Trace	12, 14	0.75	0.75	This trace lies primarily within the bed of Blair Creek and contributes to sedimentation of the hydrological system. Given the extensive environmental consequences caused by this trace, its closure will result in improvements to the water quality. Some portions of this trace will require revegetation to help stabilize the creek bed. The trace is effectively closed to vehicular traffic other than ORV's. Travel during flood stages on this creek creates safety issues of concern to the NPS. The portion of the trace on map 12 is on private property while most of the trace on map 14 is federally-owned land. Closure of this trace will be coordinated with the land owner.
4-3094	Blue Spring Cut-Off Trace	14	1.06	1.06	This trace is on a steep slope and exhibits severe erosion. This trace will be closed and revegetated in order to control the erosion. The trace serves no NPS use or function. Approximately one quarter of the trace traverses state owned land, the remainder is on federally-owned land. The NPS will coordinate closure activities with the Missouri Department of Conservation.

Appendix 5: Detailed Closure Justifications (continued)

ROAD NUMBER	ROAD NAME	MAP NO.	TOTAL LENGTH	DISTANCE CLOSED (MILES)	COMMENTS
4-3097	North Little Booming Shoal Trace	14	0.50	0.50	This trace is obliterated and serves no NPS use or function. This trace will be closed and allowed to naturally revegetate.
4-3098	South Little Booming Shoal Trace	14	0.50	0.50	This trace is obliterated and serves no NPS use or function. This trace will be closed and allowed to naturally revegetate.
4-3099	Slick Rock Ridge Hollow Trace	15	0.63	0.63	This trace acts as a shortcut between Roads 5-18 (Missouri Highway 106) and 4-3101 (Indian Creek Road) and over one-third of it lies over steep eroding slopes. The trace will be barricaded, and revegetated in order to control erosion. Access to 4-18 and 4-3101 will not be affected by the removal of this trace.
4-3105	Robert's Field Trace	15	0.65	0.65	This trace is an old field road and serves no NPS use or function. Rocky Creek is forded by this trace. Access to the same point on the river can be reached on Road 4-213 (Robert's Field Primitive Campground Access Road). All open field management areas will be administratively controlled closing off vehicular traffic. Foot traffic will be encouraged by providing parking for hunter access. This trace will be gated, and revegetated.
4-3107	Boss Green Tract Trace	15, 16	0.34	0.34	This trace serves no NPS use or function. At one time this trace provided access to an old cabin that has since been removed. The portion of the trace on map 15 is on federally-owned land and the portion on map 16 is on state land. This trace will be barricaded, and revegetated. Closure will be coordinated with the Missouri Department of Natural Resources. Additionally, closure of this trace will afford protection to state-listed threatened plant species.
4-3118	Yeager Trace	16	0.13	0.13	This trace provided access to an old abandoned home site. The trace has no NPS use or function. The trace will be closed and allowed to naturally revegetate.
4-3136	Alphen Hollow Trace	19	0.62	0.62	This trace provides access to an open field management area. The trace is severely eroded and will need to be revegetated. The open field management area will be administratively controlled by a gate. This open field is being reassessed by the NPS. Access will be improved if it is determined that the open field management area is needed.

Appendix 5: Detailed Closure Justifications (continued)

ROAD NUMBER	ROAD NAME	MAP NO.	TOTAL LENGTH	DISTANCE CLOSED (MILES)	COMMENTS
4-3146	Keathley Tract Road	21	2.66	1.19	Sections of this road are traces. They traverse steep slopes and are eroding. Vehicular access to the open field management area will be administratively controlled by a gate. Parking will be provided at the entrance to the field and access will be restricted to foot traffic past that point. Eroding areas will be revegetated in order to control erosion.
4-3148	Dusenberry Ridge Trace	21	1.26	1.26	This trace has no NPS use or function and will be closed and allowed to naturally revegetate.
4-3151	Campbell Tract Trace	22, 24	0.97	0.97	This trace provides access to an open field management area. The lower field trace will be gated which will control access to the open field. Parking will be constructed for hunter access. The upper section of this trace has no use or function and is eroded. This area will be revegetated to control erosion.
4-3152	Beaver Pond Area Traces	22, 24	3.94	3.94	The Beaver Pond Traces are a maze of two-tracks accessing the backcountry and have no NPS use or function. Severe erosion is prevalent over most of the traces. Additionally, state-listed threatened plant species are found in the area. In order to control erosion and protect the state-listed species the traces will be closed at their juncture with 4-3153 (Old Tram Road). They will be stabilized and revegetated.
4-3156	Chalk Bank Trace	25	0.25	0.25	The upper portion of this trace has no NPS use or function. It will be barricaded and allowed to revegetate normally. The lower section will be gated at Old Tram Road. Access will be restricted to personnel for telephone substation maintenance and open field management.
4-3161	Radford Tract Trace	25	0.44	0.44	This trace serves as a duplicate access, there is no NPS use or function. The trace will be closed and allowed to naturally revegetate.
4-3163	Cataract Hill Trace	26	0.29	0.16	This trace serves no NPS use or function. The western portion of this trace provides access to private property outside of the park. The eastern portion of this trace will be closed and allowed to revegetate naturally.

Appendix 5: Detailed Closure Justifications (continued)

ROAD NUMBER	ROAD NAME	MAP NO.	TOTAL LENGTH	DISTANCE CLOSED (MILES)	COMMENTS
4-3164	Coal Bank Cave Road	26	0.50	0.50	A large sink hole near the cave entrance accessed by this road presents a safety concern for visitors. Additionally, this cave is the home of the endangered grey bat (Myotis grisescens). This entire road will be closed to protect this species and to address safety concerns. The road will then be allowed to naturally revegetate.
4-3165	Wilson Tract Trace	26	0.19	0.19	There is no NPS use or function for this trace past the open field management area. The trace will be closed by a gate. Parking will be provided for hunter access.
4-3166	Lost Man Cave Road	26	2.19	1.00	This road provides access to Lost Man Cave. From that point northward the road is a trace. The trace is severely eroded and presents safety issues to vehicular access. Additionally, this area is traversed with a maze of roads which show a great deal of ORV traffic from the Hickory Landing area. This trace will be closed and revegetated to control erosion and to correct the safety concerns.
4-3168	Conner Lake Trace	26	0.09	0.09	This trace has no NPS use or function. It provides access to an old field and dry lake bed. The area will be closed and allowed to naturally revegetate.
4-3169	Panther Spring Road	27	0.75	0.25	This road will remain open to the primitive area campground. Past that point, it becomes a trace and will be closed to vehicles. The trace narrows past the primitive area campground and rocks have closed the access. After closure, the trace will be allowed to revegetate naturally.
4-3170	Hooper Hollow Road	27	0.62	0.31	A trace off this road supplies duplicate access to Missouri Highway-Z (4-24). This trace will be gated and administratively controlled for open field management. A parking area will be provided at the gated entrance for hunters access.
4-3175	Gooseneck Hollow Trace	28	0.31	0.31	This trace follows the creek bed and is eroding. Additionally, this trace has no NPS use or function. The trace will be closed and allowed to revegetate naturally. Large boulders and fallen trees have closed portions of the trace.
4-3181	Aldridge Valley Trace	25	0.25	0.25	This trace has no NPS use or function. Trace will be closed and allowed to naturally revegetate.

Appendix 5: Detailed Closure Justifications (continued)

ROAD NUMBER	ROAD NAME	MAP NO.	TOTAL LENGTH	DISTANCE CLOSED (MILES)	COMMENTS
4-3196	Granite Quarry Trace	22	0.25	0.25	This trace is severely eroded and provides access to an old quarry. The trace now has no NPS use or function. The trace will be closed and revegetated in order to control erosion.
5- 456	Jam Up Cave Road	30	1.65	1.65	A state-listed threatened plant species is found in the area. This road will be closed, graded and revegetated.
5-3065	Shed Tract Trace	11	0.78	0.78	This trace served an old field that is no longer maintained. The trace is severely eroded. No NPS use or function has been identified for this trace. A portion of the trace crosses federally-owned land, the remainder is on private land. The trace will be seeded, and revegetated. The NPS will coordinate with the landowner during closure.
5-3150	Bear Cave Spur Trace	29	0.16	0.16	This trace leads to a natural area and an old dump. There is no identifiable NPS use or function. There is a need to afford greater protection to the adjacent state-listed natural area. This area will be gated and administratively closed to the public. A state-listed threatened plant species is found in the area.
5-3177	Girl Scout Camp Trace	29	0.75	0.75	This trace is actively eroding over half of it's length. Erosion is being caused by ORV's. The level part of this trace is on easement land. The steep portion of the trace is federally-owned land. The trace will be blocked and revegetated in order to control erosion. The NPS will coordinate with the easement owners during closure.
5-3184	Bacher Landing Road	30	2.02	0.28	A portion of this road adjacent to the river is a trace and is eroding and contributing to the unstable river bank conditions. This portion of the Bacher Landing trace will be closed and revegetated in order to control erosion and add stability to the river bank corridor. Another portion of this road provides duplicate access to Bacher Landing. The bank paralleling the road is sloughing off and is considered to be a safety hazard. This area will be closed and revegetated to control erosion and to aid in river bank stability. A state-listed threatened plant species is found in the area and will be afforded greater protection by closure.
5-3186	Red Bluff Trace	30	0.81	0.81	This trace is extremely steep and severely eroded. The trace will be barricaded, stabilized, and revegetated.

Appendix 5: Detailed Closure Justifications (continued)

ROAD NUMBER	ROAD NAME	MAP NO.	TOTAL LENGTH	DISTANCE CLOSED (MILES)	COMMENTS
5-3188	Harley Basin Road	30	0.88	0.88	This road is severely eroded. The entire area is accessed through private property and a locked gate. A state-listed threatened plant species is found in the area. Areas experiencing severe erosion will be revegetated.
5-3189	Simms Tract Road	30	2.78	2.78	This road is steep and severely eroded. This area will be blocked and revegetated. This entire road is behind a private gate.
5-3192	Fifteen Foot Hole Trace	31	0.69	0.69	This trace is severely eroding on over one-third of its distance. Additionally, a state-listed threatened plant species is found in the area. In order to control environmental damage due to excessive erosion, and to protect the Missouri state listed species this trace will be closed and revegetated.
5-3202	Old Cooley Road	34	0.25	0.13	A portion of this road is a trace which has no NPS use or function, other than leading to an old abandoned field. There is some erosion on this trace. The trace will be closed and revegetated in order to control the erosion.
5-3203	Effie Smith Bluff Trace	34	0.75	0.75	This trace is located on extremely steep terrain and is actively eroding. The trace will be revegetated and blocked in order to allow vegetation to stabilize the erosional scar.
5-3205	Culpepper Tract Trace	34	0.75	0.75	This trace is located on steep terrain and portions are severely eroded. Duplicate access to the riverway is provided by this trace and Horse Camp Loop Road 5-141. This trace will be barricaded on both ends and will be regraded and revegetated in order to check erosion.
		Total Distance Closed:		**37.44 Miles**	

APPENDIX 6: HORSE TRAILS INVENTORY

ID #	TRAIL NAME OR LOCATION	MAP #	DISTANCE (FEET)
ID-01	Two Rivers Area	12	3,468
ID-02	Two Rivers Area	12	1,640
ID-11	Twin Rocks Horse Trail	10	10,000
ID-14	Lower Sutton Creek Area	11	2,685
ID-15	Shawnee Campground Are	11	2,983
ID-16	Shawnee Campground Area	11	3,880
ID-17	Shawnee Campground Area	11	15,502
ID-19	Ebb & Flow Spring Area	11	6,264
ID-35	Jerktail Horse Trail	10	3,275
ID-36	Jerktail Horse Trail	10	19,672
ID-110	Sutton Creek Primitive Area	10	2,500
ID-191	Ebb & Flow Spring Area	11	3,460
12 trails	**Total:**	**71,870 feet = 13.6 miles**	

APPENDIX 7: OZARK NSR HORSE AND FOOT TRAIL STANDARDS

STANDARD: GENERAL	TREADWAY SURFACE	GRADE/EROSION CONTROL	WET AREAS	STREAM CROSSINGS	OTHER
A. Very high "front-country" standard designed for large numbers of pedestrians, including visitors in wheelchairs	Paved or boardwalk surface, no steps or other barriers to wheelchairs; at least 6 feet wide	Generally flat to 5^0 although short segments may be 8^0; no cross-trail drainage structures except broad, gentle dips; margins must be outlined with rock to confine use to treadway	Boardwalks with handrails; bog bridges built with stone	Bridges (minimum 6 feet wide) with handrails	Viewing areas or platforms with handrails for nature observation or interpretation
B. High-standard pedestrian trail designed for minimum maintenance, despite heavy use	Dirt, gravel, or paved surface; a wide (at least 4 feet), relatively smooth surface accommodating two or more people side by side	Constant grades not exceeding 12^0, accomplished with carefully aligned switchbacks and stone retaining walls; stone steps and low stone drainage bars used in preference to wood (log) structures; margins commonly outlined with rock to confine use to treadway	Bog bridges (minimum 4 feet wide) built with stone for performance	Bridges (minimum 4 feet wide) with handrails; small streams may be crossed with rock or metal culverts	
C. High-standard trail designed to withstand the impacts of large volumes of commercial horse use	Dirt surface; no slick rock sections; no steps except log checks, dirt on the treadway is typically pulverized and cast aside by hooves, often resulting in a central depression; treadway at least 3 feet wide	Grades not exceeding 12^0; switchbacks and retaining walls used routinely to keep grade at a minimum, avoiding sections running straight up slopes which would gully; numerous heavy-duty log or stone drainage bars and log checks in areas with significant grade	High-standard bog bridges at least 3 feet wide	Heavy-duty bridges (minimum 4 feet wide) with side rails over deep or swift streams; smaller streams may be crossed with single or multiple log footbridges and fords for horses	Tree limbs and brush must be pruned at a height and width for safe passage of horses and riders

Appendix 7: Ozark NSR Horse and Foot Trail Standards (continued)

STANDARD: GENERAL	TREADWAY SURFACE	GRADE/EROSION CONTROL	WET AREAS	STREAM CROSSINGS	OTHER
D. High-standard trail carefully designed and aligned for minimum maintenance; intermediate horse and hiker volumes, requiring construction and clear delineation of the treadway throughout Dirt surface; fill imported as necessary to establish and maintain an even surface; rough stony sections and slick rock to be removed or modified to safely accommodate horses; treadway 1-1/2 to 3 feet wide (depending on terrain and expected use)	Grades generally 12^0 or less; switchbacks and retaining walls used routinely to maintain constant grades; log or stone drainage bars at intervals determined by grade; margins commonly outlined with rock to confine use to treadway	High-standard bog bridges as wide or wider than prevailing treadway plan	Heavy-duty bridges (minimum 4 feet wide) with side rails over deep or swift streams; smaller streams may be crossed with single- or multiple-log footbridges and fords for horses	Tree limbs and brush must be pruned at a height and width for safe passage of horses and riders	
E. Typically a nonconstructed trail that has evolved informally through use, may have been partly reconstructed at a higher standard; private horse traffic possible, although difficult in some places	Dirt and rock surface; rough stony sections or slick rock may not be corrected except where necessary to reduce unsure footing for horses; where use has been light, especially in meadows or willow thickets, treadway may be overgrown and indistinct, and cairns and post may be needed at regular intervals to mark the route; along multiple paths due to wet soils, unwanted paths should be blocked or obliterated and realignment on drier or sloping ground considered; treadway width at least 1-1/2 feet, but variable because trail was established by use rather than design	Grades up to 20, locally higher; steep sections may be eroded, especially if use has grown beyond the need for a light-duty trail, requiring drainage bars or dips; where trail is along a hillside, with the treadway sloping slightly outward, erosion probably is not a problem and retaining walls not needed, margins typically not lined with rock. Low-standard bog bridges installed only where necessary for safe horse passage and preventing serious damage to boggy soils by horses	Heavy-duty bridges (minimum 4 feet wide) with wide rails over deep or swift streams; smaller streams may be crossed with single- or multiple-log foot- bridges and fords for horses		

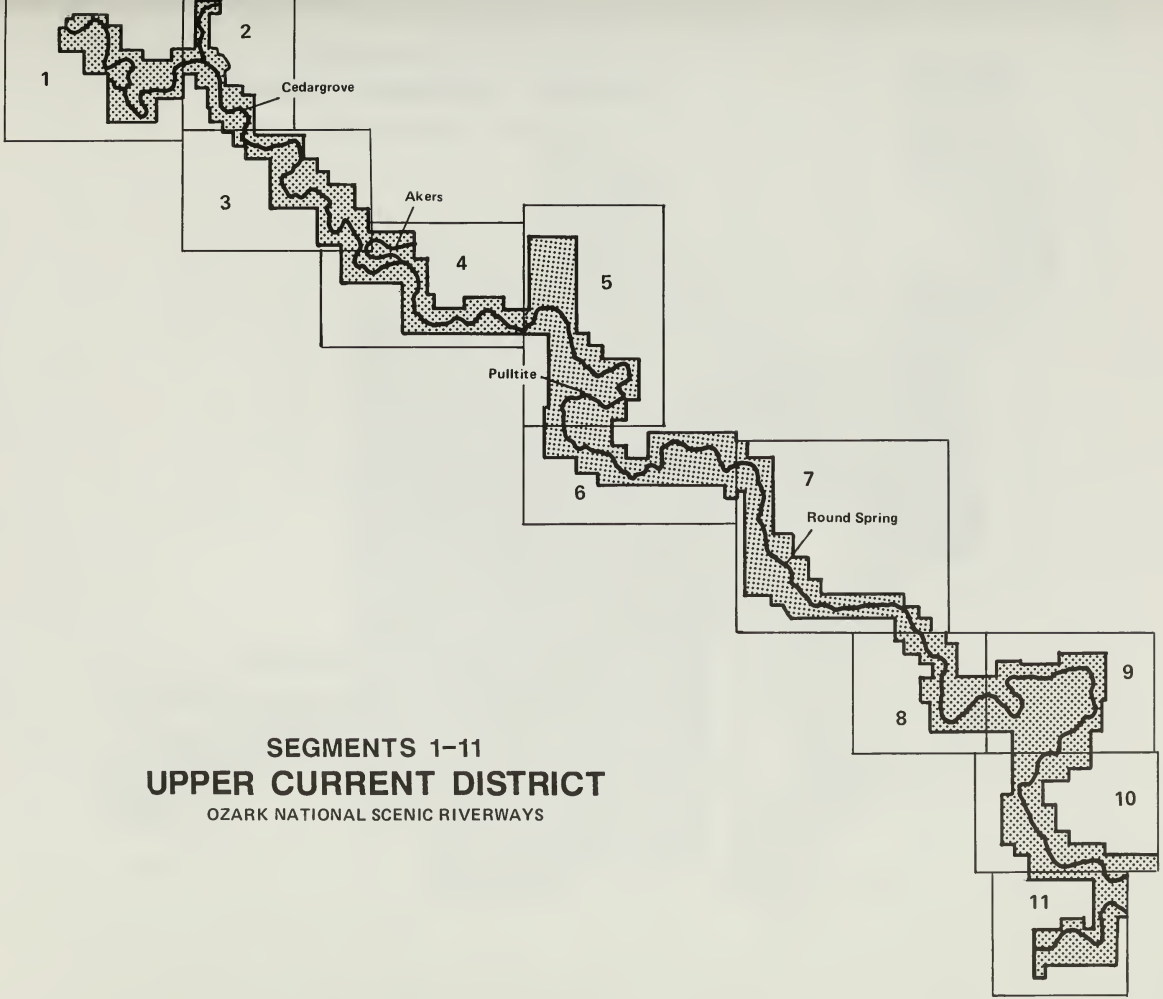
Appendix 7: Ozark NSR Horse and Foot Trail Standards (continued)

STANDARD: GENERAL	TREADWAY SURFACE	GRADE/EROSION CONTROL	WET AREAS	STREAM CROSSINGS	OTHER
F. A nonconstructed, foot-only trail that has evolved informally through use; unsafe or unsuitable for use by horses because of very boggy or steep rocky areas, or for environmental protection; some may not be regarded as part of the official park trail system and may not appear on park maps (examples or paths leading from higher standard trails into cross-country use zones, climbers' access trails, and spur trails to most backcountry campsites); constructed structures minimal	Dirt and rock surface; where use has been light, especially in meadows or willow thickets, treadway may be indistinct and cairns may be needed; unwanted multiple paths should be blocked and obliterated, and preferred route clearly marked	Grades up to 20^{0}; simple water bars in short, steep eroded segments; ong eroded segments should be realigned at lower grade	Logs rather than bog bridges to keep hikers on course	Single-log bridges where streams are deep or swift, otherwise stepping stones or no structures	In contrast to higher standards, standard F trails may not be cleared of fallen trees, except infrequently when large obstructions are causing multiple paths to be formed in easily eroded soils

* In some cases a standard E trail is upgraded to a standard D trail along the same alignment, resulting in treadway grades up to 20^{0}; this may require that steep, eroded sections be rebuilt in place, using log checks along depressions rather than diverting water from the trail with drainage bars; this practice should be avoided whenever possible by never exceeding 12^{0} grade on a standard D trail.

APPENDIX 8: FOOT TRAILS INVENTORY

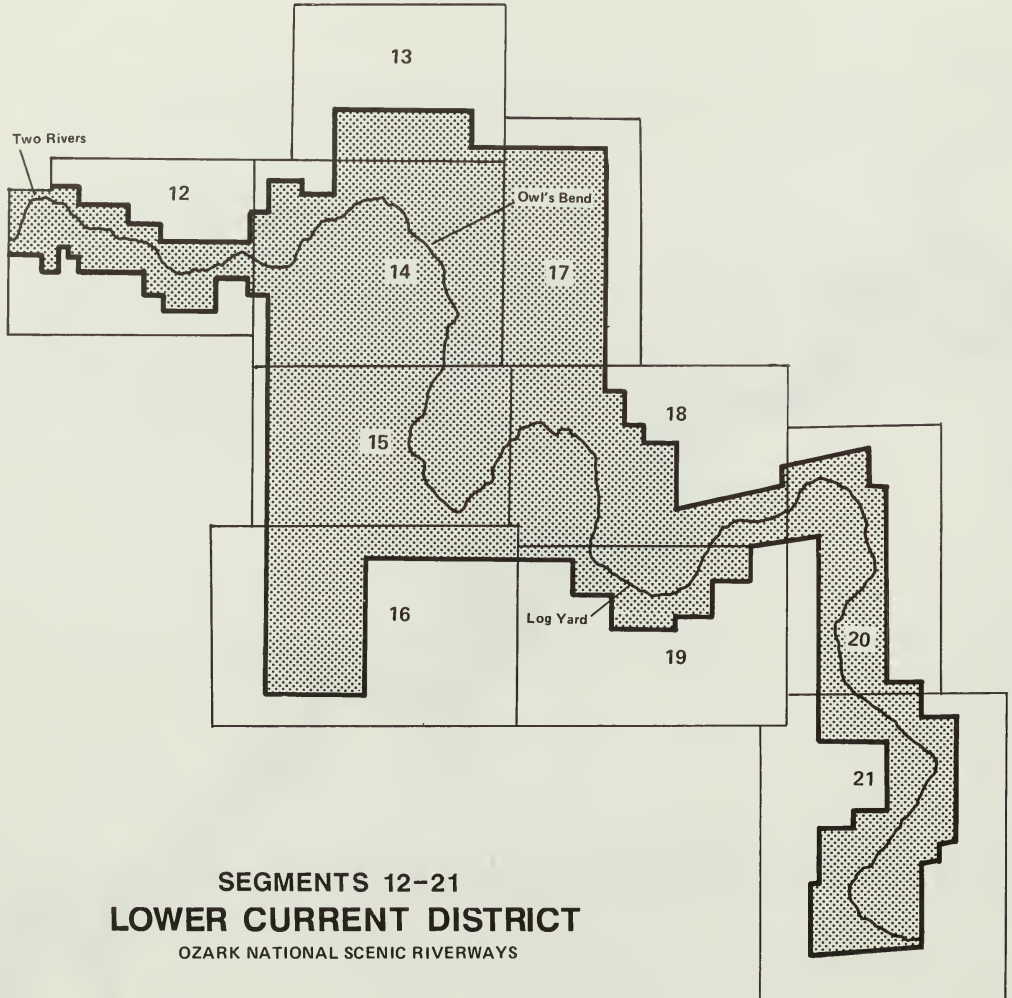
ID #	TRAIL NAME OR LOCATION	MAP #	DISTANCE (FEET)
ID-18	Ebb & Flow Tail	11, 12	7,010
ID-20	Big Spring Trail	24	6,876
ID-21	Big Spring Trail	35	2,159
ID-22	Big Spring Trail	24	492
ID-23	Big Spring Trial	24	12,206
ID-24	Chub Hollow Trail	24	15,650
ID-25	Big Spring Trail	24	12,530
ID-26	Chilton Creek Loop Trail	23, 24	19,825
ID-27	Big Spring Trail	24	1,500
ID-31	Welch Spring Trail	3	4,708
ID-32	Welch Spring Trail	3	3,815
ID-33	Akers Ferry Trail	4	1,800
ID-50	Ozark Trail	15, 16	19,672
ID-51	Ozark Trail	14, 15	51,343
ID-52	Blue Spring Trail	14	1,745
ID-53	Blue Spring Trail	14	6,635
ID-54	Alley Spring Trail	34	7,150
ID-55	Spring Branch Trail	34	2,151
ID-56	Alley Spring Campground Trail	34	2,370
ID-57	Alley Spring Trail	34	1,452
ID-59	Rocky Falls Spur Trail	16	2,520
ID-65	Pulltite Trail	5	1,500
ID-70	Round Springs Cave Trail	7	510
ID-71	Round Springs Trail	7	1,297
ID-75	Parker School Trail	2	500
ID-76	Susie Nichols Cabin Trail	2	2,900
ID-77	Maggard Cabin Trail	3	600
ID-78	Devil's Well Trail	5	8,000
ID-79	Pulltite Nature Trail	5	3,900
ID-80	Prairie Hollow Gorge Trail	12	2,100
ID-81	Buttin Rock School Trail	15	900
ID-82	Rocky Creek Trail	15	1,200
ID-83	East Loop Ozark Trail	22, 23, 24, 25	25,350
ID-84	Cave Spring River Trail	26	4,100
ID-90	Jam Up Cave Trail	30	200
ID-201	Big Spring Trail Spur	24	1,000
ID-203	Big Spring Trail Spur	24	440
ID-204	Big Spring Trail Spur	24	500
ID-211	Big Spring Trail	24	500
ID-212	Big Spring Trail	22	2,904
ID-250	Big Spring Trail	24	875
ID-251	Big Spring Trail	24	2,115
ID-261	Big Spring Trail	23	9,704
43 Trails	**Total:**	**254,704 feet = 48.2 miles**	



SEGMENTS 1–11

UPPER CURRENT DISTRICT

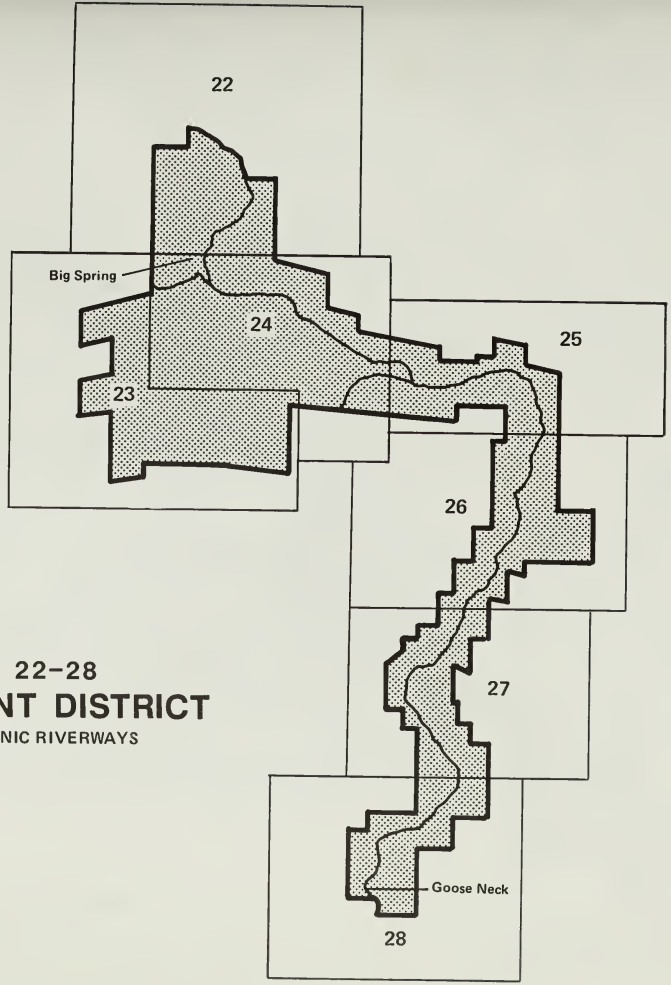
OZARK NATIONAL SCENIC RIVERWAYS



SEGMENTS 12–21

LOWER CURRENT DISTRICT

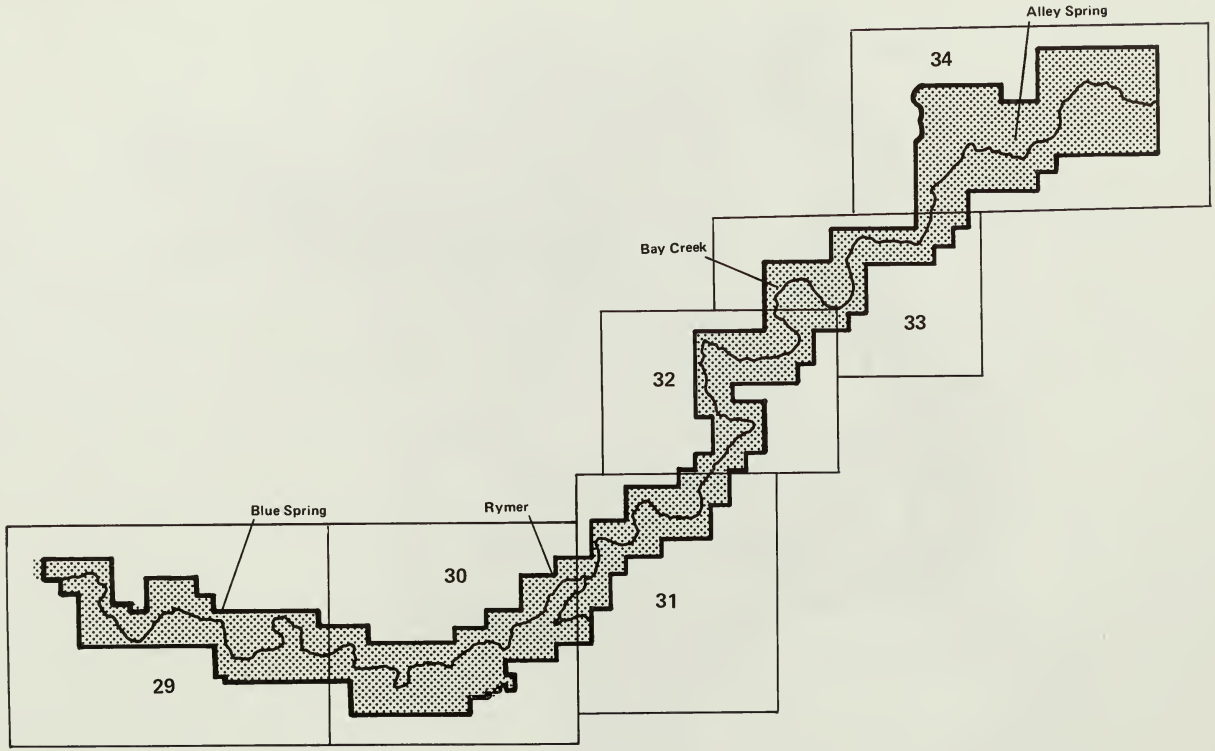
OZARK NATIONAL SCENIC RIVERWAYS



SEGMENTS 22–28

LOWER CURRENT DISTRICT

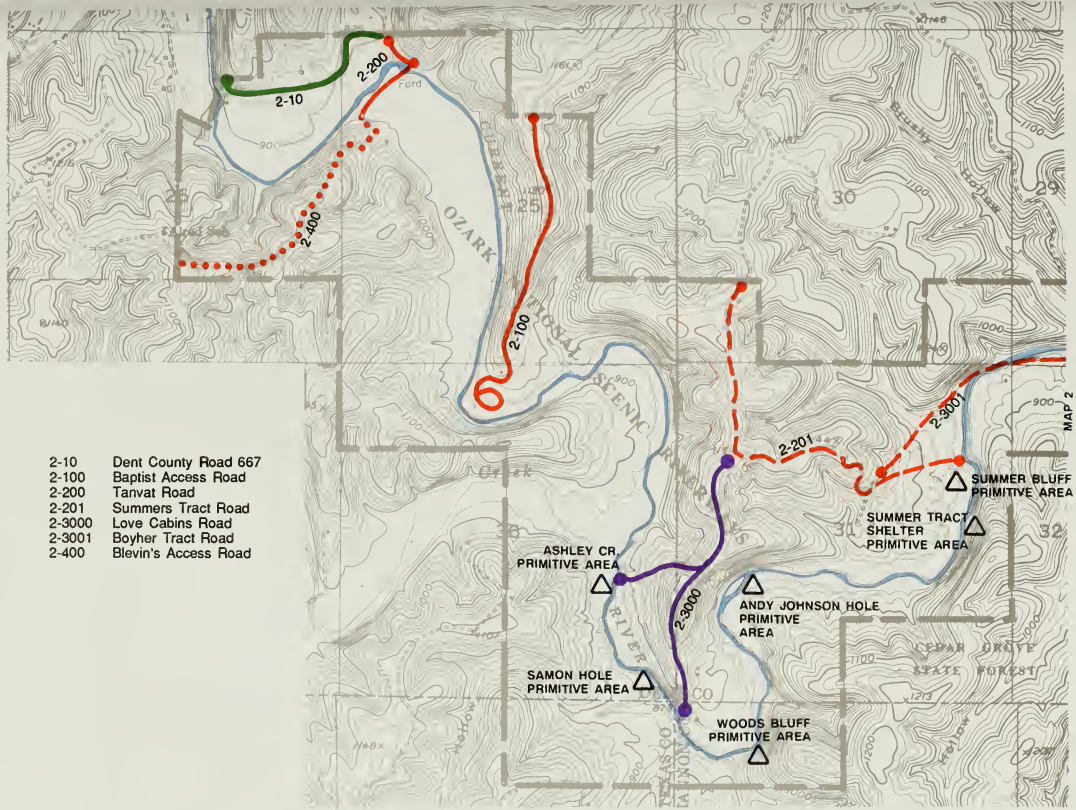
OZARK NATIONAL SCENIC RIVERWAYS



SEGMENTS 29–34

JACKS FORK DISTRICT

OZARK NATIONAL SCENIC RIVERWAYS



2-10	Dent County Road 667
2-100	Baptist Access Road
2-200	Tanvat Road
2-201	Summers Tract Road
2-3000	Love Cabins Road
2-3001	Boyher Tract Road
2-400	Blevin's Access Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

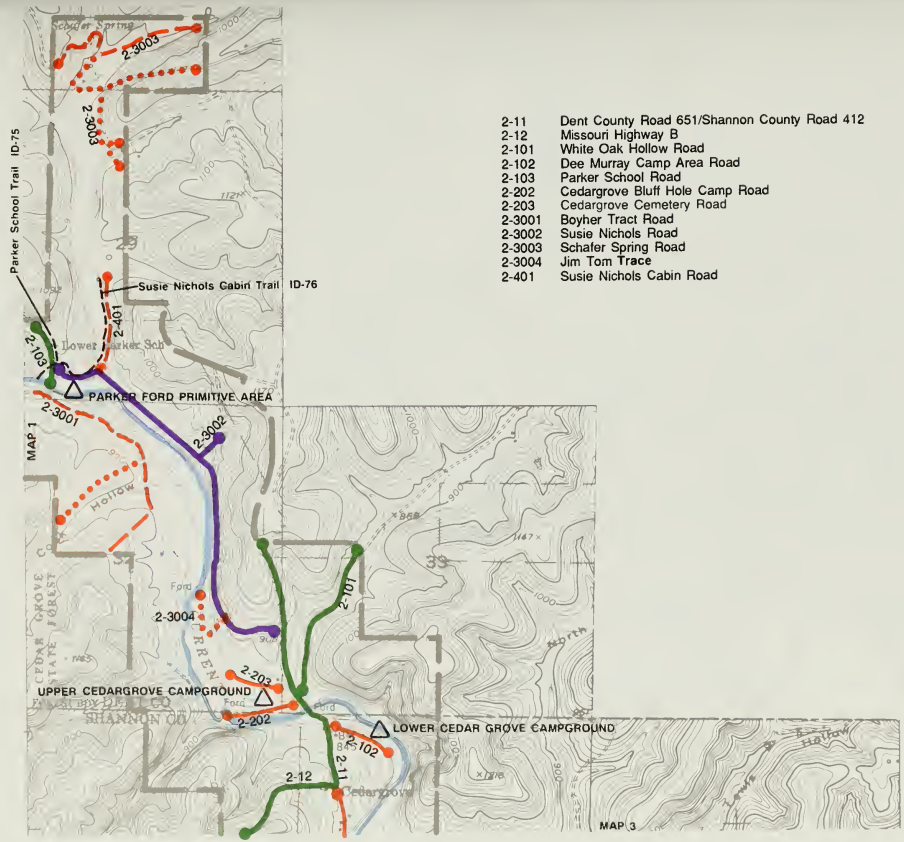
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 1

DSC / DEC 89–614 / 40037



2-11	Dent County Road 651/Shannon County Road 412
2-12	Missouri Highway B
2-101	White Oak Hollow Road
2-102	Dee Murray Camp Area Road
2-103	Parker School Road
2-202	Cedargrove Bluff Hole Camp Road
2-203	Cedargrove Cemetery Road
2-3001	Boyher Tract Road
2-3002	Susie Nichols Road
2-3003	Schafer Spring Road
2-3004	Jim Tom Trace
2-401	Susie Nichols Cabin Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED : MAINTAINED

NPS OWNED : UNMAINTAINED

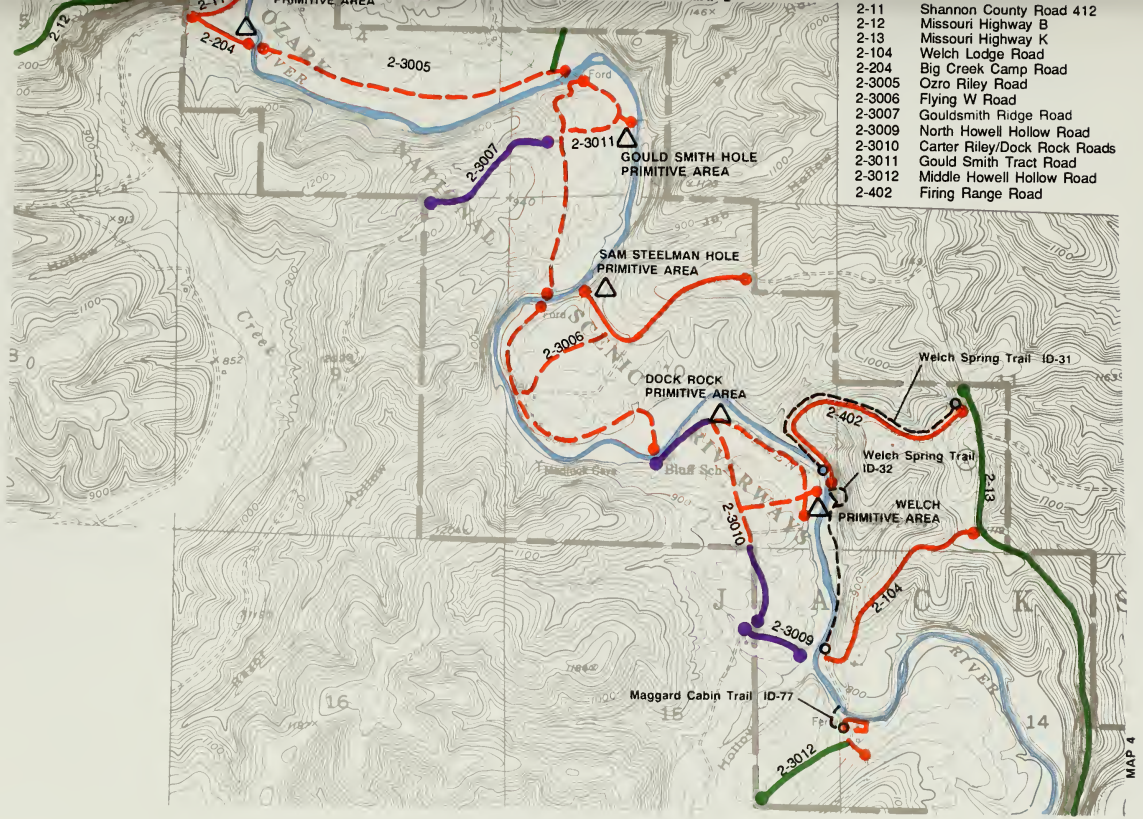
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 2

DSC / DEC 89–614 / 40037



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

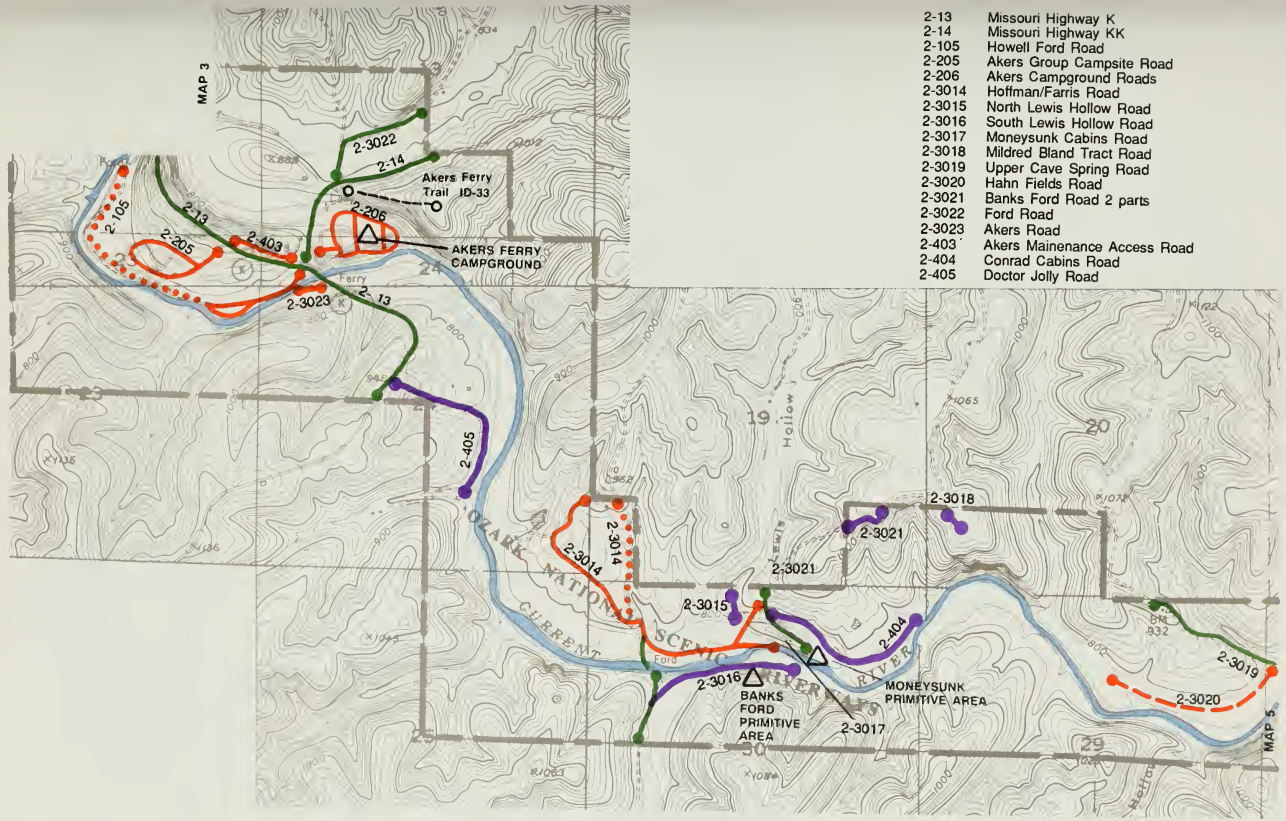
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 3

DSC / DEC 89–614 / 40037



2-13	Missouri Highway K
2-14	Missouri Highway KK
2-105	Howell Ford Road
2-205	Akers Group Campsite Road
2-206	Akers Campground Roads
2-3014	Hoffman/Farris Road
2-3015	North Lewis Hollow Road
2-3016	South Lewis Hollow Road
2-3017	Moneysunk Cabins Road
2-3018	Mildred Bland Tract Road
2-3019	Upper Cave Spring Road
2-3020	Hahn Fields Road
2-3021	Banks Ford Road 2 parts
2-3022	Ford Road
2-3023	Akers Road
2-403	Akers Mainenance Access Road
2-404	Conrad Cabins Road
2-405	Doctor Jolly Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

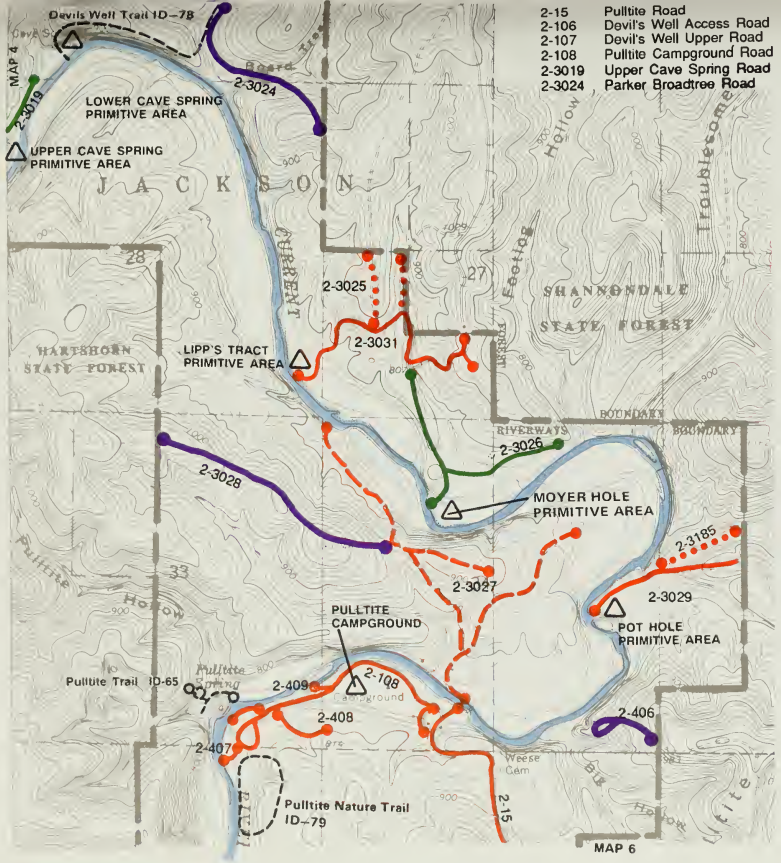
North

0 1/2 MI.

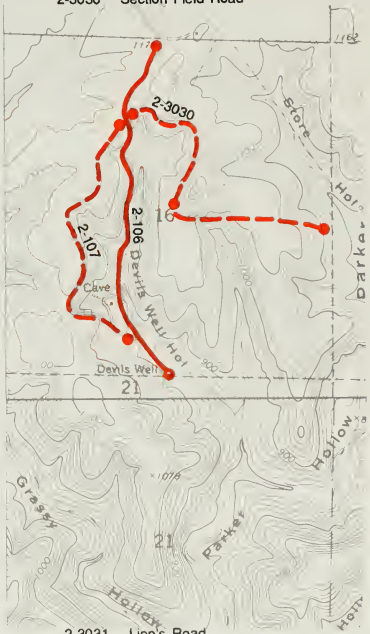
TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 4

DSC / DEC 89–614 / 40037



2-15	Pulltite Road
2-106	Devil's Well Access Road
2-107	Devil's Well Upper Road
2-108	Pulltite Campground Road
2-3019	Upper Cave Spring Road
2-3024	Parker Broadtree Road
2-3025	Lipp's Spur Trace
2-3026	Moyer Road
2-3027	Blackwell Tract Road
2-3028	Sunk Lands Road
2-3029	Pot Hole Road
2-3030	Section Field Road



2-3031	Lipp's Road
2-406	Tebbetts Road
2-407	Pulltite Service Road
2-408	Pulltite Maintenance Road
2-409	Pulltite Floater Camp Area
2-3185	Harrison Hollow Trace

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

North

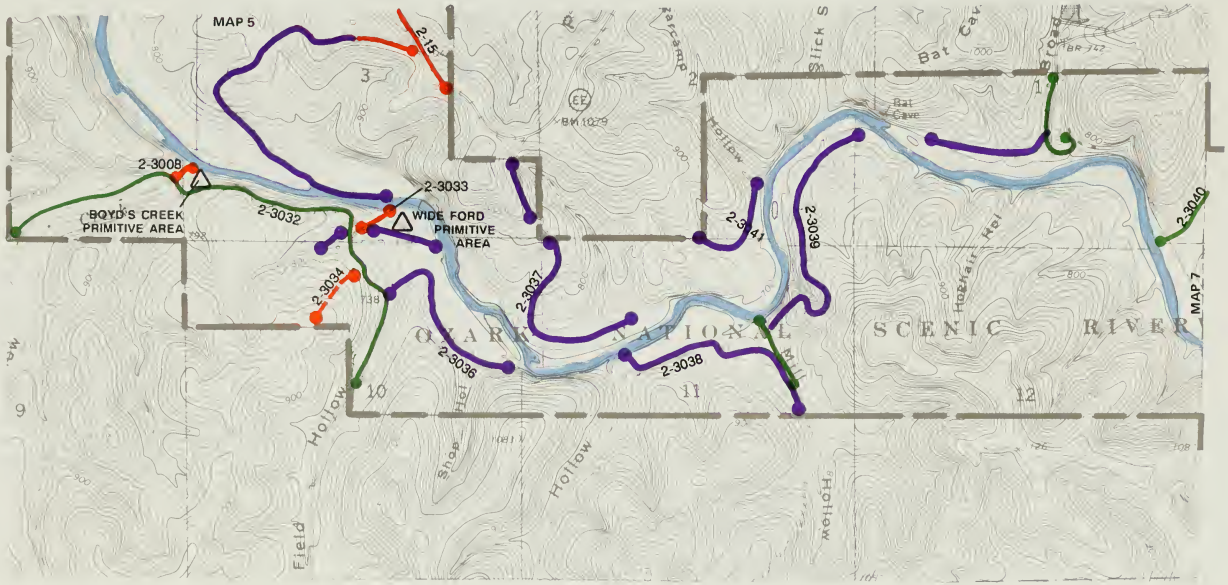
0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 5

DSC / DEC 89–614 / 40037

2-15	Pulltite Road
2-3032	Boyd's Creek Road
2-3033	Wide Ford Road
2-3034	Boyd's Creek School House Road
2-3008	Boyd's Creek Spur Road
2-3036	Tyler Tract Road
2-3037	Ted O'Gwynn Road
2-3038	Mill Hollow Road
2-3039	Goehler/Stringer Road
2-3040	Jones Hollow Road
2-3041	Upper Sugarcamp Hollow Road
2-410	Pulltite Water Tower Road
2-411	Lewis Cabin Road
2-412	Spurgeon Road
2-413	Alton Club Road



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

North

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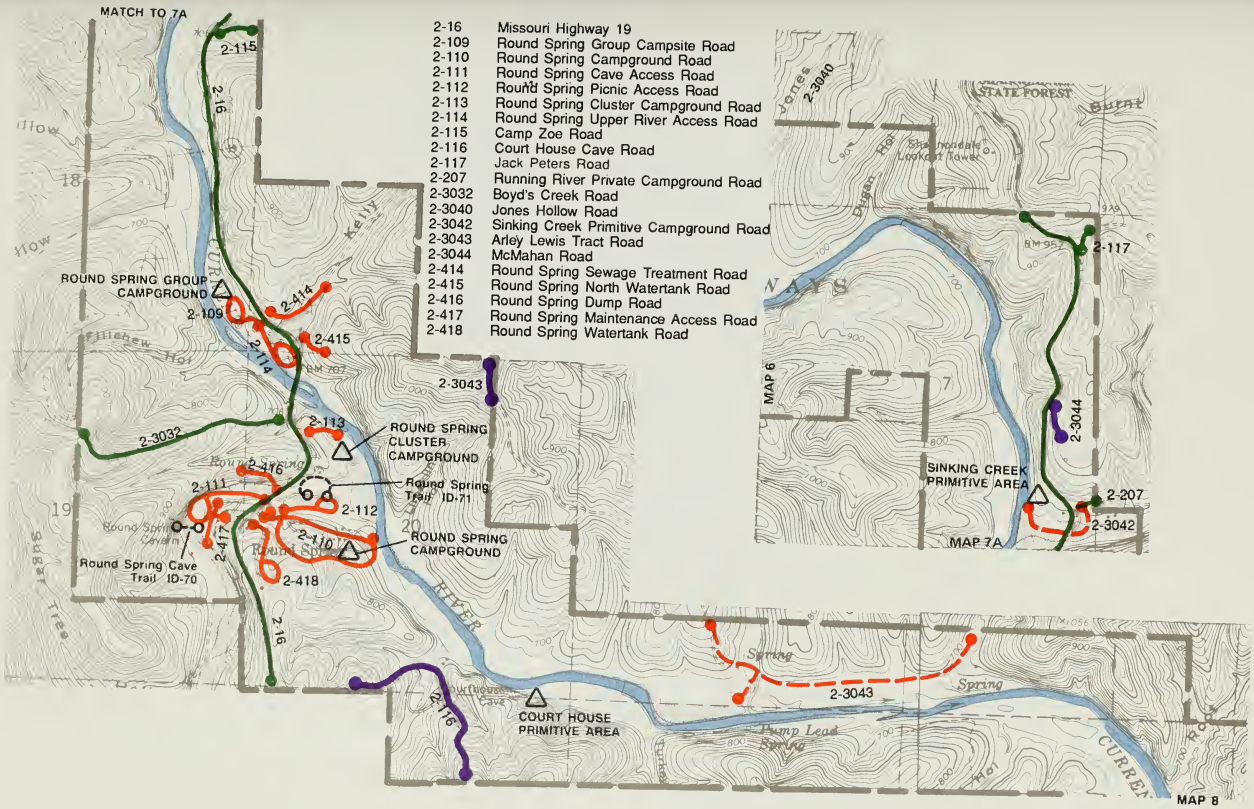
TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 6

DSC / DEC 89–614 / 40037



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

North

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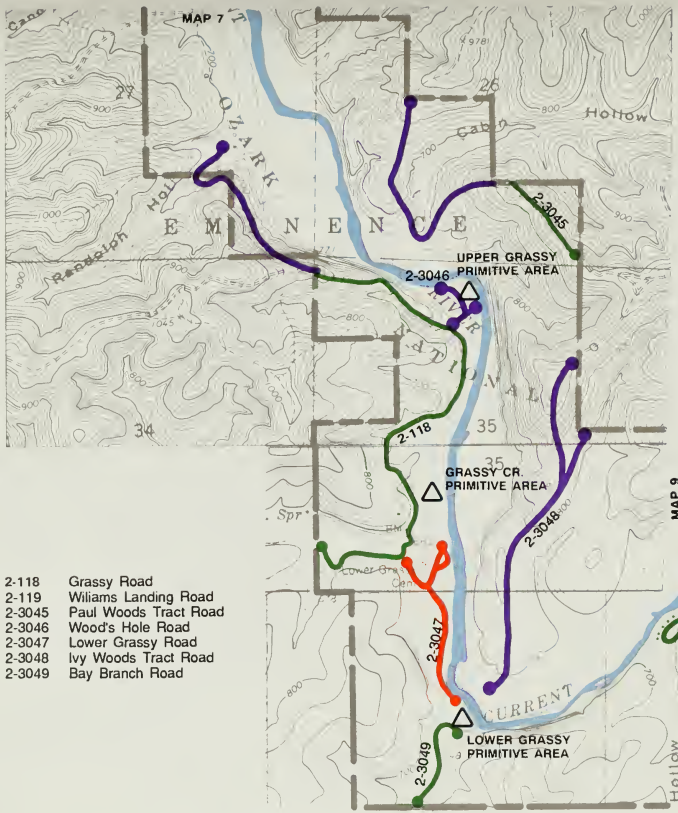
TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 7

DSC / DEC 89–614 / 40037



2-118 Grassy Road
2-119 Wiliams Landing Road
2-3045 Paul Woods Tract Road
2-3046 Wood's Hole Road
2-3047 Lower Grassy Road
2-3048 Ivy Woods Tract Road
2-3049 Bay Branch Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

North

0 1/2 MI.

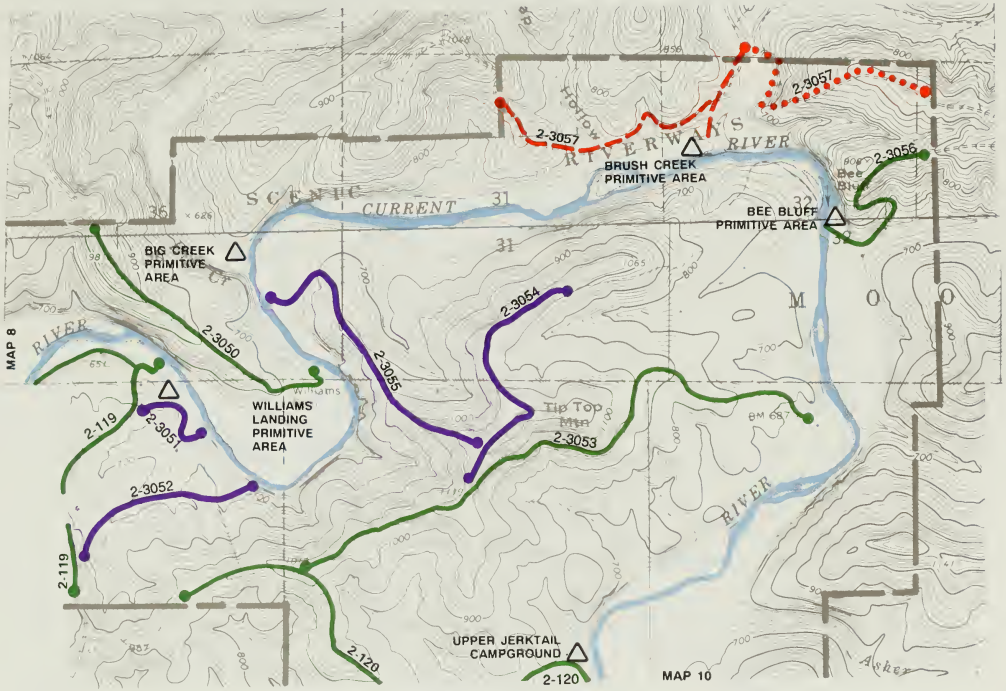
TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 8

DSC / DEC 89–614 / 40037

2-119 Williams Landing Road
2-120 Jerktail Road
2-3050 Williams Cemetery Road
2-3051 Titus Cabin Road
2-3052 Cedar Cabin Road

2-3053 Bee Bluff Schoolhouse Road
2-3054 Tip-Top Road
2-3055 Wind Cave Road
2-3056 Bee Bluff Road
2-3057 Brush Creek Road



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

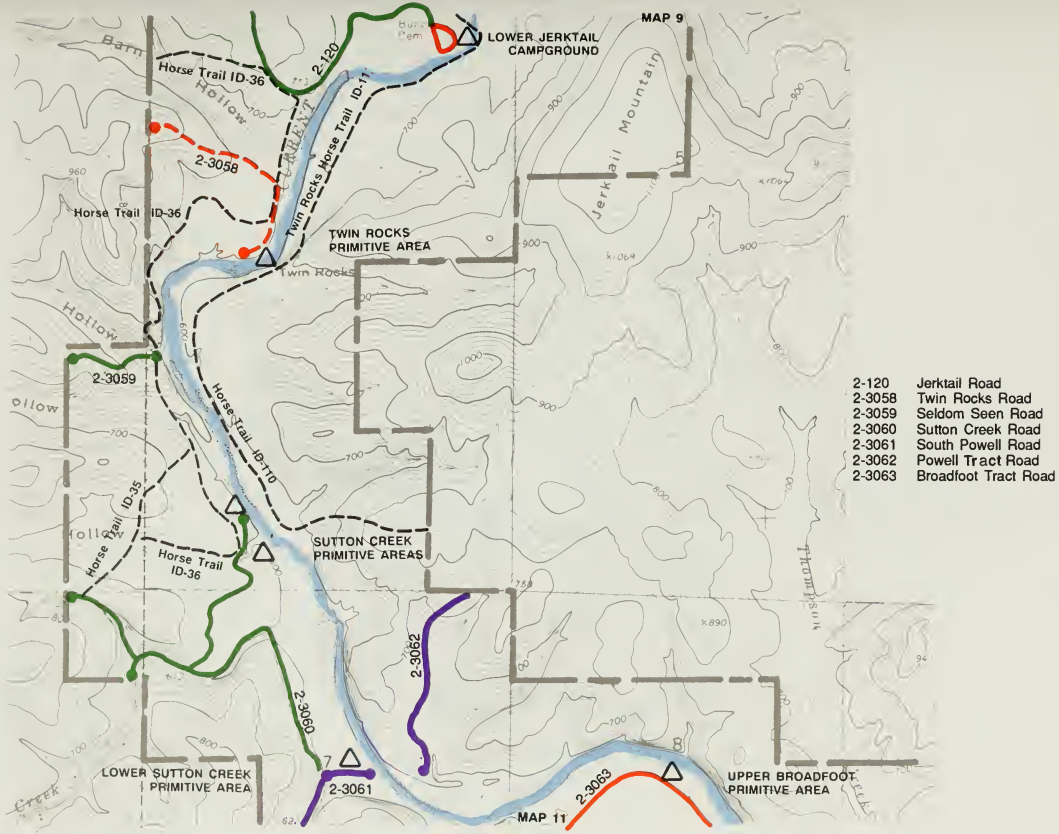
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 9

DSC / DEC 89–614 / 40037



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 10

DSC / DEC 89–614 / 40037

2-3060	Sutton Creek Roads
2-3063	Broadfoot Tract Road
5-121	Shawnee Shop Road
5-122	Shawnee Creek Road
5-208	Shawnee Campground Road
5-3064	Nelson Tract Road
5-3065	Shed Tract Trace
5-3066	Powell Springs Road
5-421	Blue Bird Ranch Road
5-422	Crancer Tract Road
5-423	Smith Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

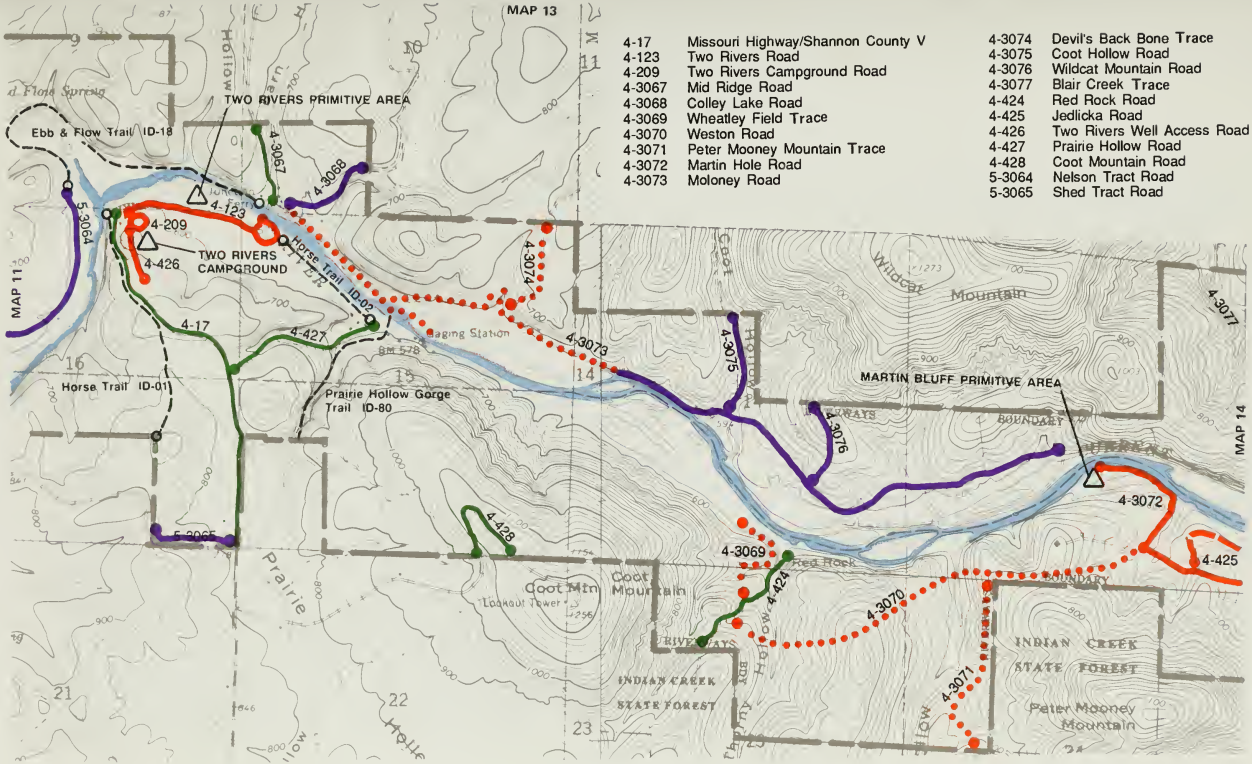
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 11

DSC / DEC 89–614 / 40037



4-17	Missouri Highway/Shannon County V
4-123	Two Rivers Road
4-209	Two Rivers Campground Road
4-3067	Mid Ridge Road
4-3068	Colley Lake Road
4-3069	Wheatley Field Trace
4-3070	Weston Road
4-3071	Peter Mooney Mountain Trace
4-3072	Martin Hole Road
4-3073	Moloney Road
4-3074	Devil's Back Bone Trace
4-3075	Coot Hollow Road
4-3076	Wildcat Mountain Road
4-3077	Blair Creek Trace
4-424	Red Rock Road
4-425	Jedlicka Road
4-426	Two Rivers Well Access Road
4-427	Prairie Hollow Road
4-428	Coot Mountain Road
5-3064	Nelson Tract Road
5-3065	Shed Tract Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

North

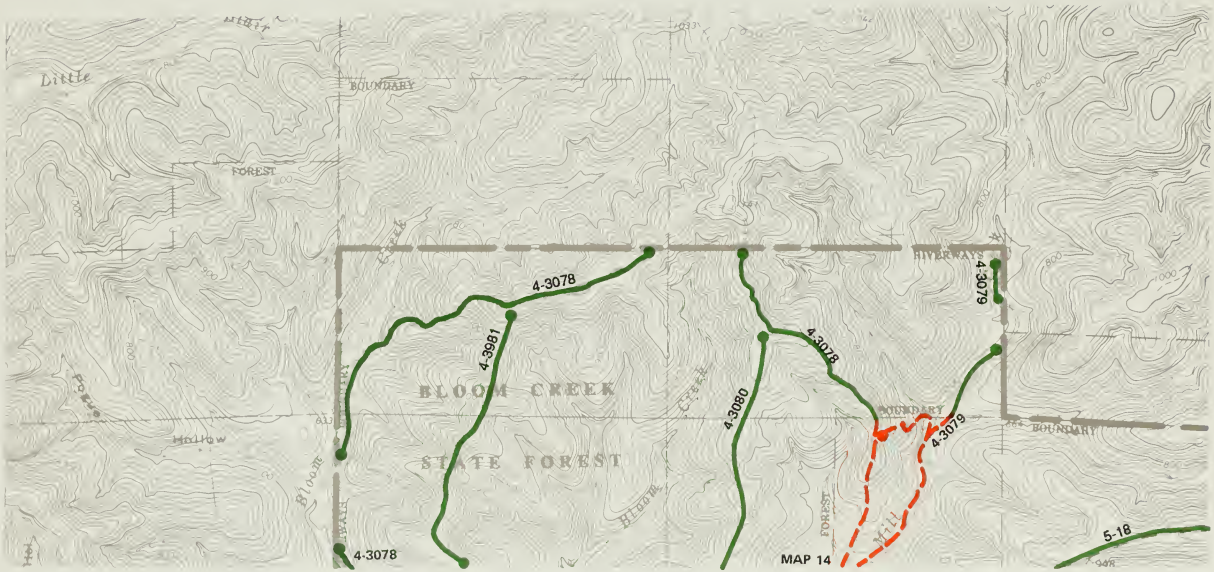
0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 12

DSC / DEC 89–614 / 40037

4-3078 Bloom Creek Road
4-3079 Powder Mill Creek Road
4-3980 Little Bloom Creek East Ridge Road
4-3981 Little Bloom Creek West Ridge Road
5-18 Missouri Highway 106



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED MAINTAINED

NPS OWNED UNMAINTAINED

North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 13

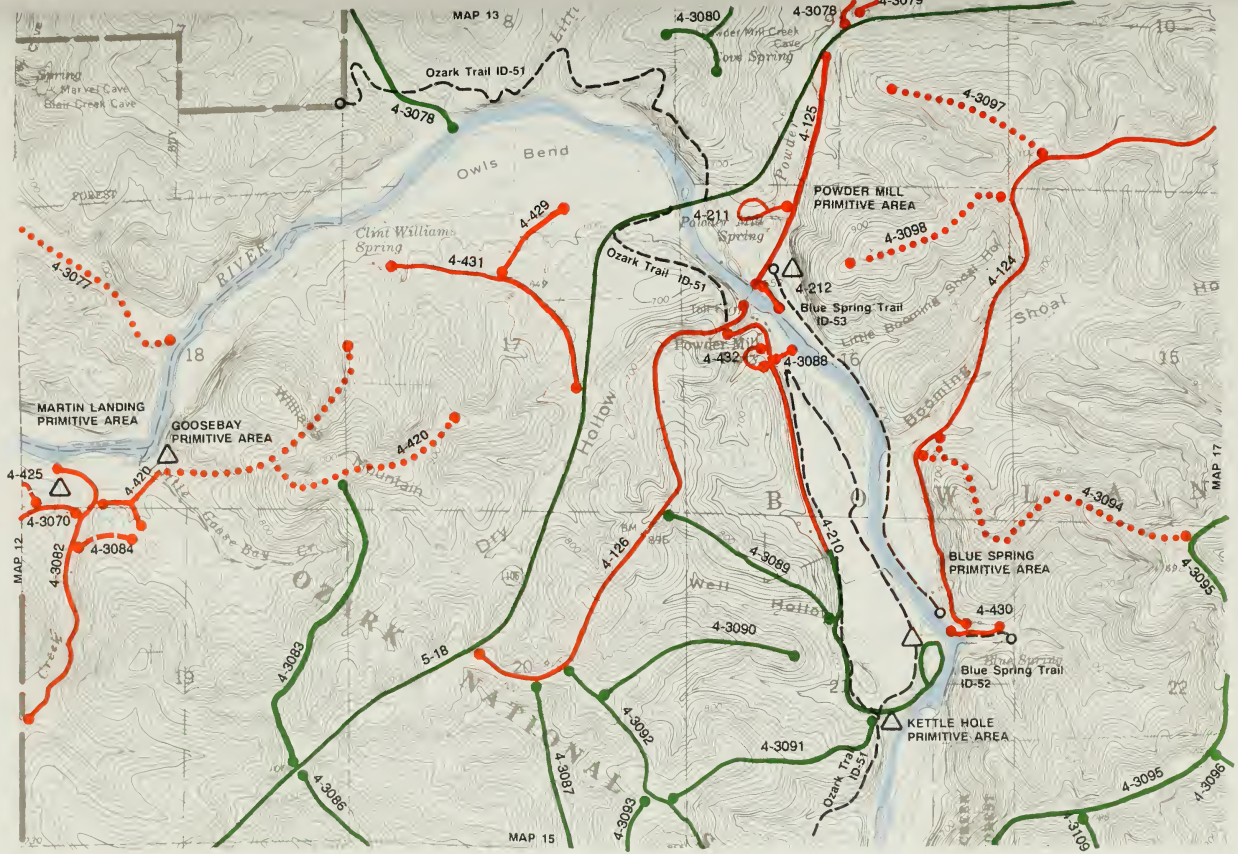
DSC / DEC 89–614 / 40037

MAP 14

4-124	Blue Spring Road
4-125	East Old State Route 106
4-126	West Old State Route 106
4-210	Ramsey Farm Road
4-211	Powder Mill Visitor Center Road
4-212	Powder Mill Campground Road
4-3070	Weston Road
4-3077	Blair Creek Road
4-3078	Bloom Creek Road
4-3079	Powder Mill Creek Road
4-3080	Little Bloom Creek East Ridge Road
4-3082	Goosebay Creek Road
4-3083	Williams Mountain Road
4-3084	Martin Farm Road
4-3086	Knuckles Road
4-3087	Little Indian Creek Road
4-3088	Owls Bend Access Road
4-3089	North Well Hollow Road
4-3090	Middle Well Hollow Road
4-3091	South Well Hollow Road
4-3092	Divide Road
4-3093	State Ridge Road
4-3094	Blue Spring Cut-off Trace
4-3095	Macy Ridge Road
4-3096	State Road 28
4-3097	North Little Booming Shoal Trace
4-3098	South Little Booming Shoal Trace
4-3109	Cedar Stub Road
4-420	Goosebay Primitive Area Road
4-425	Jedlica Road
4-429	Lesh Farm Road
4-430	Blue Spring Service Road
4-431	Chilton Farm Road
4-432	Powder Mill Maintenance Area Road
5-18	Missouri Highway 106

MAP 15

4-19	Missouri Highway/Shannon County NN
4-213	Roberts Field Primitive Campground Access Road
4-3086	Knuckles Road
4-3087	Little Indian Creek Road
4-3092	Divide Road
4-3093	State Ridge Road
4-3095	Macy Ridge Road
4-3099	Slick Rock Ridge Hollow Trace
4-3100	Mill Hollow Road
4-3101	Indian Creek Road
4-3102	Bockman Road
4-3103	Little Rocky Creek Road
4-3104	J.R. Bland Road
4-3105	Roberts Field Trace
4-3106	Brandt Field Road
4-3107	Boss Green Tract Trace
4-3108	Round Hollow Road
4-3109	Cedar Stub Road
4-3110	East Bland Road
4-3111	Ant Hole Road
4-3113	Weaver Field Road
4-3114	Buttin Rock Road
4-433	Rocky Creek Easement Road
5-18	Missouri Highway 106



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED MAINTAINED

NPS OWNED UNMAINTAINED

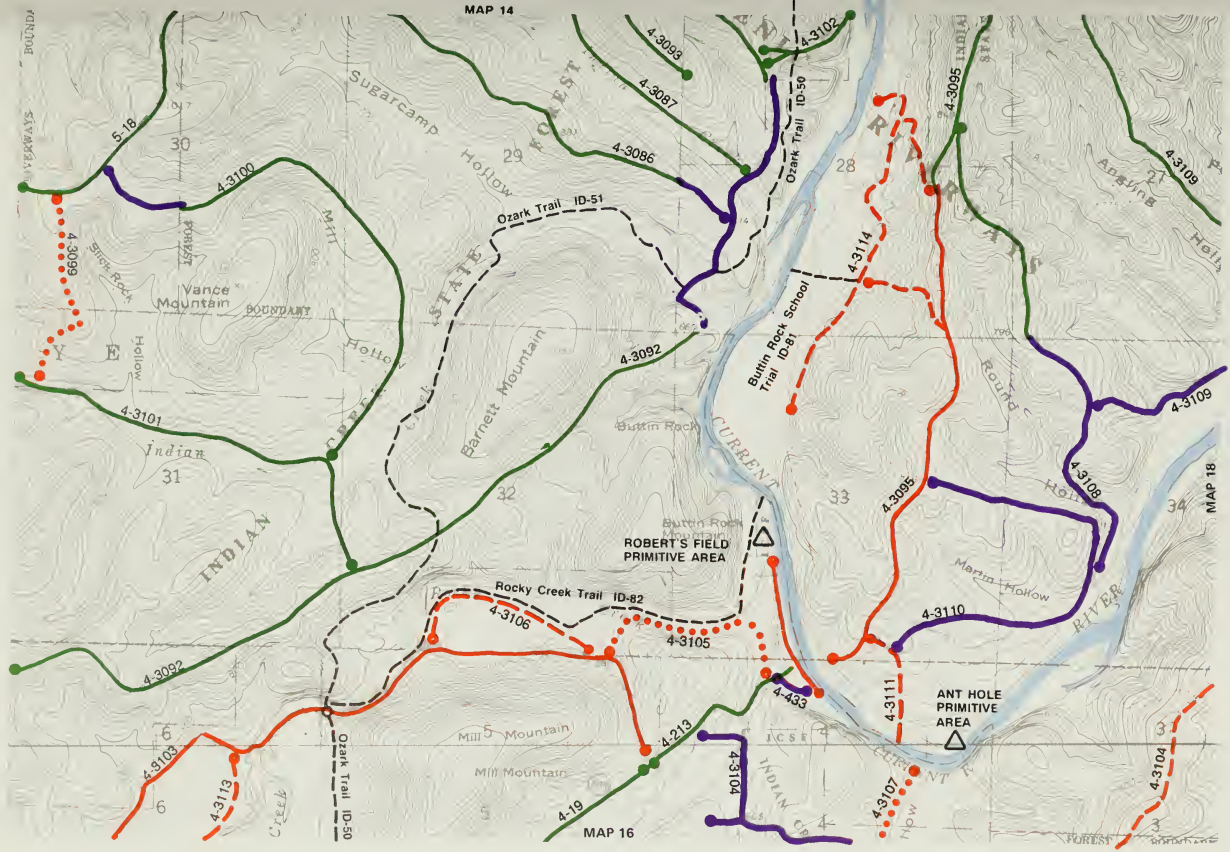
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 14

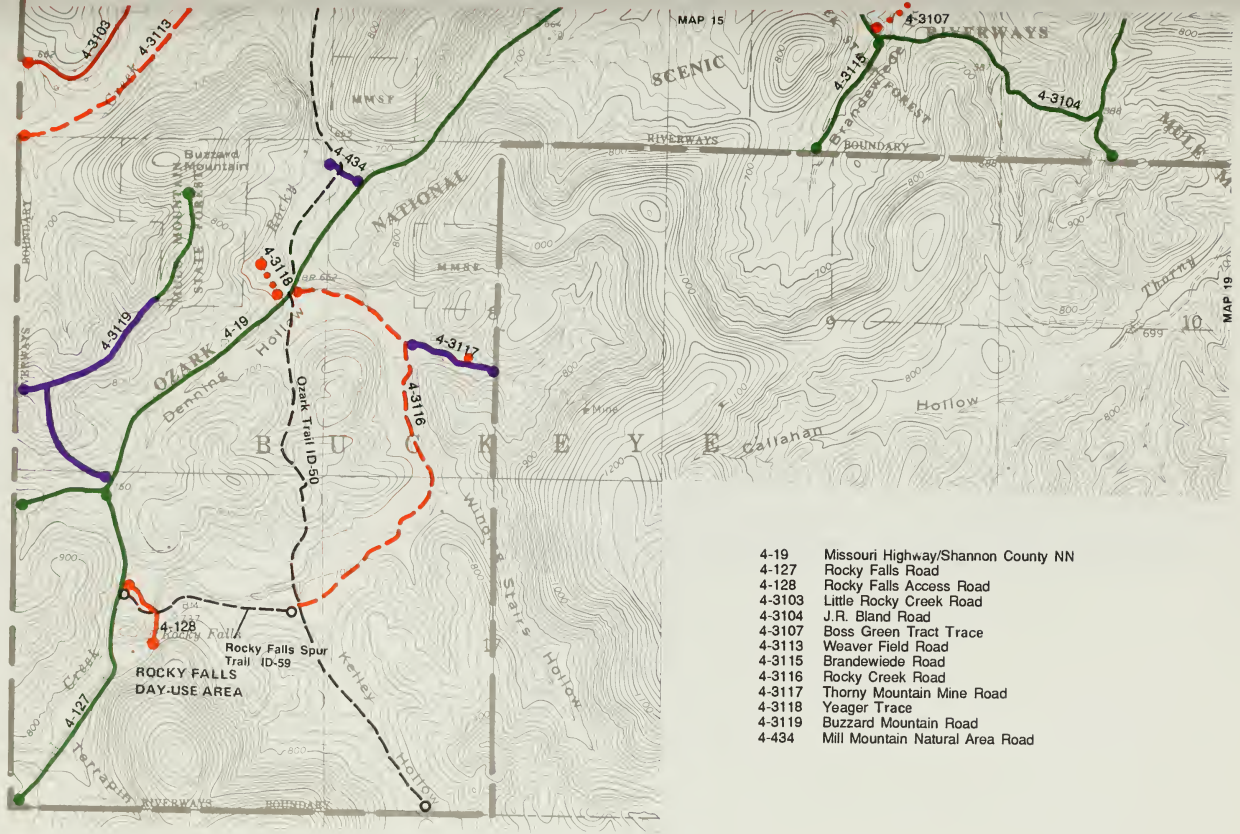
DSC / DEC 89–614 / 40037



TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 15

DSC / DEC 89–614 / 40037



4-19	Missouri Highway/Shannon County NN
4-127	Rocky Falls Road
4-128	Rocky Falls Access Road
4-3103	Little Rocky Creek Road
4-3104	J.R. Bland Road
4-3107	Boss Green Tract Trace
4-3113	Weaver Field Road
4-3115	Brandewiede Road
4-3116	Rocky Creek Road
4-3117	Thorny Mountain Mine Road
4-3118	Yeager Trace
4-3119	Buzzard Mountain Road
4-434	Mill Mountain Natural Area Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

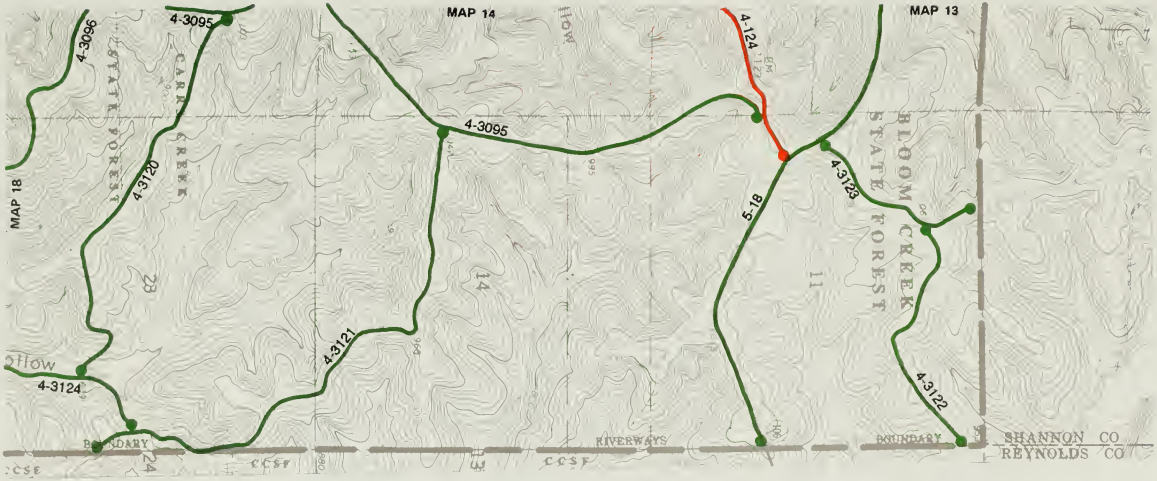
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 16

DSC / DEC 89–614 / 40037



4-124	Blue Spring Road
4-3095	Macy Ridge Road
4-3096	State Road 28
4-3120	State Road 27
4-3121	State Road 26
4-3122	State Road 30
4-3123	State Road 29
4-3124	State Road 25
5-18	Missouri Highway 106

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

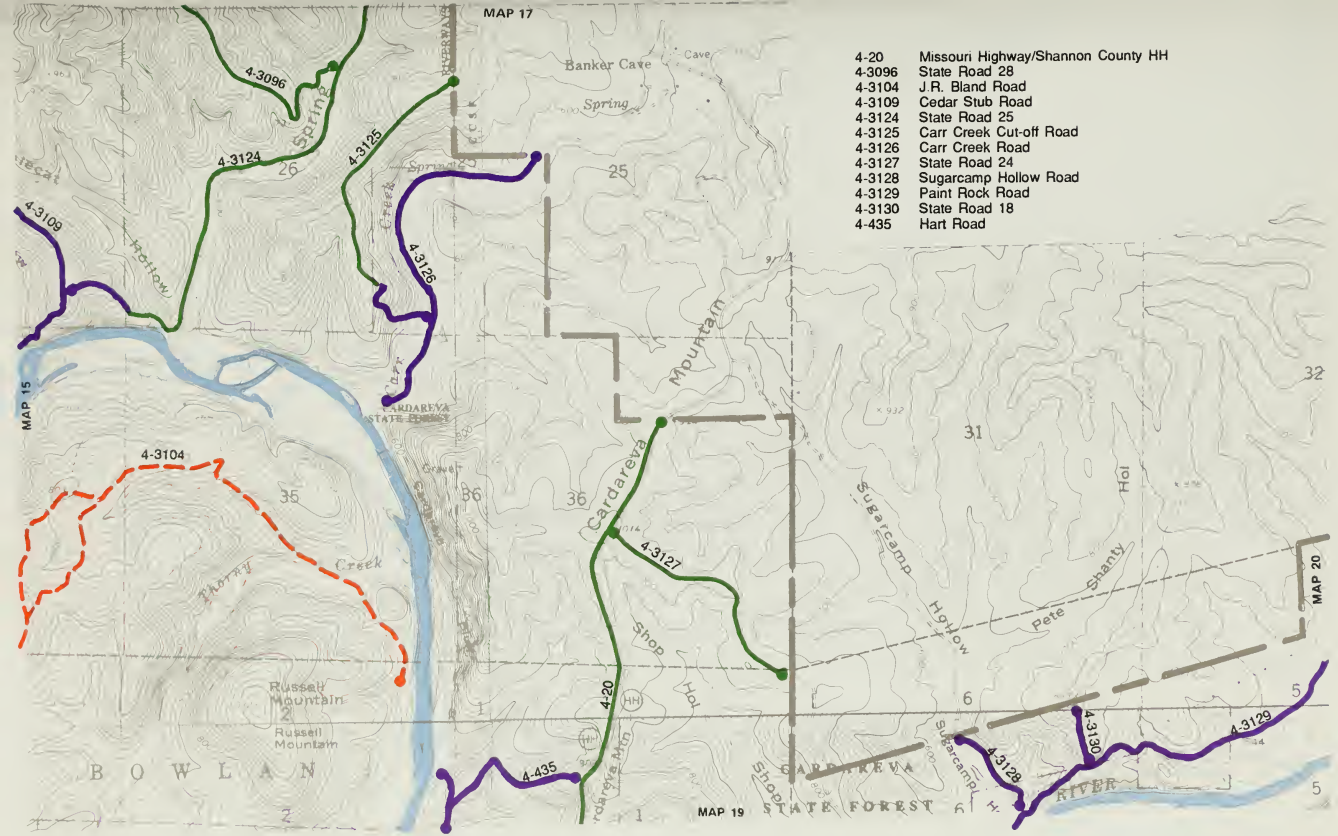
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 17

DSC / DEC 89–614 / 40037



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

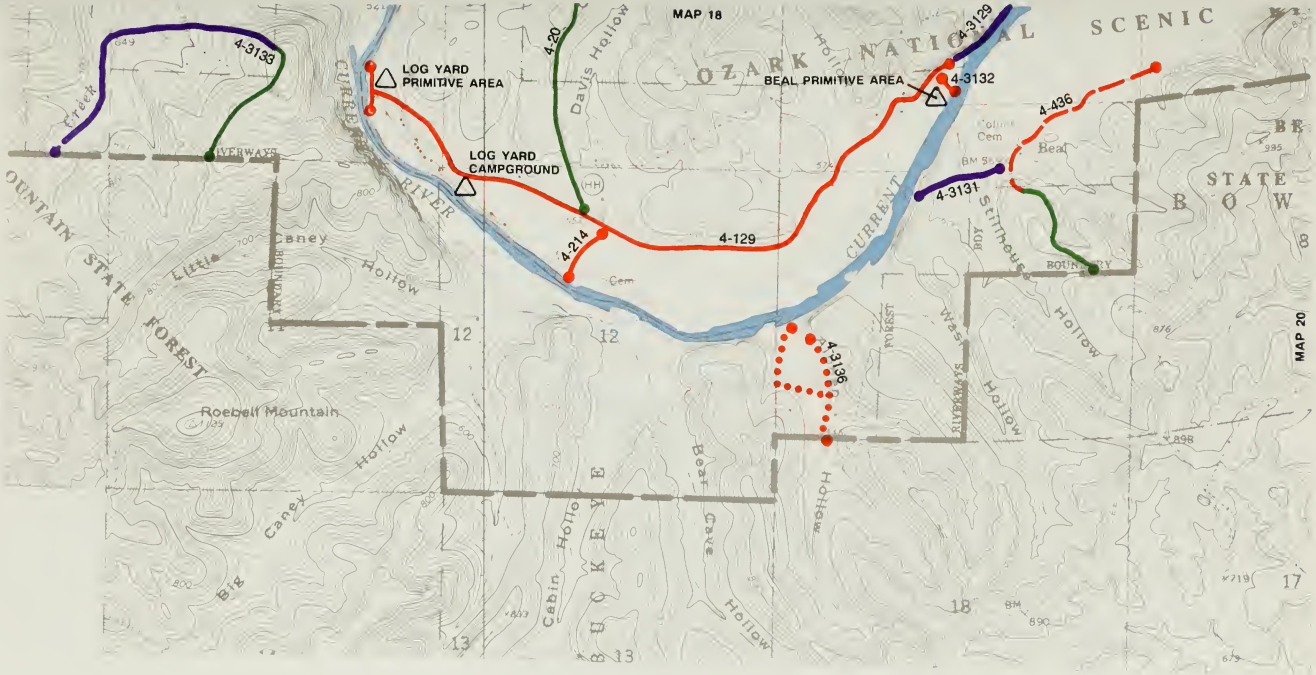
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 18

DSC / DEC 89–614 / 40037



4-20	Missouri/Shannon County HH
4-129	Log Yard Camp Road
4-214	Log Yard River Access Road
4-3129	Paint Rock Road
4-3131	Beal Cabin Road
4-3132	Beal Landing Road
4-3133	Whisker Jones Tract Road
4-3136	Alphen Hollow Trace
4-436	Warren Bland Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

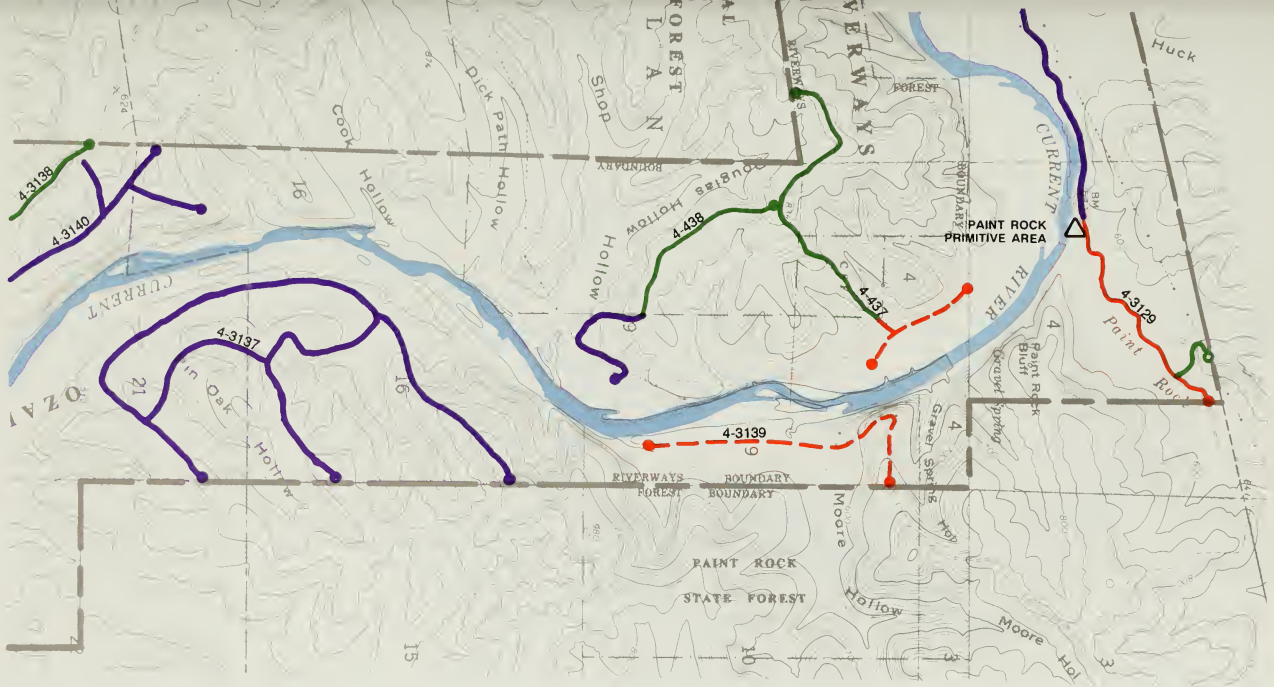
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 19

DSC / DEC 89–614 / 40037



4-3129	Paint Rock Road
4-3137	Pin Oak Hollow Area Road
4-3138	East Chilton Creek Road
4-3139	Gravel Spring Road
4-3140	Piles Tract Road
4-437	Weaver Tract Road
4-438	Schwartz Tract Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

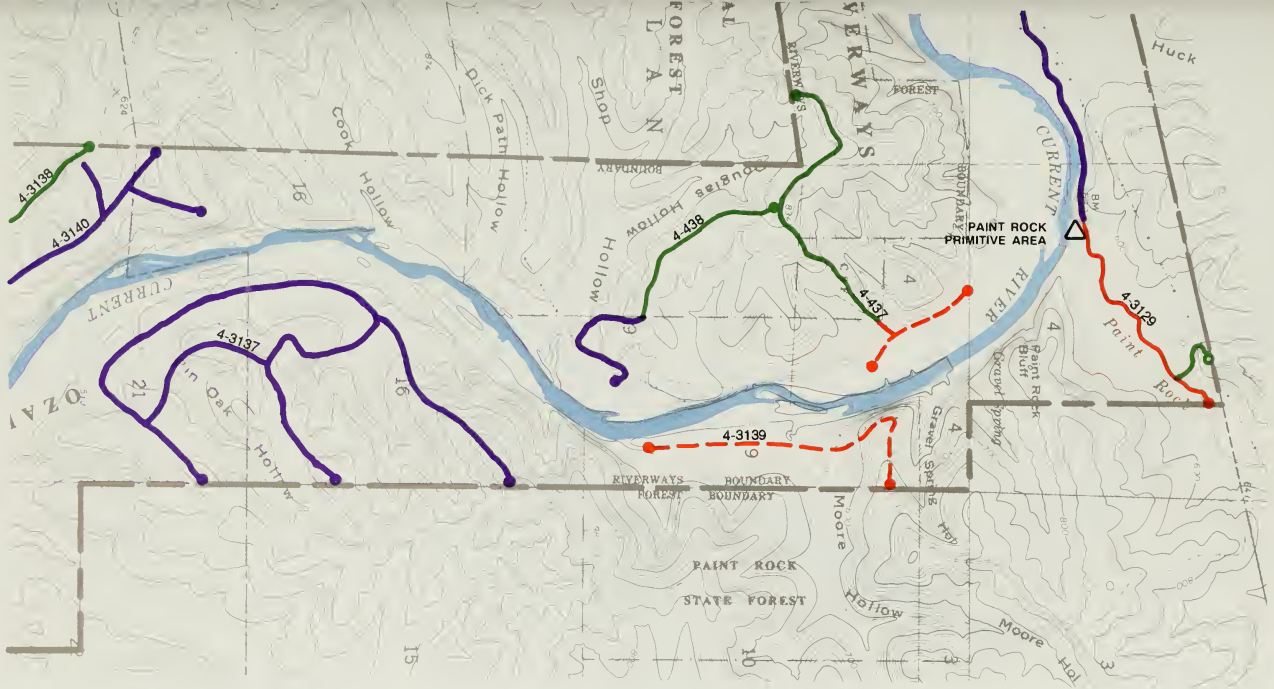
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 20

DSC / DEC 89–614 / 40037



4-3129	Paint Rock Road
4-3137	Pin Oak Hollow Area Road
4-3138	East Chilton Creek Road
4-3139	Gravel Spring Road
4-3140	Piles Tract Road
4-437	Weaver Tract Road
4-438	Schwartz Tract Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 20

DSC / DEC 89–614 / 40037

4-122	Chilton Creek Road
4-130	Missouri Highway M
4-3172	Crafton Easement Road
4-215	Waymeyer River Access Road
4-3138	East Chilton Creek Road
4-3140	Pile's Tract Road
4-3141	Peach Orchard Primitive Campground Road
4-3142	Pin Oak Primitive Campground Road
4-3143	Dazey Farm Road
4-3144	Mill Creek Road
4-3145	Waymeyer Easement Road
4-3146	Keathley Tract Road
4-3147	Tuttle Easement Road
4-3148	Dusenberry Ridge Trace
4-3149	Lofton Lake Road
4-439	Rogers Creek Road
4-440	Raft Yard Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

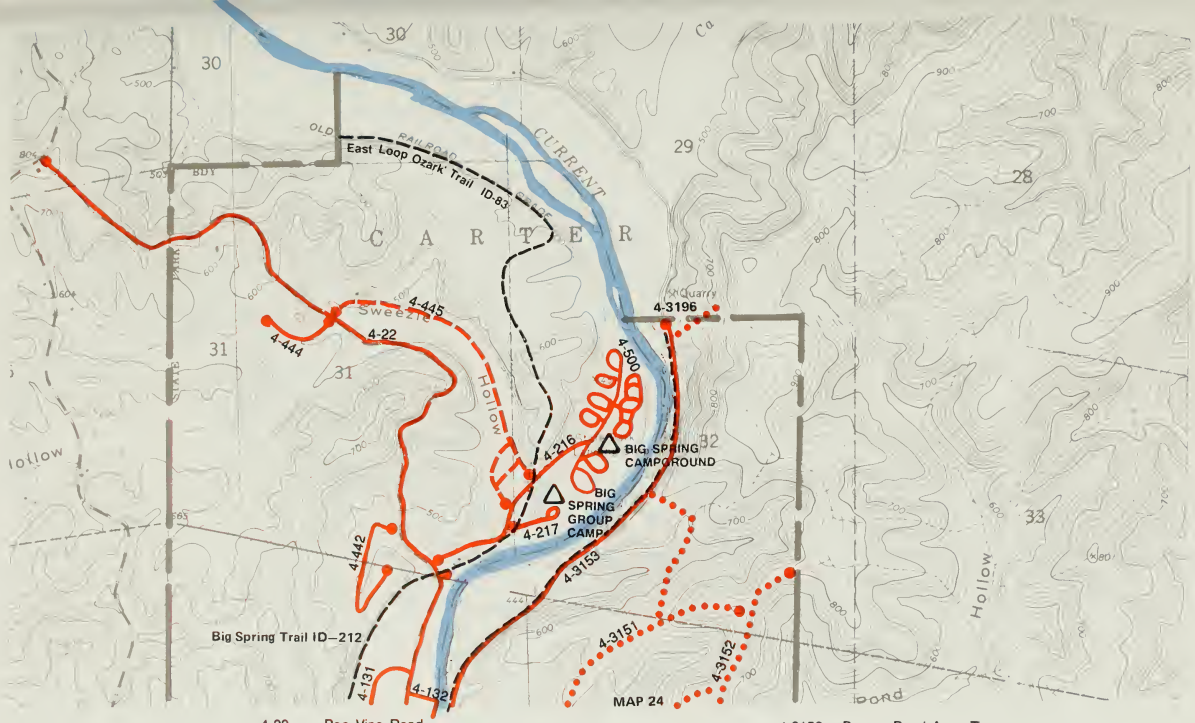
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 21

DSC / DEC 89–614 / 40037



4-22	Pea Vine Road
4-131	Big Spring Picnic Area Loop
4-132	Big Spring Boat Launch Road
4-216	Big Spring Campground Road
4-217	Big Spring Group Camp Road
4-3151	Campbell Tract Trace
4-3152	Beaver Pond Area Trace
4-3153	Old Tram Road
4-3196	Granite Quarry Trace
4-442	Watertank Road
4-444	Big Spring Fire Cache Road
4-445	Sweezie Hollow Road
4-500	Big Spring Camp Loops

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

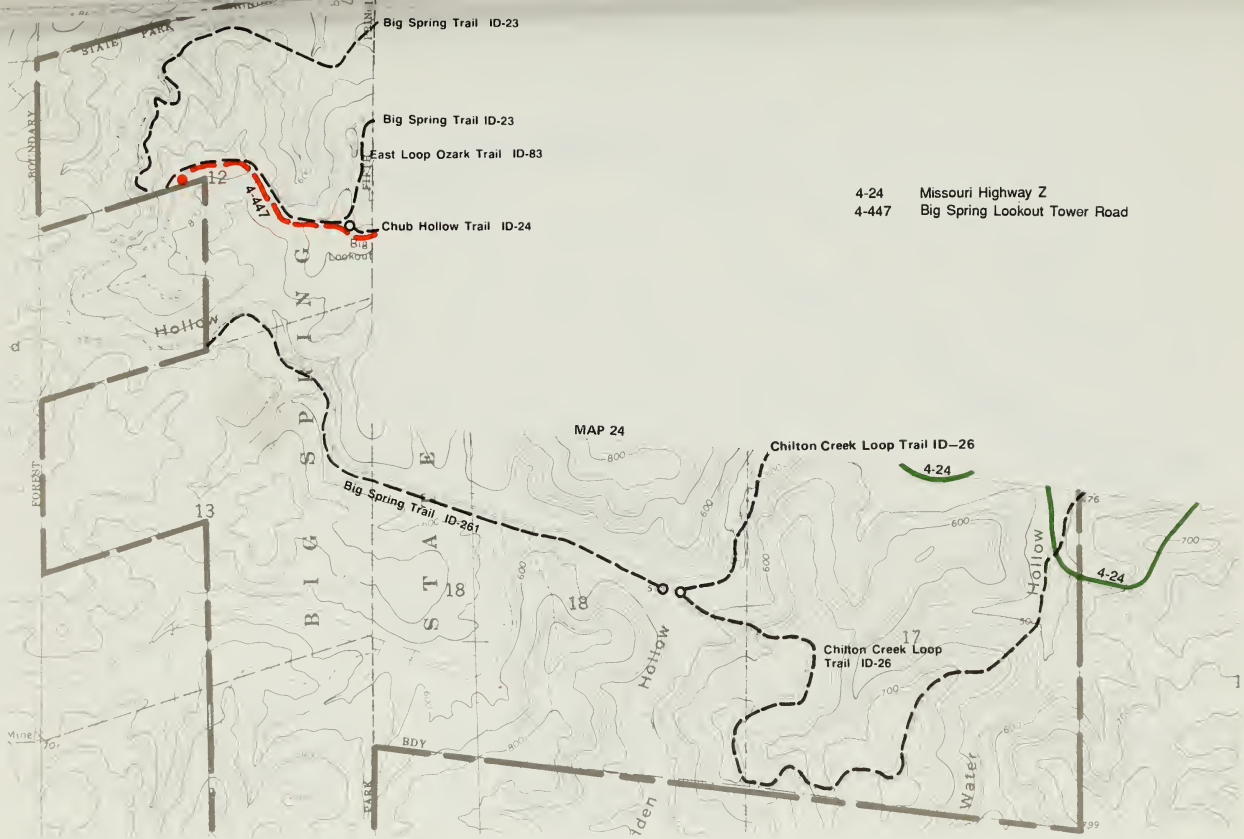
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 22

DSC / DEC 89–614 / 40037



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 23

DSC / DEC 89–614 / 40037

4-22	Pea Vine Road
4-23	Missouri State Highway 103
4-24	Missouri Highway Z
4-131	Big Spring Picnic Area Loop
4-132	Big Spring Boat Launch Road
4-133	Big Spring Lodge Road
4-134	Chub Hollow Road
4-218	Big Spring Cabin Road
4-3151	Campbell Tract Trace
4-3152	Beaver Pond Area Traces
4-3153	Old Tram Road
4-3154	Montgomery Easement Road
4-3155	Partney House Road
4-446	Iron Mine Road
4-447	Big Spring Lookout Tower Road
4-450	Big Spring Maintenance Access Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

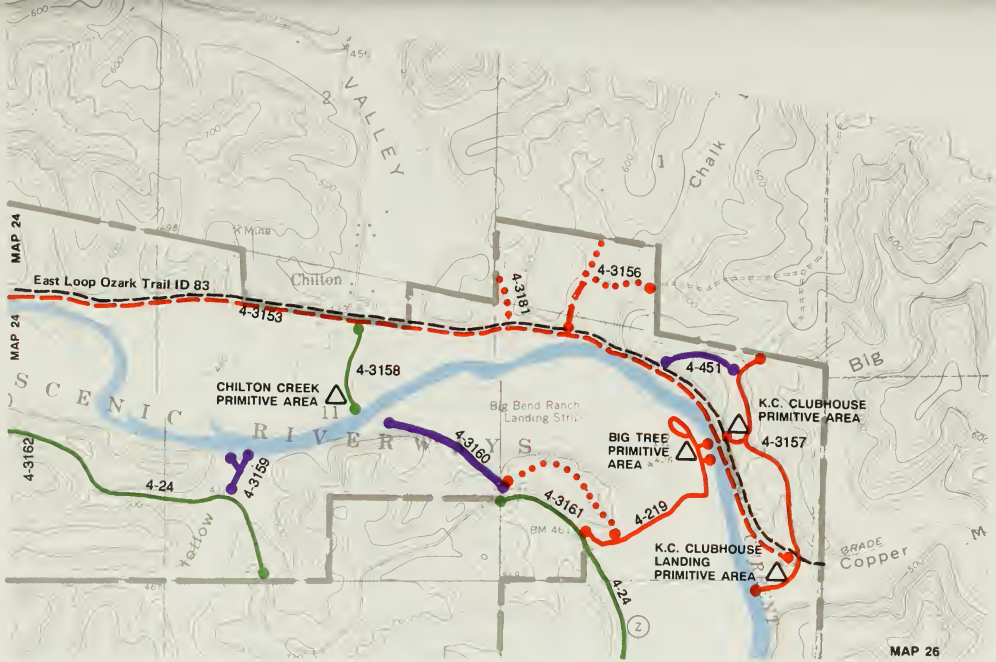
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 24

DSC / DEC 89–614 / 40037



4-24	Missouri Highway Z
4-219	Big Tree Primitive Campground Road
4-3153	Old Tram Road
4-3156	Chalk Bank Road
4-3157	K.C. Clubhouse Road
4-3158	Chilton Landing Road
4-3159	Smith Cabin Road
4-3160	Halferty Tract Road
4-3161	Radford Tract Road
4-3162	Pistol Range Road
4-3181	Aldridge Valley Trace
4-451	Kelley Cabin Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

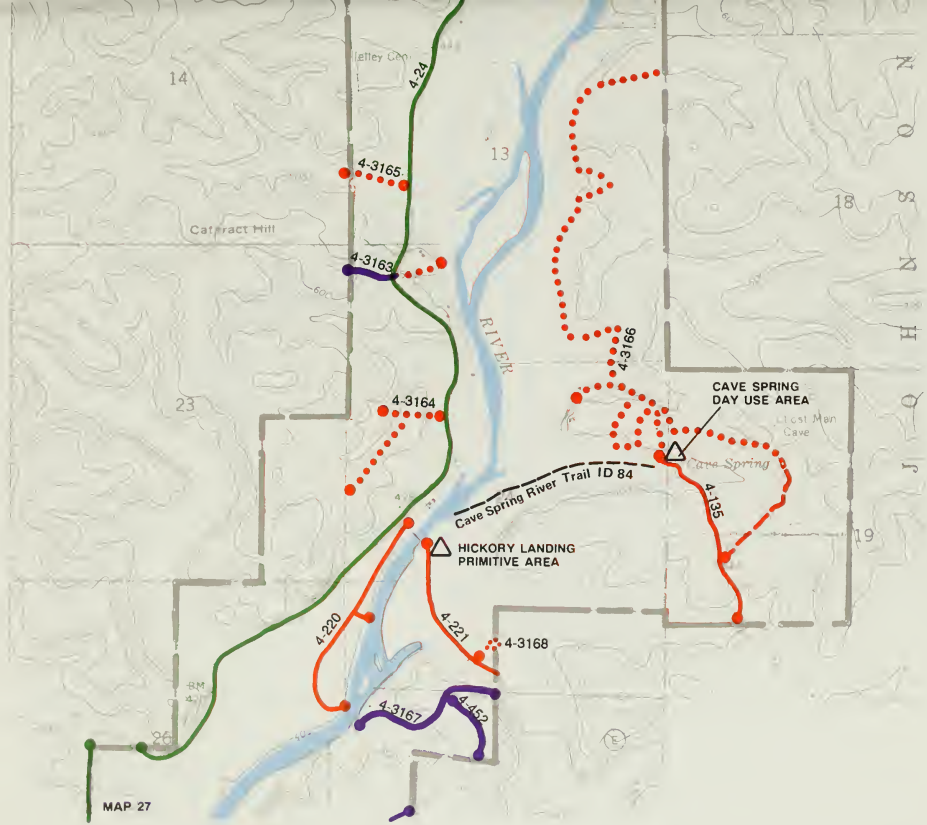
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 25

DSC / DEC 89–614 / 40037



4-24	Missouri Highway Z
4-135	Cave Spring Access Road
4-220	Cataract Landing Road
4-221	Hickory Landing Access Road
4-3163	Cataract Hill Trace
4-3164	Coal Bank Cave Road
4-3165	Wilson Tract Trace
4-3166	Lost Man Cave Road
4-3167	Porter Tract Road
4-3168	Conner Lake Trace
4-452	Yantis Tract Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

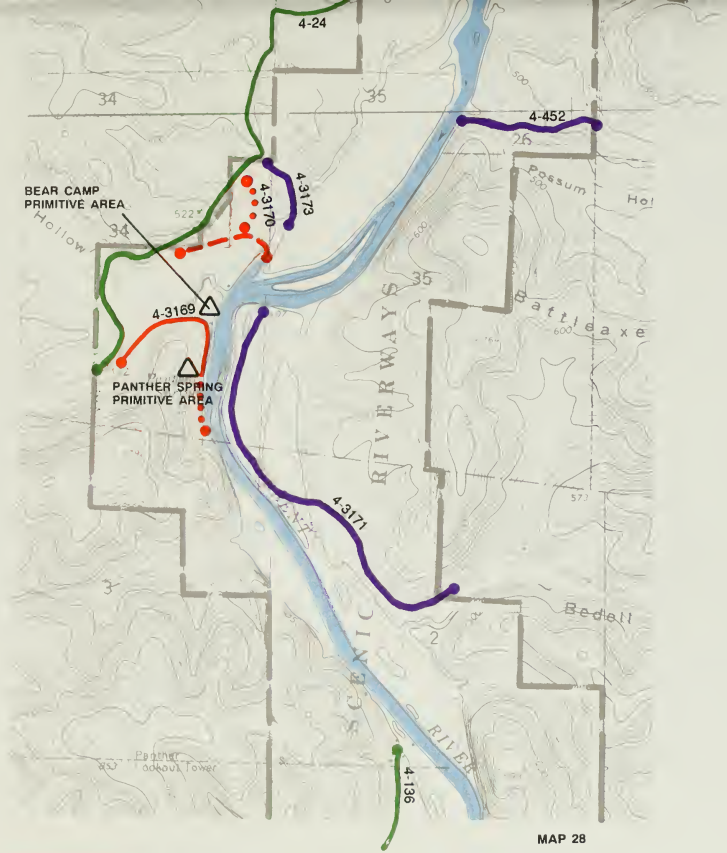
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 26

DSC / DEC 89–614 / 40037



MAP 28

4-24	Missouri Highway Z
4-136	Grubb Hollow Access Road
4-3169	Panther Spring Road
4-3170	Hooper Hollow Road
4-3171	Bedell Hollow Road
4-3173	Hooper Field Road
4-452	Yantis Tract Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

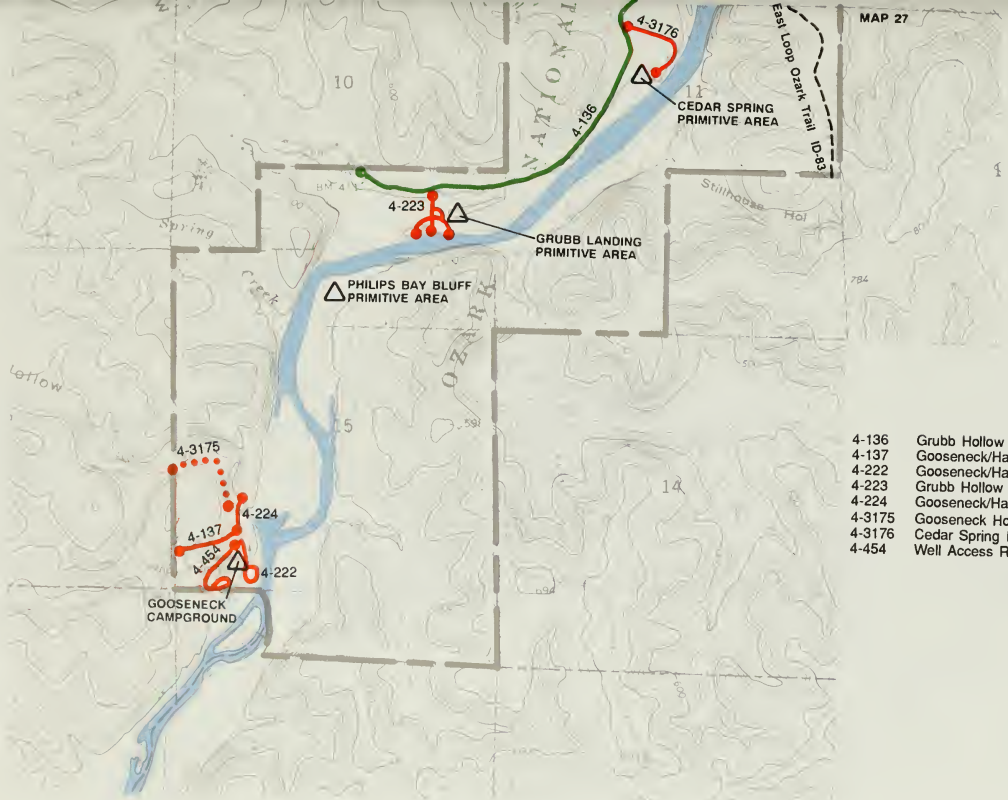
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 27

DSC / DEC 89–614 / 40037



4-136	Grubb Hollow Access Road
4-137	Gooseneck/Hawes Campground Access Road
4-222	Gooseneck/Hawes Campground Loop
4-223	Grubb Hollow Primitive Campground Road
4-224	Gooseneck/Hawes Primitive Campground Loop
4-3175	Gooseneck Hollow Trace
4-3176	Cedar Spring Primitive Campground Road
4-454	Well Access Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

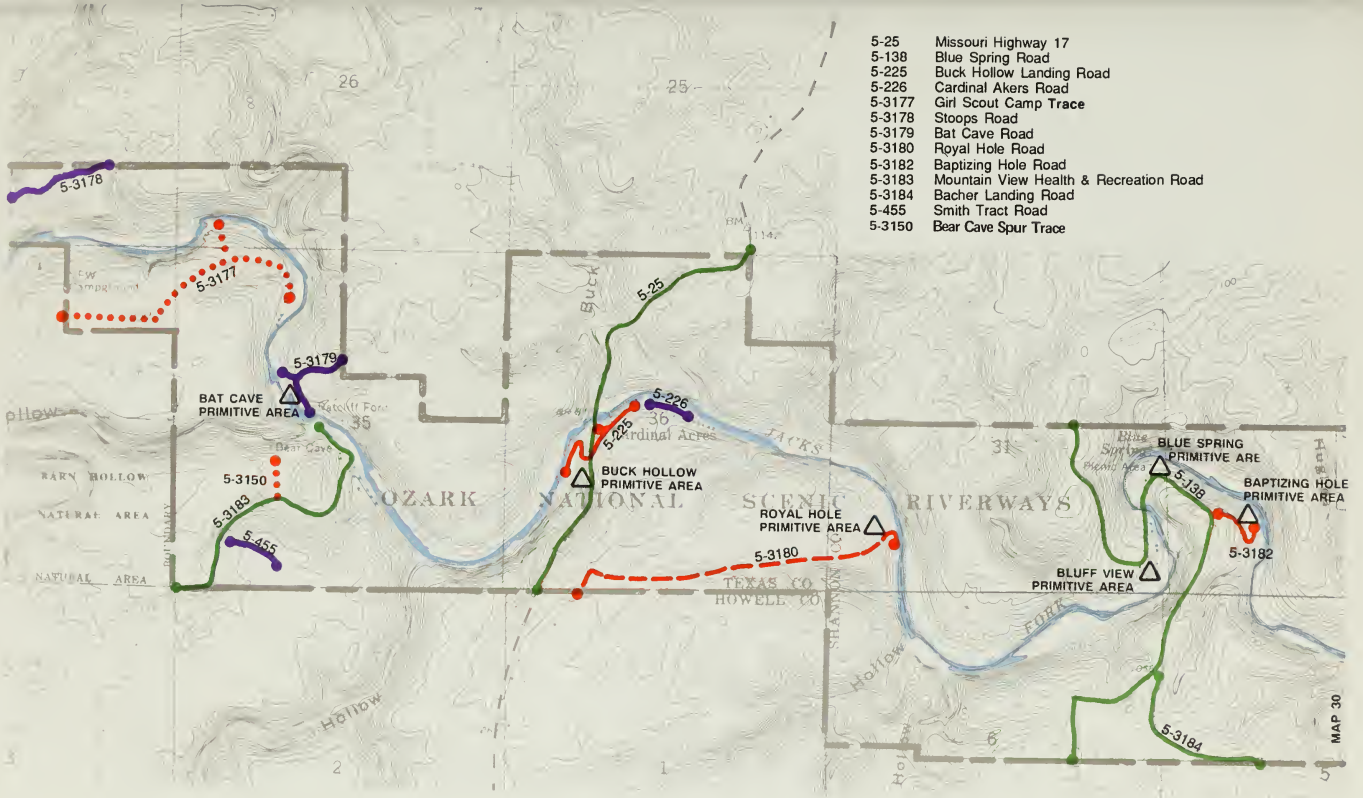
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 28

DSC / DEC 89–614 / 40037



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

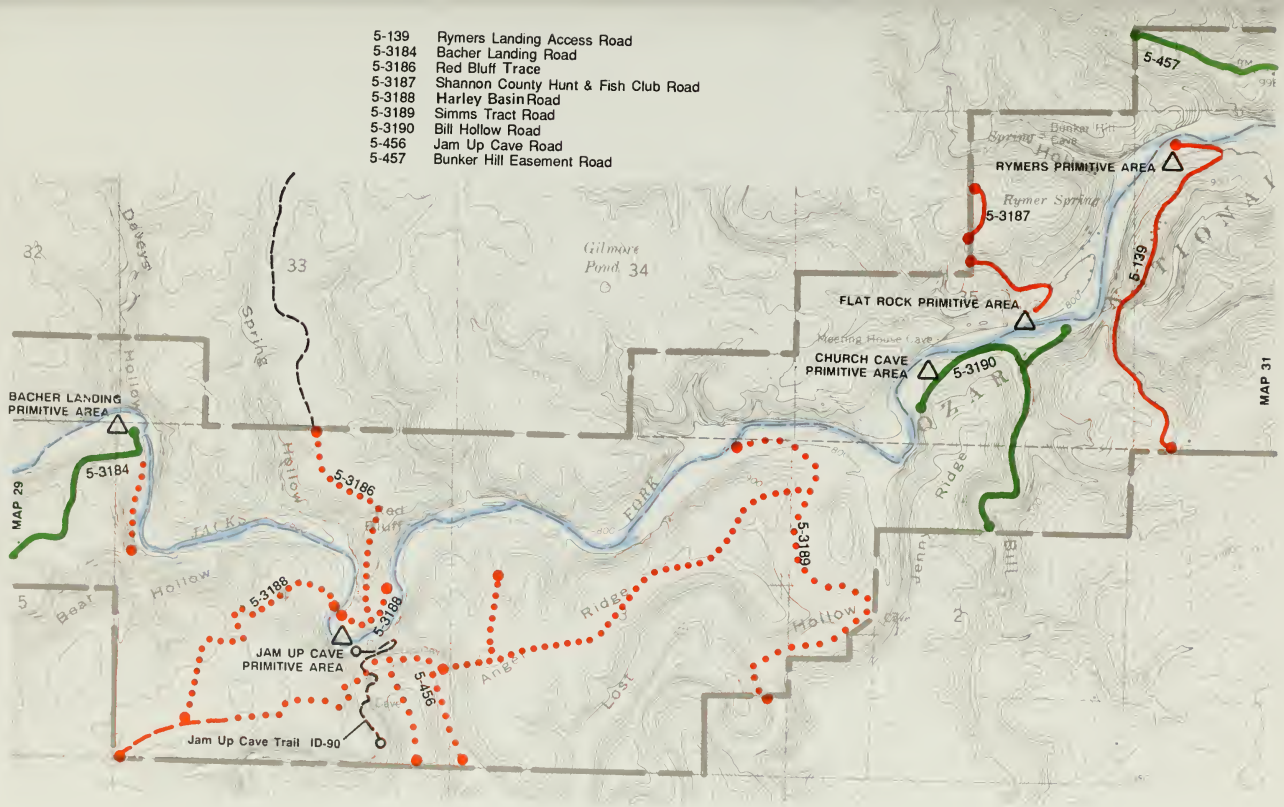
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 29

DSC / DEC 89–614 / 40037



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

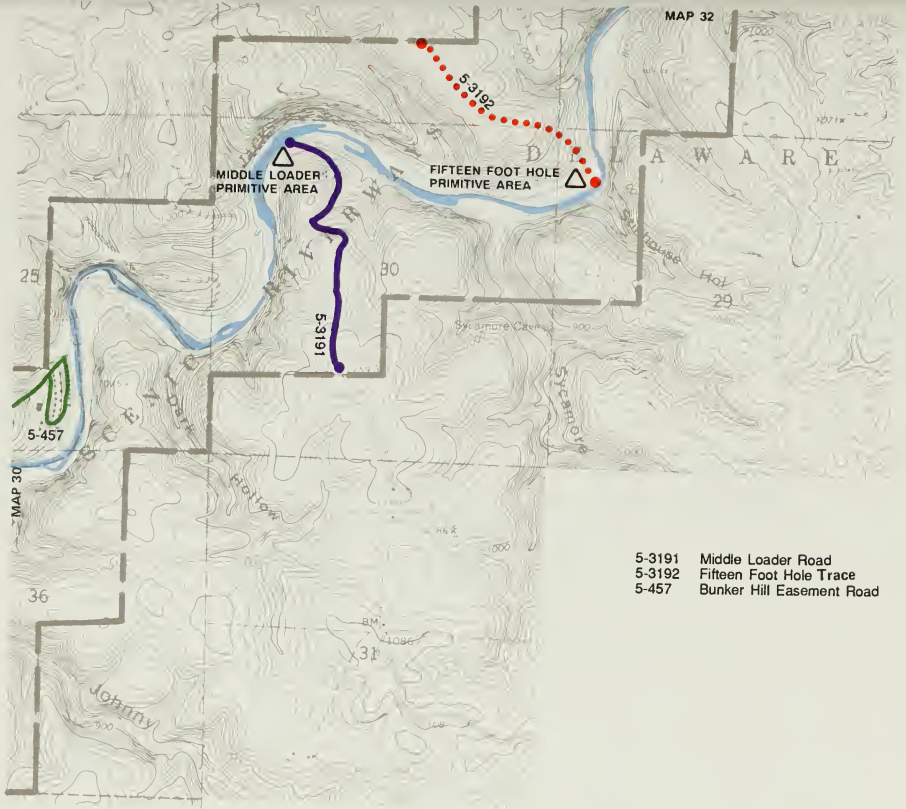
North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 30

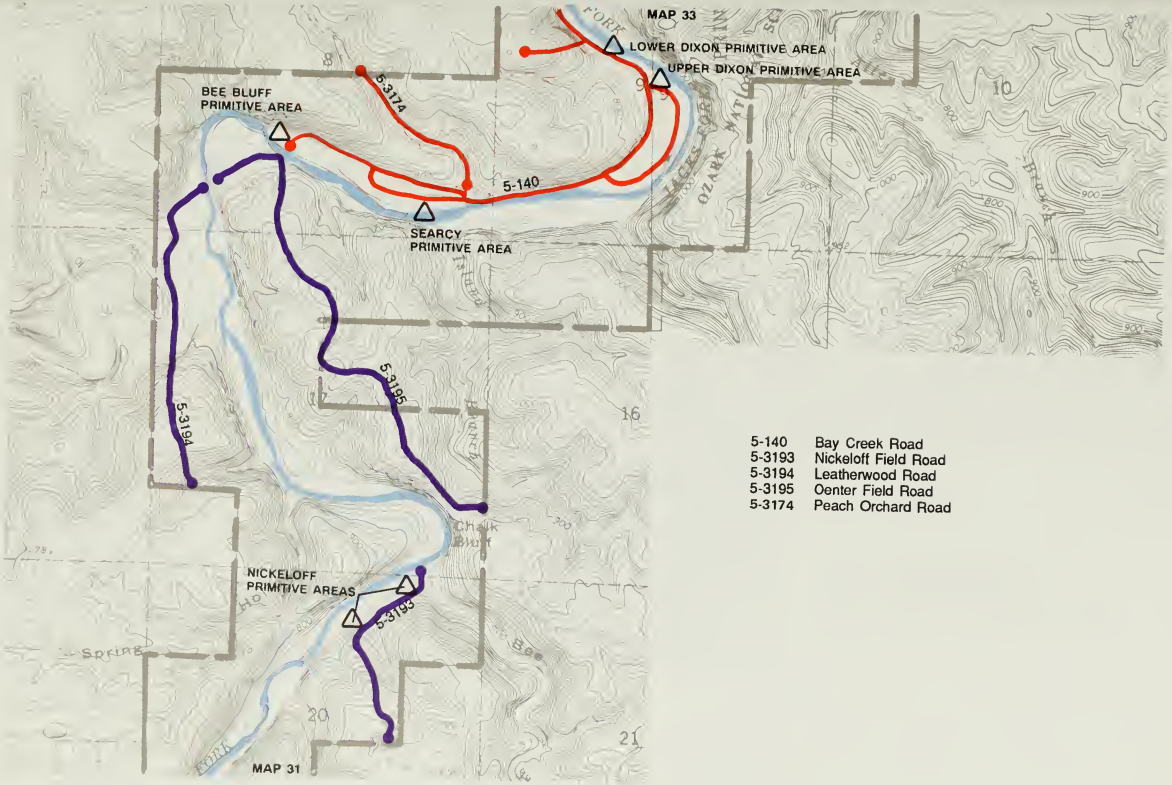
DSC / DEC 89–614 / 40037



TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 31

DSC / DEC 89–614 / 40037



5-140	Bay Creek Road
5-3193	Nickeloff Field Road
5-3194	Leatherwood Road
5-3195	Center Field Road
5-3174	Peach Orchard Road

CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

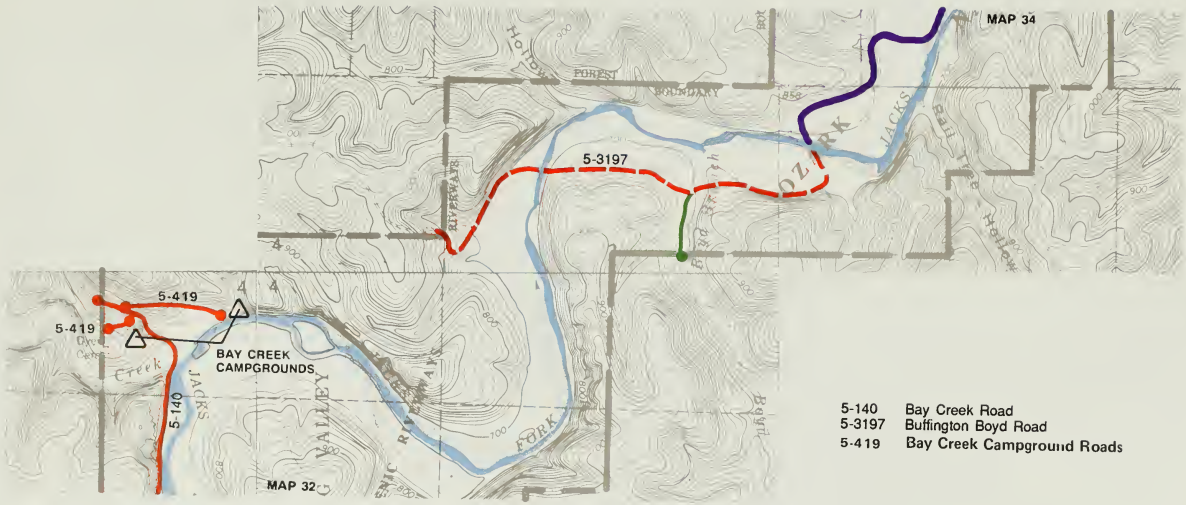
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 32

DSC / DEC 89–614 / 40037



CLOSED TRACES

ACCESS TO EASEMENT, PRIVATE OR STATE LAND ONLY

ROAD OWNED BY COUNTY OR STATE

NPS OWNED / MAINTAINED

NPS OWNED / UNMAINTAINED

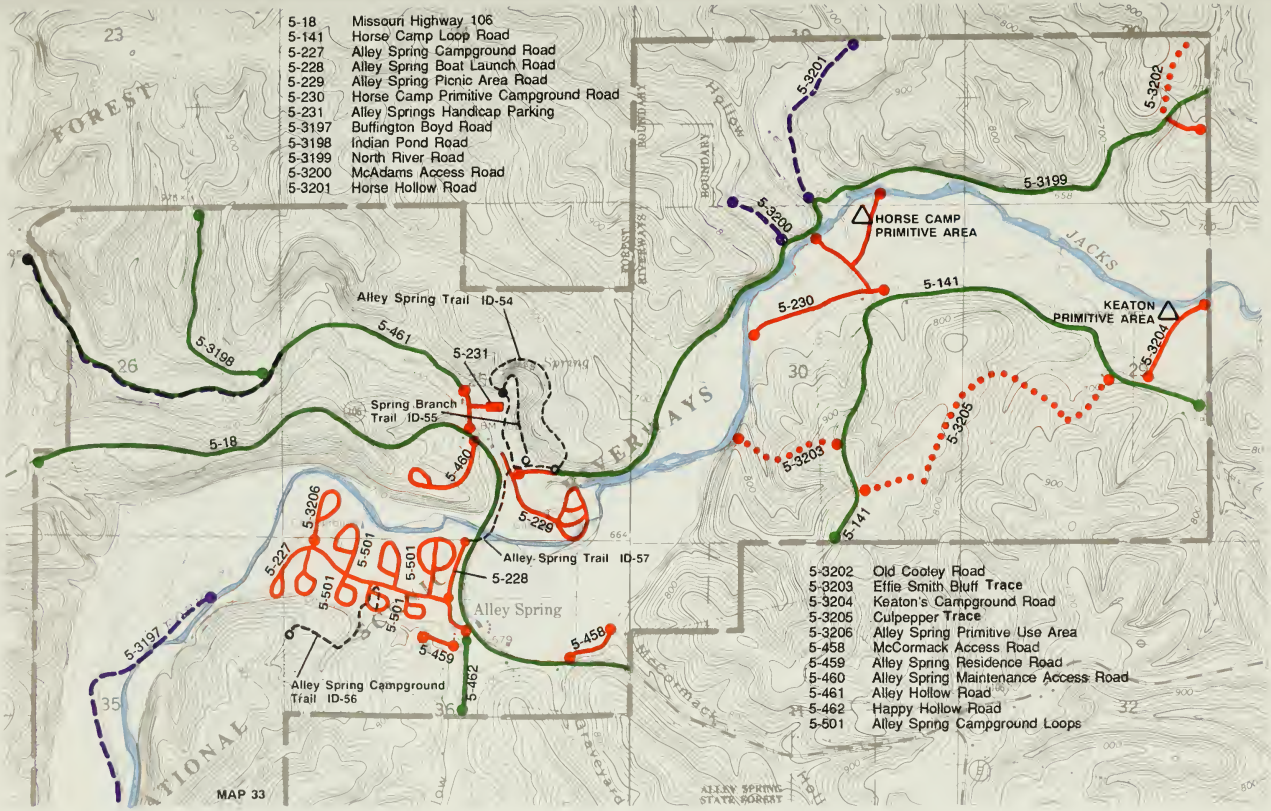
North

0 1/2 Mi.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 33

DSC / DEC 89–614 / 40037



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North

0 1/2 MI.

TRAILS AND ROADS INVENTORY
OZARK NATIONAL SCENIC RIVERWAYS

MAP 34

DSC / DEC 89–614 / 40037

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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