Niobrara National Scenic River Boundary

Introduction

In the original Wild and Scenic Rivers Act of 1968 Congress declared it the policy of the nation to protect and preserve selected American rivers and their immediate environments for the benefit and enjoyment of present and future generations. The Act made free-flowing rivers and their contextual environments nationally significant. In doing so Congress specifically identified seven resource types it considered worthy of protection on these riverscapes. These were labeled **"outstandingly remarkable values,"** namely **scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values.** The nature of six of the seven values is self-evident. In application since 1968, the seventh category, the so-called "other similar values," has come to include hydrology, paleontology, and botany resources, among others. Section 3(b) of the original Act limits the potential acreage in any given Wild and Scenic River unit to an average of not more than 320 acres of land per mile measured from the ordinary high water mark on both sides of the river.

The Niobrara Scenic River Designation Act of 1991 amended the Wild and Scenic Rivers Act by designating seventy-six miles of the Niobrara River between the Borman Bridge southeast of Valentine to the Nebraska Highway 137 bridge north of Newport. Consistent with limitations set forth in the original Act, the protected acreage in the new unit could not exceed 24,320 acres, which was the simple calculation of 320 acres of land per mile multiplied by the seventy-six-mile length of the designated reach.

In the 1991 Niobrara Act, Congress did not specifically identify for the Niobrara any of the seven core outstandingly remarkable values that ought to be protected though it labeled the unit a Scenic River, implying a watershed still largely primitive with shorelines largely undeveloped. Nebraska's congressional delegation did speak eloquently in preauthorization testimony of the Niobrara as a "biological crossroads," a "canoeists' and outdoor persons' paradise," and of its "unique historical, paleontological and archaeological significance." In its silence in the legislation, however, Congress placed the responsibility of determining the Niobrara's outstandingly remarkable values on the assigned managing agencies.

This section documents and assesses the Niobrara's river-related values based on existing scientific data and informed professional judgment. This boundary analysis process commenced anew in the summer of 2000 employing methodology commended by the Interagency Wild and Scenic Rivers Coordinating Council.

Resource Assessment Process

The purpose of this resource assessment is to document those river-related values or features that are truly "outstandingly remarkable" and those that, while not outstandingly remarkable, are meritorious and contribute substantially to the river's setting or to the function of the river ecosystem or cultural context. To qualify as an outstandingly remarkable value, the river-related resource must be a unique, rare, or exemplary feature in a regional or national context. The region of comparison for the Niobrara River is generally considered to be the central Great Plains.

Specific criteria for the individual outstandingly remarkable values are described in the opening paragraph for each of the values. The criteria used in this Niobrara River assessment are given in a December 1999 technical report titled "The Wild & Scenic River Study Process" prepared by the Interagency Wild and Scenic Rivers Coordinating Council. The seven criteria are followed by a discussion of the respective resources existing within the Niobrara River valley, and a finding and rationale for a determination of significance. The description summarizes information on the existing condition of the respective resources drawn largely from the Affected Environment section of this plan. As applicable, the description may also address any possible threats to resource values. This resource assessment also identifies the specific location of individual values if they do not occur throughout the seventy-six-mile reach.

1. Scenic Value

Outstandingly Remarkable Criteria

The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions. When analyzing scenic values, additional factors such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions (such as power lines) are viewed may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment.

Discussion

The designated seventy-six-mile Niobrara River reach is particularly renowned for its aesthetically pleasing landscape and diversity of plant groups and ecosystems, a condition of diversity widely held as comprising the scenic wonder of the Niobrara. Congress spoke to this notion directly and repeatedly in preauthorization testimony. The Niobrara is noted in scientific literature for the many plants that exist in the valley at or beyond their normal geographic limits. Plant species of eastern, western, and northern forest ecosystems and three Great Plains prairie ecosystems meet and intermingle in the designated reach. Some 160 plants in the river valley are at the edge of their natural range.

As examples, ponderosa pine forest and savanna, a Rocky Mountain vegetative standard, occurs at its eastern limit in the Niobrara Valley. Eastern deciduous forest mixing bur oak, American elm, black walnut, green ash, basswood, and hackberry, among other species, has extended up the valley, while northern or boreal forest featuring paper birch, hybrid aspen, ferns, and several species of club mosses is found on cool, moist, north-facing slopes. These plants apparently have survived as relicts of the Pleistocene ice age, when they were more widely distributed across the Great Plains.

Three types of grassland plant communities are also found in the area. The Niobrara provides a botanical transition between the tallgrass prairie of the more humid east and the dryer shortgrass prairie to the west. Sandhills mixed-grass prairie covers the upland country south of the river, where plant species adapted to unique sandy conditions. Along the river and to the north, on clayey soils, mixed-grass prairie is found without the specialized sandhills plants. Also along the river, small remnant patches of tallgrass prairie can be found on moist river bottoms.

The Niobrara River is a stable flowing stream fed mostly by groundwater discharge from the adjacent sandhills. The area is within the northern extent of the Ogallala or High Plains aquifer. The entrenchment of the Niobrara River drains local groundwater into cold springs, which flow constantly and favor northern vegetation types. Waterfalls form where spring-fed creeks pour over harder rock layers. Smith Falls, the highest waterfall in Nebraska, and Fort Falls, are among the most notable of approximately two-hundred waterfalls found to exist within the unit.

Changes to vegetation occurring after homesteading include the introduction of nonnative grasses and weeds. The forested areas have grown denser, largely due to fire suppression and the reduction of timber cutting. Fire suppression has resulted in the spread of eastern red cedar, a native plant that was formerly held in check by prairie fires that once occurred as frequently as every three to five years.

Modern developments are uncommon in the area. This is not a landscape encumbered with power lines and vestiges of modern America. Aged iron bridges and scattered ranches, instead, dot the unit and shape a cultural landscape many generations old. Recreational developments in the form of seasonal and permanent homesites, canoe accesses, and campgrounds exist, particularly in the western third of the unit, but they generally blend with the natural environment rather than disrupt it.

The unique and inherently sound, largely untransformed vegetative condition of the Niobrara Valley, where six continental ecosystems prosper and mix, is a broadly occurring condition existing from rim top and beyond to rim top and beyond, from Borman Bridge to Nebraska Highway 137, and encompassing more than 150,000 acres. **See maps 3 and 4.**

Finding

This seventy-six-mile reach of the Niobrara River retains a timeless natural character with a splendid and nationally recognized mixing of distinct ecosystems, some at their farthest continental range. Waterfalls add an addi-

tional, exhilarating dimension and combine to make the scenery highly diverse. This unique natural condition contributes directly to other values, particularly Geology and Fish and Wildlife discussed below. Despite pressures to expand recreational offerings and develop seasonal and permanent homesteads, the valley remains largely undeveloped. Roads are few and powerlines and smokestacks do not mar the vistas. The scenic quality of the Niobrara River is found to be an outstandingly remarkable value.

A clear, spring branch canyon stream cascades over bedrock in the western portion of the Scenic River.

2. Recreational Value

Outstandingly Remarkable Criteria

Recreational opportunities are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region. Visitors are willing to travel long distances to use the river resources for recreational purposes. River-related opportunities could include, but are not limited to, sightseeing, wildlife observation, camping, photography, hiking, fishing, hunting and boating.

Discussion

Drawn by opportunities to explore and enjoy the untrammeled scenery of a Great Plains river and valley, people enjoy a surprising array of recreational activities within the Niobrara corridor from the Borman Bridge to Nebraska Highway 137. While sightseeing, photography, hunting, and fishing are popular activities, canoeing, kayaking, and tubing the Niobrara are easily the most heralded and fashionable forms of recreation luring thousands of regional and national visitors to the unit annually. While the river is widely marketed by state and local tourism officials, the Niobrara has also garnered extraordinary national attention. In January 1988, for instance, *Backpacker* magazine proclaimed the Niobrara as one of America's "10 best paddling rivers." In April 2000 *National Geographic Adventure* magazine labeled the Niobrara as one of America's 100 best outdoor adventures. About 12,785 commercially outfitted floaters launched at Fort Niobrara in 2003, along with another 1,208 independents. While counts are not yet generated at other access sites, heavy summer dispersed put-in also occurs at Berry Bridge, Smith Falls State Park, and Brewer Bridge.

Camping is also a popular activity in the unit, both at Smith Falls State Park, Meadville , and at private campgrounds along the canoeable reach. Some 72,400 visitors were recorded at the state park in 2002, drawn by the scenery, opportunities to explore and photograph the spectacular falls, float the river, and camp on its banks. More than 18,750 campers used the park in 2002. Aside from Meadville, camping across the Scenic River is closely linked to canoe or tube use and associated commercial outfitting.

Sightseeing by personal automobile is growing in popularity on the Niobrara, grounded in opportunities to view the diverse wildlife and cultural resources of the Fort Niobrara National Wildlife Refuge, the lofty falls at Smith Falls State Park (where before a bridge was installed in 1994 viewers either waded the river or arrived by canoe), and explore the valley's seasonal diversity from a network of primary and secondary roads. Two popular valley overlooks, the so-called Sparks overlook, a simple shoulder turnout on the north rim several miles south of Sparks, and the well developed Fred Thomas Wildlife Management Area overlook on Nebraska Highway 7 north of Bassett, offer equally dramatic views of the valley and adjacent sandhills to the south.

Developed trails at the Fort Niobrara Refuge and Smith Falls State Park augment sightseeing by vehicle, allowing for quiet explorations of the riverfront, waterfalls, and south valley rim.

Hunting has an enduring appeal in the Niobrara Valley, featuring an array of traditional opportunities, trophy hunting, and the emergence of small commercial hunting lodges, cabins, and bed and breakfasts in the valley itself and in the surrounding gateway communities.

The varied recreational activities of the Niobrara are widely scattered throughout the unit, with boating use largely occurring in the western third of the designated reach, sightseeing spotted throughout the unit but generally associated with existing roads, and hunting and fishing widespread and typically dependent upon permitted access to private land. **See maps 5 and 6.**

Finding

Lured by dramatic, untrammeled scenery and friendly water, canoeing and tubing the Niobrara River are stellar activities with enthusiastic and loyal followings. With the addition of camping and sightseeing at places like Smith Falls State Park and the Fred Thomas Wildlife Management Area complementing long-available opportunities at the Fort Niobrara Refuge, recreational use of the Niobrara National Scenic River is a growth industry drawing regional and national audiences. The recreational attributes of the Niobrara Valley are found to comprise an outstandingly remarkable value.

Sparks

Keya Paha County

Norden

Valentine

Meadville

Cherry County

Brown County

Wood Lake

Legend

Vegetation Types

- Coniferous Forest/Woodland
- Deciduous Forest/Woodland
- Mixed Grass Prairie
- Developed/Agriculture
- Water
- Wetland/Riparian
- Residential/Commercial
- Waterfalls
- Local Communities
- Paved Highways
- Secondary Roads
- County Boundaries
- River Channel

5 0 5 Miles

This map was derived and modified from a draft land cover product of the Nebraska GAP Analysis Program at the University of Nebraska-Lincoln. Do not re-distribute without prior consent. Contact person: Dr. Geoff Henebry, ghenebry@AEA-calmi

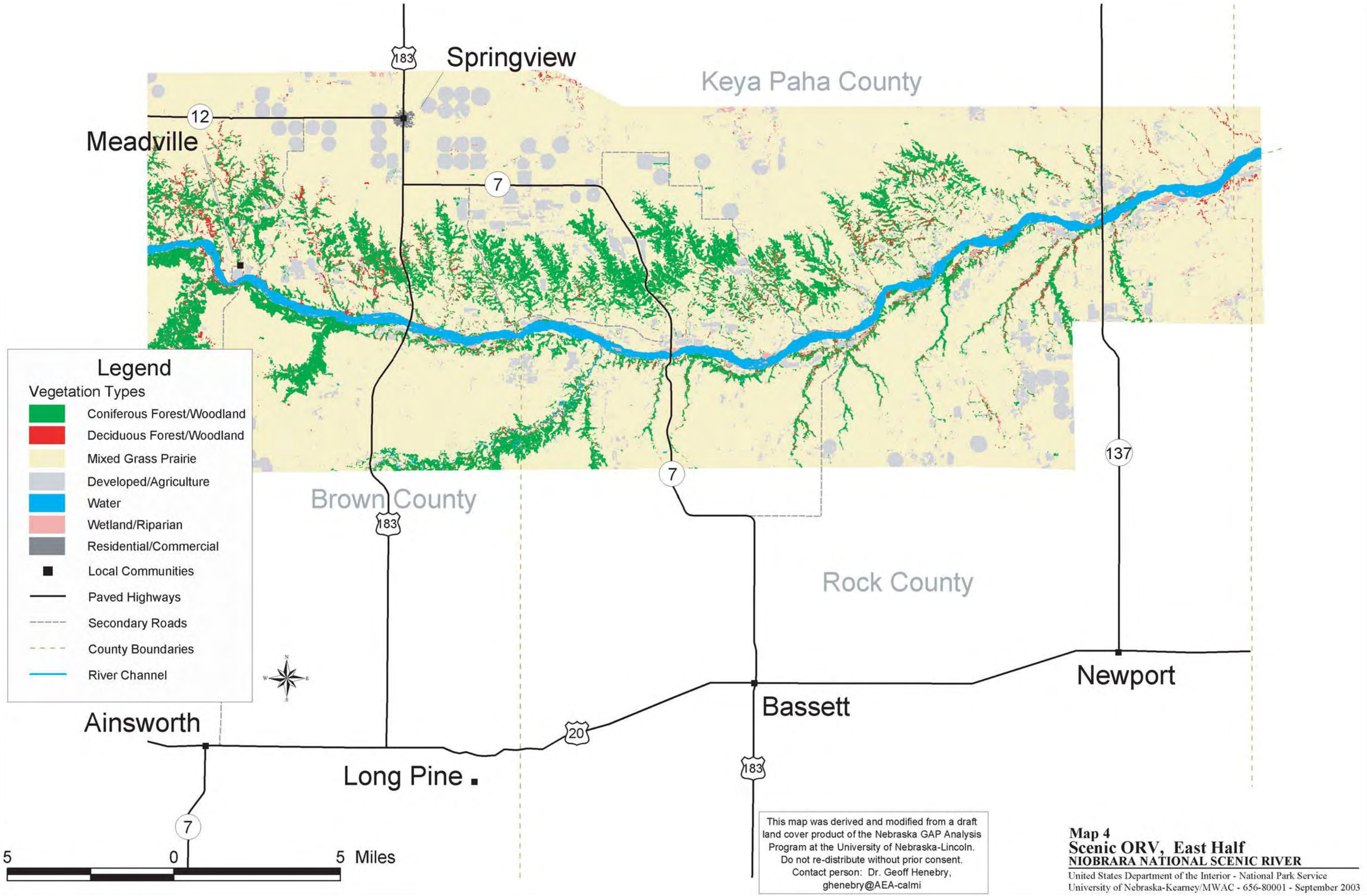
Map 3

Scenic ORV, West Half

NIOBRARA NATIONAL SCENIC RIVER

United States Department of the Interior - National Park Service

University of Nebraska-Kearney/MWAC - 656-80001 - September 2003



This map was derived and modified from a draft land cover product of the Nebraska GAP Analysis Program at the University of Nebraska-Lincoln. Do not re-distribute without prior consent. Contact person: Dr. Geoff Henebry, ghenebry@AEA-calmi

Map 4
Scenic ORV, East Half
NIOBRARA NATIONAL SCENIC RIVER
United States Department of the Interior - National Park Service
University of Nebraska-Kearney/MWAC - 656-80001 - September 2003

3. Geologic Value

Outstandingly Remarkable Criteria

The river, or the area within the river corridor, contains one or more examples of a geological feature, process, or phenomenon that is unique or rare within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a "textbook" example, and/or represent a unique or rare combination of geologic features (erosional, volcanic, glacial, or other geologic structures).

Discussion

From its origins in the Hartville Uplift in eastern Wyoming, the Niobrara River meanders an easterly, leisurely course across northern Nebraska, traversing a corner of the Sandhills in Cherry County until reaching the vicinity of Valentine where, for the next forty miles, the river runs a constrained bedrock channel of the Rosebud and Valentine formations. The Niobrara in this location is the only Nebraska river flowing directly over its bedrock substrate, this occurrence giving rise to the popular canoeable reach of the river with its characteristic increased river velocity, frequent stretches of rapids and riffles, and surge flows. In the proximity of the Norden Bridge, the riverbed again widens and the water slows, dropping its sand load to form a continuously changing, braided streambed.

The valley's south-facing slopes particularly expose the Miocene-age Valentine Formation and the less visible Ash Hollow Formation lying directly above it. Few springs emerge from either of these formations, owing to their loamy and silty nature. On the opposite, north-facing slopes, water originating in the Ogallala aquifer underlying the Sandhills finds its way along the top of the relatively impervious Rosebud Formation to emergences in side canyons and valleys known locally as "springbranch canyons." This water flows to the river from permanent, cool springs and large and small waterfalls.

The Niobrara's waterfalls appear in a wondrous array, from the near seventy-foot-tall Smith Falls and sixty-foot-tall Fort Falls to the delicate Stairstep Falls featured nationally in a "Postcard from Nebraska" video report airing July 23, 1995, on the CBS Sunday Morning television show. Some falls tumble deep in the springbranch canyons and others cascade directly into the river. More than two hundred waterfalls are recorded in the designated reach.

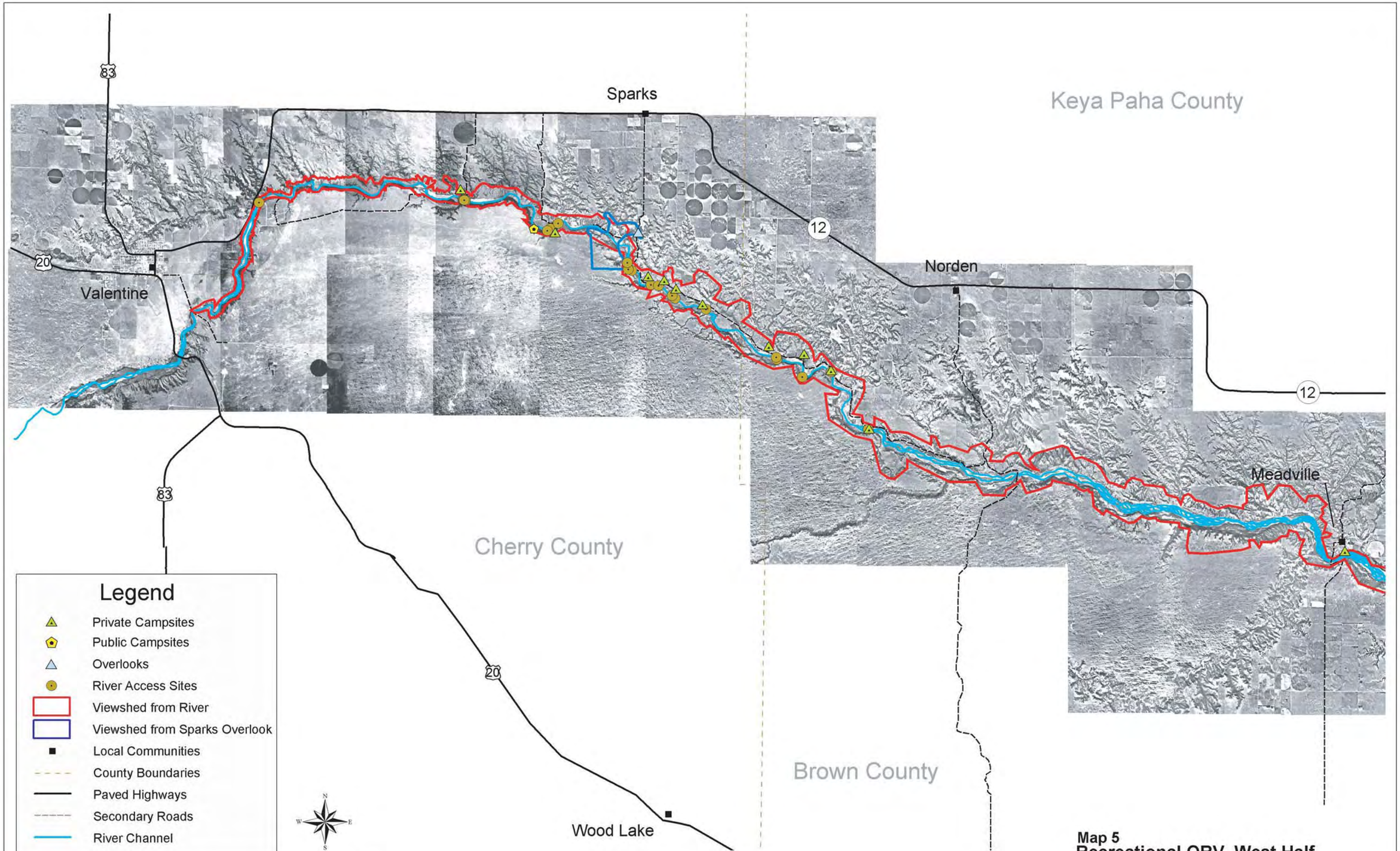
The geology of the Niobrara Valley is an intrinsic value occurring from rim top to rim top, and fully from the Borman Bridge to Nebraska Highway 137. As with the scenic quality discussed above, the geological value encompasses more than 150,000 acres in the Niobrara Valley.

Finding

The dynamic and evolved geology of the Niobrara Valley is a delicate mix of well-watered, shady, and cool north-facing gradients; wider, sun-drenched south facing slopes; the diversity of a riverbed flowing variously over rock and sand substrate; and the tumble of water over hard rock. In their abundance and unexpected variety, the waterfalls of the Niobrara alone are unique to both Nebraska and the Great Plains. This multifaceted geology, in turn, supports the incredibly diverse and rich biota discussed above as the inherent quality in the Scenic Outstandingly Remarkable Value, and the diversity of the river's fish and wildlife and remarkable paleontology detailed in respective outstandingly remarkable value discussions below. Because of individual uniquenesses and inextricable links to the river's flora, fauna, and paleontology, the Niobrara's geology is found to be an outstandingly remarkable value.

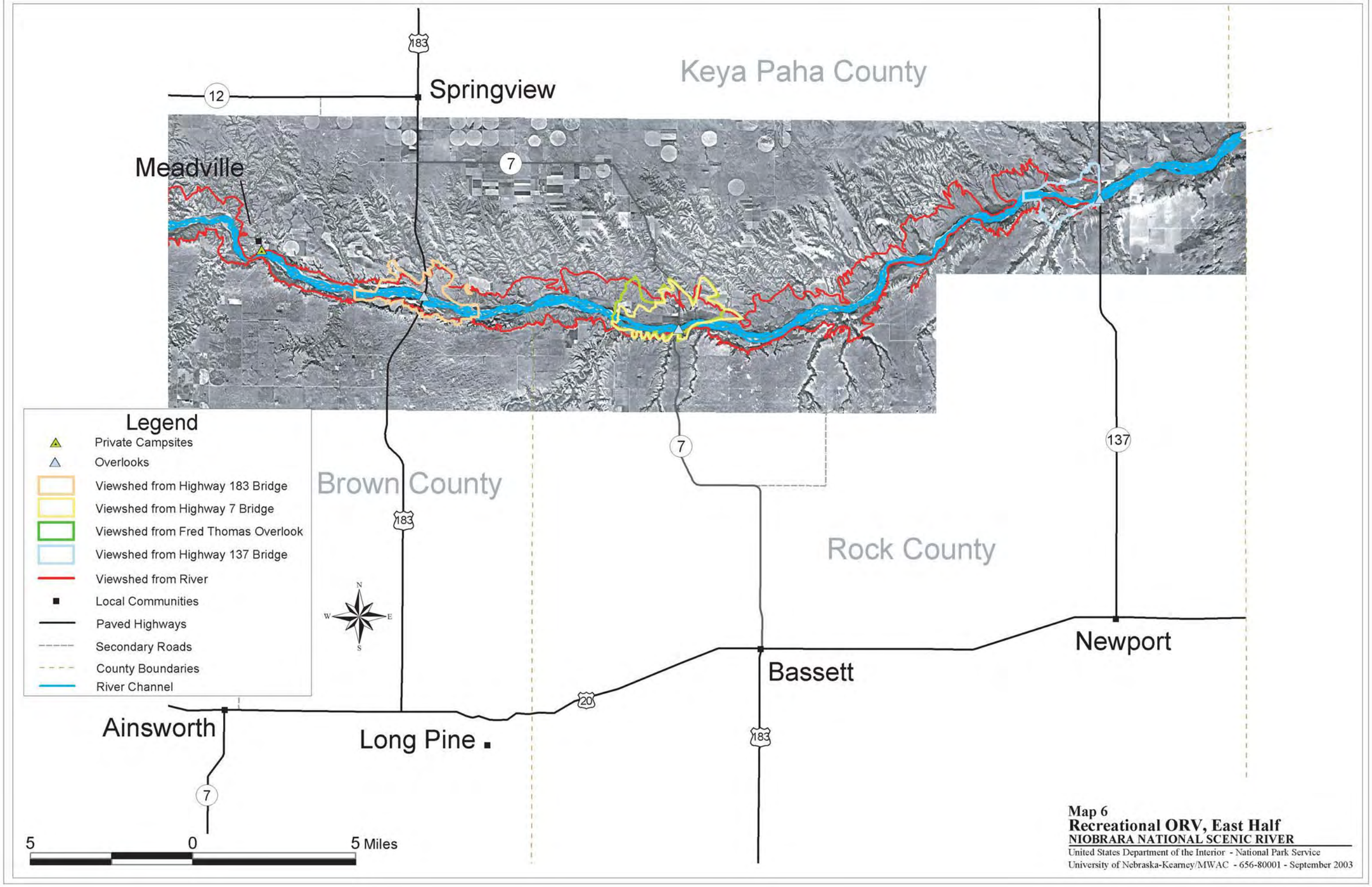
Fort Falls.

The Niobrara River Valley is home to both free-roaming and enclosed elk herds.



Map 5
Recreational ORV, West Half
NIOBRARA NATIONAL SCENIC RIVER

United States Department of the Interior - National Park Service
University of Nebraska-Kearney/MWAC - 656-80001 - September 2003



Map 6
Recreational ORV, East Half
NIOBRARA NATIONAL SCENIC RIVER
United States Department of the Interior - National Park Service
University of Nebraska-Kearney/MWAC - 656-80001 - September 2003

4. Fish And Wildlife Value

Outstandingly Remarkable Criteria

Fish values may be judged on the relative merits of either fish populations, habitat, or a combination of these river-related conditions. As relates to populations, the river is nationally or regionally an important producer of resident and/or anadromous fish species. Of particular significance is the presence of wild stocks and/or federal or state listed (or candidate) threatened, endangered or sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination of "outstandingly remarkable." As relates to habitat, the river provides exceptionally high quality habitat for fish species indigenous to the region of comparison. Of particular significance is habitat for wild stocks and/or federal or state listed (or candidate) threatened, endangered or sensitive species. Diversity of habitats is an important consideration and could, in itself, lead to a determination of "outstandingly remarkable."

Wildlife values may be judged on the relative merits of either terrestrial or aquatic wildlife populations or habitat or a combination of these conditions. As relates to populations, the river, or area within the river corridor, contains nationally or regionally important populations of indigenous wildlife species. Of particular significance are species considered to be unique, and/or populations of federal or state listed (or candidate) threatened, endangered, or sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination of "outstandingly remarkable." As relates to habitat, the river, or area within the river corridor, provides exceptionally high quality habitat for wildlife of national or regional significance, and/or may provide unique habitat or a critical link in habitat conditions for federal or state listed (or candidate) threatened, endangered, or sensitive species. Contiguous habitat conditions are such that the biological needs of the species are met. Diversity of habitats is an important consideration and could, in itself, lead to a determination of "outstandingly remarkable."

Discussion

The Niobrara River drainage contains the largest number of fish species occurring in Nebraska. Fish species specifically recorded in the Scenic River reach include the plains topminnow, red shiner, sand shiner, creek chub, white sucker, and Iowa darter. The Scenic River also contains several species representing glacial relict populations, including the pearl dace and blacknose shiner. The latter species are almost entirely limited in Nebraska to the cool, clear side streams of the Scenic River.

Cold-water fish are present in several Scenic River tributaries, including brook trout and rainbow trout. Some sport fishing occurs, but this reach of the Niobrara is not generally regarded as a unique fishing river. Warm-water species such as channel catfish and panfish species including bluegill and green sunfish also inhabit the Niobrara and provide some angling opportunity.

An amazing array of Great Plains mammals exist in the Niobrara Valley. White-tailed deer, mule deer, free-ranging moose, beaver, mink, coyote, rabbits, squirrels, skunks, foxes, and other mammals thrive along the river. Larger animals like bison and elk occur in fenced enclosures, though free-ranging elk are sighted as well. Occasionally mountain lions are seen in the forested hills of the river valley. Documented sightings of river otter, a state threatened species, have been recorded along the designated portion of the Niobrara but its current population is unknown.

The Scenic River is distinctive in that it supports three mammal species that are uniquely associated with the Niobrara. Bailey's eastern woodrat, a southern species that possibly moved north during a warm, wet period, is now found as an isolated population in the central Niobrara Valley. The olive-backed pocket mouse is also found in the valley, this western species noted at the eastern limits of its range. The southern bog lemming, a rare mammal of northeastern origin, occurs within the Niobrara Valley at its interface with the Sandhills.

Bats are documented in the Niobrara Valley and represent an important component of the mammal community. Keen's bat and the Brazilian free-tailed bat have only been found in the central Niobrara Valley. Keen's bat is associated with moist, eastern-type habitats, while the Brazilian free-tailed bat ordinarily has an affinity for southern, neo-tropical habitats.

A diverse array of birds also inhabit the Niobrara Valley. Five western bird species reach their eastern limits in the valley, while six northern oriented species reach their southern limits in the valley. The central reach of the Niobrara Valley is ecologically significant because it serves as an east-west avian corridor and important meeting ground, especially for forest-dependent species. Hybridization of eastern and western associated species, such as indigo and lazuli buntings, yellow-shafted and red-shafted flickers, and Baltimore and Bullock's orioles are vivid testaments to the biological uniqueness of the Scenic River. Bald eagles are especially common in win-

ter months, but are also seen in lesser numbers throughout the year.

The Niobrara Valley is seasonal home to several threatened and endangered bird species. The interior least tern and piping plover nest on sandbars east of Norden Bridge. In September 2002, the U.S. Fish and Wildlife Service designated the river east of Norden Bridge as critical habitat for piping plovers. The river also provides important resting and forage habitat for several migrating birds, including whooping cranes.

The Niobrara Valley is home to several wildlife species that do not receive much attention but indeed are significant to the overall biodiversity and integrity of the river and its ecosystems. Some ninety-two species of butterflies have been recorded in the valley and sixteen species reach the edge of their range there. Hybridization of three species, the Red-spotted purple, Weidemeyeri's admiral, and Eastern viceroy are noted as evolutionary and genetically significant and provide excellent opportunities for research.

Reptiles also occupy a special niche within the Niobrara Valley. The ringneck snake occurs in deciduous forest oriented areas of the valley and reaches its western limits there while the eastern hognose snake also occurs in the valley and is otherwise only marginally distributed across the Sandhills.

Finding

The importance of native habitat in the seventy-six-mile-long Niobrara National Scenic River is a value closely associated with the diverse and rich biota referenced above that comprises a core quality in the Scenic Outstandingly Remarkable Value. By themselves any of the valley's animals can seem insignificant. But when examined within the context of traditional ranges and the unique diversity and intermingling of ecosystems, the profusion of habitats and animal species become an outstanding example of Great Plains biological diversity. The Scenic River is doubly unique in that it serves as an ecological crossroads for several species of fish, birds, mammals, reptiles, and invertebrates, and a major area for hybridization and evolution. As well, portions of the Scenic River are important as potential critical habitat for several threatened or endangered species. Accordingly, fish and wildlife and corresponding habitats are found to be an outstandingly remarkable value found from rim-top to rim-top and throughout the seventy-six-mile length of the Scenic River.

5. Historic Value

Outstandingly Remarkable Criteria

The river, or area within the river corridor, contains a site(s) or feature(s) associated with a significant event, an important person, or a cultural activity of the past that was rare or one-of-a-kind in the region. Many such sites are listed in the National Register of Historic Places. A historic site(s) and/or feature(s) is 50 years old or older in most cases.

Discussion

This segment of the Niobrara Valley has witnessed human occupancy from the time of Paleo-Indians some 7,500 to 11,500 years before the present, to the era of cattle ranching, a cultural legacy arriving in the 1880s and persisting in modern time. Archaeological sites associated with Indian occupation are recorded in the valley, but none are listed in the National Register. White explorers traversed the river in the 1850s but left no traces. The United States Army established Fort Niobrara in 1879, largely to ensure peaceful Indian relations at the nearby Rosebud Sioux Reservation. One army structure survives and the fort site is listed in the National Register of Historic Places. The arrival of the Fremont, Elkhorn, and Missouri Valley Railroad in 1883 opened northcentral Nebraska to cattle ranching and homesteading, and several saw and flourmills were operating along the Niobrara River by the mid-1880s. Residents of Valentine, a community founded concurrently with Fort Niobrara, built the Cornell Dam in 1915-16 as a source of water and electricity. The dam ceased functioning in the fall of 1984 though it survives presently. Serving homesteaders, eight iron truss bridges spanned the Niobrara in the first quarter of the twentieth century. Four are listed in the National Register.

Finding

The historic uses of the Niobrara River corridor for seasonal camping, as the site of a military post overseeing an Indian agency, and associated with community development or homesteading are typical of river settings in

the region. While several sites and structures are listed in the National Register of Historic Places, none are unusual within the region of comparison. History, therefore, is not considered an outstandingly remarkable value for the Niobrara National Scenic River.

6. Cultural Value

Outstandingly Remarkable Criteria

The river, or area within the river corridor, contains a site(s) where there is evidence of significant historic, archaeological, ethnographic, or design values. The site may have unique natural and built features and the dynamics inherent in natural processes and continued human and animal occupation.

Discussion

Though used by Indians as a seasonal camping and hunting landscape for millennia, the Niobrara Valley is not known to possess sites of unique cultural significance as is commonly associated with places like Bear Butte and Spirit Mound, South Dakota, Devils Tower, Wyoming, or the pipestone quarries in Minnesota. Such design values as may have been associated with the United States Army's development and garrisoning of Fort Niobrara were long ago compromised with abandonment and post-abandonment destruction of that site. Activities associated with cattle ranching, however, do comprise a traditional cultural value and landscape that are now more than a century old and still evincing the distinctive melding of a human endeavor on a diverse and delicate landscape. Testimony before Congress as the unit was being established applauded this characteristic Niobrara legacy, noting how this tradition of stewardship contributed to the outstanding natural integrity of the valley.

Finding

The saga of cattle ranching in the Niobrara Valley is a legacy worthy of careful study, both for its perpetuation of a renowned Western cultural institution and because it so directly preserved the natural character of the landscape. While deserving of specific study and memorialization, however, the cattlemen's legacy on the Niobrara has many parallels on other riverscapes within the region. In fact, careful land stewardship generally associated with cattle ranching is a renowned tradition in Nebraska and across the Great Plains and not so much a localized attribute. As such, the cultural resources of the Niobrara are not found to be an outstandingly remarkable value when compared with other rivers in the region.

7. Other Similar Values (Paleontology)

Outstandingly Remarkable Criteria

While no specific national evaluation guidelines have been developed for the "other similar values" category, assessments of additional river-related values consistent with the foregoing guidance may be developed — including, but not limited to, hydrology, paleontology, and botany resources.

Discussion

Congressional testimony preceding the establishment of the Niobrara National Scenic River repeatedly lauded the paleontology of the valley as nationally exceptional. One Nebraska congressman boldly quoted University of Nebraska paleontologist Michael Voorhies, who labeled the Niobrara "the best bone hunter's river in the world." Indeed, the designated reach is extraordinarily rich in documented fossil sites and has been studied by the nation's scientific community for nearly 125 years. Of 164 catalogued sites in the study area, fifteen were rated as internationally significant, thirty-seven as nationally significant, and 106 as regionally significant. Some eighty species of extinct vertebrates were first identified in the project area, including fifty-six mammals, thirteen reptiles, eight amphibians, two birds, and one fish.

Type localities are where a previously unknown species was first discovered. The project area contains twenty-six type localities. Diversity of species found at a site is scientifically noteworthy. No less than 146 vertebrate species were found at one site, a locale renowned as the best of its type in North America. Another site has produced eighty-nine mammal species (more than any other single fossil quarry in the world). Yet another site produced eighty-four microvertebrate species, and a late Pleistocene faunal site along the river yielded the only known remains of several species of northern forest mammals on the Great Plains. Of these sites, some twenty have been recommended for inclusion in the National Register of Historic Places, that assessment

noting that the sites in the area contribute to our understanding of prehistory of vertebrate life on the North American Great Plains. **See maps 7 and 8.**

Finding

The designated reach of the Niobrara River is internationally renowned for the multiplicity of known species and type localities associated with the study of mammal evolution in North America. These paleontological resources have been studied by scientists for more than 125 years, and vigorous research continues. The paleontological resources of the Niobrara Valley are found to be an outstandingly remarkable value.

Boundary Alternatives

The Niobrara Scenic River Designation Act of 1991 amending the Wild and Scenic Rivers Act of 1968 obligated the National Park Service to develop a boundary to facilitate protection of the Niobrara National Scenic River and associated outstandingly remarkable values. The Niobrara's outstandingly remarkable values are determined to include **Scenic, Recreational, Geologic, Fish and Wildlife,** and **Paleontological.** The three boundary alternatives detailed below are not linked to specific management alternatives. Any boundary alternative could be chosen independent of any management alternative selected. The National Park Service does not intend to post or fence the Scenic River boundary. The National Park Service may do surveying only if needed to resolve a matter of concern or dispute.

A boundary acts to highlight the most exemplary river corridor resources, defined as its outstandingly remarkable values. Unlike a boundary for a reservoir or highway construction project, this Scenic River boundary does not define land to be purchased. The Wild and Scenic Rivers Act encourages landscape protection by means other than federal purchase, although federal purchase of land is authorized. The Act also encourages the managing federal agency to cooperate with state and local governments, organizations, and individuals to plan, protect, and manage river resources. Assistance could be provided for protection of river-related resources inside or outside the boundary. Agreements to do so may include financial assistance. Cooperative planning and agreements with local governments and private landowners can take place either inside or outside of the boundaries.

The National Park Service cooperated with several state and federal agencies and institutions to gather information and analyze the river's resources. This database was used to develop the preceding outstandingly remarkable value maps for scenic, recreational, and paleontological resources and three different boundary alternatives that seek to protect and enhance the values which caused the Niobrara to be included in the Wild and Scenic Rivers System.

Boundary Alternative 1

Boundary Alternative 1 encompasses **one-quarter mile** (0.25) of land from the ordinary high water mark on each side of the Niobrara River for the seventy-six-mile length of the designated reach from Borman Bridge to the Nebraska Highway 137 highway bridge north of Newport. This boundary includes portions of the congressionally designated wilderness within the Fort Niobrara National Wildlife Refuge.

This quarter-mile interim boundary is the same as the so-called "study boundary" prescribed in Section 4(d) of the Wild and Scenic Rivers Act. The total land area for this boundary alternative is 24,320 acres, the sum a calculation derived directly from the Act. This alternative is not preferred because, although it protects many of the Niobrara's outstandingly remarkable values, it is not tailored to provide maximum protection to the most outstandingly remarkable values, and it does not take into consideration practical lines of demarcation such as roads and property lines. It is not considered to meet the full intent of the Wild and Scenic Rivers Act. **See maps 9 and 10.**

Boundary Alternative 2

This boundary alternative favors protection of the Niobrara's outstandingly remarkable **Scenic** and **Paleontological** values, owing to their heralded national and international recognition, while incorporating but not always favoring its Recreational, Geologic, and Fish and Wildlife values and staying within the legislated

acreage limits prescribed in the Wild and Scenic Rivers Act. The wilderness area within the Fort Niobrara National Wildlife Refuge is protected by an Act of Congress and this boundary follows the ordinary high water mark through this 5.5-mile portion of the refuge. The presence of other protected lands was also considered and where they exist a minimum setback of two hundred feet above the ordinary high water mark was typically applied. Exceptions abound, the leased land of Smith Falls State Park being the most notable. Due to the complexity of the intertwined biological resources comprising the Scenic value and the widely dispersed locations of important paleontological sites, the boundary is substantially wider between the Allen and Norden bridges. In one instance the boundary extends nearly 2.75 miles from the river, and it extends nearly three miles up Fairfield Creek. The total land area associated with this alternative is 22,472 acres. This alternative meets congressional intent for Wild and Scenic River protection. **See maps 11 and 12.**

Boundary Alternative 3 (Preferred Alternative)

The preferred boundary for the Niobrara National Scenic River was drawn to protect as equitably as possible the river's outstandingly remarkable **Scenic, Recreational, Geologic, Fish and Wildlife,** and **Paleontological** values, while staying within the legislated acreage limits prescribed in the Wild and Scenic Rivers Act. The protected values include unusual or excellent examples of the river's distinctive plant ecosystems, instances of integrated ecosystems, nearly all of the river's waterfalls including its signature falls, and associated geological features; riverine landscapes visible from the streambed, key roads, and overlooks, all in the context of recreational enjoyment; critical habitats associated with fish and wildlife resources including that prescribed by the U. S. Fish and Wildlife Service for certain threatened and endangered species; and an array of global, national, and regional class fossil sites. Several documented National Register historic properties and a number of other historic sites in the seventy-six-mile reach are also included in the preferred boundary alternative.

As the Fort Niobrara Wilderness is already protected by an Act of Congress, the boundary follows the ordinary high water mark through this portion of the Fort Niobrara Refuge. The presence of other protected lands was also considered and where they exist a minimum setback of two hundred feet above the ordinary high water mark, measured horizontally, was typically applied. Exceptions abound, the leased land of Smith Falls State Park being the most notable. Due to the complexity of the intertwined biological resources comprising the Scenic, Geologic, and Fish and Wildlife values, the boundary is generally wider between the refuge and Norden Bridge, but to protect distinctive biological resources and viewsheds downriver it expands noticeably again at the paved Highway 183, 7, and 137 crossings. Aside from the wilderness passage, the boundary does not measure less than two hundred feet above the ordinary high water mark of the river elsewhere, and in some areas it extends nearly one mile from the river. It extends about 2.5 miles up Fairfield Creek, site of key paleontological resources. Although the Niobrara's outstandingly remarkable values encompass more than 150,000 acres in the designated reach, the total land area associated with this boundary, 23,074 acres, is within congressionally prescribed limits. This alternative meets congressional intent for Wild and Scenic River protection. **See maps 13 and 14.**

Canoeists enjoy one of the Niobrara's numerous waterfalls that plunge directly into the river.