



MISSOURI NATIONAL RECREATIONAL RIVER

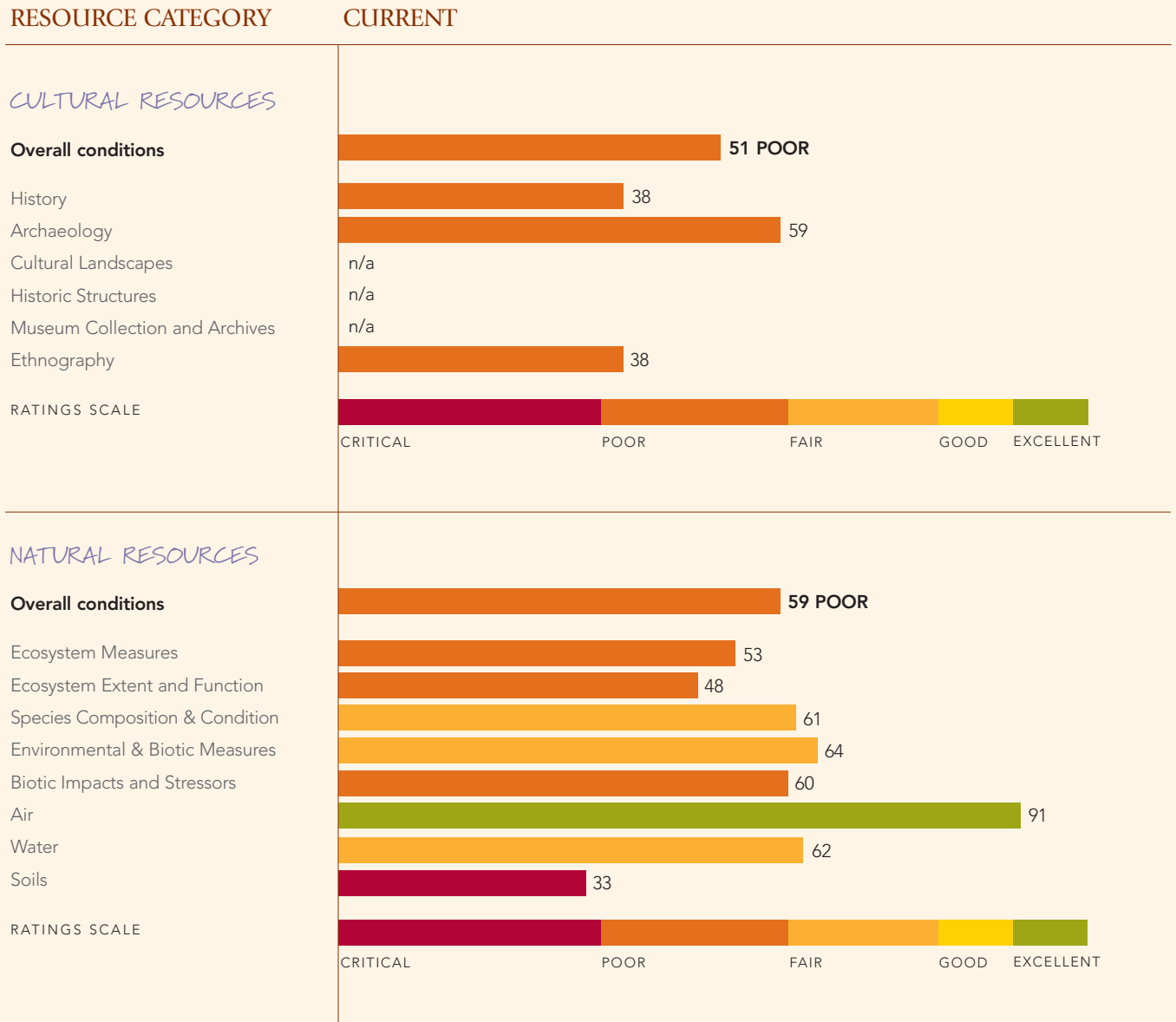


Much of today's Missouri River bears little resemblance to the powerful and often unpredictable river of the early 19th century. According to the Environmental Protection Agency, 600 miles of the upper Missouri River lie in reservoirs and 800 miles of the lower river are artificially channeled. But under the auspices of the Wild and Scenic Rivers Act (WSRA), two remnant free-flowing segments of the Missouri River are now protected as the

Missouri National Recreational River. In 1978, 59 miles of river downstream of Gavins Point Dam to Ponca, Nebraska, were protected. An additional 39 miles of the Missouri River below Fort Randall Dam to Running Water, South Dakota, were included in 1991, along with the lower 20-mile section of the Niobrara River (a tributary of the Missouri) and lower eight miles of Verdigre Creek (a tributary of the Niobrara). The park contains some 34,159 acres of land,
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The Missouri National Recreational River protects two free-flowing reaches of the river.

Note: When interpreting the scores for natural resource conditions, recognize that critical information upon which the ratings are based is not always available. This limits data interpretation to some extent. For the Missouri National Recreational River, 57 percent of the information requirements associated with the methods were met.



The findings in this report do not necessarily reflect past or current park management. Many factors that affect resource conditions are a result of both human and natural influences over long periods of time, in many cases before a park was established. The intent of the Center for State of the Parks® is to document the present status of park resources and determine which actions can be taken to protect them in the future.

KEY FINDINGS

- The greatest management challenges facing park staff—for both natural and cultural resources—are that Park Service resource management has only recently begun, the park is as yet only partially funded, and the Wild and Scenic Rivers Act requires the Park Service to obtain permission from private landowners before engaging in management activities.
- The Missouri National Recreational River does not manage any cultural landscapes, historic structures, or museum and archival collections. The park only recently began to manage cultural resources in the areas of history, archaeology, and ethnography.
- Studies of the Goat Island steamboat wreck, one of the park's identified archaeological sites, are needed to help expand interpretation of the history of commercial boat travel on the Missouri River.
- Several cultural resources studies, including an administrative history and a historic resource study, would provide useful information to help park staff protect cultural resources. This research would provide a historical overview of the park and identify and evaluate cultural resources within park boundaries.
- Six major dams and a 732-mile navigation channel have been built on the Missouri River since the 1930s. These projects have changed the river's natural flow, with effects on plants, animals, riverbank erosion, and sediment transport. The free-flowing reaches of the Missouri National Recreational River retain more natural elements than the slackwater sections that dominate much of the rest of the river, although even these protected reaches are influenced by the Fort Randall Dam, Gavins Point Dam, and various bank stabilization and erosion-control features.
- The Park Service has little influence on how the Missouri River is managed, even though its aquatic and riparian ecosystems are arguably the most important natural resources within the park. Threats to natural resources include habitat fragmentation and loss resulting from agriculture and residential development; pollution from agriculture and industry; loss of scenic integrity because of erosion-control structures and residential development; and invasive species such as purple loosestrife and tamarisk. In addition, riparian areas are disappearing as more and more homes and recreational cabins are constructed on riverfront land.
- Park waters and associated habitats are home to at least 80 fish species, 17 reptile species, nine amphibian species, at least 237 bird species, and more than 40 mammal species. The Missouri National Recreational River represents a changed but still largely functional ecosystem.

The Park Service owns little land within the Missouri National Recreational River, and must get permission from private landowners before engaging in management activities. The U.S. Army Corps of Engineers manages water issues including dams and flow regulation, which affect park resources. This situation makes it difficult for park staff to comprehensively manage natural and cultural resources.



NATIONAL PARK SERVICE

with just 250 acres actually owned by the National Park Service (the WSRA limits fee ownership).

NPCA's Center for State of the Parks resource assessment of the Missouri National Recreational River indicates that cultural and natural resources in the park are in poor condition, overall, with scores of 51 and 59 out of a possible 100, respectively. It is important to acknowledge that the natural resources score is based on just 57 percent of the information required by the methodology.

These scores are explained, in part, by the fact that the National Park Service has only recently become actively involved in resource management. Since its creation, the Missouri National Recreational River's 59-Mile District was primarily managed by the U.S. Army Corps of Engineers through a cooperative agreement with the National Park Service. As a result, many cultural resources management plans and standards mandated in the National Park Service's

Cultural Resource Management Guideline were not completed. Moreover, natural resources have been and continue to be affected by dams and flow regulation, habitat fragmentation, and invasive, non-native species; the Park Service has little or no control over these factors, which have large effects on park resource conditions and associated scores.

The greatest management challenges facing park staff—for both natural and cultural resources—are that Park Service resource management has only recently begun, the park is as yet only partially funded, and the WSRA requires the Park Service to obtain permission from private landowners before engaging in management activities. The park's management plans for each district, released in the late 1990s, prescribe strategies to protect and enhance the park, with the Park Service taking a more active role in managing parklands, while the U.S. Army Corps of Engineers continues to manage most water issues.

CULTURAL RESOURCES

CULTURAL LANDSCAPES, HISTORIC STRUCTURES, AND MUSEUM AND ARCHIVAL COLLECTIONS—RESOURCES WARRANT MORE FOCUSED ATTENTION

Humans have inhabited the Missouri River valley for thousands of years; the oldest settlement evidence dates to Paleo-Indian groups who lived in the region 11,500 years ago. Settlement patterns, cultures, and land uses have changed over the years as inhabitants hunted large game, began relying more on small game and vegetables, and then moved into farming and agrarian societies. Archaeologists believe that the ancestors of current American Indian tribes inhabited the Missouri River in small farming hamlets before the 1500s. Historically, American Indian tribes that used the area include the Omaha, Ponca, Santee Dakota, Pawnee, Arikara, Ioway, and Yankton Nakota. These cultural groups gave rise to villages, trade centers, large-scale hunting, and agricultural use of the land.

Euro-American exploration of the area began with the fur trade in the early 1700s, culminating with the construction of several trading posts and encampments. After the Louisiana Purchase and subsequent exploration by Lewis and Clark in the early 19th century, interest in the West grew. Military expeditions traversed the area, and Euro-American settlers moved west in search of land and gold. The traditional lifeways of American Indians were irrevocably changed, and by the 1880s most had been confined to reservations. The new settlers set to work reshaping the landscape with large farms and ranches, mills, villages, commercial centers, and railroads.

Although the history of the region surrounding the Missouri National Recreational River includes many stories and diverse perspectives, staff do not manage any cultural landscapes, historic structures, or museum and archival collections. As a result, the Center for State of the Parks was unable to assess these resource categories.

RESOURCE MANAGEMENT HIGHLIGHTS

- The park initiated the first annual Missouri River clean-up in Yankton, South Dakota, in 2004. More than 100 volunteers removed trash ranging from small items to furniture, tires, and even abandoned cars from the riparian area.
- Park staff collaborated with American Indian groups to create wayside exhibits to interpret Spirit Mound, a sacred site owned and administered by the state of South Dakota. Wayside exhibits were installed at some two dozen other sites, as well, and park staff maintain these interpretive signs.
- The park is active in efforts to balance bank stabilization with natural resource protection and enhancement, and staff are partnering with the U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers to restore previously ripped sites and develop “bioengineering” strategies to protect public infrastructure.
- Missouri National Recreational Area is part of the northeast Nebraska Weed Management Area, and park staff partner with the Nebraska Game and Parks Commission and weed superintendents from Nebraska and South Dakota to treat invasive species. In 2005 and 2006, park staff used global positioning systems (GPS) units to record locations of tamarisk, which were later treated with herbicides.

Park staff use GPS units to map tamarisk locations.



Spirit Mound, which was visited by Lewis and Clark on August 25, 1804, is an important American Indian site in South Dakota. Missouri National Recreational River staff, Lewis and Clark National Historic Trail staff, and several other agencies and organizations have worked together to restore the site by removing agricultural elements and adding native grasses, a walking trail, and interpretive signs.



SOUTH DAKOTA STATE PARKS

Although staff are aware of lands within the park boundary that have cultural significance, these sites are not owned by the Park Service and have not been officially identified or listed in the cultural landscapes inventory. One site, Spirit Mound, is important to several American Indian groups and was visited by Lewis and Clark on August 25, 1804. Spirit Mound is located within the park's boundary, but is owned and administered by the state of South Dakota. Park staff created interpretive wayside exhibits for the site in collaboration with American Indian groups and others. Park staff maintain these and other exhibits throughout the park. This partnership provides a good model for establishing collaborative management relationships with surrounding landowners and stakeholders.

Private owners, tribal authorities, the U.S. Army Corps of Engineers, and the states of Nebraska and South Dakota manage the historic structures within the boundary of the Missouri National Recreational River. The park does not manage any historic structures.

The park does not manage any museum or archival collections, either. A visitor center, located at Gavins Point Dam near Yankton, South Dakota, is managed by the U.S. Army Corps of Engineers and is cooperatively staffed by Park Service permanent and seasonal interpreters. It features views of the dam, river, and Lewis and Clark Lake, as well as theater programs and exhibits about the geology, exploration, early navigation, settlement, and natural history of the river.

HISTORY, ARCHAEOLOGY, AND ETHNOGRAPHY—PARK SERVICE TAKES THE LEAD

Interpretation of the history of the Missouri River must include a description of its wild character, as well as the legacy of change engendered by the dams and riverbank stabilization projects of the U.S. Army Corps of Engineers. Some 75 wayside exhibits scattered throughout the park teach park visitors about a variety of historical themes, including: the journey of Lewis and Clark; the Yankton Sioux Treaty Monument commemorating the 1858 treaty between the tribe and American government (this wayside exhibit, as well as the money spent by the park to upgrade the site, is a prime example of Park Service-American Indian cooperation and consultation allowed by the WSRA even though the site is slightly outside the park boundary); a Mormon Monument commemorating local settlement in 1846-47; the Ponca Tribe; Yankton and Dakota territorial settlement; and riverboats. Natural resource themes including wooded bluffs, river hydrology, sediment transport, and bison are also interpreted.

The park lacks many baseline historical reports and an administrative history, and external funds and assistance are required to make progress on these projects. The park's library, which consists primarily of books about the Lewis and Clark Expedition and Missouri River history and management, would benefit from the services of a librarian to organize and properly catalog resource and management materials so they can be located and more effectively used by staff and researchers.

The National Park Service manages two archaeological sites, one that dates back 600 to 1,000 years and another known as the Goat Island steamboat wreck, likely the 1870 remains of the *North Alabama*. The study of this site is a management priority because it could significantly aid the park's efforts to interpret the history of commercial boat travel on the Missouri River.

Although the Missouri National Recreational River has only two archaeological sites listed in the Archaeological Sites Management Information System (ASMIS), there are likely additional sites that have yet to be identified. Very little of the park has been surveyed, as most work can only be done with the permission of private landowners. Although park staff do not believe sites are being looted, funds are needed to support the addition of law enforcement staff to ensure site protection (a traditional visitor protection and safety program remains unfunded at this writing).

Groups traditionally associated with the Missouri National Recreational River include the Yankton Sioux, the Ponca of Nebraska, and the Santee Sioux, but most tribal consultation is provided by the U.S. Army Corps of Engineers rather than by park staff. Closer relationships with associated groups would contribute to interpretation and resource management goals.

The park interprets cultural themes as well as natural resources themes such as the effects dams have had on river and wetland dynamics.



NATIONAL PARK SERVICE



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The Missouri National Recreational River is home to a number of protected species, including the interior least tern, which is federally listed as endangered.

NATURAL RESOURCES

RIVER HISTORY—DAMS ALTER NATURAL HYDROLOGY

Before major dams severely altered its natural hydrology, the Missouri River was prone to extremely variable flows, floods, bank erosion, and sediment deposition that brought natural variation to the river channel and floodplain. The river was nicknamed the “Big Muddy” for the heavy loads of sediment and organic matter picked up when the river flooded its banks. Historically, erosion and sediment movement governed sandbar formation and constantly rearranged habitats, washing away some and creating new ones elsewhere, resulting in rich and diverse arrays of plants and animals. The present suspended sediment load is as little as 1 percent of what

it was before dams were built. Loss of sediment from the river means that accretion lands are no longer forming in many places, and habitat for some species is consequently significantly reduced.

With the construction of dams and regulation of flows came the loss of many of the Missouri River’s characteristic features: sandbars, sloughs, chutes, backwaters, and oxbow lakes. Natural floods, and their associated ecological functions and services, have been curtailed. This makes the free-flowing reaches of the Missouri National Recreational River especially important, as they retain more natural elements than the slackwater lake and fastwater channel sections that dominate much of the rest of the river, but even these protected reaches are influenced by Fort Randall Dam, Gavins Point Dam, and various bank stabiliza-

tion and erosion-control features put in place by the Army Corps of Engineers to mitigate the effects of the dams.

Lewis and Clark Lake, a 25-mile long reservoir formed by the Gavins Point Dam, separates the two free-flowing segments of the park. This and other reservoirs have flooded what were once rich riparian forests and effectively stopped meandering and periodic flooding along the middle and upper reaches of the Missouri River. The reservoirs allow suspended sediment to settle, leaving the sediment-deprived water to scour the channel and erode banks downstream. As a result, erosion no longer occurs as a process of river meandering but as a product of channel bed degradation. Sediments settle in the upper lakebeds rather than being transported by the river and deposited as bars and islands.

ECOSYSTEM FEATURES—PARK SUPPORTS NUMEROUS SPECIES AND SOME SPECIAL COMMUNITIES

Although Lewis and Clark might have difficulty recognizing much of the Missouri River today because of all the changes wrought in the last 200 years, park waters and associated habitats continue to be home to at least 80 fish species, 17 reptile species, nine amphibian species, at least 237 bird species, and more than 40 mammal species. Uniquely, the Missouri National Recreational River represents a changed but still largely functional ecosystem.

While humans have altered much of the Missouri mainstem, the tributary segments of the park—the Niobrara River and Verdigre Creek sections—provide views of more primitive and unchanged river systems. Additionally, James River Island and Goat Island are still covered with dense cottonwood stands that are now rare in the current system. The Nebraska bluffs in both park districts, sheer cliffs that rise 300 to 400 feet, are some of the most impressive topographic features.

RESOURCE THREATS—RIPARIAN AREAS AT RISK

Lands adjacent to the Missouri National Recreational River, as well as lands within the park itself, are owned by a mosaic of groups and individuals. Much land is privately owned, while most of the remainder is divided among tribal, state, and federal entities. Because the Park Service owns very little land within the authorized boundary of the Missouri National Recreational River, directly managing natural resources within the park is difficult.

Threats to natural resources include habitat fragmentation and loss resulting from agriculture and residential development; pollution from agriculture and industry; loss of scenic integrity because of erosion-control structures and residential development; and invasive species such as purple loosestrife (*Lythrum salicaria*) and tamarisk (*Tamarix spp.*). Riparian areas are disappearing as more and more homes

Gavins Point Dam near Yankton, South Dakota, separates the two free-flowing segments of the Missouri National Recreational River. Dams and reservoirs have dramatically altered natural river movements and flows along much of the Missouri River.



and recreational cabins are constructed on river-front land.

Much of the land and water use affecting resources within the Missouri National Recreational River is subject to the Corps of Engineers' Master Manual governance of river flows. Ultimately, the Park Service has little influence on how the river itself is managed, even though its aquatic and riparian ecosystems are arguably the most important natural resources within the park. The park's modest land ownership, and its inability to singularly influence water resource management, requires park staff to make major efforts in cooperation and communication as well as in the use of land easements to accomplish management goals such as watershed restoration.

RESOURCE PROTECTION—PARK COLLABORATES WITH COMMUNITY GROUPS

Park staff actively collaborate with the Missouri River Basin Association, Missouri River Natural Resources Committee, the Missouri River Bank Stabilization Association, the state governments of Nebraska and South Dakota, and 13 county governments within these states. In 2004, the park initiated the first annual Missouri River cleanup in Yankton, South Dakota. During this successful outreach program, more than 100 volunteers removed ten truckloads of debris,

including an entire truckload of tires. This event instilled community pride and inspired other river cleanup efforts.

To the extent possible, the National Park Service makes efforts to mitigate ecological damage and restore ecosystems in the Missouri National Recreational River. Restoration efforts have been particularly concentrated on the few park-owned parcels of land: Mulberry Bend Overlook, Bow Creek, and, soon, Goat Island. These focus primarily on invasive plant control. The park is also active in efforts to balance bank stabilization with natural resource protection and enhancement. To this end, the park is partnering with the U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers to develop "bioengineering" methods instead of traditional rock riprap (which can be detrimental to river communities) to protect public infrastructure in several locations. The Park Service is also a partner in pallid sturgeon recovery.

The park's vision includes preserving the landscape by restoring the natural scenic properties of the river, managing development along the river to protect viewsheds, maintaining the appearance of natural streambanks without stabilization, protecting threatened and endangered species, and providing extensive areas of wildlife habitat. These activities support the park's goal of providing visitors with a river experience similar to that of Lewis and Clark.

Park staff partner with private organizations and other federal, state, and county agencies to preserve and protect resources.

