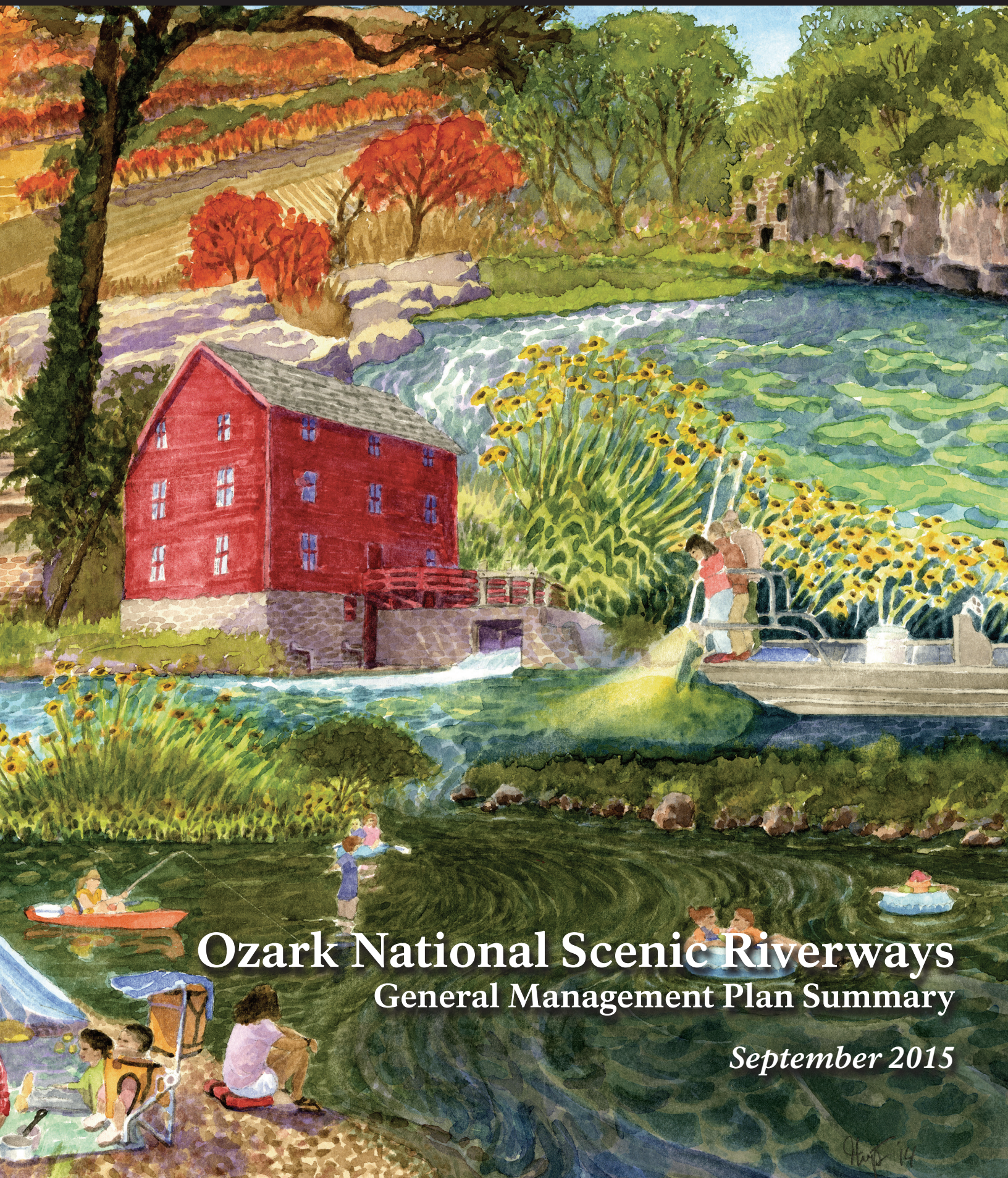


National Park Service
U.S. Department of the Interior

Ozark National Scenic Riverways
Missouri



Ozark National Scenic Riverways

General Management Plan Summary

September 2015

Harper 14

For more information, please contact:

Park Headquarters
Ozark National Scenic Riverways
PO Box 490
Van Buren, MO 63965

OR visit us on the web at www.nps.gov/ozar

Ozark National Scenic Riverways

General Management Plan Summary

September 2015

CONTENTS

Overview 1

Park Description 1

Purpose of the Plan 2

Need for the Plan 4

Purpose of and Need for the Wilderness Study 5

Planning Issues and Opportunities 7

Kinds and Amounts of Recreational Use 7

Boating Regulations 7

Visitor Behavior 7

Natural Resources 8

Cultural Resources and Interpretation 8

Park Management and Operations 8

Types and Levels of Development 9

Climate Change 9

Summary of Management Strategies 11

Visitor Experiences and Activities 11

Nonmotorized Watercraft 11

Motorized Watercraft 12

Concessions 12

Fishing/Gigging 12

Hiking Trails 12

Mountain Biking 12

Equestrian Use 12

Camping 13

Developed Camping 13

Gravel Bar Camping 13

Backcountry Camping 13

Primitive Camping 13

Visitor Services and Facilities 13

Interpretation and Education 14

Natural Resources 14

Cultural Resources 14

Wilderness 15

CONTENTS

<i>Park Operations</i>	15
<i>Partnerships</i>	17
<i>Implementation of the Plan</i>	17

Management Zones 19

<i>Description of Management Zones</i>	19
Developed	19
Resource-Based Recreation	19
Natural	20
Primitive	20
Mixed-Use River	20
Seasonal Mixed-Use River	20
<i>Management Zone Comparison</i>	23
<i>Horsepower Limits</i>	29
<i>Recreation Opportunities</i>	30

User Capacity 33

<i>Visitor Experience Indicators and Standards</i>	34
Percent of Annual Visitors with Facilitated Interpretive Contacts as a Result of Programs, Demonstrations, and Activities	34
Number of Campers at One Time at Designated Campsites on Gravel Bars Designated for Camping	34
Density of Parked Cars at Visitor-Created Access Points and River Crossings Outside Designated Parking Areas and Designated Campsites	35
Number of Watercraft Per River Mile at Specified Locations	35
Number of Citations or Documented Warnings Related to Inappropriate Behavior	37
<i>Resource Indicators and Standards</i>	42
Number of Incidents of Reported Intentional Vandalism	42
Number of Times Bacteria in the Rivers Exceed the Existing State Standard	42
Number of Visitor-Created Roads and Campsites	42
Number of Horse Crossings	43
Number of Crossings Associated with Motorized Vehicles	43
Number of Incidents of Reported Intentional Vandalism in Caves	44
<i>Long-Term Monitoring</i>	44

Future Studies and Implementation Plans Needed 45

<i>Natural Resources</i>	45
<i>Climate Change</i>	45
<i>Cultural Resources</i>	46
<i>Visitor Use and Interpretation</i>	46
<i>Partnerships</i>	47

Appendix A: List of Preparers 49

MAPS

Ozark National Scenic Riverways Overview Map	3
Proposed Wilderness Map	16
Selected Action Management Zones	27
River Sections Map	41

FIGURES

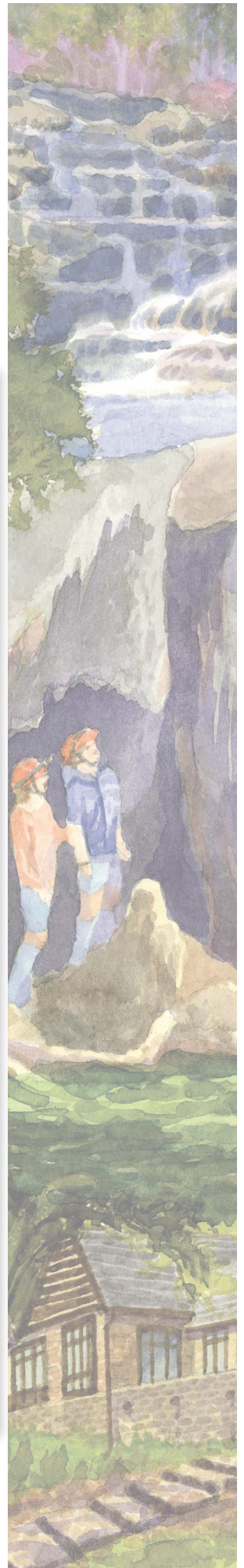
Figure 1. Proportion of Management Zones for All Federally Owned National Riverways Lands Under the Selected Action	22
Figure 2. Proportion of Management Zones for All National Riverways Under the Selected Action	22

TABLES

Table 1. Federally Owned Acres in Each Land-Based Management Zone	21
Table 2. River Miles in Each River-Based Management Zone	21
Table 3. Ozark National Scenic Riverways Land-Based Management Zones	25
Table 4. Ozark National Scenic Riverways River-Based Management Zones (includes rivers up to the ordinary high-water mark)	26
Table 5. Motorboat Horsepower Limits by River Section	29
Table 6. Recreation Activities by Management Zone	31
Table 7. Visitor Use Indicators and Standards	39

CONTENTS

Overview



OVERVIEW

This document provides a summary of the selected action (preferred alternative) and associated elements included in the *Final General Management Plan / Environmental Impact Statement* for the Ozark National Scenic Riverways (National Riverways or park unit). More detailed information related to the selected action, and each of the action alternatives that were considered, can be found in the 2014 *Final General Management Plan / Environmental Impact Statement*. This document is available in digital format online at: <http://www.nps.gov/ozar/getinvolved/planning.htm> or upon request by contacting the park.

The Record of Decision for the plan was signed by the acting midwest regional director of the National Park Service (NPS) on January 22, 2015. The plan replaced the National Riverways' 1984 plan, and its approval paves the way for the National Riverways to implement the selected action management strategies described in the plan. These management strategies are tied to the concept of enhancing opportunities for visitors to discover and learn about the natural wonders and Ozark heritage of the National Riverways, while maintaining a mix of traditional recreational and commercial activities. Emphasis will be placed on increasing opportunities for visitor education and connections to natural resources and cultural landscapes. Implementation of the approved plan will depend on future funding. Approval of the plan does not guarantee that the funding and staffing needed to implement the plan will be forthcoming. The National Riverways must continue to compete with other units in the national park system for funding.

The selected action also focuses on providing a balance of diverse recreational opportunities and visitor experiences along with increasing visitor education and

appreciation of natural and cultural resources of the park unit. For example, a mix of private and guided traditional recreational activities, such as boating, floating, and horseback riding, will occur under this alternative. Additional trails and a small learning center at the rehabilitated Powder Mill may be developed to better orient and inform visitors. Natural resources will be restored to more natural conditions, while maintaining greater opportunities for visitor access. Most of the Big Spring Wilderness Study Area will be recommended for wilderness designation.

The completion and approval of the general management plan is the culmination of a great deal of time, energy, and input from members of the public, other agencies, and the National Park Service. The National Park Service values the public's interest in the National Riverways and anticipate implementing this plan with your support and collaboration. This summary document provides comprehensive guidance for perpetuating natural systems, preserving cultural resources, and providing opportunities for high-quality visitor experiences along the National Riverways for the next 20 plus years.

PARK DESCRIPTION

Ozark National Scenic Riverways was established by an Act of Congress in 1964 (Public Law 88-492) to protect 134 miles of the Current and Jacks Fork Rivers in the Ozark Highlands of southeastern Missouri. The National Riverways is in Shannon, Carter, Dent, and Texas Counties. Within its boundaries are approximately 80,785 acres of river, forest, open fields, and glade environments. Of that, 51,654 acres are federal and 29,131 acres are in nonfederal ownership.

The National Riverways include portions of the Current and Jacks Fork Rivers, providing 134 miles of clear, free-flowing, spring-fed waterways. Much of the area is underlain by soluble limestone and dolomite that has given rise to numerous sinkholes, caves, and springs representative of classical karst topography. Up to 90% of the combined flow of the Current and Jacks Fork Rivers comes from the more than 400 springs in the drainage basin (Mugel et al. 2009). Big Spring, one of the largest springs in the United States, has an average flow of approximately 287 million gallons of water per day. The impressive hydrogeologic character of the National Riverways karst landscape supports an amazing variety of natural features, including a spring system unparalleled in North America. The cave system is equally impressive with one of the highest densities of caves in any national park. The National Riverways is managed by the National Park Service.

The National Riverways lie within the Ozark Highlands, an important center of biodiversity in North America. The Ozark Highlands is home to a rich array of wildlife and plants, including endemic species that exist nowhere else in the world. The Current and Jacks Fork Rivers have been designated as Outstanding National Resource Waters in Missouri. The adjacent state and federal lands are managed by the Missouri Department of Natural Resources, Missouri Department of Conservation, and the US Forest Service.

The National Riverways also contain a broad range of cultural resources, including prehistoric sites associated with thousands of years of American Indian use and occupation of the area, and later 19th-century structures and sites, such as mills and farms, that reflect the patterns of settlement and the economic activities of early European American pioneers. The National Riverways also

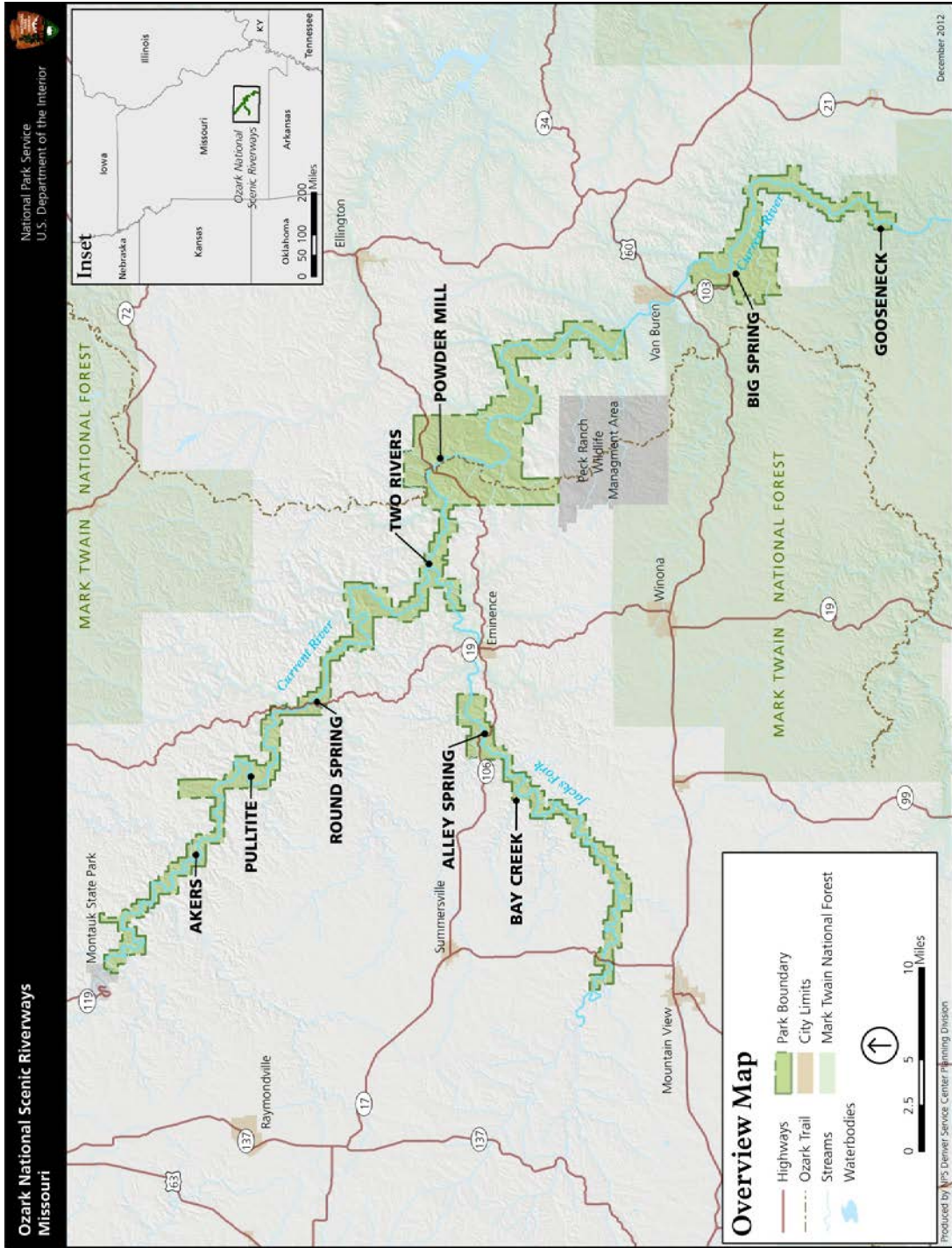
feature archeological and historic structures, landscapes, and objects reflecting primeval life in the Ozark Highlands. Significant examples of buildings and structures built by the Civilian Conservation Corps (CCC) during the 1930s are present, and several of the National Riverways historic properties are listed in the National Register of Historic Places.

The extraordinary resources of the National Riverways provide outstanding recreational opportunities and experiences on and along free-flowing rivers. The Current and Jacks Fork Rivers provide excellent recreational opportunities that include, but are not limited to, boating, canoeing, tubing, swimming, fishing, and sightseeing. Visitors also enjoy hiking, backpacking, hunting, and horseback riding.

PURPOSE OF THE PLAN

The approved general management plan will help guide management of the Ozark National Scenic Riverways until a new plan replaces it. The purposes of this general management plan are as follows:

- Clearly define resource conditions and visitor experiences to be achieved in Ozark National Scenic Riverways.
- Provide a framework for National Riverways managers to use when making decisions about such issues as how to best protect National Riverways resources, provide a quality visitor experience, and manage visitor use, and what kinds of facilities, if any, to develop in the National Riverways.



OZARK NATIONAL SCENIC RIVERWAYS OVERVIEW MAP

- Ensure that this foundation for decision making has been developed in consultation with interested stakeholders and adopted by the NPS leadership after an adequate analysis of the benefits, impacts, and economic costs of alternative courses of action.

All future plans will tier from this approved general management plan.

NEED FOR THE PLAN

Prior to completion of the 2014 General Management Plan for Ozark National Scenic Riverways, the most recent comprehensive planning effort was completed in 1984. Much has occurred since then:

- Patterns and types of visitor use have changed and technology has introduced opportunities for recreational activities and access not envisioned in the past.
- The National Park Service is continually learning more about the diverse natural and cultural resources of the National Riverways and the challenges involved in protecting them.
- Existing uses have changed, providing opportunities to recommend some National Riverways lands for designation as potential wilderness.

Each of these changes has major implications for how visitors access and use the National Riverways, the facilities needed to support those uses, how resources are managed, and how the National Park Service conducts its operations.

The general management plan represents a commitment by the National Park Service to the public on how the National Riverways

will be used and managed. As such, it is intended to:

- confirm the purpose and significance of the National Riverways
- determine the best mix of resource protection and visitor experiences beyond what is prescribed by law and policy, based on the purpose and significance statements for the National Riverways; the range of public expectations and concerns; the natural and cultural resources in the National Riverways; the impacts of the alternatives on natural, cultural, and socioeconomic conditions; impacts on visitor use and experience; and long-term economic considerations and costs
- define management zones that implement the goals of the National Park Service and the public with regard to natural and cultural resource management and protection and visitor use and experience—facilities that are appropriate within each management zone are also identified
- assist NPS staff in determining whether actions proposed by the National Park Service or others are consistent with the goals embodied in the approved general management plan
- serve as the basis for more detailed management documents such as five-year strategic plans, implementation plans, resource stewardship plans, and visitor use plans

The general management plan does not describe how particular programs or projects should be prioritized or implemented. Those decisions will be addressed during the more detailed planning in strategic and implementation plans. All of those plans depend on subsequent funding and will be based on the goals, future conditions, and

appropriate types of activities established in the approved general management plan.

The updated general management plan meets the requirements of the National Parks and Recreation Act of 1978 and NPS policy. These mandate development of a general management plan for each unit in the national park system.

PURPOSE OF AND NEED FOR THE WILDERNESS STUDY

The National Park Service is required to study the suitability of lands within the national park system for preservation as wilderness per the Wilderness Act of 1964, Secretarial Order 2920, and NPS *Management Policies 2006*. They stipulate that the National Park Service must study roadless and undeveloped areas within the national park system, including new areas or expanded boundaries, to determine whether they should be recommended for designation as wilderness.

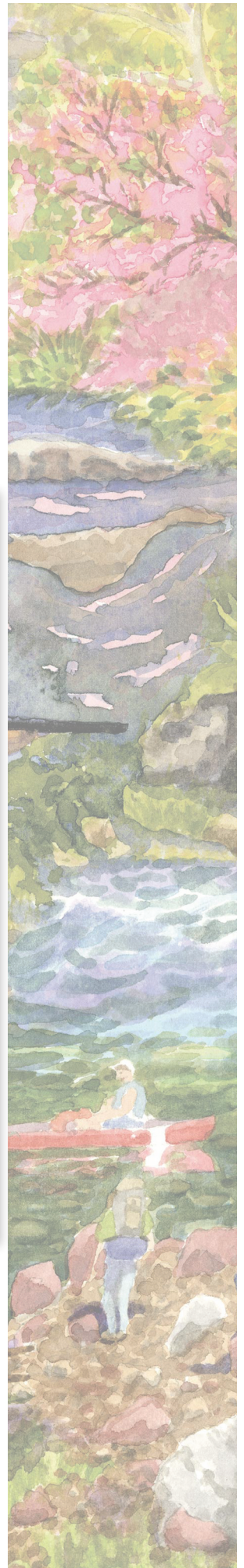
Lands designated by Congress as wilderness are permanently set aside in a natural condition to provide outstanding opportunities for solitude or primitive and unconfined recreation. A wilderness study evaluates whether lands and waters in areas managed by the National Park Service are appropriate for designation as wilderness. The inclusion of a wilderness evaluation in the general management planning effort fulfills the NPS commitment in the 1984 *Ozark National Scenic Riverways General Management Plan* to initiate a formal wilderness study should “conditions precluding legislative wilderness designation change in the future.” The study is supported by documented analysis in compliance with the National Environmental Policy Act and the National Historic Preservation Act.

The 1984 planning effort evaluated the entire Ozark National Scenic Riverways for wilderness suitability. Three potential wilderness areas were identified: the Upper Jacks Fork, Big Spring, and Cardareva. Due to land ownership and uses in those areas that did not conform to wilderness, the plan correctly noted that a legislative wilderness designation will be precluded at that time. The plan did, however, recognize the wilderness qualities of these areas and stated the agency’s commitment to re-evaluate the same areas in the future when circumstances surrounding land ownership and use change.

The Upper Jacks Fork and Cardareva areas still do not meet the congressional wilderness requirement for federal land ownership, and the Upper Jacks Fork area still has nonconforming uses that prevent the National Park Service from proposing the area for wilderness. However, Big Spring was evaluated for wilderness suitability in the *Final General Management Plan / Environmental Impact Statement* for the Ozark National Scenic Riverways, as nonconforming conditions at Big Spring have been resolved and there has been ongoing public interest in seeing the Big Spring tract (3,434 acres) managed for wilderness qualities. This public interest is also focused on the contiguous US Forest Service Big Spring tract (3,518 acres).

The wilderness study evaluated the Big Spring area within Ozark National Scenic Riverways for possible recommendation to Congress for inclusion in the national wilderness preservation system. All three action alternatives of the general management plan explored a wilderness option for the Big Spring area.

Planning Issues and Opportunities



PLANNING ISSUES AND OPPORTUNITIES

During the drafting of the general management plan, a number of issues and concerns were identified by the general public; NPS staff; county, state, and other federal agency representatives; National Riverways' partners; resource experts; and representatives from organizations.

Comments received during the planning process demonstrated there is much the public values about the National Riverways, especially the protection of scenery and water quality, interpretation of local history and heritage, and river and trail access. Issues and concerns expressed during scoping generally focused on balancing appropriate visitor use, types and levels of facilities, services, and activities with desired resource conditions.

KINDS AND AMOUNTS OF RECREATIONAL USE

A wide range of recreational activities and experiences were identified during scoping as important to visitors of the Ozark National Scenic Riverways. Some of these include river sports (canoeing, floating, tubing, boating, rafting, and fishing), hiking and walking, horseback riding, driving all-terrain vehicles (ATVs) and off-road vehicles (ORVs), wildlife viewing and bird-watching, and camping. Of these recreational activities and experiences, public comments mainly centered on river sports, horseback riding, and the use of ATVs and ORVs.

There was no consensus as to how recreation on the river should be managed. Although most commenters on river sports felt the rivers were too crowded, they did not agree on how to reduce river user numbers. Some people encouraged further use of the existing permit system or creating management zones to reduce the number of parties on the

National Riverways. Other commenters suggested reducing vehicle access along the rivers. Increased visitor education on the use of and operation of both motorized and nonmotorized watercraft was also suggested to address this issue. Similar strategies for restricting the use of ATVs and ORVs were also discussed.

Respondents were divided on horseback riding in the National Riverways. There were differences on what constitutes appropriate camping in the National Riverways and what types of facilities should accompany the different styles of camping. Other National Riverways users wanted more hiking trails and several requested improved signs along trails.

BOATING REGULATIONS

During the development of alternatives, questions arose regarding NPS authority to allow 60/40 horsepower (hp) motors based on the park unit's existing regulation (36 CFR 7.83(a)(2)), which is included in appendix C of the 2014 general management plan. This regulation prohibits the use of motors that are rated higher than 40 hp by the manufacturer. Through research and consultation with the Department of the Interior Regional Solicitor's Office, the National Park Service learned that allowing retrofitted 60/40 hp jet motors is in violation of the regulation because the National Park Service is bound by the manufacturer's horsepower rating.

VISITOR BEHAVIOR

The National Riverways was designated to create a special experience for visitors such as observing native wildlife, exploring a hiking trail, or pondering the power and immensity

of a spring flow. This invigorating and reflective scenic experience serves as the essence of an Ozark National Scenic Riverways experience. A recurring complaint by commenters was the growing amount of disrespectful and vulgar visitor behavior. Most commenters expressed concerns about drug and alcohol use and trash and litter along the rivers and surrounding lands. Many families stated they will no longer visit the National Riverways due to rise of inappropriate visitor behavior. Currently, visitors recreating in the National Riverways may consume alcohol.

Three general types of sentiments were expressed over visitor behavior. One sentiment suggested completely banning alcohol on the riverways. Other commenters stated having alcohol on the riverways was fine. Opinions that fell in the middle advocated that alcohol should be allowed, but abusers should be dealt with sternly and existing laws should be consistently and forcefully enforced. Education, interpretation, partnerships with special interest groups and concessioners, and increased law enforcement were suggested as ways to reduce conflicts and increase respectful behavior.

NATURAL RESOURCES

Under the provisions of the National Riverways' establishing legislation, the National Park Service is responsible for conserving, interpreting, and exhibiting the unique natural and cultural resources of the Current and Jacks Fork Rivers and surrounding areas. National Riverways' lands contain a rich array of wildlife and plants, including endemic species that exist nowhere else in the world. The Ozark Plateau is one of the oldest continuously exposed land masses in the world and, as a result, is home to a unique ecosystem.

Ozark National Scenic Riverways contains 134 miles of exceptionally clear, free-flowing rivers, which is unprecedented anywhere else

in the United States. This remarkable water clarity is primarily because most of the water that flows into the Jacks Fork and Current Rivers is filtered through the karst groundwater system. The hydrogeologic processes of this karst landscape have also created an unusually high density of extraordinary caves and springs.

Natural resources-related comments that were received during the planning process most often mentioned the effects of recreation equipment and animals on water quality, wildlife habitat fragmentation, invasive nonnative species, and declining fish populations.

CULTURAL RESOURCES AND INTERPRETATION

Comments emphasized the importance of Ozark cultural heritage. Many people were adamant that the interpretive program should continue to focus on the area's prehistory, history, and heritage demonstrations. Others expressed the need to provide more interpretive displays and kiosks. Commenters also expressed concern for vandalism and disturbance to historic structures and archeological sites and illegal removal of artifacts from these areas.

PARK MANAGEMENT AND OPERATIONS

Commenters held varying views on park management and operations topics, including whether park management was doing enough to protect resources in accordance with the National Riverways' mission, the effectiveness of law enforcement, the enforcement of scenic easements, and community relations.

TYPES AND LEVELS OF DEVELOPMENT

Several comments emphasized that the types and levels of development within the National Riverways should be *appropriate*. That is, the commenters felt that appropriate facilities should be situated at appropriate locations, consistent with the needs of users and the setting in which the facilities were placed. In some cases, upgrading or enhancing existing campgrounds and landings were recommended to handle the volume of current use. Other commenters felt development of facilities should be kept to a minimum so the National Riverways will maintain a more “primitive” feel.

Some respondents advocated for wilderness designation of the Big Spring tract. Other people felt wilderness designation will be too restrictive, and many were unclear of the implications of wilderness designation.

CLIMATE CHANGE

Climate change refers to any substantial changes in average climatic conditions (such as average temperature, precipitation, or wind) or climatic variability (such as seasonality or storm frequencies) lasting for an extended period of time (decades or longer). Recent reports by the US Climate Change Science Program, the National Academy of Sciences, and the United Nations Intergovernmental Panel on Climate Change (IPCC 2007) provide clear evidence that climate change is occurring and will accelerate in the coming decades. The effects of climate change on national parks are beginning to emerge as both science and impacts become clearer; however, it is difficult to predict the full extent of the changes that are expected under an altered climate regime.

The National Park Service recognizes that the major drivers of climate change are outside the control of the agency. However, climate change is a phenomenon whose impacts throughout the national park system cannot

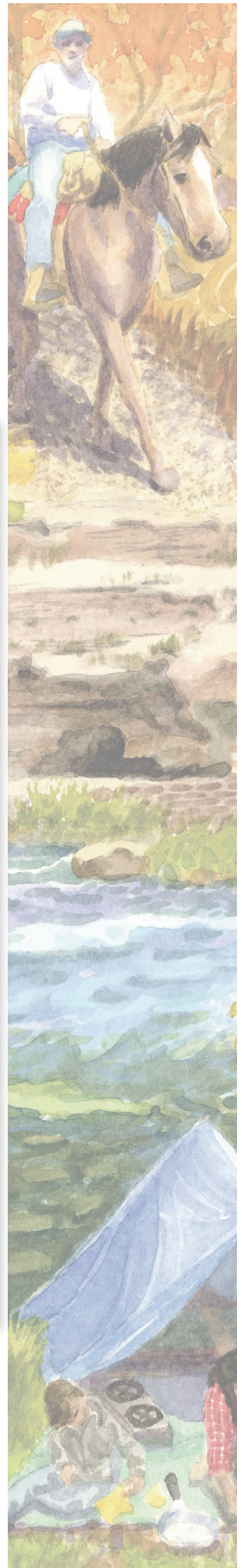
be discounted. The National Park Service has identified climate change as one of the major threats to national park system units and has developed a Climate Change Response Strategy (NPS 2010) that focuses on science, adaptation, mitigation, and communication.

Climate change is included in this document to acknowledge its role in the changing environment of the National Riverways and to provide an understanding of its impact. Other factors driving environmental change include population growth in the area (subsidence of water table, increased visitation, pollution), shifts in visitor use patterns, and land-use change and development around the National Riverways.

Although climate change is a global phenomenon, it manifests differently depending on regional and local factors. According to a report prepared for the National Park Service on historic and projected climate trends for Ozark National Scenic Riverways, climate of the Midwest region of the United States is anticipated to become warmer and slightly wetter, resulting in a wide range of impacts on plants, wildlife, water flow regimes, and people over the next century. Climate models indicate that the midwestern states, including Missouri, will likely experience great variability in precipitation. Overall, annual precipitation may increase slightly due to warmer and wetter winters, but rain is projected to decrease during the summers with longer periods in between rain events (NPS 2013).

These types of projected changes are important because climate is a dominant factor affecting the physical and ecological processes of the Ozark National Scenic Riverways and the Midwest region as a whole. For example, the National Riverways is home to some of the largest freshwater springs in the country and the world. These springs are a major driver of the terrestrial and aquatic systems of the area. The magnitude, duration, and timing of precipitation changes could affect the groundwater recharge regime that powers these springs.

Summary of Management Strategies



SUMMARY OF MANAGEMENT STRATEGIES

The National Park Service selected the preferred alternative as described in the *Final General Management Plan / Environmental Impact Statement* issued in December 2014, as the selected action. The selected action will enhance opportunities for visitors to discover and learn about the natural wonders and Ozark heritage of the National Riverways, while maintaining a mix of traditional recreational and commercial activities. Emphasis will be placed on increasing opportunities for visitor education and connections to natural resources and cultural landscapes.

The selected action focuses on providing a balance of diverse recreational opportunities and visitor experiences, along with increasing visitor education and appreciation of natural and cultural resources of the park unit. For example, a mix of private and guided traditional recreational activities like boating, floating, and horseback riding will occur under this alternative. Additional trails and a small learning center at the rehabilitated Powder Mill will be developed to better orient and inform visitors. Natural resources will be restored to more natural conditions, while maintaining greater opportunities for visitor access. Most of the Big Spring Wilderness Study Area will be recommended for wilderness designation.

The selected action provides a comprehensive National Riverways-wide approach to resource and visitor use management. Specific management zones detailing acceptable resource conditions, visitor experience and use levels, and appropriate activities and development will be applied to National Riverways lands consistent with this concept.

Elements of the selected action will support the resilience of the National Riverways to expected impacts from climate change, such

as warmer temperatures, an extended fire season, and changes to water flow regimes, all of which may affect cultural and natural resources and visitor experience at the National Riverways. Some of the strategies for climate change adaptation and sustainability in the selected action include restoring key ecosystem features and processes, protecting cultural resources to increase their resilience to climate change, and providing additional opportunities for nonmotorized recreation during the peak use season.

VISITOR EXPERIENCES AND ACTIVITIES

A manageable mix of traditional recreational activities, such as floating, boating, and horseback riding, will still be provided. Also, a variety of guided and self-guided activities will be offered to help visitors discover the array of natural and cultural resource-based opportunities available and increase visitor awareness of the National Riverways' many special resources and values.

NONMOTORIZED WATERCRAFT

All sections of the National Riverways will continue to be open to nonmotorized watercraft year-round. The percentage of the rivers zoned for nonmotorized recreation will increase during the peak-use season, which is defined as April 1 through September 14. Concession drop-off and pick-up locations for river users using nonmotorized watercraft could be redistributed to reduce peak-season crowding effects or to protect river resources if changes in river flow conditions impact existing locations.

MOTORIZED WATERCRAFT

The National Park Service will pursue rule-making for changes in motorboat regulations. This will include rule-making to change the existing 40 hp regulation to allow the use of engines rated 60 at the powerhead, as long as they are equipped with a jet unit. Rule-making will also be pursued to establish a 150 hp limit from Big Spring to the southern boundary of the park. Refer to table 5 for a detailed breakdown of motorboat horsepower limits by river section.

CONCESSIONS

Concession drop-off and pick-up locations for river users using nonmotorized watercraft could be redistributed to reduce peak-season crowding effects or to protect river resources if changes in river flow conditions impact existing locations.

FISHING/GIGGING

The National Riverways will continue to be available for fishing and gigging activities, consistent with applicable restrictions set forth by the park unit or state. The National Park Service will continue to partner with the state to enhance healthy, native game fish populations.

HIKING TRAILS

The location of primitive and natural zoning will increase the amount of hiking trail access compared to the no-action alternative. Approximately 10 miles of park-owned roads and traces in primitive zones will be removed and replaced with hiking trails. When needed, trails will be developed to access some discovery sites. Some of these trails may link to the Ozark Trail. Additional accessible trails will be opened.

MOUNTAIN BIKING

Mountain biking may become an allowable trail use, but only on designated trails, as determined through development of a roads and trails management plan and subsequent rulemaking. Mountain biking will not be allowed in primitive zones.

EQUESTRIAN USE

The existing designated, approximately 23-mile equestrian trail system will continue to be provided. Additional equestrian trails will be designated. As part of the roads and trails management plan, the National Park Service will consider designating some of the existing, unauthorized trails by incorporating 25 to 45 miles of these trails into the existing National Riverways trail system, as well as designating some of the associated stream crossings. The remaining 45 to 65 miles of unauthorized horse trails and associated stream crossings will be restored to their natural condition. The roads and trails management plan will clearly identify authorized trails and corresponding trail uses, where trails should be redesigned or improved to reduce trail user impacts, and suitable locations for improved trail signage to more clearly identify authorized trails and orient trail users. All horse trails will be designed to discourage creation of social trails; decrease impacts of horses on sensitive areas, including streams and riparian areas; reduce conflicts with other users; and reduce trail damage, erosion and manure pollution. In the interim, until a roads and trails management plan is completed, unauthorized trails that pose the greatest threat to park resources and visitor safety could be closed on a case-by-case basis. An approximately 25-site horse campground may be established. A permitting system could be established, as necessary, to manage impacts of horse use. Law enforcement patrols will be increased for compliance.

CAMPING

Developed Camping

Two additional developed campgrounds may be provided at Upper Current River (Akers) and Upper Jacks Fork (Blue Spring).

Gravel Bar Camping

Designated campsites or camping areas may be established on some gravel bars accessed by licensed vehicles to reduce crowding, improve safety, and enhance visitor experience. On these gravel bars, all camping will be limited to the designated camping areas. These sites will be identified in a subsequent planning process.

Visitors using motorized and nonmotorized watercraft could continue to camp on gravel bars, as long as the location of that campsite was 0.5 mile away from any designated camping area and at least 50 feet away from any designated river access.

Backcountry Camping

Backcountry campsites will continue to be provided in designated areas throughout the National Riverways and may require a fee. Backcountry campsites will be removed from primitive zones. Backcountry sites may have some basic amenities (restrooms, tables, fire rings, and/or lantern posts).

Primitive Camping

Primitive campsites will continue to be provided in primitive and natural zones and will not require a fee. In some cases, roads or parking areas to primitive sites may stop slightly short of the campsite. The National Park Service will incorporate universal design principals to the extent practicable and some primitive sites may become accessible to persons with mobility impairments. No decision has been made about which

primitive campsites this would affect. Primitive sites would have no amenities.

VISITOR SERVICES AND FACILITIES

Additional trails (some with universal accessibility) will be developed for visitors to access a network of discovery sites. A small learning center at Powder Mill with educational and interpretive programs and exhibits may be developed to better orient and inform visitors. This facility may include classrooms and might provide some limited quarters for visiting experts.

Visitor orientation and information services will continue to be available at NPS headquarters in Van Buren, at the multiagency visitor center in Salem, and at a few contact points and ranger stations throughout the National Riverways. In addition, one additional visitor contact location may be provided as part of the learning center at Powder Mill.

NPS roads and river access points will be managed by zoning prescriptions. Management will seek to establish a partnership with the counties regarding road management, including closures and maintenance. For some discovery sites, old access roads will be reopened to enable vehicular access. Undesignated NPS roads, traces, crossings, and river access points will be evaluated on a case-by-case basis in a subsequent plan and may either be closed or designated for authorized use. Natural conditions will be restored to approximately 45 miles of roads and traces. Law enforcement will be increased for compliance.

There would be potential opportunities for new concessions for overnight activities such as guided float trips and guided (hike-in) backcountry trips in the natural and primitive zones, along with shuttle services.

The National Park Service will strive to make all proposed facilities (whether new or

rehabilitated) and services accessible to all people, including those with disabilities, in compliance with existing laws and NPS policies.

INTERPRETATION AND EDUCATION

Self-guided interpretive opportunities will provide visitors with a sense of being the first to discover remote, hard-to-find places such as an old cabin or a secluded spring. Guided opportunities would include ranger-led tours of special features such as old settlements, springs, and river environments. This will help reach visitors who are looking for different or additional activities to the traditional float trip. Resource management staff will develop opportunities for visitors and volunteers to engage in hands-on resource management projects. A learning center may be established at Powder Mill and a school curriculum may be developed. Learning center programs could provide more structured environmental education opportunities, especially for school groups.

Cultural demonstrations of traditional crafts, as well as special events, will continue to be offered throughout the year. Events such as the Haunting in the Hills, An Ozark Christmas, Ozark Heritage Day, the Alley Spring Independence Day Celebration, and the Ozark Dinner Theater will provide visitors with unique opportunities to learn about the natural and cultural history of the National Riverways.

NATURAL RESOURCES

Natural resources will be maintained or restored to more natural conditions that lack signs of substantial development or use. Restoring degraded biological communities and improving the overall natural setting will be emphasized. A focused program of resource monitoring, research, and preservation projects will actively support and strengthen management capabilities and ensure accurate visitor information. Effects

of visitor use on river/karst habitats will be investigated.

Undesignated NPS roads, traces, crossings, and river access points will be evaluated on a case-by-case basis in a subsequent plan and may either be closed or designated for authorized use. Approximately 45 miles of unauthorized roads will be restored to their natural conditions.

Additional strategies related to natural resources are noted below.

- The National Park Service will seek to partner with the county and state to replace the Cedargrove low-water bridge with a high-water bridge.
- The National Park Service will also seek to partner with the county to construct a bridge at Akers, a crossing currently served by a concession-run ferry. Installation of these bridges will restore more natural conditions and provide better emergency access for this area of the county.
- The National Park Service will seek to partner with communities about waste systems to improve water quality.
- The National Park Service will also strive to work within a regional context to protect the night sky quality from light pollution and continue to foster partnerships for natural resource stewardship.

CULTURAL RESOURCES

Management actions will protect and preserve archeological resources, historic structures, and cultural landscapes. Selected structures and sites may receive special management attention to support Ozark heritage educational programs. A focused program of resource monitoring, research,

and preservation projects will actively support and strengthen management capabilities and ensure accurate visitor information.

An oral history program will be restarted. The archive/collections program will be enhanced. Efforts to coordinate cultural resource education, interpretation, and protection activities across management divisions will be enhanced. Management will ensure that cultural resource information is accurately conveyed to the public. Partnerships with volunteers and others will be sought to accomplish cultural resource stewardship projects.

Additional historic structures will be restored and made available to the public as interpretive exhibits. These additional structures and associated landscapes will complement the historic representation of the continuum of Ozark cultural history in this region. These could include structures such as the CCC-built shower house and park entry station near Big Spring.

Additional strategies related to cultural resources are noted below.

- The more than 400 known archeological sites will continue to be monitored. Appropriate protection measures, such as riverbank stabilization or trail rerouting, will be taken where archeological sites are threatened by erosion, visitor use, or other impacts.
- The curatorial facility will be expanded to provide additional archeological storage space for smaller national park units in the region. The National Riverways will become a regional curatorial hub.
- Five additional cemeteries will be maintained.

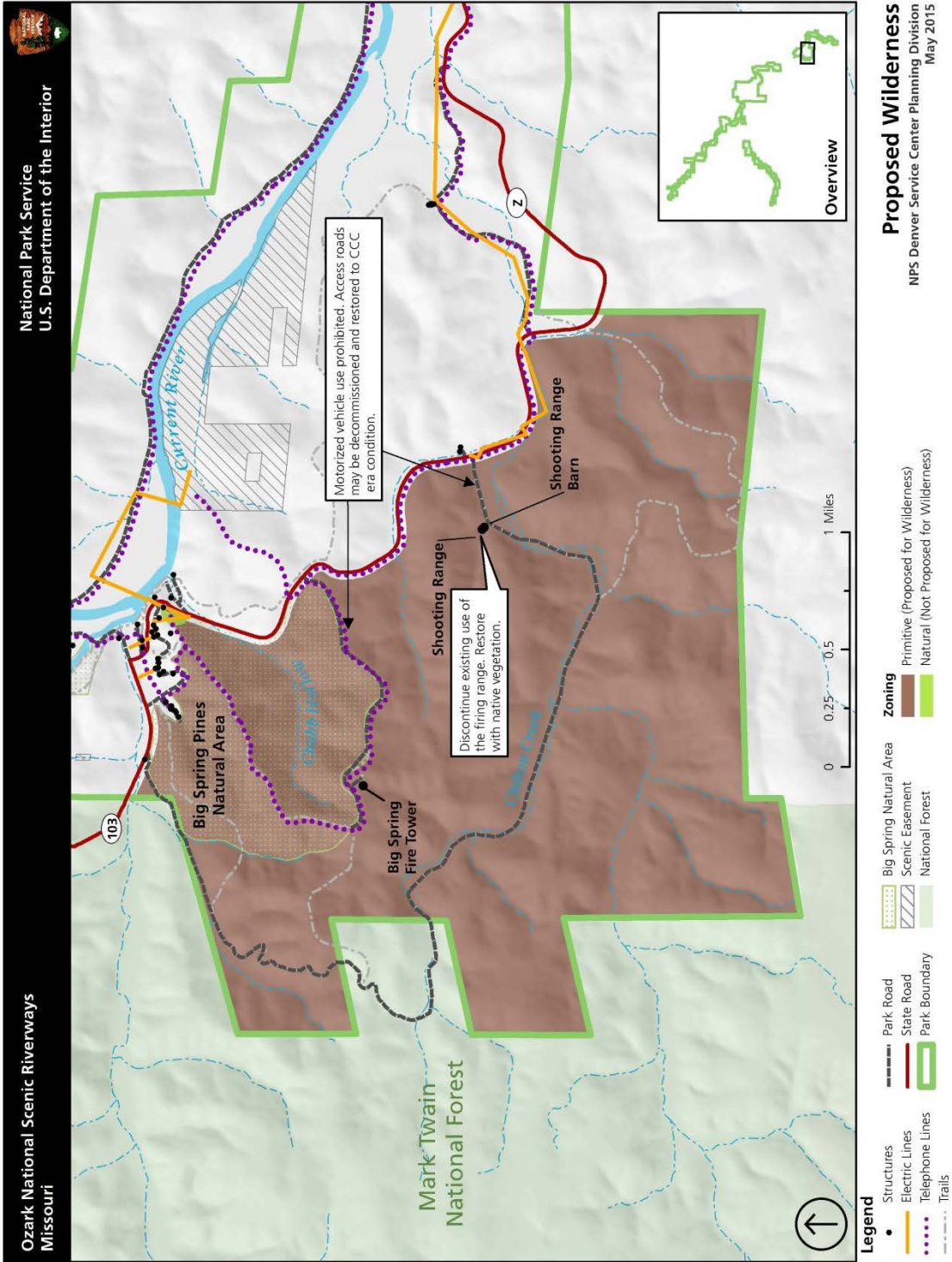
WILDERNESS

All but 4 of the 3,434 acres within the Big Spring Wilderness Study Area will be recommended for wilderness designation. The entire Big Spring Wilderness Study Area will be zoned primitive. The fire tower, incinerator, barn, and CCC-era camp will be retained. The NPS training range will be removed and the area restored.

Administrative vehicle use of the access roads to the fire tower, NPS training range, and barn will be prohibited. The roads will be evaluated to determine the feasibility of restoring them to a CCC-era condition. The utility corridor containing the communication cable that serves the Big Spring cabins and residents will be proposed as potential wilderness addition and will remain in use until the cable fails, or until another utility route outside the wilderness is designated. Once decommissioned, the corridor will be evaluated to determine the feasibility of administratively converting it to wilderness. If it is deemed feasible, the utility corridor will be administratively converted to wilderness once the nonconforming use ceases. In accordance with NPS policies, park unit managers will employ the “minimum requirements” concept to ensure that nonmechanized equipment is used in wilderness to the greatest extent possible. In particular, emergency situations such as wildfire suppression will be conducted in ways that minimize the lasting impacts of those actions.

PARK OPERATIONS

One multi-operational staff facility will be constructed to house maintenance and field staff offices. Approximately 10 obsolete structures that are part of the deferred maintenance backlog and that pose health and safety concerns will be removed and sites restored.



PROPOSED WILDERNESS MAP

Two sustainable (current technology) sanitary systems will be installed at Akers and Pulltite to improve water quality.

PARTNERSHIPS

Park staff will promote measures that foster a spirit of cooperation with neighbors and stakeholders. Various strategies will be undertaken to encourage compatible adjacent land uses and provide landowners, land managers, local governments, and the public with important information about NPS management activities.

The park will develop a plan to facilitate and expand communications, provide opportunities for more direct input with park staff, and help promote awareness and understanding of park issues.

The National Park Service will seek to develop a friends group.

The park will continue to share office space at the Van Buren headquarters with other federal and state agencies.

A cooperating association will continue to operate bookstores at park visitor contact facilities such as the Van Buren headquarters, Round Spring, and Alley Mill. The park will also continue to regularly share information about park events and important issues.

The National Park Service will pursue partnerships with:

- local community organizations and chambers of commerce for park cultural demonstrations and special events to help generate additional business opportunities in local communities
- volunteers and others to accomplish cultural and natural resource stewardship projects
- the counties regarding road management, including closures

- the county and state to replace the Cedargrove low-water bridge with a high-water bridge
- Shannon County to construct a bridge at Akers
- communities about waste systems to improve water quality
- communities, the state, and federal agencies in a regional context to protect the night sky quality and natural lightscape from the effects of artificial lighting
- the State of Missouri to enhance healthy native game fish populations

IMPLEMENTATION OF THE PLAN

Implementation of the approved plan will depend on future funding. The approval of the plan does not guarantee that the funding and staffing needed to implement the plan will be forthcoming. Full implementation could be many years in the future. The implementation of the approved plan could also be affected by other factors such as changes in NPS funding, visitor use patterns, requirements for additional data or regulatory compliance, competing national park system priorities, and uncontrollable environmental changes.

Additional feasibility studies and more detailed planning and environmental documentation will be conducted, as appropriate, before any proposed actions can be carried out, as in the following examples:

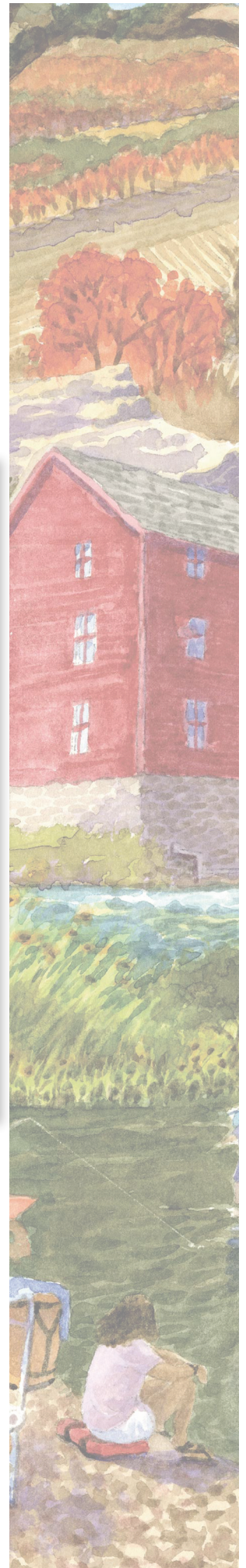
- Appropriate permits will be obtained before implementing actions that will impact wetlands.
- Appropriate federal and state agencies will be consulted concerning actions that could affect threatened and endangered species.
- American Indian tribes, the state historic preservation office, local

governments, and the public will be consulted.

The general management plan does not prescribe how particular programs or projects should be implemented. Those decisions will be addressed during more

detailed planning efforts associated with the development of future strategic and implementation plans. All future plans will tier from the 2014 general management plan and will be based on the goals, future conditions, and appropriate types of activities that it established.

Management Zones



MANAGEMENT ZONES

The primary building blocks for a general management plan are the management zones. All zones are developed within the scope of the park's purpose, significance, mandates, and enabling legislation.

Management zones tell how areas of the National Riverways will be managed in the future. Management zones prescribe a range of desired resource conditions and visitor experiences and include statements about the appropriate kinds and levels of management, use, and facilities in each zone. The management zones provide primary guidance for subsequent decision making at the National Riverways and are the core of the general management plan.

Zones will be applied only to the Current and Jacks Fork Rivers and those land areas for which the National Park Service has fee title ownership within the park unit's authorized boundary. Lands with timber or scenic easements are managed by the legal requirements of the easement and are not zoned. Private lands within the boundary are not zoned.

DESCRIPTION OF MANAGEMENT ZONES

There are seven designated management zones, including four land-based zones and three river-based zones, for the Ozark National Scenic Riverways. River-based zones include the area up to the ordinary high-water mark.

Developed



The developed zone represents areas that will support moderate to high levels of development and visitor services to accommodate concentrated visitor use and diverse recreational, educational, and interpretive opportunities. Most of the administrative facilities for operations and maintenance will be in this zone.

Resource-Based Recreation



The resource-based recreation zone represents areas that will support moderate levels of visitor use to accommodate a wide range of recreational, educational, and interpretive opportunities. Although some resource modifications could occur, natural

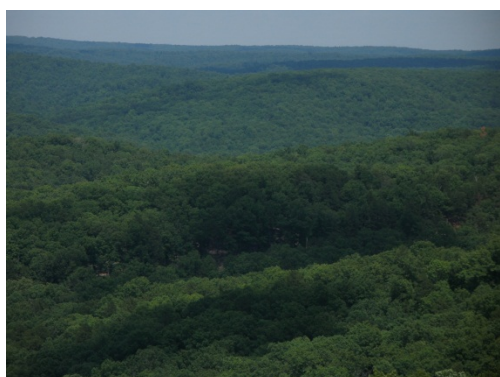
and cultural resources will remain largely intact.

Natural



The natural zone represents areas that will support the broader ecological integrity of the National Riverways. Natural processes will dominate, and only low-impact recreational activities will be allowed. Visitors will be immersed in nature with opportunities to enjoy solitude and natural sights and sounds.

Primitive



The primitive zone represents areas that will retain their wild, natural character. Natural resources and processes will be preserved to maintain their natural conditions and ecological integrity. Opportunities will be provided for visitors to experience backcountry challenges and solitude.

Mixed-Use River



The mixed-use river zone represents sections of the rivers that will support a mix of motorized and nonmotorized boating opportunities. Visitor encounters will typically be moderate to high, especially during peak use. The natural setting will predominate, but the sights and sounds of human activity will be prevalent.

Seasonal Mixed-Use River



The seasonal mixed-use zone represents sections of the rivers that will support a mix of nonmotorized and lower-horsepower motorized boating opportunities during the off-peak season. The rest of the year, only nonmotorized boating will be allowed. The social setting will vary seasonally with the types of allowable activities and levels of use, but the natural setting will predominate.

TABLE 1. FEDERALLY OWNED ACRES IN EACH LAND-BASED MANAGEMENT ZONE

Zone	Selected Action
Developed	1,436
Resource-Based Recreation	4,534
Natural	37,204
Primitive	8,480
Total:	51,654

TABLE 2. RIVER MILES IN EACH RIVER-BASED MANAGEMENT ZONE

Zone	Alternative B (NPS Preferred)
Mixed-Use River	71
Seasonal Mixed-Use River	63

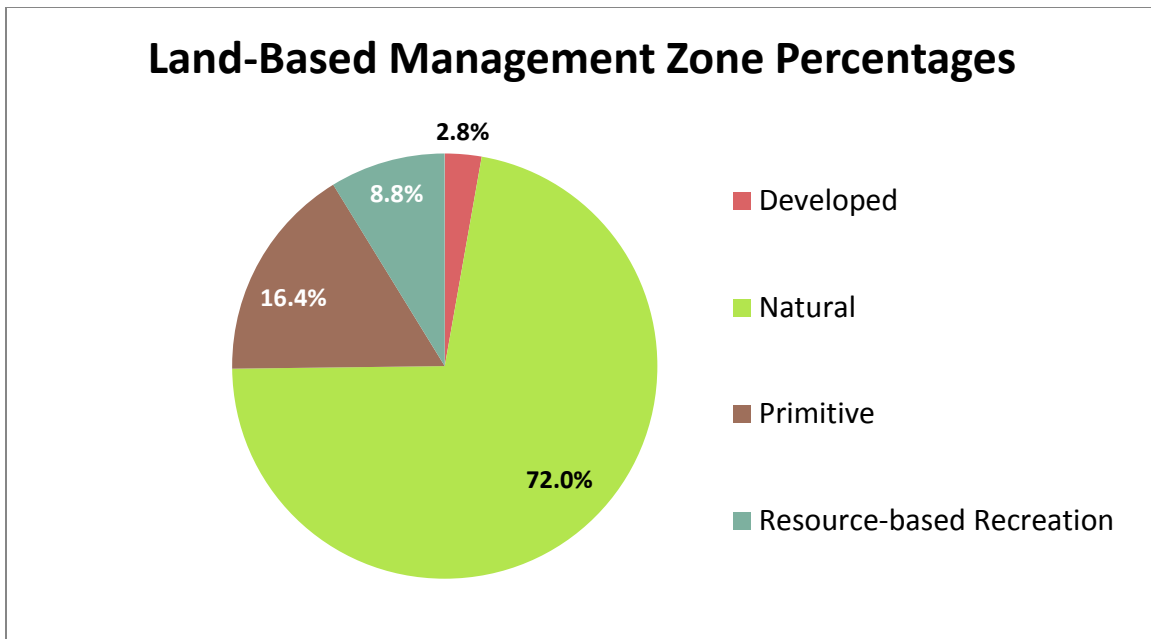


FIGURE 1. PROPORTION OF MANAGEMENT ZONES FOR ALL FEDERALLY OWNED NATIONAL RIVERWAYS LANDS UNDER THE SELECTED ACTION

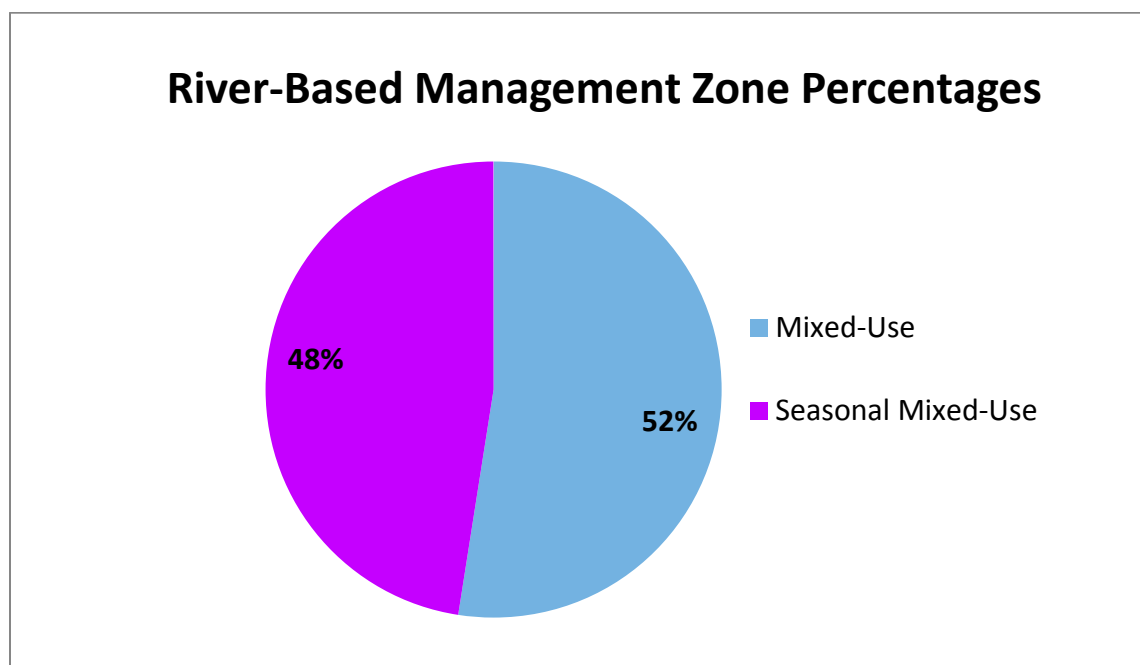


FIGURE 2. PROPORTION OF MANAGEMENT ZONES FOR ALL NATIONAL RIVERWAYS WATERS UNDER THE SELECTED ACTION

MANAGEMENT ZONE COMPARISON

Tables 3 and 4 give an overview of each management zone and describe the desired conditions for resources within each zone. Table 3 provides information about the four land-based management zones. Table 4 provides information about the three river-

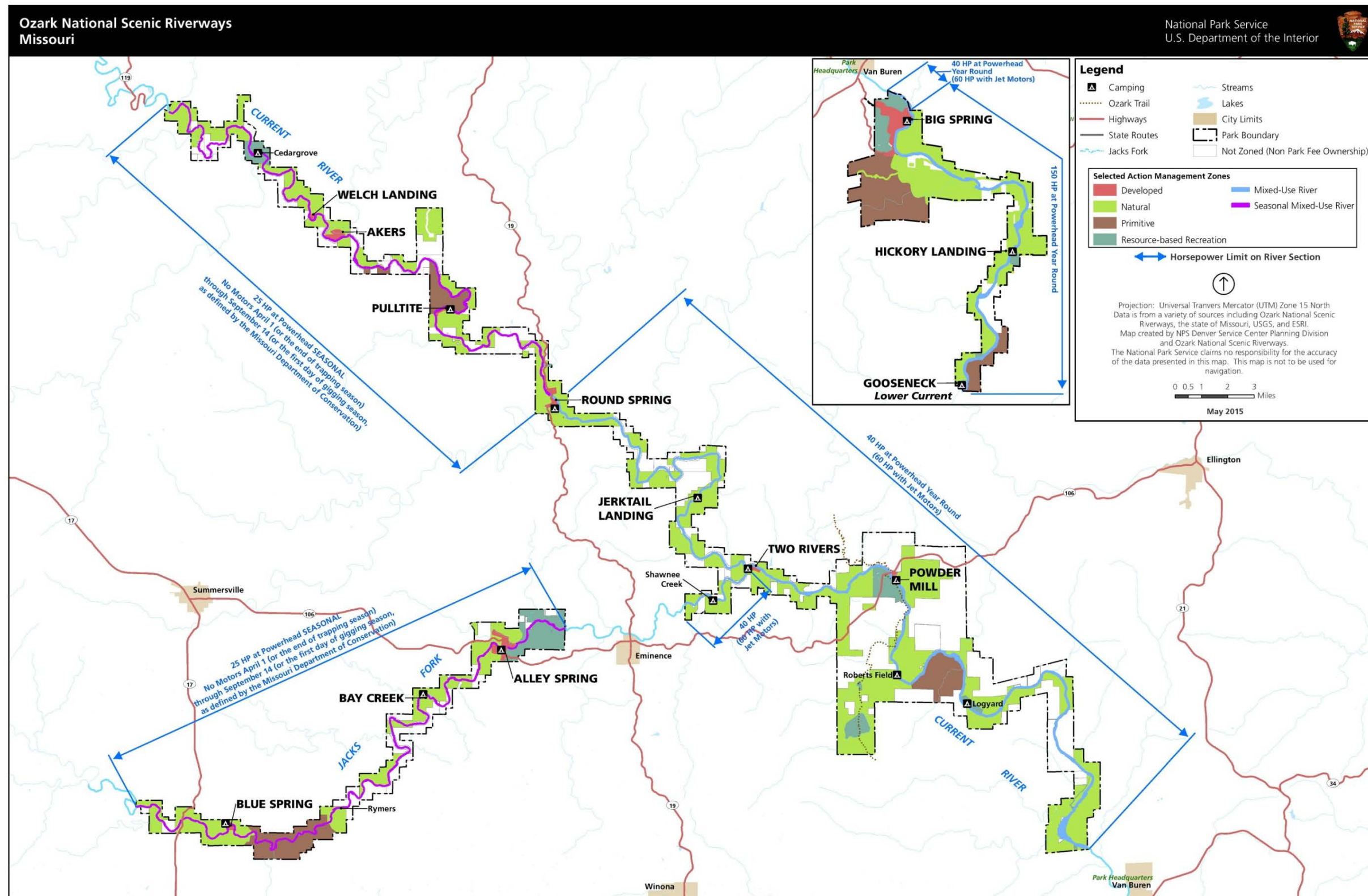
based management zones. The tables allow comparison of the differences between zones—some slight, some major—in the tolerance for resource impacts, appropriate management activities, visitor use levels, and appropriate recreational activities.

TABLE 3. OZARK NATIONAL SCENIC RIVERWAYS LAND-BASED MANAGEMENT ZONES

	Developed	Resource-Based Recreation	Natural	Primitive
Zone Concept	<p>Areas support moderate to high levels of development and visitor services to accommodate concentrated visitor use and diverse recreational, educational, and interpretive opportunities.</p> <p>Most of the administrative facilities for operations and maintenance will be in this zone.</p>	<p>Areas support moderate levels of visitor use to accommodate a wide range of recreational, educational, and interpretive opportunities.</p> <p>Although some resource modifications could occur, natural and cultural resources will remain largely intact.</p>	<p>Areas support the broader ecological integrity of the National Riverways.</p> <p>Natural processes will dominate and only low-impact recreational activities will be allowed.</p> <p>Visitors will be immersed in nature with opportunities to enjoy solitude and natural sights and sounds.</p>	<p>Areas retain their wild, natural character.</p> <p>Natural resources and processes will be preserved to maintain their pristine conditions and ecological integrity.</p> <p>Opportunities will be provided for visitors to experience backcountry challenges and solitude.</p>
Levels of Development	<p>Moderate to high levels of development to meet visitor use and park administrative needs.</p>	<p>Moderate levels of development for the purpose of directing visitor use, enhancing recreational opportunities, and protecting resources.</p>	<p>Developments will be limited to those essential for resource protection, research, monitoring, and basic visitor services.</p>	<p>Minimal development will be allowed for the protection of natural resources and to allow dispersed, low-impact visitor use.</p>
Visitor Experience	<p>Visitors will have opportunities to better understand the riverways’ significant resources and values through a wide range of interpretive facilities and services, interact with other visitors and park staff, and recreate in an environment that is supported by a variety of visitor services.</p> <p>Visitors will experience a modified natural environment with developed visitor facilities for orientation; day and overnight use will concentrate most of the park’s visitors in these areas. They also will have a high expectation for quality services and facilities.</p>	<p>Visitors will have opportunities to participate in a range of recreational, interpretive, and educational opportunities.</p> <p>Visitors will experience a mostly natural setting where some visitor services are available.</p>	<p>Visitors will encounter intact natural resources, features, and systems for personal inspiration, education, and recreation.</p> <p>Experiences could include opportunities for solitude, contemplation, and self-reliance.</p> <p>Evidence of human use will be limited.</p>	<p>Visitors will be immersed in a primitive, wild setting with opportunities to experience backcountry challenges, solitude, and self-reliance.</p> <p>Visitors will have a sense of remoteness, isolated from the sights and sounds of other people.</p>
Visitor services	<p>Moderate to high level of visitor services could include one or more of the following: orientation and interpretive programs, signs, wayside exhibits, developed campgrounds, contact stations, commercial operations, convenience stores, dining, and shuttle services.</p>	<p>Moderate levels of visitor services will be provided such as orientation and interpretive programs, signs and wayside exhibits, backcountry campgrounds, and commercial services if compatible with the desired resource conditions and visitor experiences.</p>	<p>Low levels of visitor services will be provided such as informational signs, wayside exhibits, and primitive campsites.</p>	<p>Directional signs will be provided at trailheads.</p> <p>Limited interpretive materials might be available to promote safe and responsible recreation.</p>
Natural Resource Condition	<p>Natural resources will be managed to accommodate facilities for NPS operations and concentrated visitor use. The effects of developments and visitor use on the natural surroundings will be minimized through planning and design efforts.</p>	<p>Resources will be maintained in their natural condition, yet modified where necessary to provide distinct visitor opportunities and experiences. Modifications will be aesthetically blended with the environment as much as possible.</p>	<p>Ecological integrity will be maintained by preserving and restoring natural resources and processes through an integrated natural resource management approach. Emphasis will be placed on protecting and restoring outstanding natural features and habitats for rare and endangered species.</p>	<p>Natural systems and processes will function independent of human intervention. Natural conditions will be restored when disturbed by human activity, but only if degraded sites are not expected to recover in a timely manner without human intervention. No development will occur.</p>
Cultural Resource Condition	<p>Cultural resources eligible for or listed in the National Register of Historic Places will be protected and managed consistent with NPS policies and the standards published by the Secretary of the Interior. All other cultural resources will be evaluated to determine if they should be preserved, stabilized, restored, or left unmaintained.</p>	<p>Same as developed.</p>	<p>Same as developed.</p>	<p>Same as developed.</p>

TABLE 4. OZARK NATIONAL SCENIC RIVERWAYS RIVER-BASED MANAGEMENT ZONES (INCLUDES RIVERS UP TO THE ORDINARY HIGH-WATER MARK)

	Mixed Use	Seasonal mixed-use	Nonmotorized
Zone Concept	The river supports a mix of motorized and nonmotorized boating opportunities. The natural setting will predominate, but the sights and sounds of human activity will be prevalent.	The river supports a mix of nonmotorized and lower-horsepower motorized boating during the off-peak season, which varies by alternative (please refer to table 4 for a detailed description of the peak and off-peak season for each alternative). The rest of the year, only nonmotorized boating will be allowed. The natural setting will predominate, but the social setting will vary seasonally with the types of allowable activities and levels of use.	The river supports year-round, nonmotorized boating opportunities. Visitors will experience an unaltered river system where natural sights and sounds will predominate, except during peak use when recreational activity will be more apparent.
Levels of Development	Low to moderate levels of development will be provided to accommodate launching and retrieving motorized and nonmotorized watercraft on the river. Locating new developments or improvements in the floodplain will be avoided where possible.	Same as mixed-use.	Low levels of development could be provided to accommodate launching and retrieving only nonmotorized watercraft on the river. Locating new development or improvements in the floodplain will be avoided.
Visitor Experience	Visitors will have opportunities to engage in a diverse mix of motorized and nonmotorized boating experiences.	Visitors will have the opportunity to float the river without the presence of motorized boats during the peak season, which varies by alternative (please refer to table 4 for a detailed description of the peak and off-peak season for each alternative). During the off-season, visitors will have opportunities to engage in a mix of lower-horsepower motorized and nonmotorized boating experiences.	Visitors will have the opportunity to float the river without the presence of motorized boats year-round.
Natural Resource Condition	The natural resource conditions in the river corridor will be managed to ensure that the free-flowing, clear, clean water of the river is not degraded.	Same as mixed-use.	Same as mixed-use.
Cultural Resource Condition	Cultural resources eligible for or listed in the National Register of Historic Places will be protected and managed consistent with NPS policies and the standards published by the Secretary of the Interior. All other cultural resources will be evaluated to determine if they should be preserved, stabilized, restored, or left unmaintained. Cultural resources that are subject to bank erosion, slumping, subsidence, or other natural deterioration will be stabilized using best management practices.	Same as mixed-use.	Same as mixed-use.



SELECTED ACTION MANAGEMENT ZONES

HORSEPOWER LIMITS

Table 5 describes the horsepower limits under each alternative. The color codes correspond to the river-based management zones described in table 4. During public scoping meetings, it became apparent a major topic of public interest was in the size of motors currently allowed on the rivers. Existing park regulations (36 CFR 7.83(a)) prohibit the use of motors rated higher than 40 hp by the manufacturer from Big Springs upriver to Alley Springs and Round Springs. However, for many years the National

Riverways has interpreted the regulations as allowing (and the public has been using) motors rated up to 60 hp if they were equipped with a jet-powered prop that effectively lowered the usable horsepower to 40 hp.

The selected action will continue to allow the use of these 60/40 hp jet motors (or 40 hp without the jet) on the waters where they are currently allowed. Rule making will be pursued to establish a 150 hp limit from Big Spring to the southern boundary of the park.

TABLE 5. MOTORBOAT HORSEPOWER LIMITS BY RIVER SECTION

		NPS Selected action	
		Peak season	Off-peak season
Current River	Northern boundary to Akers	No motorboats	25 hp
	Akers to Pulltite		
	Pulltite to Round Spring		
	Round Spring to Two Rivers	60/40 hp	
	Two Rivers to Van Buren		
	Van Buren to Big Spring		
	Big Spring to southern boundary	150 hp	
Jacks Fork	Western boundary to Rymers	No motorboats	25 hp
	Rymers to Bay Creek		
	Bay Creek to Alley Spring		
	Alley Spring to West Eminence		
	East Eminence to Two Rivers	60/40 hp	

General notes:

- The peak season is defined as the day after the end of trapping season through the day before the start of gigging season, as established by the Missouri Department of Conservation. Currently, those dates would be April 1–September 14.
- Seasonal/mixed-use zoning permits use of 25 hp motorboats during the off-peak season.
- The designation of 60/40 hp and 150 hp assume a regulation change. Boat motor horsepower is measured at the powerhead.
- The color codes correspond to the river-based management zones described in table 4.

RECREATION OPPORTUNITIES

Table 6 summarizes recreation activities that are permitted in each management zone.

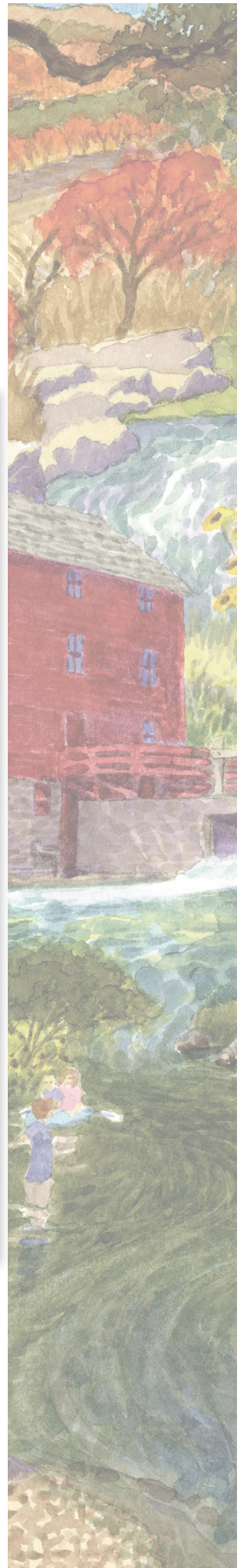
Collectively, the management zones provide the full suite of recreation opportunities that will be allowed in Ozark National Scenic Riverways. Participation in some activities, including picnicking, scenic viewing, nature observation, and interpretive talks and demonstrations, will be allowed in all

management zones in Ozark National Scenic Riverways. Activities such as hiking or fishing, which respectively can occur only on land or in water, are restricted to land-based or river-based management zones. In some cases, zoning is used to manage for desired conditions. For example, bicycling is not included in the primitive zone because it is not consistent with this zone's wild, natural character.

TABLE 6. RECREATION ACTIVITIES BY MANAGEMENT ZONE

Activity	Land-Based Management Zones				River-Based Management Zones	
	Developed	Resource-Based Recreation	Natural	Primitive	Mixed-Use River	Seasonal Mixed-Use River
Picnicking	•	•	•	•	•	•
Camping, amenities provided	•	•				
Camping, no amenities			•	•		
Camping on gravel bars¹	•	•	•	•		
Lodging/dining	•					
Hiking	•	•	•	•		
Horseback riding			On designated trails		At designated fords	
Bicycling on roads	•	•	•	•		
Bicycling on trails	•	•	•			
Scenic viewing / nature observation	•	•	•	•	•	•
Interpretive talks, demonstrations	•	•	•	•	•	•
Hunting and trapping		•	•	•	•	•
Fishing (not in springs)	•	•	•	•	•	•
Caving	Guided	Guided	Guided	Guided		
Off-road all-terrain vehicle	•					
Swimming					•	•
Canoeing, kayaking, rafting, tubing					•	•
Motorized boating					Motorboats year-round. See table 5 for motorboat horsepower limit.	Peak season: No motorboats. Off-peak season 25 hp maximum.

User Capacity



USER CAPACITY

General management plans for national park system units, including the National Riverways, must address the management of user capacity. The National Park Service defines user capacity as the type and extent of use that can be accommodated while sustaining the quality of a park's resources and visitor experiences consistent with the park purpose.

User capacity management involves establishing desired conditions, monitoring, and taking actions to ensure that National Riverways values are protected. The premise is that with any visitor use comes some level of impact that must be accepted; therefore, it is the responsibility of the National Park Service to decide what level of impact is acceptable and what management actions are needed to keep impacts within acceptable limits.

National Park Service staff actively manages the levels, types, and patterns of visitor use to the extent necessary to achieve and maintain desired resource conditions and a high-quality visitor experience. The monitoring component of this process helps NPS staff evaluate the effectiveness of management actions and provides a basis for informed management of visitor use. The user capacity management process can be summarized by the following major steps:

- Establish desired conditions for resources and visitor experiences (through management zoning), including the types of appropriate recreation opportunities and levels and types of development (included in tables 3 and 4).
- Identify indicators—measurable variables that are monitored to determine whether desired conditions are being met (e.g.,

vegetation damage, encounter rates on trails).

- Identify standards (minimum acceptable conditions) for the indicators.
- Monitor indicators to determine trends in conditions and if management actions are needed.
- Take management actions to maintain or restore desired conditions.

Table 7 includes the indicators, standards, and potential future management strategies allocated by management zones that would be implemented as a result of this planning effort. The planning team considered many potential issues and related indicators that would identify impacts of concern, but those described below were considered the most significant, given the importance and vulnerability of the resource or visitor experience affected by visitor use. The planning team also reviewed the experiences of other park units with similar issues to help identify meaningful indicators. Standards that represent the minimum acceptable condition for each indicator were then assigned, taking into consideration the qualitative descriptions of the desired conditions, data on existing conditions, relevant research studies, staff management experience, and scoping on public preferences. Some management strategies in table 7 vary across alternatives and would be implemented on completion of the plan. The rest of the strategies represent a range of strategies that could be used if needed to ensure standards are maintained and desired conditions are achieved. Several of these strategies are currently in use within the National Riverways to varying degrees and may be increased in response to changing conditions. If new strategies are needed, an analysis will be done to identify the most effective and

feasible action for implementation. Implementation of some of these management strategies in the future may require additional compliance and public involvement.

VISITOR EXPERIENCE INDICATORS AND STANDARDS

As the Ozark National Scenic Riverways implements the selected action, the park will focus management on monitoring the following list of priority *visitor experience* indicators:

- percent of facilitated interpretive contacts per year regarding programs, demonstrations, and activities
- number of campers on gravel bars designated for camping
- density of parked cars at visitor-created river crossings and access points
- number of watercraft on the National Riverways
- number of citations related to inappropriate behavior

Percent of Annual Visitors with Facilitated Interpretive Contacts as a Result of Programs, Demonstrations, and Activities

The National Riverways staff puts a great deal of time and energy into NPS interpretive and outreach programs. These programs seek to educate visitors and local community members about what makes the National Riverways unique and worthy of conservation. The number of visitors participating in interpretive programs and the time staff members spend participating in outreach activities are part of existing monitoring protocols. The standard will be no less than 8% of total visitors per year participating in interpretive programs and

activities, which is consistent with current participation rates. If participation rates begin to trend downward, then staff will evaluate the effectiveness of current program offerings, provide more opportunities for outreach and interpretation, increase community engagement programs, or add additional interpretive staff to reach more visitors.

Number of Campers at One Time at Designated Campsites on Gravel Bars Designated for Camping

Gravel bars along and within the rivers are a popular place for visitors to relax during the day and camp at night. Currently, camping is allowed for those accessing gravel bars by motorized and nonmotorized watercraft, as long as the location is 0.5 mile from any designated campground and at least 50 feet away from any designated river access.

On the designated gravel bars accessible by motorized vehicles (for example, cars and recreational vehicles), there are limited designated sites for camping and high demand for those sites. Increasing demand often leads to crowded conditions along the gravel bars that may detract from visitors' experiences on the rivers and may also impact natural resources such as vegetation and soundscapes. The gathering of several vehicles on the gravel bars along the river can also detract from the scenic experience of those visitors floating on the river.

To address the issues related to visitor experience and the density of vehicles parked next to the river, an indicator measuring the number of campers on the designated gravel bars was developed. The standard was set at no more than six campers per designated site on gravel bars within 50 feet of the river. This standard will provide more space between campers and manage the total number of people on the gravel bars.

If this standard begins to trend upward or is exceeded, National Riverways managers may

incorporate this standard into the Superintendent's Compendium, add signage at campsites, and require permits to camp on the gravel bars. If the standard is repeatedly exceeded, the National Park Service may consider temporary or permanent closure of the gravel bars to camping.

Density of Parked Cars at Visitor-Created Access Points and River Crossings Outside Designated Parking Areas and Designated Campsites

The National Riverways has many designated river access points and crossings for visitors to enjoy. However, there are also many undesignated, visitor-created river crossings and river access points that have become popular areas for visitors to congregate.

When visitors begin to cluster around undesignated river crossings and access points, the noise level is typically high. This congestion along the river also has a negative impact on those visitors who are looking for a primitive experience and solitude while floating the river.

Due to the potential for visitors to impact the natural qualities of the National Riverways through congestion at visitor-created river crossings and access points, the density of parked cars at these areas was developed as an indicator. To emphasize existing management direction that visitors use only designated river crossings and access points, the standard of no parked vehicles in these areas was established.

Due to the zero tolerance nature of this standard, many potential management strategies may need to be implemented immediately. This includes increasing the amount of education related to regulations associated with visitor use of designated and nondesignated river crossings and access points.

In addition to accessing undesignated river access points, visitors will sometimes park outside the established parking areas at designated river crossings and access points. Parking outside designated areas often leads to congestion at the river crossings and access points and impacts natural and cultural resources. In order to achieve the standard of no parked vehicles outside designated parking areas, managers might need to implement management strategies including better signage for designated river crossing and access points to delineate appropriate use areas, creating new parking areas, expanding existing parking areas, and providing better delineation of current parking areas.

Number of Watercraft Per River Mile at Specified Locations

A popular activity and means of travel on the riverways is through the use of motorboats. Motorboats are used to access fishing areas, cruise the river, and take families out on the weekends to enjoy scenic views. Motorboat use is currently managed with horsepower regulations based on river sections. In addition to these existing regulations, there are concerns about the volume of motorboat use in certain sections of the rivers. One concern is the effect of noise on those visitors seeking a quiet experience (for example, visitors in canoes). Also, on busy weekends during the summer, the total number of motorboats on certain sections of the riverways can pose a safety hazard due to conflicts between visitors.

Weekends during the summer season also bring many different types of nonmotorized use to the rivers. Many access points along the rivers have become popular launch sites for concessioners and private users of nonmotorized watercraft (for example, tubes, rafts, canoes, and kayaks). Often, several different groups enter the river at the same place and time, which can lead to congestion and conflicts.

Most visitors to the National Riverways rent their nonmotorized watercraft from National Riverways-approved concessioners and then return them at the end of their trip. However, over the past 20 years, the number of nonmotorized river users bringing their own equipment has steadily increased. If the number of private, nonmotorized users on the river continues to increase at a similar rate, issues related to crowding and conflicts will also likely increase. On some river sections most popular with nonmotorized users, motorized boat use is also occurring, increasing the potential for conflict among users and creating potentially dangerous situations such as people in tubes, rafts, kayaks, and canoes being overwhelmed by waves.

The need to manage the number of motorized and nonmotorized users on the river to promote high-quality visitor experiences, minimize conflicts among the different users groups, and promote a safer environment was recognized in the 1989 river use management plan. At that time, the dominant nonmotorized watercraft were canoes. The 1989 plan developed standards for the maximum number of canoes by river section and provided for monitoring and review of concession operations to achieve canoe standards. These standards were characterized as ranges for three types of use levels (low, medium, and high) to provide a variety of high-quality river experiences. The 1989 plan also designated zones of motorboat operation and maximum horsepower and provided impacts monitoring to natural resources. The 1989 river use management plan acknowledged there may be concerns with current and future use levels by motorboats and tubes, but the plan did not propose maximum use levels for these types of uses.

To better reflect changing watercraft use patterns on the National Riverways, particularly the greater diversity of watercraft, this general management plan applies the standards set in the 1989 plan for canoes to include all watercraft (motorized

and nonmotorized). The indicators and standards for watercraft included in this plan are important tools for alleviating crowding in certain areas during times of high use, as well as for addressing potential resource and safety concerns related to multiple uses in one area. Research conducted in 2010 (Park 2011) was compared to past research (Brown and Chilman 1999; Chilman and Vogel 2001; and Brown and Chilman 2002) and the 1989 river use management plan to help confirm that these indicators and standards are still effective and valid. For more specific information on these research studies, see the “Visitor Use and Experience” section in chapter 4 of the 2014 general management plan. Standards for number of watercraft per mile will not apply to any area outside the park boundary.

Use patterns at the National Riverways have changed over the past 30 years, but overall use levels have not varied dramatically (NPS 2011a), with the exception of the section of river from Chilton Creek to the park unit boundary north of Watercress. Most of the current watercraft use levels (such as for canoes, kayaks, motorboats, and tubes) for the majority of river sections are within the use levels established by the 1989 plan (Park 2011). The Chilton Creek to Watercress section (within park unit boundaries) is above the use levels established in the 1989 plan. Other exceptions exist, but they are few and occur only on weekends during peak season.

The only changes in application of the standards set in the 1989 river use management plan are to apply the standards to all watercraft and to amend the direction for the river section from Chilton Creek to the park unit boundary north of Watercress. The 1989 plan identified this section as medium use, but did not account for other river use besides canoes. Tube use has grown dramatically in this particular river section. This 2014 general management plan reassigns this section of river from a medium to high use section, as defined in the 1989 plan. That plan defined high use zones as social park

settings with moderate to high development and visitation and allowed up to 70 canoes per mile. Converting this section of river to a high use zone is more consistent with the desired conditions established for this area in the general management plan. This standard will apply to all watercraft and will allow for a higher level of use than the 1989 plan, but is below current use levels in this section of river. This reduction in use from current levels is needed to ensure ranger patrols are able to navigate river traffic and respond to emergencies safely and appropriately, as well as help minimize visitor use conflicts and crowding.

If use levels are close to or exceed the standards for a section of river, management actions will be needed. The standards allow flexibility to accommodate high use by assigning a percentage to the amount of time the river section will need to be within standard. For example, there will be no more than 70 watercraft per mile from Akers to Pulltite for 85% of the summer season (see table 7).

To ensure compliance with the standards, staff at the National Riverways may develop an education outreach program to encourage voluntary dispersal of use on the rivers to reduce the number of watercraft in certain popular areas. Also, current concessioner contracts or operating plans may be evaluated and modified to better distribute and manage the number of watercraft, both across times of day and by physical location. National Riverways staff may also consider a shuttle system to further disperse use on the rivers. Finally, if needed to ensure compliance with standards, watercraft permits may also be required. Implementation of some of these management strategies may require additional compliance and public involvement.

Number of Citations or Documented Warnings Related to Inappropriate Behavior

The National Riverways attract a wide variety of visitors from different parts of the country. Many come to enjoy the peace and serenity the National Riverways offer, while others come to unwind and be outdoors with their friends and family. There are times when the social atmosphere of the river leads to inappropriate activities (e.g., disorderly conduct, alcohol, and drug violations) and related conflicts between user groups. These conflicts can detract from the family friendly atmosphere of the National Riverways. Law enforcement personnel respond to many incidents of inappropriate behavior on the river, along the banks of the river, and in the campgrounds.

Although managers have been working toward minimizing the incidences of these behaviors, an indicator measuring the number of citations related to inappropriate behaviors will be used to ensure protection of resources and high-quality visitor experiences. The case records at the National Riverways shows that incidents related to alcohol, drugs, and disorderly conduct are the most frequent and disruptive.

For this reason, the standard will be that no more than 120 citations or documented warnings per month will be related to drugs, alcohol, or disorderly conduct. To ensure that this standard is not violated and the number of citations related to inappropriate behavior improves, managers may institute an educational program in partnership with other agencies and local media outlets. Increasing the number of interpretive contacts and potentially instituting a gravel bar greeter program might be appropriate. Increased law enforcement presence on the National Riverways might help to increase the family friendly atmosphere, as well as possibly offering alcohol-free zones on the rivers. If this standard is repeatedly violated, managers might consider temporarily or permanently closing areas of concern.

TABLE 7. VISITOR USE INDICATORS AND STANDARDS

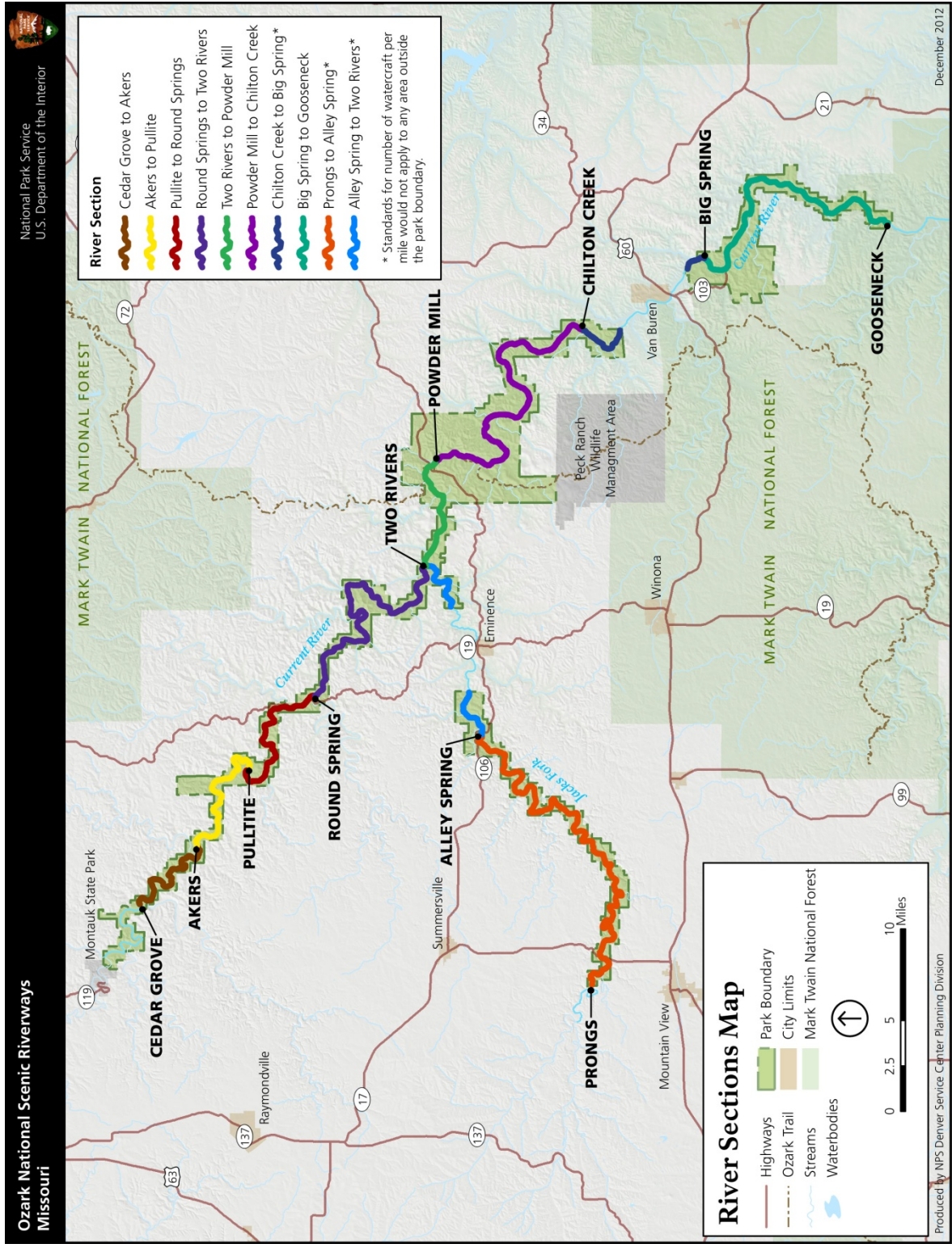
Visitor experience indicators and standards	Indicator	Zone	Standard		Potential Management Strategies ¹	
	Percent of annual visitors with facilitated interpretative contacts as a result of programs, demonstrations, and activities.	Parkwide	At least 8% of annual visitors will participate in facilitated interpretive programs, demonstrations, and activities.		<ul style="list-style-type: none">▪ Increase interpretation contacts from law enforcement and maintenance.▪ Create new programs to reach a more diverse audience.▪ Seek out funding for additional programming.▪ Increase interpretive staff to reach more visitors.	
	Number of campers at one time at designated campsites on gravel bars designated for camping.	Parkwide	No more than six campers per designated site on gravel bars within 50 feet of the river.		<ul style="list-style-type: none">▪ Provide education related to the sensitive nature of the river and gravel bar environment.▪ Post signs.▪ Designate campsites on the gravel bars.▪ Establish a pay station for campers.▪ Require permits to camp on gravel bars.▪ Implement temporary or permanent closure of gravel bars to camping.	
	Density of parked cars at visitor-created access points and river crossings outside designated parking areas and designated campsites.	Parkwide	Zero vehicles parked at visitor-vehicle-created access points and crossings outside designated parking and designated campsites.		<ul style="list-style-type: none">▪ Provide education programs directed at resource damage caused by visitor-created access points.▪ Use signs to direct visitors to designated access points.▪ Designate and delineate parking such as with barriers or boulders.▪ Create parking areas.	
	Number of watercraft per river mile at specified locations. <i>Note: The term “watercraft” applies to all forms of watercraft, motorized and nonmotorized, allowed within a particular section of river.</i>	Parkwide (based on 1989 river use management plan zoning protocol)	The numbers of watercraft per river mile at specified locations listed below will not be exceeded for 85% of the peak season		<ul style="list-style-type: none">▪ Educate visitors to encourage voluntary dispersal of use and off-peak times on the National Riverways. Modify concession contracts/operating plans to better distribute and manage the number of nonmotorized watercraft across areas of the National Riverways and throughout various times of the day.▪ Require motorboats to have quieter engines.▪ Use a shuttle system to better distribute watercraft.▪ Implement seasonal, temporary, or permanent closures.▪ Implement a permit system for watercraft use.	
			River section	Weekends and holidays (number of watercraft per mile)		Weekdays (number of watercraft per mile)
			Upper Current			
			Cedargrove to Akers	up to 70		up to 40
			Akers to Pulltite	up to 70		up to 40
			Pulltite to Round Springs	up to 40		up to 40
			Round Spring to Two Rivers	up to 10		up to 10
			Lower Current			
			Two Rivers to Powder Mill	up to 10		up to 10
			Powder Mill to Chilton Creek	up to 10		up to 10
			Chilton Creek to Big Spring ²	up to 70		up to 40
			Big Spring to Gooseneck (previously Hawes)	up to 10		up to 10
			Jacks Fork			
			Prongs to Alley Spring ²	up to 40		up to 40
	Alley Spring to Two Rivers ²	up to 40	up to 40			
	Number of citations or documented warnings related to inappropriate behavior.	Parkwide	There will be no more than 120 citations or documented warnings per month related to disorderly conduct and alcohol/drug-related activity.		<ul style="list-style-type: none">▪ Provide education through media outlets.▪ Work with other agencies to reduce inappropriate behavior.▪ Increase interpretive contacts.▪ Institute gravel bar greeters.▪ Provide more uniformed presence at river.▪ Designate family friendly zones.▪ Prohibit public intoxication beyond a preset limit (per Missouri State Statutes and 36 CFR).▪ Ban alcohol at trouble spots.	

TABLE 7. VISITOR USE INDICATORS AND STANDARDS (CONTINUED)

Resource indicators and standards	Indicator	Zone	Standard	Potential Management Strategies ¹
	Number of incidents of reported intentional vandalism.	Parkwide	There will be no more than six incidents of intentional vandalism per year to park unit facilities. There will be no more than one incident of intentional vandalism to cultural resources per year.	<ul style="list-style-type: none">▪ Take appropriate law enforcement action.▪ Provide visitor education.▪ Use community outreach.▪ Post signs.▪ Partner with local law enforcement for community patrols.▪ Increase ranger patrols.▪ Increase surveillance.▪ Rehabilitate affected sites.▪ Limit access.▪ Closure sites.
	Number of times bacteria in the rivers exceed existing State of Missouri standard.	Parkwide	There will be zero tolerance for violations during the recreational season of the Missouri standard for <i>Escherichia coli</i> .	<ul style="list-style-type: none">▪ Increase education and awareness.▪ Continue to monitor to detect changes in water quality, especially during high-use periods.▪ Continue immediate temporary closures when water quality standards are exceeded.▪ Increase regulation of events and activities such as requiring permits for horse use.▪ Increase regulation of use levels and/or group sizes with a goal of dispersing visitors to lesser-used areas or limiting group sizes.▪ Initiate permanent site closures and/or relocations, such as specific trails and crossings; consider closures during rain events.▪ Other mitigation techniques as appropriate.
	Number of visitor-created roads and campsites.	Parkwide	There will be zero tolerance for visitor-created roads, camping areas, and traces leaving designated county, state, or NPS roads per year (over baseline).	<ul style="list-style-type: none">▪ Provide education and awareness on low-impact practices.▪ Increase enforcement of off-road and off-trail travel.▪ Institute a trail permit system.▪ Promptly close visitor-created roads.▪ Provide better signage and delineation of designated trail and road system.▪ If appropriate, designate additional trails.▪ Better delineation of roads.▪ Increase road maintenance techniques such as installing water bars.▪ Harden road to better accommodate use type and levels.▪ Reduce use levels.▪ Reroute roads.▪ Implement temporary or permanent road closure.
	Number of horse crossings.	Parkwide	There will be no new equestrian crossings other than those associated with a designated trail.	<ul style="list-style-type: none">▪ Use education to increase awareness.▪ Convert crossing to an access point with associated parking and trail access to the river.▪ Close and rehabilitate unauthorized crossings.
	Number of crossings associated with motorized vehicles.	Parkwide	There will be no motorized crossings other than those associated with a county road.	<ul style="list-style-type: none">▪ Use education to increase awareness.▪ Convert crossing to an access point with associated parking and trail access to the river.▪ Close and rehabilitate unauthorized crossings.
	Number of incidents of reported intentional vandalism in caves.	Parkwide	There will be no more than four incidents of intentional vandalism per year in caves.	<ul style="list-style-type: none">▪ Investigate and report all cases to establish an accurate incident count.▪ Continue immediate treatment of impacts.▪ Implement temporary or permanent closure via gating caves.

1. Some management strategies will be implemented upon completion of the plan. The rest of the strategies represent a range of strategies that could be used if needed to ensure that standards are maintained and desired conditions are achieved. Several of these strategies are currently in use within the National Riverways to varying degrees and may be increased in response to changing conditions. If a new strategy is needed, the National Park Service will evaluate if the strategy requires additional compliance and public involvement to implement.

2. River sections are based on the 1989 river use management plan (see the “River Sections Map”). These sections were used in further research by both Chilman (1999, 2001, and 2002) and Park (2010) for consistency when collecting data. Standards for number of watercraft per mile will not apply to any area outside the National Riverways boundary.



RIVER SECTIONS MAP

RESOURCE INDICATORS AND STANDARDS

As the Ozark National Scenic Riverways implements the selected action, the park will focus management on monitoring the following list of priority *resource* indicators:

- number of incidents of reported intentional vandalism
- number of times bacteria in the rivers exceed the State of Missouri standard
- number of visitor-created roads and campsites
- number of horse crossings
- number of crossings associated with motorized vehicles
- number of incidents of intentional vandalism in caves

Number of Incidents of Reported Intentional Vandalism

Visitor use impacts include unintentional wear and disturbances to park unit facilities, infrastructure, and other resources, along with intentional vandalism. In order to maintain park unit facilities and continue to provide high-quality visitor experiences and services, the National Riverways created an indicator for intentional visitor-caused vandalism to park facilities. The proposed standard is no more than six incidents of intentional vandalism to park facilities per year.

The National Riverways also created an indicator and standard for vandalism to cultural resources within the park unit. Because cultural resources are nonrenewable, vandalism must be minimized to the greatest extent possible. The indicator for human impacts to cultural resources and sites is based on this existing monitoring protocol. Management efforts will focus on maintaining the integrity and condition of all sites, with no more than one incident of

intentional vandalism per year. To ensure that both standards are met, visitor education and enforcement of park regulations will be continued, and closures of particularly vulnerable areas will be considered, if needed.

Number of Times Bacteria in the Rivers Exceed the Existing State Standard

In locations of high recreational use, bacterial counts can be elevated. The presence of bacteria in the water is a threat to human health and safety as well as the health of aquatic communities.

The National Riverways has a monitoring program in place to determine the levels of *Escherichia coli* in the water column based on water quality standards developed by the State of Missouri. The standard will be zero tolerance for violations during the recreational season.

To ensure that this standard is not violated, managers might consider increasing educational efforts to raise awareness of the impacts that river users can have on water quality. Increased monitoring efforts, especially during periods of high use, may be needed to remain within standard. If conditions trend toward the standards, management actions, such as moving trails farther from the river, may be considered.

Number of Visitor-Created Roads and Campsites

Visitors leaving designated roads with their vehicles lead to impacts to areas adjacent to the road such as erosion, compaction of soils, loss of vegetation, and the creation of disturbed areas that become prime habitat for invasive plant species. Visitor-created roads leading to precarious overlooks, areas of loose rock, and sensitive cultural and natural areas are also a concern due to safety and

potential resource impact issues. These roads often lead to visitor-created camping areas that have the potential for similar impacts on natural and cultural resources.

Monitoring the number of visitor-created roads, traces, and camping areas per year will allow staff to ensure that the resources adjacent to these areas are not being adversely impacted. Monitoring will also allow the National Riverways to close visitor-created roads and rehabilitate visitor-created camping areas. To emphasize existing management direction that visitors use only designated roads and campsites, the standard was established as zero new visitor-created roads and camping areas per year compared to baseline conditions.

If the standard for this indicator is exceeded and if it is determined that unauthorized roads and camping areas were caused by visitor use, initial management strategies may include visitor education, increased enforcement, and installation of temporary or permanent signs. If the standard is continually violated, increased law enforcement patrols may be necessary. National Riverways staff may also consider official designation of certain visitor-created roads, traces, or camping areas, if they meet the criteria for a suitable site.

Number of Horse Crossings

Horseback riding is a popular activity at the National Riverways and is enjoyed by many visitors throughout the year. The National Riverways has 23 miles of designated trails with seven designated river crossings for visitors to use. However, miles and miles of undesignated trails have developed over time, with 24 identified undesignated river crossings associated with these trails (Park 2011).

The undesignated trails and crossings are not designed to withstand the use they receive or to control potential impacts to natural resources. Typically, undesignated trails and

crossings are susceptible to erosion and a loss of vegetation, which can lead to impacts on wildlife habitat, hydrologic processes, and water quality, including increased turbidity. These sites also become prime habitat for invasive plant species. Water quality can also be impacted by horses entering the water at unplanned crossings. A decrease in water quality, the physical disturbance to the riverbed, and a proliferation of horse river crossings can also impact wildlife at the site of the crossing and downriver of the crossing.

Significant resource concerns are associated with the use of undesignated river crossings and the connection of these crossings to informal trail proliferation. Following completion of a roads and trails management plan, which will designate horse trails and crossings, undesignated horse river crossings will be restored to their natural condition. However, to ensure that further crossings are not created, an indicator measuring the number of new horse river crossings was developed. The standard will be no new horse river crossings that are not associated with a designated trail.

Law enforcement will be increased for compliance. In addition, the NPS staff will need to implement an education and awareness plan to help visitors understand regulations associated with the use of designated trails and river crossings, along with raised awareness on the impacts associated with undesignated crossings.

Number of Crossings Associated with Motorized Vehicles

Vehicles crossing the rivers cause a variety of resource concerns. These include, but are not limited to, vegetation loss, wildlife disturbances (in and adjacent to the rivers), erosion, and water quality degradation directly associated with vehicles crossing the rivers.

The indicator and standard for the number of vehicle crossings is based on the existing

National Riverways management policy, which does not allow river crossings except at designated areas associated with a designated county or state road. The standard of zero motorized crossings not associated with a designated county or state road will help strengthen the existing policy.

This indicator and standard will require the National Riverways staff to begin closing and rehabilitating undesignated river crossings immediately. In the future, the staff will use visitor education to encourage the use of designated crossings and inform visitors of the resource damage caused by visitor-created crossings. If the standard has been violated on several occasions and other management strategies have not been successful, the staff may consider converting undesignated crossings to a river access point with associated parking and trail access to the river.

Number of Incidents of Reported Intentional Vandalism in Caves

Karst resources, especially caves, are vulnerable to intentional acts of vandalism such as graffiti on cave walls and floors, trash dumping or littering, digging, and building campfires. These behaviors impact the aesthetics of the cave, but more importantly may impact sensitive, cave-adapted species such as bats and salamanders. The National Park Service is already monitoring these impacts to cave resources. The indicator for vandalism is based on the existing monitoring protocol.

Management efforts will be focused on maintaining the integrity and condition of caves by not allowing more than four incidences of intentional vandalism per year. To ensure that this standard is maintained, visitor education and enforcement of park unit regulations will be continued. A possible

increase in surveillance and closure of particularly vulnerable areas will be considered. (Note: All of the caves at the National Riverways, with the exception of Round Spring Cave, are currently closed due to white-nose syndrome affecting the bat population.)

LONG-TERM MONITORING

The National Park Service will continue to monitor visitor use levels and patterns throughout the National Riverways. In addition, it will monitor the visitor use indicators. The rigor of monitoring the indicators, such as the frequency of monitoring cycles and area monitored, may vary considerably depending on how close existing conditions are to the standards. If the existing conditions are far from exceeding the standard, the rigor of monitoring will be less than if the existing conditions were close to or trending toward the standard.

Initial monitoring of the indicators will determine if the indicators were accurately measuring the conditions of concern and if the standards truly represented the minimally acceptable condition of the indicator. The National Park Service may decide to modify the indicators or standards and revise the monitoring program if better ways are found to measure changes caused by visitor use. Most of these types of changes should be made within the first several years of initiating monitoring. After this initial testing period, adjustments will be less likely to occur.

If use levels and patterns change appreciably, the National Park Service will need to identify new indicators to ensure that desired conditions are achieved and maintained. This iterative learning and refining process, a form of adaptive management, is a strength of the NPS visitor use management program.

Future Studies and Implementation Plans Needed



FUTURE STUDIES AND IMPLEMENTATION PLANS NEEDED

During development of the Ozark National Scenic Riverways' GMP/EIS, implementation-level planning and data needs were identified. This section identifies future studies (including inventories, evaluations, and condition assessments) and plans (including strategies) that would likely be needed to implement the selected action.

Please note that certain plans and studies that are similar in nature may be combined for efficiency.

- critical habitat for endangered species
- special status species, including federally and state listed plants and wildlife
- Develop a water quality and air quality monitoring plan.
- Develop a restoration plan or plans that provide guidance for restoring rare habitats and special status species.

NATURAL RESOURCES

- Update the fire management plan.
- Develop an open fields management plan.
- Update the land protection plan.
- Develop a resource stewardship strategy that provides comprehensive, long-range direction for natural resource management (NPS policy is to complete a resource stewardship strategy to replace the resource management plan). This strategy will establish a multiyear, ecosystem-based planning process for the natural resource program to implement inventories, condition assessments, monitoring, and restoration projects for the following:
 - vegetation, including both native and invasive species
 - wildlife, including mammals, birds, reptiles, fish, and amphibians
 - wetlands, including bogs, springs, seeps, and riparian areas
 - ecologically sensitive areas, including globally imperiled habitats, state natural heritage areas, conservation sites, and

CLIMATE CHANGE

- Develop a climate change action plan that builds on the NPS approach to addressing climate change outlined in this general management plan, including strategies to reduce the carbon footprint of the National Riverways and an analysis to determine the effects of climate change on park resources, values, facilities, and visitor services.
- Pursue data collection and research that addresses climate change effects on natural and cultural resources, as well as human dimensions. These efforts could include scenario planning with the assistance of the Climate Change Response Program and partnership research efforts with other agencies or institutions.
- Pursue climate change adaptation planning as a part of all other planning processes included in this section (e.g., RSS, river use management plan, etc.). Climate change will affect all aspects of park stewardship and operations and therefore should be considered as part of any park strategic planning effort.

- Pursue studies concerning the relationship between projected climate changes, output from the natural springs, river flows, and an examination of potential future fire regimes.

CULTURAL RESOURCES

- Develop a resource stewardship strategy that provides comprehensive, long-range direction for cultural resource management, including the establishment of a multiyear planning process for resource inventory, assessment, research, interpretation, and protection. Cultural resources such as archeological sites, historic structures, and cultural landscapes will continue to be inventoried and assessed National Riverways-wide.
- Update the collection and archive management plan, integrated pest management plan for collections, and scope of collections, as needed.
- Develop a National Riverways-wide strategy to identify, monitor, and mitigate the impacts of climate change on cultural resources.
- Develop treatment plans for special cultural resource areas and cultural landscapes.
- Develop treatment plans for cultural resources in need of rehabilitation and stabilization.
- Develop a cultural affiliation landscape plan (pastoral areas). This will increase areas managed as meadows and agricultural sites that were once part of Ozark farms and settlement areas.

VISITOR USE AND INTERPRETATION

- Develop a roads and trails plan.
- Develop development concept plans for Akers, Alley Spring, Big Spring, Round Spring, Pulltite, Two Rivers, and Powder Mill.
- Develop an implementation plan or plans to upgrade campgrounds.
- Update the river use management plan, which was published in 1989.
- Develop a horse use management plan.
- Develop a right-of-way management plan.
- Develop a sign plan.
- Rewrite the long-range interpretive plan.
- Develop a visitor use management plan.
- Develop an implementation plan or plans to substantially increase the number of visitors contacted over current levels, such as by improving visitor orientation services.
- Develop a visitor use management strategy for the National Riverways consistent with the visitor use management framework presented in this general management plan.
- Update visitor use and analysis data to serve as a foundation for a variety of other implementation studies and plans.
- Develop new methods to reach a wider variety of audiences using available new technologies.
- Develop a new commercial services plan to provide viable concession services at all locations to ensure the long-term availability of watercraft rentals, lodging, food, and other services. An implementation plan will be developed if either upgrades to infrastructure or the addition of new facilities is appropriate.

PARTNERSHIPS

- Incorporate strategies to enhance existing partnerships or actively pursue new ones with public and private entities into the future studies and plans listed previously.
- Develop a communication plan to facilitate and expand communications, provide

opportunities for more direct input with park staff, and help promote awareness and understanding of park issues. The plan will propose measures for regularly gathering and distributing information to the public, responding to concerns about park operations and encouraging feedback on park issues.

FUTURE STUDIES AND IMPLEMENTATION PLANS NEEDED

Appendix A: List of Preparers



APPENDIX A: LIST OF PREPARERS

Chris Church, Project Manager /
Resource Stewardship Branch Chief

Scott Babcock, Project Manager /
Community Planner

Kerri Cahill, Midwest Region Branch
Chief

Ann Van Huizen, Project Manager (2001–
10, retired)

Eric Thuerk, Project Manager Associate

Merritt Malin, Landscape Architect
(2006–08).

Don Wojcik, Natural Resources Specialist

Steve Whissen, Historian / Cultural
Resource Specialist

Ryan Sharp, Visitor Use Specialist. (2009–
11)

Justin Henderson, Cultural Resources
Specialist

Nell J. Blodgett, GIS Specialist

Laura Pernice, GIS Specialist

Jennifer Stein, Visitor Use Management
Specialist

Chris Colvin, Natural Resources Specialist

Charles Notzon, Project Specialist

Frank Turina, Program Manager, Policy
Planning and Compliance, NPS
Natural Sounds and Night Skies
Division

Mary McVeigh, Community Planner
(2001–09, retired)

Midwest Regional Office

Sharon Miles, Planner / Regional Liaison

Chris Holbeck, Natural Resource
Program Manager

Sandra Washington, Associate Regional
Director, Planning and Compliance

Ruth Heikkinen, Chief, Planning and
Compliance

Nicholas Chevance, Regional
Environmental Coordinator

Dan Jackson, Landscape Historian,
Cultural Resources Division

Don Stevens, Chief Historian, Cultural
Resources Division

Consultants

The Louis Berger Group

Lisa McDonald, Senior Economist

Jeff Guittierez, Environmental Planner

National Park Service, Ozark National Scenic Riverways

Larry Johnson, Superintendent

Bill Black, Superintendent

Reed Detring, Superintendent (retired)

Noel Poe, Superintendent (retired)

Russell Runge, Deputy Superintendent

Dena Matteson, Management Assistant
and Public Information Officer

Clara Wooden, Acting Superintendent
(temporary)

Bill O'Donnell, Supervisory Interpretation
Ranger (retired)

Bill Terry, District Ranger (retired)

Jim Price, Chief of Resources
Management (retired)

Roger Dillard, Chief of Maintenance
(retired)

Rusty Rawson, Chief of Maintenance

Kevin Atkins, Facility Management
Systems Specialist

Eric Daniels, Chief of Resource
Management

Victoria Grant, Natural Resources
Specialist

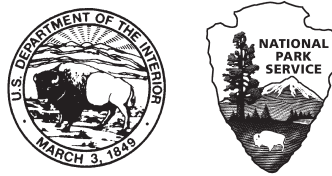
Carl Fry, Roads and Trails (retired)

Debbie Wisdom, Chief of Administration

APPENDIX A: LIST OF PREPARERS

Dan Swanson, Fire Ecologist
Bobby Bloodworth, Fire Management
Officer
Greg Moss, Chief Ranger (retired)
Dennis Weiland, Chief Ranger (2010–
present)
Mike Gossett, Biological Technician
Angela Smith, Fire Education and
Prevention Specialist (2006–09)
Rick Drummond, District Law
Enforcement Ranger (retired)
Bryan Culpepper, Interpretation Specialist
(2006–11)

Elisa Kunz, Chief of Interpretation and
Public Information Officer (2006–10)
Faye Walmsley, Chief of Interpretation
and Public Information Officer
(retired)
Patty Dorris, Superintendent’s Secretary
(retired)
Peggy Tarrence, Concession Management
Specialist
Kimberly Houf, Terrestrial Ecologist
Sue Duncan, Superintendent’s Secretary



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; 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 by encouraging stewardship and 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.

NPS/OZAR/614/129369A SEPTEMBER 2015



Printed on recycled paper

National Park Service
U.S. Department of the Interior

Ozark National Scenic Riverways
Missouri

