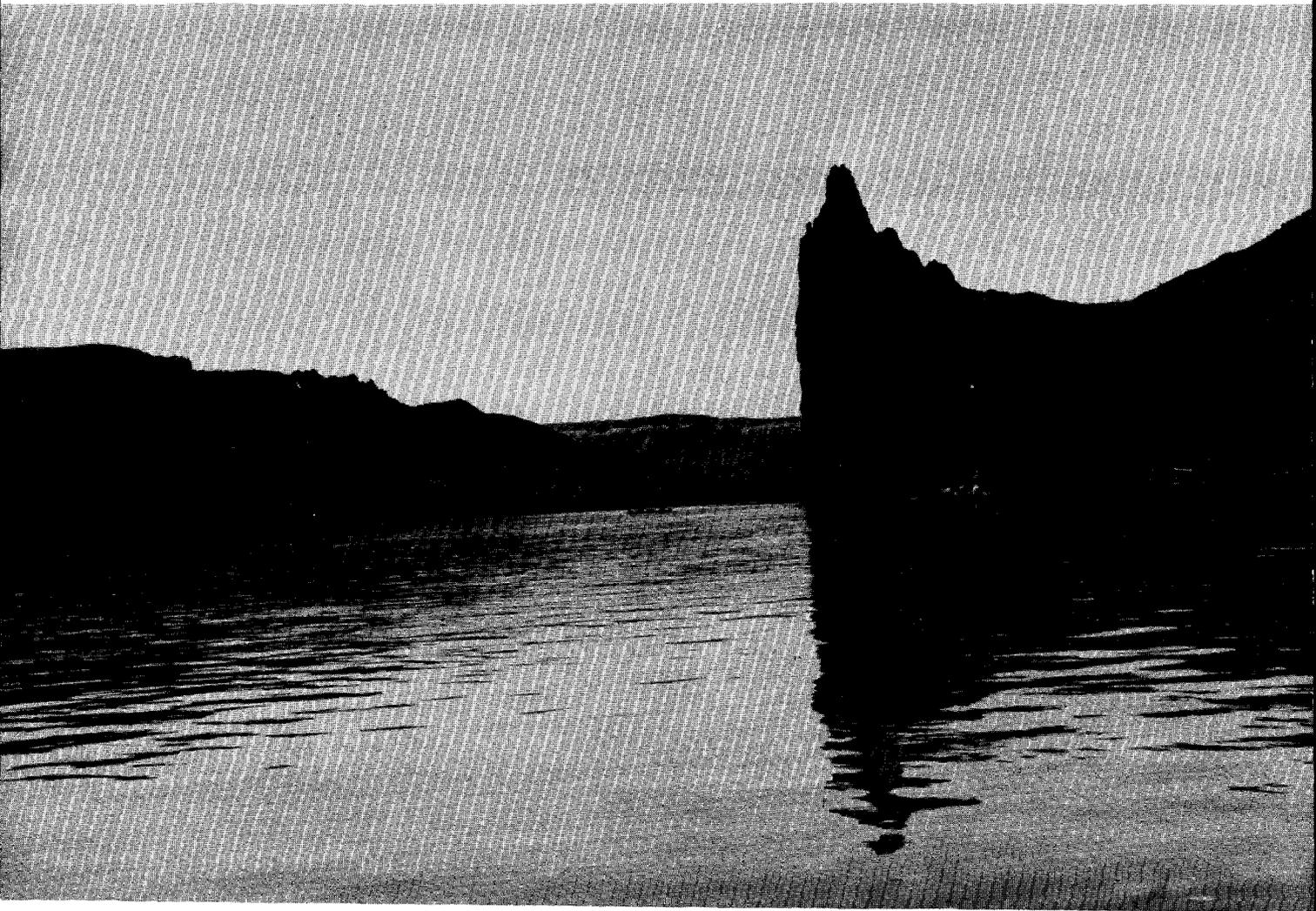


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MISSOURI RIVER

A Wild and Scenic River Study



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Outdoor Recreation

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 the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.



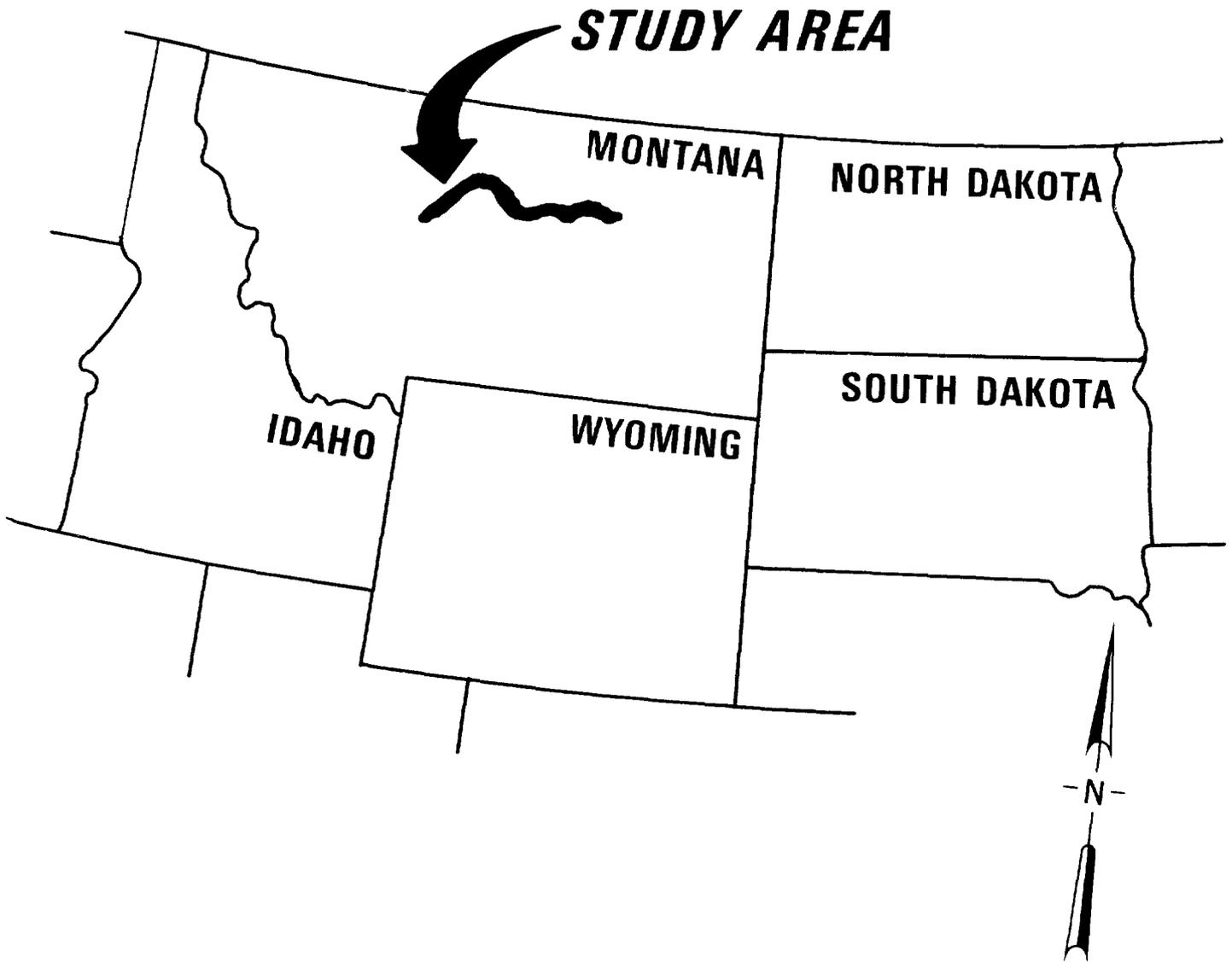
U.S. DEPARTMENT OF THE INTERIOR
CECIL D. ANDRUS
SECRETARY



Bureau of Outdoor Recreation

April, 1977

LOCATION MAP



Missouri Wild and Scenic River Study

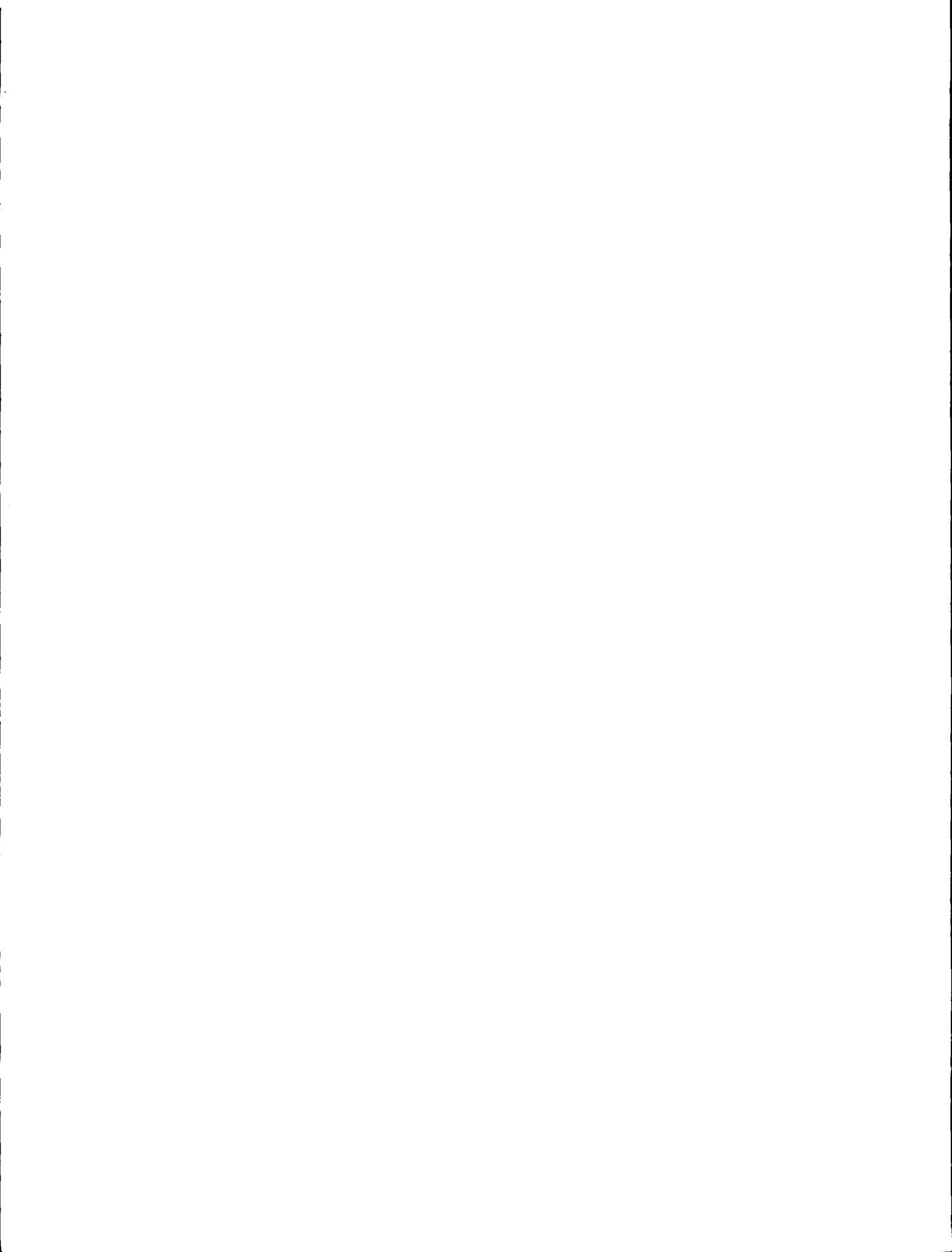


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INTRODUCTION

The Wild and Scenic Rivers Act, P.L. 90-542, was approved on October 2, 1968. As stated by the Congress of the United States in that Act:

"It is hereby declared to be the policy of the United States that certain selected rivers of the Nation, which with their immediate environments, possess outstandingly remarkable scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be completed by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes."

The Act established the National Wild and Scenic Rivers System, designated eight rivers as the initial components of the system, and prescribed methods and standards by which additional rivers may be added to the system. Twenty-seven rivers were designated by the Act for study as potential additions to the National System, including the segment of the Missouri River in Montana between Fort Benton and Ryan Island. The Act requires a determination as to the suitability of the Missouri River for inclusion in the National System and, if so, recommendations pertaining to the administration and management of the river and its immediate environment.

BACKGROUND

Early studies of the recreation potential of the Missouri River between Fort Benton and Fort Peck Reservoir showed that there are significant public values. In 1960, the National Park Service began an examination of the Missouri River between Fort Peck Reservoir and Fort Benton to determine its potential as a national park area and in 1962, recommended that the 180-mile segment be established as a 268,000-acre Lewis and Clark National Wilderness Waterway as a unit of the National Park System. During this same period, the U.S. Army Corps of Engineers, acting under the authority of a March 8, 1960, Senate Public Works Committee resolution, was studying the need for additional reservoir projects on the Missouri River above Fort Peck Reservoir.

Subsequently, in 1962, the Secretaries of the Interior and Army, recognizing that both Departments have major interests in the area, ordered a full and comprehensive study of the river between Fort Peck Reservoir and the town of Fort Benton. A June 1963 report by the Division Engineer, Missouri River Division, Corps of Engineers, and the Regional Coordinator, Missouri Basin Region, Department of the Interior, listed a number of possible alternatives ranging from full preservation to full development. The structural developments most favored for maximum economic benefit included two dams: one at Fort Benton and the other at Cow Creek.

In 1965, the Secretary of the Interior went on record favoring dam construction at Fort Benton under Federal Reclamation Law but recommended no action be taken to alter the downstream segment pending completion of studies on the wilderness waterway proposal and of the upper Missouri as a component of the proposed nationwide system of wild rivers.

In 1966, the State of Montana gave official recognition to the recreational values of this segment of the Missouri by designating it a component of the Montana Recreational Waterway System.

In 1966, the Senate Committee on Interior and Insular Affairs requested the Secretary of the Interior to direct the Bureau of Outdoor Recreation to study the Middle Missouri River from Yankton, South Dakota, to Fort Benton, Montana, with a view toward enhancing the recreation resources of the area. The 1968 Bureau of Outdoor Recreation, The Middle Missouri: A Rediscovery, which resulted from the study, recommended protection of the free-flowing segment of the Missouri between Coal Banks Landing and the west boundary of the Charles M. Russell National Wildlife Refuge as the Missouri Breaks National River.

After several years of discussion and debate, the Wild and Scenic Rivers Act, P.L. 90-542, was approved on October 2, 1968. Section 5(a)(13) of the Act designated the segment of the Missouri River between Fort Benton and Ryan Island, Montana, for potential addition to the National Wild and Scenic Rivers System.

CONDUCT OF THE STUDY

The Department of the Interior's responsibility for studying rivers named in the Wild and Scenic Rivers Act was delegated by the Secretary of the Interior to the Bureau of Outdoor Recreation. In 1971, the Bureau formed a task force made up of representatives from the State of Montana, Bureau of Land Management, Fish and Wildlife Service, National Park Service, Bureau of Reclamation, U. S. Forest Forest Service, and the U. S. Army Corps of Engineers. Public information meetings were held by the study team in November 1972 in Fort Benton, Havre, and Lewiston, Montana.

FINDINGS AND RECOMMENDATIONS

The Wild and Scenic Rivers Act requires study of the 180-mile segment of the Missouri River between the town of Fort Benton and Ryan Island at the headwaters of the Fort Peck Reservoir. Because Ryan Island and short reaches of the river upstream from the island (approximately 10 miles) are intermittently inundated by reservoir backwaters, this segment was eliminated from further consideration. Therefore, this report discusses the 170-mile segment of the river from the town of Fort Benton to Rocky Point "Historic" site.

FINDINGS

Water Quality and Flow

The study reach is in a natural free-flowing condition. There are no water resource structures which unreasonably diminish the free-flowing nature of the river. There is a sufficient volume of water during the normal years to permit full enjoyment of water-related outdoor recreation activities generally associated with comparable rivers. Water quality in the study segment meets the "Aesthetic-General Criteria" as defined by the Technical Advisory Committee on Water Quality.

Flora and Fauna

The study area represents a significant biological reserve. The flora and fauna of the area are remarkable for their diversity. The river and its environment provide suitable habitat for many forms of fish and wildlife. The area is used by several nationally significant diminishing species of wildlife such as the golden eagle, the bald eagle, and the black-footed ferret.

Recreation

The spectacular river valley with its striking rock formations and primitive character provides a stimulating environment for a high-quality recreation experience. The study reach is long enough to provide a meaningful recreation experience.

History and Archeology

This area contains numerous historical and archeological sites which constitute a non-renewable source of retrievable data concerning man's presence in the river valley. There are many historic sites of national significance associated with the Lewis and Clark Expedition and the westward expansion of the Nation located within the area.

Other Important Considerations

- The 170 miles of the Missouri is the last major free-flowing portion of the 2,500-mile-long river. The surrounding area is sparsely populated and the land is primarily used for livestock grazing. A trend toward fragmentation of private lands into residential lots exists.
- Access to the river area is limited. This factor has helped the area retain its primitive qualities.
- Development of the two dam and reservoir proposals located within the study area has been found to be economically infeasible at this time. If constructed, High Cow Creek Dam would inundate a significant portion of the river segment.

--Lands adjacent to the river between Fort Benton and Coal Banks Landing are predominantly in private ownership.

--Indiscriminate use is being made of the lands within the river corridor by 4-wheeled vehicles.

CLASSIFICATIONS

This study finds that the entire 170-mile segment of the Missouri River qualifies for inclusion in the National Wild and Scenic Rivers System. The river with its particular physical characteristics and areas of developed shoreline does not conform to a single classification. The river contains all three of the classifications listed in section 2(b) of the Wild and Scenic Rivers Act. A breakdown of this classification is as follows:

<u>Segment</u>	<u>Classification</u>
Fort Benton to Haystack Butte (51 miles)	Recreational
Haystack Butte to approximately four miles above the Judith River confluence (33 miles)	Wild
Four Miles above the Judith River confluence to Holmes Rapids (8 miles)	Recreational
Holmes Rapids to Heller Bend just below Cow Island (39 miles)	Wild
Heller Bend to Rocky Point "historic" site (39 miles)	Scenic

1. Recreational River Area - Fort Benton to Haystack Butte

In this 51-mile segment are located most of the man-made features readily seen from the river. The Burlington Northern Railroad parallels much of this stretch of river. Several roads lead to and, in some instances, parallel the river. There are also several ranch headquarters within the view of the river. Generally shielded from the river by banks which rise several feet are cultivated fields which frequently extend to the base of the bluffs. Cottonwood groves are scattered along the banks and on the numerous islands in the river. While not located directly on the river, the communities of Loma and Virgelle are evident. The bridge at Fort Benton and the ferries at Loma and Virgelle provide the only river crossings in this stretch of the river. Most of the lands in this segment are in private ownership.

2. Wild River Area - Haystack Butte to approximately four miles above the Judith River confluence

This is the spectacular "white rocks" section of the river. In this 33-mile segment, few buildings can be observed from the river with only one being a year-round ranch headquarters. There are a few jeep trails that wind their way down to the river, but these are seldom used and generally offer little, if any, distraction to the visitor. With these exceptions, the area remains generally inaccessible and essentially primitive and the river environment is in its natural state. Along this portion of the river, land ownership is a mixture of Federal, State and private.

Although some formations are at the water's edge, many of the outstanding scenic and geologic features are located back from the river bottom in the adjacent hills. So, too, are highly scenic side canyons with white sandstone walls that extend back from the river in some areas.

3. Recreational River Area - Four miles above the Judith River confluence to Holmes Rapids

This is the transition area between the white rocks and the badlands. In this eight-mile segment is the Lohse Ferry, the nearest downstream river crossing point from the Virgelle Ferry 48 miles upstream. The ferry, its operator's buildings and approach roads are the primary intrusions seen from the river. Also located in the vicinity of the Judith River confluence are several headquarters and associated buildings. From the river, these buildings are partially obscured by cottonwood groves and the river banks. A recreation area and fishing access site is maintained by the Montana Game and Fish Department on the north bank of the river near the ferry approach road.

The Lohse Ferry crossing site long has been suggested as a possible bridge crossing by Central Montana residents and interest groups (and much effort has been expended in this direction). Recreational classification of this segment of the river would not necessarily preclude construction of a bridge at this site. The land in this segment is primarily privately owned.

4. Wild River Area - Holmes Rapids to Heller Bend just below Cow Island

Here is the massive, heavily eroded and generally barren badlands section. In this 39-mile segment can be experienced the overwhelming isolation and solitude of this essentially primitive stretch of river. The feeling of isolation stems not only from the barren, rugged landscape, but the sheer size of the area. Many of the stark-appearing drainages and bluffs extend back from the river and create a memorable visual impact on the river traveler. Within this segment are found only sparse patches of grass, browse and a few scattered conifers. The only intrusions in this stretch consists of a few ranch buildings, several deserted and dilapidated buildings which are historic remnants of early homesteading and ranching attempts, and the Stafford Ferry and the ferry approach roads. However, these developments are not of such magnitude so as to compromise the primitive nature of this segment, which is primarily in Federal ownership.

5. Scenic River Area - Heller Bend to Rocky Point "Historic" Site

All but a few acres of this 39-mile stretch is Federally-owned. Here, the badlands give way to the broad and open country where scenic views extend even further than in upstream segments. The barrenness dissolves into cottonwood groves on the river banks and islands, and coniferous trees on the adjacent hillsides and breaks. Some of the bottomlands have been devoted to ranching operation and cultivation of irrigated cereal and forage crops.

The little used Power Plant Ferry is located in this section a few miles below Cow Island. Because most of this segment is within the Charles M. Russell National Wildlife Range, currently under the sole jurisdiction of the U.S. Fish and Wildlife Service, more wildlife is found here than in any other section of the river. The James Kipp State Recreation Area located at the Fred Robinson Bridge is within this segment.

RECOMMENDATIONS

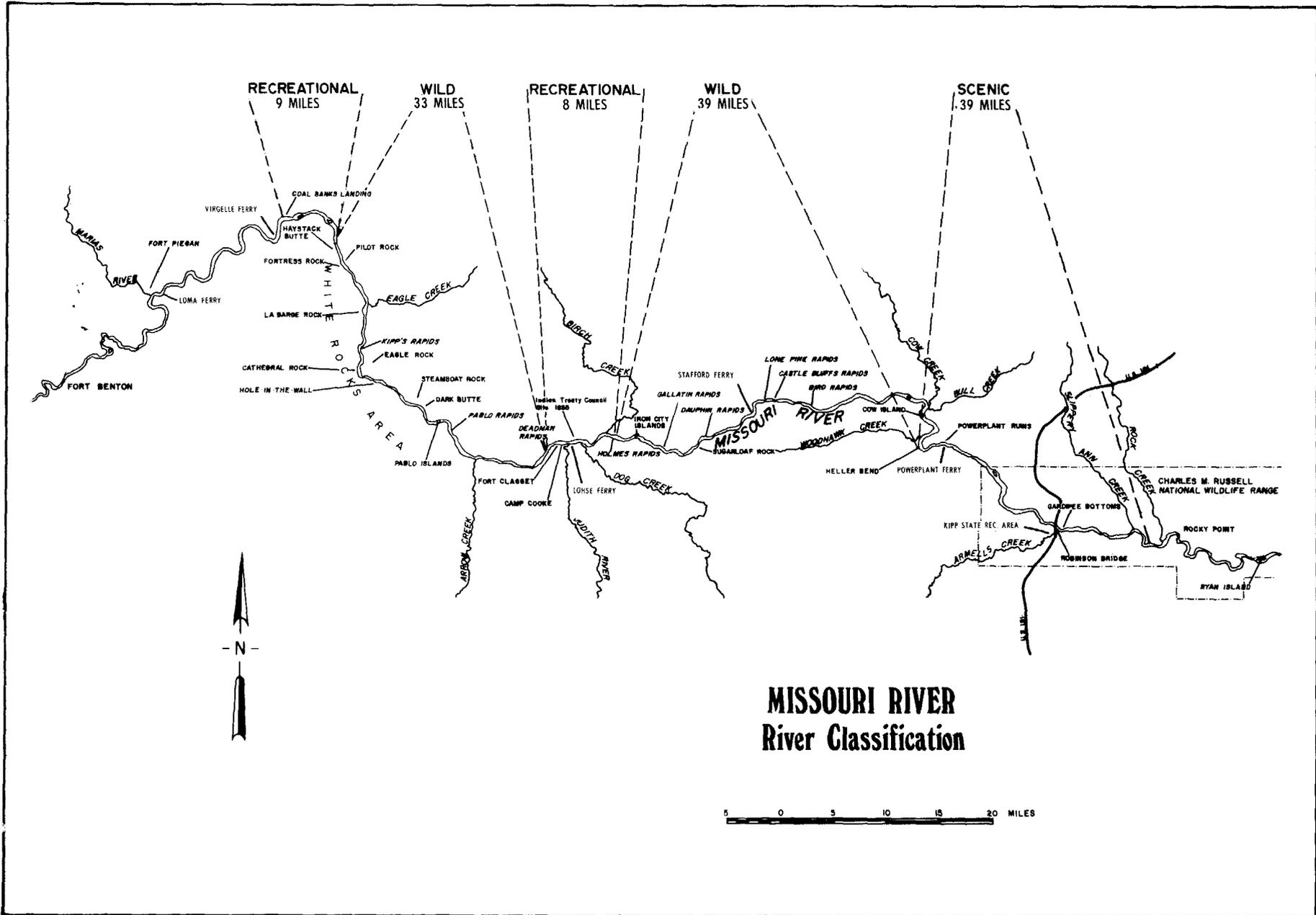
In order to preserve an outstanding segment of the Missouri River in its free-flowing state, protect and enhance the exceptional scenic, historical, geological, recreational, and biological values of the river and its immediate environment, and make these values available to present and future generations, the following actions are recommended:

1. Of the total 170 miles of the Missouri River which qualifies for inclusion only 128 miles should be included in the National Wild and Scenic Rivers System under section 2(a)(i) of Public Law 90-542. The 42 miles not recommended is that segment of the Missouri River from Fort Benton to Virgelle. The main reason for this is the extensive private ownership involved and the cost of providing the required protection.
2. The 128-mile segment recommended for inclusion in the National Wild and Scenic Rivers System should be divided into five segments for classification purposes, two segments classified as wild, one segment classified as scenic, and two segments classified as recreational.

(See River Classification Map.)

3. A detailed plan for the administration and management of the area as required by section 3(b) of the Wild and Scenic Rivers Act (Public Law 90-542, as amended) would be prepared within one year after the river is included in the National System by an Act of Congress. The plan would be administered within the Charles M. Russell National Wildlife Range by the Fish and Wildlife Service and in the remainder of the river corridor area by the Bureau of Land Management in cooperation with the State and local government.

4. The development and management of the Missouri River should place primary emphasis on maintaining and enhancing the esthetic, scenic, historic, fish and wildlife, and geological features. All recreation facility development should be consistent with protection of the river environment.



MISSOURI RIVER River Classification

5 0 5 10 15 20 MILES

CONCEPTS FOR A RIVERWAY PRESERVATION PROGRAM

The following discussion provides a guide to management and development policies for the administration and preservation of the recommended river segment as a component of the National Wild and Scenic Rivers System. The concepts presented should not be construed as the complete or final plan for the area proposed. A master plan for the ultimate management and protection of the riverway will be prepared with the assistance of all concerned agencies. The master plan will be afforded public review before its adoption and implementation.

RESOURCE MANAGEMENT AREA

Lands adjacent to the river on which land use control and management programs should be established are defined for report purposes as the resource management area. The resource management area contains the minimum acreage necessary to protect the values which enable the river segment to qualify for inclusion in the National System. A minimum of 147,800 acres should be included in the resource management area. It is estimated that 6,100 acres should be acquired in fee, 29,900 acres should be controlled by less-than-fee or scenic easements. The remaining acreage, 111,800 acres, are in public ownership. These figures will be refined when the master plan is prepared by the Bureau of Land Management and the Fish and Wildlife Service.

The determination of the minimum acreage necessary for the resource management area is based primarily on the "visual corridor". The visual corridor is defined as the zone of adjacent land which has a visual impact on the river user and which should be protected from adverse use and development if the natural and scenic appeal of the riverway is to be retained. The width of the visual corridor varies depending on the height and angle of slope of adjacent riverbanks and bluffs, and on the amount of vegetative cover near the river's edge.

ACQUISITION POLICY AND LAND USE CONTROLS

Within the resource management area property rights would be acquired to provide stringent protection of the natural scene and to accommodate existing and potential recreational use. Fee acquisition would be confined to acreage needed to provide access and services to the general public and to protect the river and resource values which would be jeopardized by less-than-fee control. Other land areas along the river needed as part of a buffer zone would be controlled through scenic easements or other means of less-than-fee acquisition. A scenic easement is an agreement or series of agreements whereby a landowner binds himself and all future owners of the land to refrain from using or developing his land in ways which would detract from the scenic beauty of the area. Such an easement permits an owner to retain use and possession of his land, subject to the restriction that the scenic character of the land remain unchanged. A scenic easement would not grant rights of ingress or egress to the general public. Land use control through scenic easement acquisition normally entails extensive negotiation with the landowners and requires

thorough investigation before any agreement on the extent of such control for each tract can be reached. It should be noted that section 15(c) of the Wild and Scenic Rivers Act defines a scenic easement as:

" . . .the right to control the use of land (including the airspace above such land) within the authorized boundaries of a component of the Wild and Scenic Rivers System, for the purpose of protecting the natural qualities of a designated wild, scenic or recreational river area, but such control shall not affect, without the owner's consent, any regular use exercised prior to the acquisition of the easement."

DEVELOPMENT

In order to protect the river environment and provide opportunities for river-oriented recreation, suitable recreation facilities would be provided. The actual type and extent of such facilities would be determined by the managing agencies, and would be outlined in the master plan eventually developed regarding specific management programs and policies on the designated river segment.

Any development would be carefully weighed as to the possible consequences on the natural character of the river. Resource managers would recognize the possibility of environmental degradation by recreational overuse as well as by unplanned commercial and residential use. An analysis of recreation use would be undertaken to develop optimum river use levels, and management guidelines would be established accordingly. In addition, a detailed inventory of historical, archeological, geological, biological, and other

similar areas would be made and a program developed for their protection and interpretation. Public access would be provided only at a limited number of points on the river segment being managed. Public use facilities adjacent to the river at high and repeated use areas would be provided only to the extent that they are necessary to protect the river's resources from degradation by over use. All recreation facilities would be designed and located so as to protect the significant values for which the river area is established. Major public use facilities such as large campgrounds, interpretive centers or administrative headquarters would be located outside of the immediate river environment.

Both "standard" and "primitive" facilities are included in the conceptual development plan to properly accommodate visitors and obtain the desired distribution of visitation along the river. Standard campgrounds would contain drinking water, parking spurs, comfort facilities, tables, and fireplaces plus boat ramps and trailer space where appropriate. Primitive facilities would normally be limited to comfort facilities, fireplaces, and garbage pits, thus insuring a minimal visual impact and providing the visitor with the feeling of "roughing it". (See Conceptual Development Plan Map.)

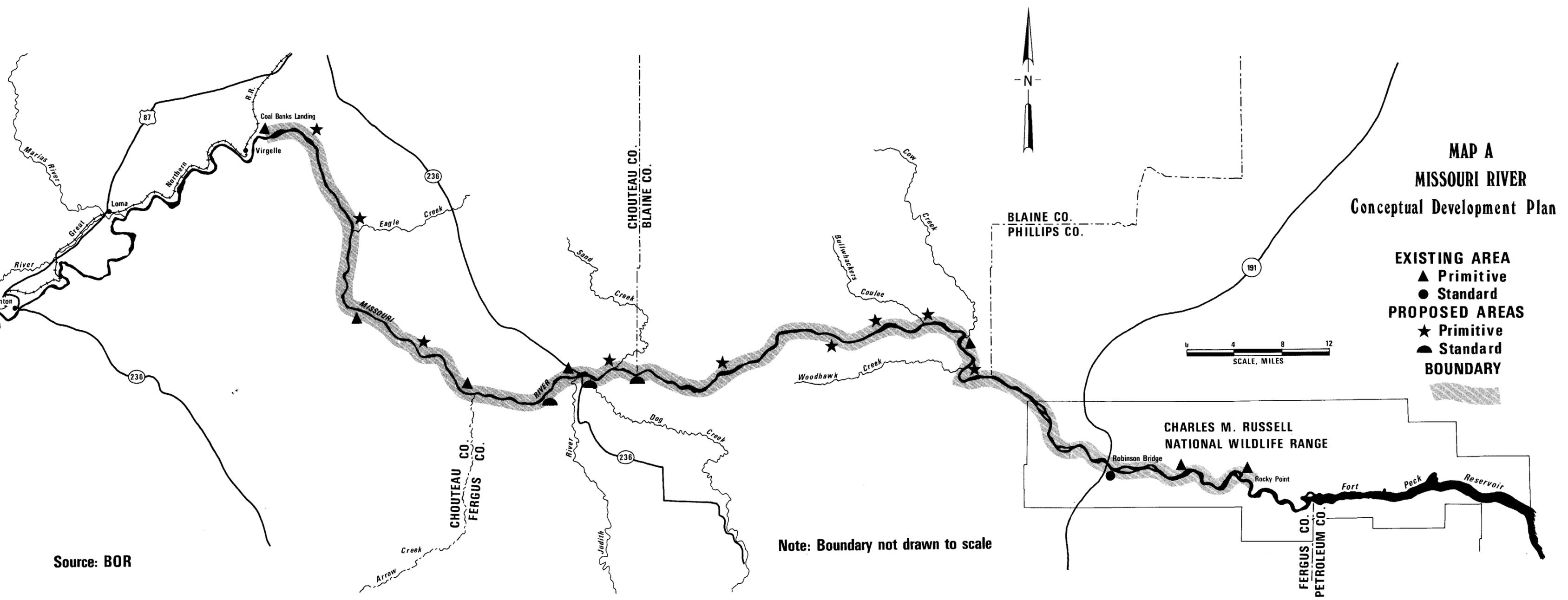
Twenty existing and potential recreation developments have been identified. Six of these are existing recreation areas owned and operated by the Montana Fish and Game Department. These existing sites presently provide primitive camping facilities although some have potential for upgrading to standard. The James Kipp area, which is located at the Robinson Bridge junction, presently provides standard camping facilities. Two primitive camp sites

are presently provided along the river within the Charles M. Russell National Wildlife Range. Three additional standard facilities should be developed at the Community of Virgelle, on the south bank of the river near Judith River and at Rocky Point. These 11 areas would serve as the initial recreation facilities for the river area upon establishment as a component of the National System. Development of the three new standard facilities would be expanded as visitor use increases. The remaining sites would be developed as recreation use increases. The existing facilities would continue to be managed by the State.

Several of the development sites would have hiking trails of varying length. These trails would lead visitors to the many scenic side canyons, geologic formations, and as appropriate, historic and archeologic sites. Properly located trails would not only enhance the visitor's enjoyment but would serve as a method of visitor control.

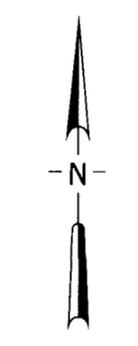
Scenic roads and overlooks would be developed where appropriate following studies by the managing agencies to determine the impact of such developments upon the river. Roads and overlooks easily seen from the river would not be developed.

With the proposed development, it is estimated that the optimum visitor use on the river would be 465 per day with a 90-day peak season (June, July, and August). The optimum visitor carrying capacity for the season is estimated to be 41,850. Adjustments of these estimates would be made if actual use patterns so dictate.



MAP A
MISSOURI RIVER
 Conceptual Development Plan

- EXISTING AREA**
 ▲ Primitive
 ● Standard
- PROPOSED AREAS**
 ★ Primitive
 ▲ Standard
- BOUNDARY**



Note: Boundary not drawn to scale

Source: BOR

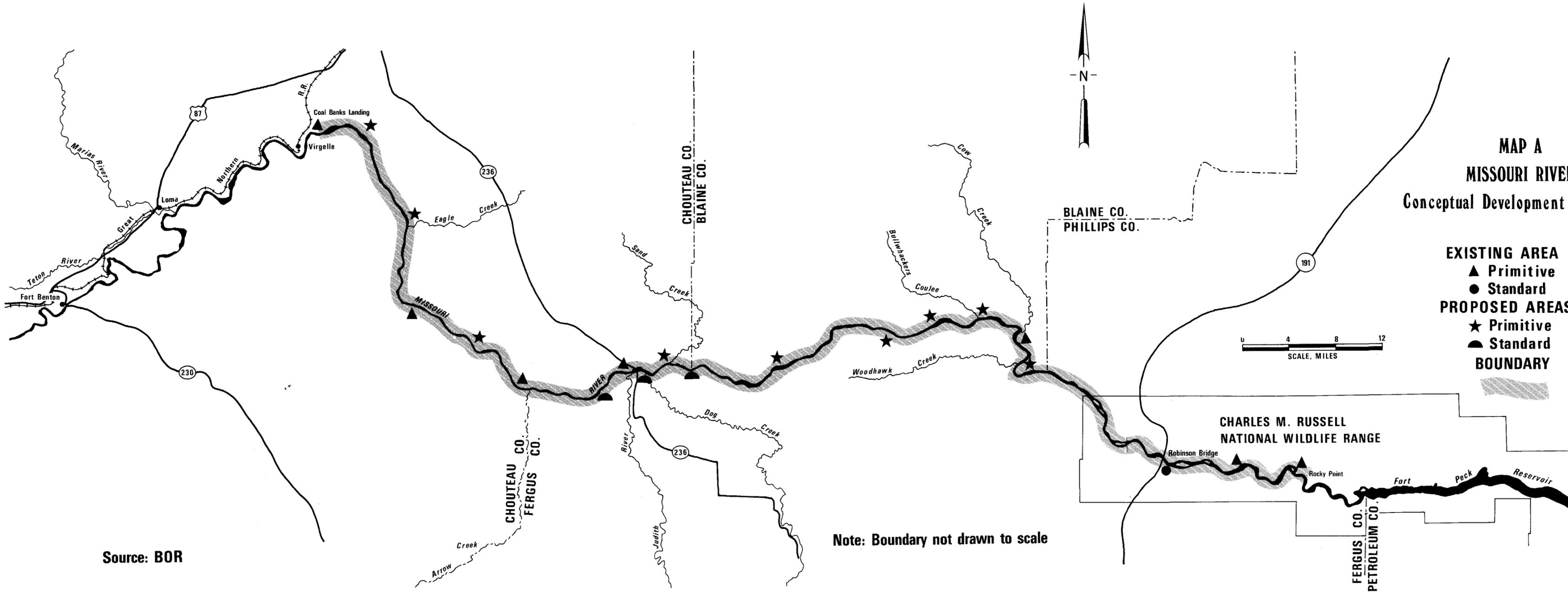
CHARLES M. RUSSELL
NATIONAL WILDLIFE RANGE

CHOUTEAU CO.
 BLAINE CO.

BLAINE CO.
 PHILLIPS CO.

CHOUTEAU CO.
 FERGUS CO.

FERGUS CO.
 PETROLEUM CO.



MAP A
MISSOURI RIVER
 Conceptual Development I

- EXISTING AREA**
 ▲ Primitive
 ● Standard
- PROPOSED AREAS**
 ★ Primitive
 ◐ Standard
- BOUNDARY**

Source: BOR

Note: Boundary not drawn to scale

COSTS

Acquisition of fee and less-than-fee interests for the 36,000 acres of privately owned land within the resource management area (proposed boundary) would cost an estimated \$1,747,000. This includes \$487,000 for fee acquisition and \$1,260,000 for scenic easement acquisition. Cost of suggested development is estimated at \$556,000. The average annual costs of operation and maintenance is estimated at \$130,500.

MANAGEMENT OBJECTIVES

The following management practices should be given careful consideration by the managing agencies:

- Emphasis should be placed on the development of river-oriented recreation facilities that will provide a range of compatible recreation activities.
- Access sites and other facilities should be developed and distributed with close attention paid to the impact from use that would result. Because the long-term and continuing impact of human use on the river and its environment is not fully understood, a system of periodic evaluation and monitoring should be conducted to develop criteria for the protection and management necessary to insure a meaningful recreation experience.
- Facility development should not detract from the quality of the river environment. Developments generally should be located so as to be screened from the view of the river user.
- Interpretation of the historical and natural features of the river, as well as the role played by wildlife in the settlement of this area

of the West, is an important management objective. The interpretive devices and signs should be kept to a minimum and be relatively unobtrusive or complementary to the natural and historic environment.

- The use of motorized vehicles for recreation purposes should be strictly controlled; in some areas completely prohibited.
- Hunting and fishing should be in accordance with State laws and regulations, except in designated zones and at specified periods when no hunting will be permitted for reasons of public safety and administration.
- The managing agencies should establish a method of visitor control which would be initiated before the visitor capacity is reached. It is felt that only in this manner will optimum visitor enjoyment be obtained without posing a **threat** to the natural and historical values so vital to the area.
- Habitat management for fish and wildlife should reflect equal consideration of game and nongame species, and all practices employed should be in conformance with the maintenance of the natural qualities of the riverway.
- A habitat management plan should be developed jointly by the administering agencies and the Montana Fish and Game Department. It would be necessary for this plan to extend beyond the boundary to encompass logical wildlife population units. Upon completion, the plan should become an integral part of the master plan for the river area and future range management plans in the area.

- Management objectives should be to maintain or restore a natural appearing, healthy timber stand wherever possible.
- Native species should be used in all areas where seeding or planting is required. Special management protection measures would be needed for areas of unique biological value.
- Protection of the timber resources within and near the river boundaries from fire, insect, and disease damage should receive added emphasis as necessary to enhance aesthetic and recreational values. Control or salvage measures necessary for diseased or damaged trees or other vegetation should be carefully weighed against adverse impact on the scenic values to determine if the control is warranted.
- Maintenance of stable soils and protection of the watershed adjacent to the river should be a priority action. Because much of the recreation activity and development would take place near the river's edge, special emphasis should be placed on preventing and controlling soil erosion. This is true for both natural and man-caused deterioration. Soil stabilization measures and revegetation should be undertaken where feasible on all exposed soil areas.
- Removal of bankside vegetation should be prevented and cropping restricted where it endangers natural or scenic values.

--Efforts should be made to encourage local units of government to apply zoning controls of lands adjacent to the river, particularly in the floodplains and nearby developed areas to assure that the quality environment is protected by a buffer zone.

--Livestock-grazing and certain forms of agriculture should be recognized as compatible uses in the river area. Such uses should be continued except in areas of visitor use, wildlife propagation, scientific, and historic value. Grazing restrictions would be necessary around some cottonwood groves. These groves, which provide the best shade for livestock, wildlife and visitors, have little protection to insure their continued existence. In areas where livestock concentrations are undesirable, first priority should be given to management rather than a total exclusion of livestock. The latter should be accomplished through fencing of coulees and development of watering facilities away from the river. The objective would not be to remove all livestock from view of the river, but to provide increased control adjacent to the river.

--Since the river is especially susceptible to any type of pollution from local communities, careful attention must be given to the planning and construction of developments along the river and its tributaries. A program for monitoring chemical, biological, and physical water quality characteristics, should be established. (Ref: Please see Middle Missouri

Water Quality Inventory and Management Plan prepared under section 303(e) of the Federal Water Pollution Control Act Amendments of 1972).

- The application of pesticides within or affecting the river corridor, including applications on forest, pasture, and cropland adjacent to the corridor should comply with the Federal Insecticide Fungicide and Rodenticide Act, as amended by the Environmental Pesticide Control Act of 1972 (P.L. 92-516). Consideration should be given to banning, in the above-named areas, the use of all pesticides classified as "restricted" under the Act. Aerial spraying of any pesticide should be minimized, restricted to allow adequate buffer zones, or prohibited.
- Efforts to reduce siltation through land conservation measures throughout the watershed should be intensified. Further investigation should be made of the feasibility and desirability of additional watershed projects in the upstream and tributary areas.
- No alteration of the natural channels that significantly affect the free flow of water should be permitted unless it is clearly demonstrated that such alterations are necessary to preserve the river's present characteristics.

- The taking of gravel or any other material from the river bed should be prohibited within the riverway. Gravel operations in the floodplain adjacent to the river area should be closely monitored so as to prevent any adverse effects on the river values.

- The vigorous State-local cooperative program to control littering and dumping along the river should be continued.

- Generally, no new utility or transmission lines should cross the designated river area. Where it is essential that they do so, existing rights-of-way should be used, if possible. Necessary facilities should be designed and located to minimize the impact on the environment of the area.

- There are a variety of scenic values in the corridor area and there are numerous other resources with management objectives that may not coincide with the protection of the visual resource environment. Thus, during the master planning phase, a visual resource management program will be implemented to evaluate the corridor's visual resources and determine what degree of management is desirable and practical, including protection, rehabilitation, and enhancement.

DESCRIPTION OF THE ENVIRONMENT

REGIONAL SETTING

The study segment of the Missouri River is situated in north-central Montana between the town of Fort Benton and Rocky Point "Historic" Site in the Charles M. Russell National Wildlife Range. For purposes of this report, the regional setting of the study river is considered to be an area in north-central Montana consisting of the following 15 counties: Blaine, Cascade, Chouteau, Fergus, Garfield, Hill, Judith Basin, Liberty, McCone, Petroleum, Phillips, Ponders, Teton, Toole, and Valley. (See Regional Map.)

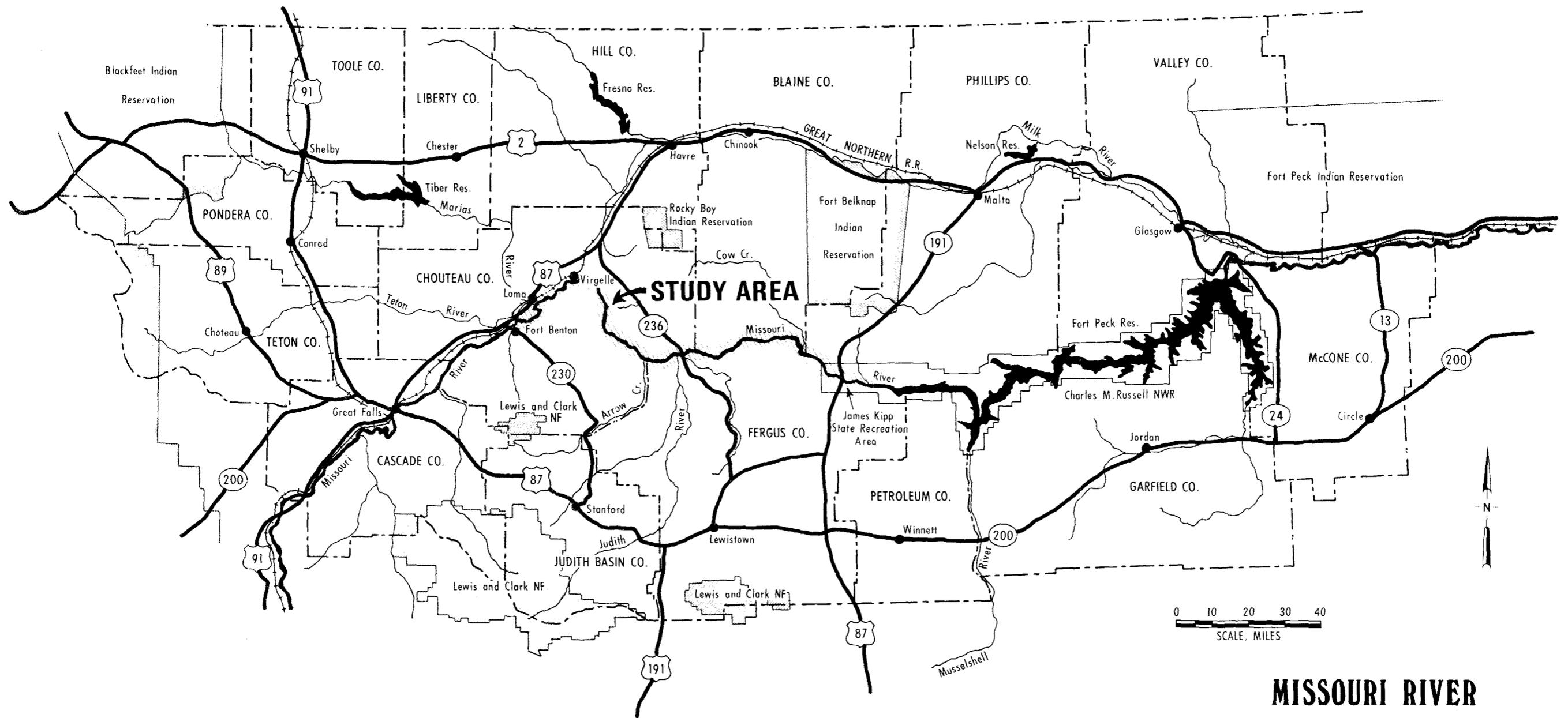
A part of the Great Plain physiographic province, a land of mixed prairie grasses, the region consists primarily of high rolling plains. The Little Rockies and Bear Paw Mountains and the Highwood Mountains are located north and south of the Missouri, respectively. The highland plain has been dissected by the Missouri River and its tributaries. The Missouri flows through a relatively deep valley varying from 500 to 1,000 feet below the average elevation of the adjacent plains. The soils are extremely unstable. Erosion and tributary drainage have produced highly dissected, rough terrain, resulting in spectacular, varied, and scenic badlands and breaks ranging from 2 to 10 miles in width immediately adjacent to the river valley along both sides of the main stem and of lesser width along tributary streams. This greatly eroded section of the region is commonly known as the Missouri River Breaks.

The Marias River, including its tributary the Teton, and the Judith River are the principal tributaries joining the Missouri River in the region. The Musselshell River flows from the south into the upper portion of the Fort Peck Reservoir. North of the Missouri, the Milk River parallels the Missouri as it flows eastward through the region to eventually join the Missouri below Fort Peck Dam.

SOCIO-ECONOMIC CHARACTERISTICS

Population

The population of the 15 counties adjacent to the river corridor in 1970 was approximately 171,000. However, the area is large (approximately 47,000 sq. mi.) with the population averaging only 3.6 persons per sq. mile. In 1970 the average number of persons per sq. mile in the State of Montana was 4.8. The total population of the 15 counties increased 14 percent between 1920 and 1970; however, if Cascade County, which includes the city of Great Falls, was excluded, the remaining 14 counties suffered a 20 percent decline in population during this 50-year period. For the 10-year period between 1960 and 1970, only Cascade County gained population while the total population of the 15 counties decreased 4.8 percent.



MISSOURI RIVER
Regional Map

INT: 1253-75

Present and Projected Population Statistics for the Larger Communities
in the 15-County Region (1970 Data)

<u>Urban Area</u>	Population (in thousands)		
	<u>1970</u>	<u>1980 (est)</u>	<u>2000 (est)</u>
Great Falls (city)	60.1	66.0	85.0
Great Falls (metropolitan)	72.9	80.1	103.0
Havre	10.6	11.0	13.0
Lewistown	6.4	7.0	8.5
Glasgow	4.7	5.5	7.0
Shelby*	3.1	4.5	5.5
Conrad*	2.8	7.2	8.7
Malta	2.2	2.3	2.6

Source: Montana Department of Planning and Economic Development

*The Federal Anti-Ballistic Missile project, planned for the Conrad-Shelby areas and which accounted for the projected rapid population increases in those communities, has been discontinued by the Federal Government. As a result, the projected populations for 1980 and 2000 probably will not be reached.

Economy

The 15-county area's economy is primarily based upon the production of grain, hay, and livestock. The number of farms in the region has decreased while farm size and the value have increased considerably. Between 1954 and 1969, the number of farms in the 15 counties decreased approximately 22 percent to a total of less than 8,400. However, during this same 15-year period, the average cash receipts per farm increased from \$14,400 to \$27,500.

The Montana Department of Planning and Economic Development expects no significant shifts in the economy of the region. Thus, it is expected that most of the region will remain agriculturally oriented, growth will be small and farm consolidation will continue. In

addition excess labor will continue to migrate from rural to urban areas since alternate employment opportunities are limited in most of the counties.

Agriculture, predominately livestock grazing and wheat growing, is the dominant land use of the region. Most of the cultivated land is devoted to dryland farming with a relatively small amount of irrigated farming on limited tracts in the river bottoms. Winter wheat, the basic dryland farming crop, is grown on the upland plateaus and plains. The remaining uplands and the rough lands are devoted to livestock grazing, with irrigated hay crops in the river bottoms supplementing the livestock industry.

Large tracts of public domain land administered by the Bureau of Land Management, portions of the Lewis and Clark National Forest, the Charles M. Russell National Wildlife Range, and the Fort Peck Reservoir are located within the region. Also located here are the Rocky Boy and Fort Belknap Indian Reservations.

There has been an increasing amount of oil and gas exploration in the vicinity, especially north of the Missouri River. Although existing Bureau of Land Management stipulations offer protection from possible degradation associated with oil and gas exploration on Federal lands within the region, no such protection exists for private land.

CLIMATE

The climate is semi-arid. It is marked by wide seasonal fluctuations in precipitation and temperature, by recurring drought, a relatively short growing season, and a high proportion of sunny days.

Precipitation averages about 13 inches annually, of which about 8.5 inches occur from April through September. Summer temperatures are moderate, usually hot in the daytime and cool at night. Fall months are generally clear and dry. Very little snow falls before October. The Missouri River is usually frozen over by December and does not thaw until April. Winters are cold, with light-to-moderate snowfall. Low temperatures are frequently dispelled by moderating winds known as "chinooks".

TRANSPORTATION

Major highways facilitate transportation throughout the region although some communities and ranches are not provided with surfaced roads. (See Regional Map.) The basic network of highways in the region consists of east-west highways U.S. 2 and State 200, together with north-south highways U.S. 87, 89, 91, and 191, and State 19, 13, 24, and 236. The Missouri River area is the hinterland of the 15-county area and there is a general lack of access to the river. A hard-surfaced highway, U.S. 97, parallels the river from Fort Benton to near Virgelle, but from Virgelle to the Fort Peck Dam--261 miles--highways are located a considerable distance from the river. Only one bridge and four ferries

cross the stretch of river between Fort Benton and Rocky Point and there are no crossings on the reservoir.

RECREATION RESOURCES

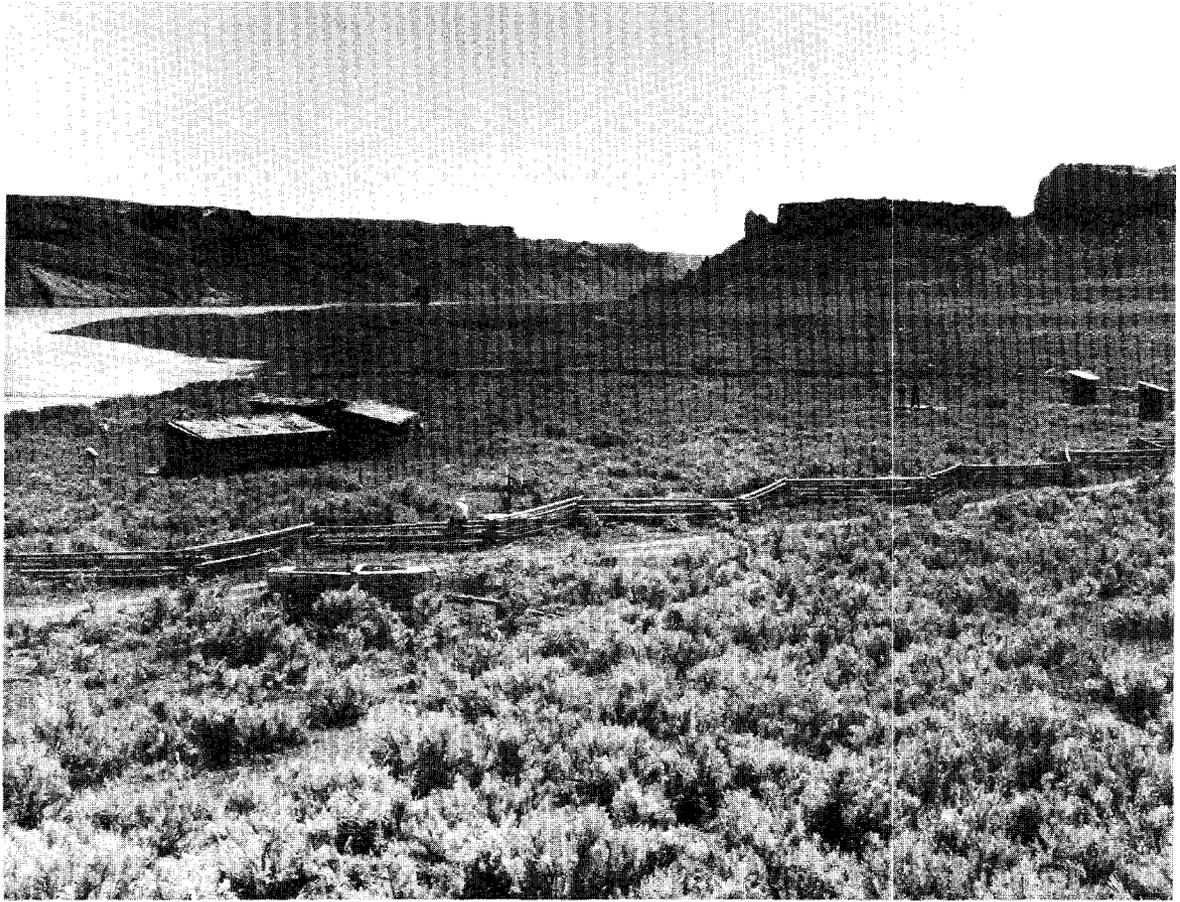
An abundant and wide variety of recreation resources are available within the region. The area possesses outstanding qualities including spectacular scenery, historic associations of national significance, important archeological sites, interesting geology, a rich wildlife habitat with great diversity of species and the free-flowing aspects of the Missouri River. These, in themselves, represent an important recreation resource.

By far, the largest single recreation resource in the region is the Missouri River. Public domain lands administered by the Bureau of Land Management, with the greatest concentration of these lands in Phillips, Valley and Garfield Counties, greatly expand the potentials of this resource. River floating, hunting, fishing, and related camping and picnicking at undeveloped sites comprise most of the present recreation use in the region.

In all, there are 6.5 million acres of public land and water resources available for general or dispersed recreation in the region. However, there are only about 170 acres which have been developed for formal public recreation use. Most of this developed acreage is adjacent to the river corridor. Public recreation use facilities, which have been provided at the developed areas, include tent and trailer camping



Looking upstream from Coal Banks Landing Access Site



State-operated "Hole in the Wall" development area

sites, parking spaces, picnicking area, playfields, boat access areas, and foot and horse trails. Areas for hunting and fishing have been provided at relatively few locations.

The segment of the Missouri from Fort Benton to the headwaters of Fort Peck Reservoir and the segment of the Smith River from its forks to the confluence with Hound Creek are two of the five components of the Montana Recreational Waterways System established by the Montana Fish and Game Commission in 1965.

The Montana Recreational Waterway System is a basic plan for the preservation and orderly development of Montana's remaining outstanding streams and rivers. The system was adopted with the intent to accomplish three major goals: to maintain the better streams as free flowing, productive waters; to improve somewhat less than prime streams to a level making them eligible for inclusion in the system; and to develop the waterways in a manner that will encourage and obtain optimum recreational use. The Missouri River was included in the system by Commission vote in 1966.

The recreational waterway concept has not received legislative recognition and has no legal status.

THE MISSOURI RIVER AND ITS SETTING

From Fort Benton, the Missouri River flows northeast to a point near Virgelle, then southeasterly to Arrow Creek and generally east to

Rocky Point "Historic" Site, about 10 miles above the headwaters of Fort Peck Reservoir. Within this segment, the river flows through portions of Chouteau, Fergus, Blaine, and Phillips Counties and receives the waters of major tributaries, the Marias and Judith Rivers.

In the 42-mile segment from Fort Benton to Coal Banks Landing, which is near the community of Virgelle, the river averages 600 feet in width and is dotted with picturesque islands and sandbars. Cultivated fields in the river bottom extend to the base of the river bluffs, but normally cannot be seen from the river. In general, the bluffs are grass covered and rise rather sharply from the flood plain to the flat prairie about 300 feet above the river. The flood plain is seldom more than a half mile wide on either side of the river. Occasionally, dark shale bluffs rise abruptly from the river up to 100 feet or more to the adjacent prairie. Although seldom visible from the river the works of man are evident with the Great Northern Railroad grade, electric and telephone lines, roads, and ranches. Fort Benton with a 1970 population of 863 and the much smaller communities of Loma and Virgelle are the only towns which lie in the flood plain of the entire study segment. Ferries are located near Loma and near Virgelle. The Marias River enters into the Missouri a short distance downstream from the Loma Ferry.

From Coal Banks Landing downstream about 9 miles to Haystack Butte, the scenery gradually changes. The flood plain narrows and the river



Scenic view of rock formation found along the Missouri River

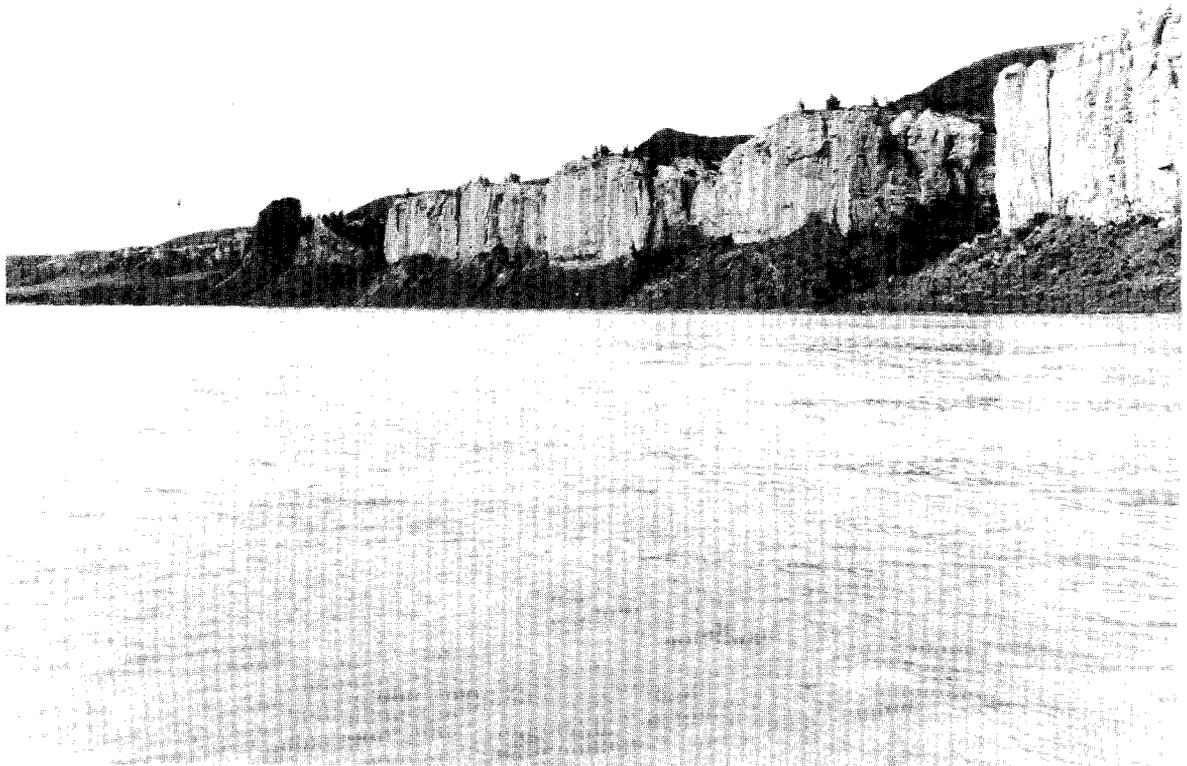
becomes entrenched. Only a few ranch and farm buildings on the bottom lands are in view from the river.

From this point downstream about 33 miles to about 4 miles above the mouth of the Judith River, there is an almost complete lack of man-made features. In this section, the landscape remains very much as it was when Lewis and Clark first saw it.

At first, almost imperceptible outcroppings of white appear--the "white rocks." As the river gouges its way downstream, more and larger sections of this rock are visible. In sharp contrast among the white sandstone are scatterings of pine and juniper. These formations are not only found on the main stem river, but often extend up the canyons of several tributaries such as Little Sandy, Eagle, and Arrow Creeks.

The eroded sandstone formations become more unusual in shape and size, and often resemble castles, parapets, and other ancient structures. Outcroppings of **dark** intrusive rocks thrust upward through the white sandstone, forming what appear to be huge man-made walls of rectangular blocks.

Rapids are encountered where these darker, resistant rocks cross the streambed. These rapids, more choppy than swift, offer a contrast to the more placid flows characteristic of most of the river.

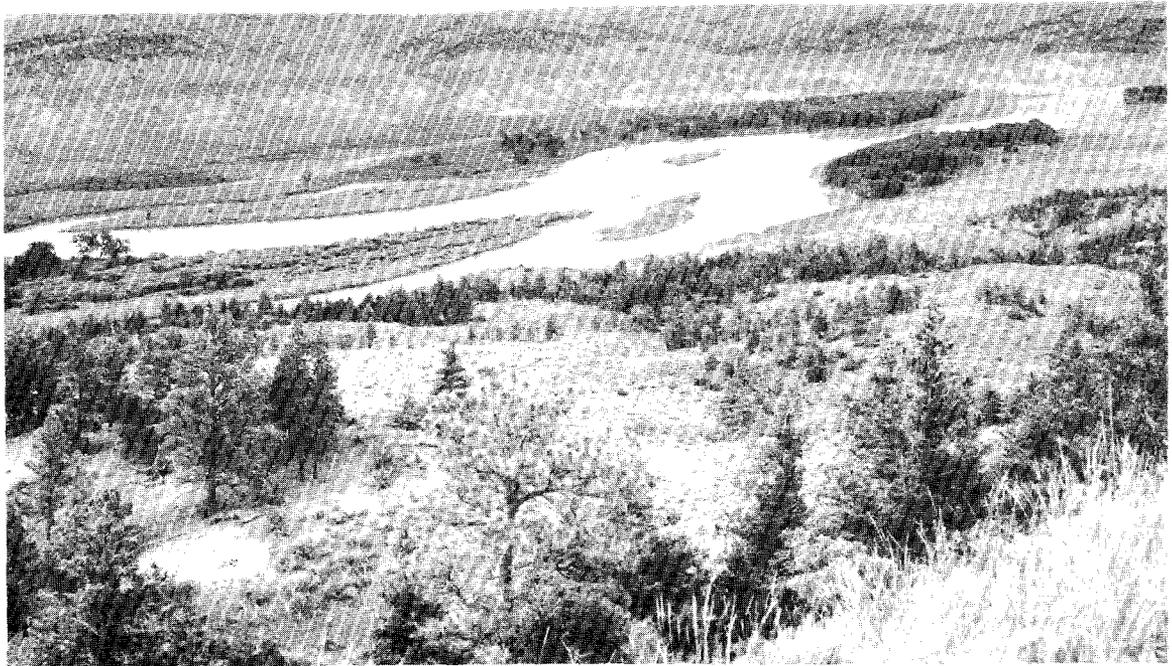


White Rocks Area downstream from Eagle Creek

From about 4 miles above to about 4 miles below the Judith River, the canyon widens. The white rocks pass from view and the bluffs take on a grayish color and denser concentrations of evergreens are found. At its confluence with the Judith River, the valley is substantially wider on both sides of the Missouri. Here are the historic sites of Forts Claggett and Chardon, and Camp Cooke. Here, too, is the Lohse Ferry, the first crossing of the Missouri downstream from the Virgelle Ferry. Large cottonwood, ash, and boxelder line portions of the banks, and the mouth of the Judith Valley as viewed from the Missouri River is thickly wooded. The largest concentration of deciduous trees, predominantly cottonwoods, is in this vicinity.

About 4 miles below the Judith River, the canyon begins to close in again and the green vegetation fades into the earthy shades of barren country. From this point downstream to Cow Island just below the mouth of Cow Creek, a distance of 38 miles, rugged badlands provide a backdrop for the Missouri. In places, these massive products of erosion which support only a few scattered conifers, rise 1,100 feet above the river. Rapids along this section are generally swifter than those upstream.

Downstream from Cow Island, there is a transition from the harsh badlands to topography of a more open character; the flood plain becomes wider, the bluffs lower. There is more vegetation on the islands and along the banks. Wildlife sightings are more numerous, especially of deer. There



*Downstream view of Missouri River
near the Charles M. Russell National Wildlife Range*

are more evergreens along the bluffs in the vicinity of Cow Island than anywhere along the entire study segment. Within the Charles M. Russell National Wildlife Range downstream to Rocky Point, the topography becomes still more open. The river meanders in its flood plain, which in places is over a mile wide, and the river has not cut into the plains as deep as in the badlands. More islands are present, some covered with large groves of cottonwood and some with shrub willow and wildrose. This section of the river, more than any other, provides the best habitat for wildlife such as geese, ducks, beaver, and deer.

There are a few irrigated fields planted in cereal and forage crops for wildlife. In most cases, these fields are not visible from the river.

Flow Characteristics

The modern regimen of this reach of the Missouri River is not entirely normal, because of regulation and storage at several dams upstream from Fort Benton. The drainage area increases from 23,292 square miles at Morony Dam, the closest to Fort Benton, to about 41,000 square miles at the head of the Fort Peck Reservoir. The increase in streamflow, however, is only about 30 percent. Discharge records of the Missouri at Fort Benton, Montana, for the period 1891-1960 show the minimum annual discharge of 3,621 cubic feet per second occurred in 1937 and the maximum annual discharge of 11,850 cubic feet per second occurred in 1895. The average annual discharge for the overall period was 7,579 cubic feet per second.

Peak flows in this reach generally occur from late May to Mid-June, and their usual source is snowmelt runoff from the mountain areas. Heavy rains often occur in the same period and their contribution may exceed that from snowmelt.

Stream gradient averages about 3 feet per mile and varies from about 12 feet in the extreme upper reaches to less than 2 feet per mile in many sections. Rapids result from or are created by gravel bars at mouths of tributaries or ledges of bedrock. The velocity of the stream is closely associated with width and gradient. Mean velocities vary from about 3.5 to 2.0 feet per second at a discharge of 6,000 cubic feet per second.

During the normal recreation-use period, June to October, the river has an average width of 600 feet and a depth of 3-6 feet; but depths of less than 3 feet are not uncommon. Shallow draft boats such as canoes, kayaks, and johnboats are best suited for use on the river.

Water Quality

Waters within this stretch of the Missouri have been designated by the State to require maintenance of water quality suitable for (1) drinking, culinary and food processing purposes after adequate treatment to remove naturally present impurities; (2) bathing, swimming, and recreation; and (3) growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. Data on water quality is limited; however, the quality is considered generally good. Although turbidity and temperatures are high, they are a reflection of natural background conditions

typical of the Upper Missouri drainage. (Ref: Please see Middle Missouri, Water Quality Inventory and Management Plan prepared under Section 303(e) of the Federal Water Pollution Control Act Amendments of 1972).

Only three small communities exist between Fort Benton and Fort Peck Reservoir. The existing small communities, as well as present and expected recreational use, would cause little change in the water quality. There is, however, a problem with respect to high bacterial content of the water within the river reach. A study conducted by the Montana Board of Health on the Missouri River upstream from Fort Benton over a 3-day period in July 1959, showed a coliform bacteria count in excess of 1,000/100 m.l. This high coliform count was the result of inadequate municipal sewage treatment for the Great Falls area about 40 miles above Fort Benton. Similar tests at Virgelle 40 miles downstream from Fort Benton still reflect the influence of sewage outfalls in both Great Falls and Fort Benton. Both cities have improved their sewage treatment plants since 1959.

Water samples were taken by the Geological Survey over a 13-month period in 1969 and 1970. The average coliform bacterial count in this sampling process was 880/100 m.l. which is less than the 1,000/100 m.l. maximum level considered safe for swimming.

Major problems, however, may occur on both the Marias and Judith Rivers (tributaries to the study area). The primary degradation problems appear to be the heavy sediment loads due to natural erosion in the Marias River drainage and sulfate loads frequently

contributed to the Missouri from the large irrigated areas in the Judith River drainage.

Land Ownership

As might be expected, much of the "breaks" in the four-county areas through which the river flows was passed over during the homesteading era, leaving considerable acreage in the public domain. The high rolling lands, north and south of the breaks, were more accessible, and were included in farming and stock raising homesteads.

As an illustration of public land concentration closer to the river, within the entire four-county area, private ownership accounts for approximately 70 percent of all lands, with the remaining land in Federal and State ownership. (See Land Ownership Map.) In contrast with the Missouri River valley, the proportion of ownership changes significantly. Here, over 60 percent of the land is in Federal and State ownership with the remaining land area privately owned.

The majority of the private land in the river valley is located between Fort Benton and Coal Banks Landing in the upper portion of the study area. The remaining tracts of private land are scattered along the river, usually on the bottomlands. State-owned lands are scattered throughout the entire stretch of river.

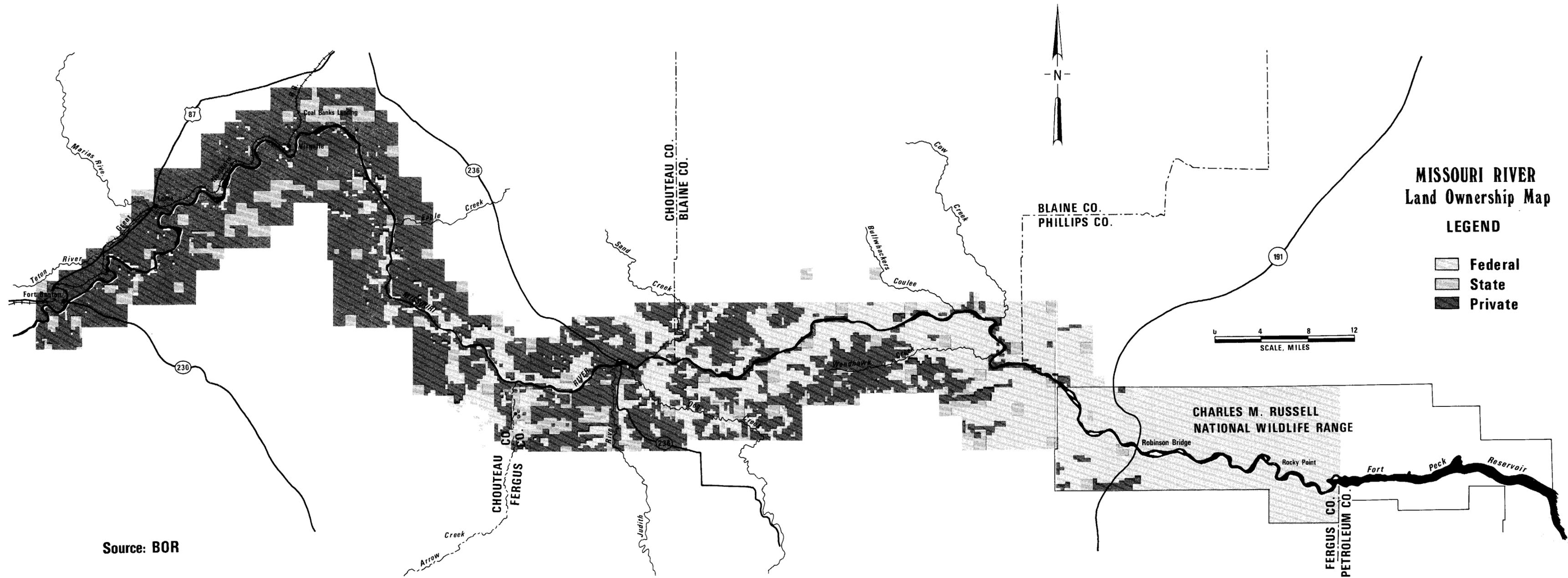
Land Use

Domesticated animals in the four counties totaled 370,000 animal units (a unit of measure for the amount of feed needed to feed one cow for one month) in 1960, according to the statistics of the Montana Department of Agriculture. These included 326,100 cattle and calves; 166,800 sheep; and 10,600 horses.

Most of the range area is grassland, interspersed with large areas of sagebrush and areas of conifer, saltbush, and greasewood types. A list of range types in the area includes: grass, meadow, sagebrush, conifer, broadleaf trees, saltbush, greasewood, annual weeds, waste, barren, half-shrub, and browse-shrub.

The ranches contain varying proportions of public domain land, depending upon their location. Some use only a few scattered isolated tracts. Others, closer to the river, may consist of less than 10 percent private land, which is used for wintering and hay production, while the balance of the ranch operation is on public land.

In contrast to the extensive areas of farmlands and ranches within the four-county area, within the river valley on each bank of the river, depending on access permitted by terrain, land use is restricted almost exclusively to the grazing of livestock because of the unsuitability of the terrain for cultivation. Most of the grazing is on Federal land administered by the Bureau of Land Management and the U.S. Fish and Wildlife Service. There are 111 grazing permit leases on the Federal lands within the proposal. These lands support 8876 animal unit months.



Source: BOR

**MISSOURI RIVER
Land Ownership Map**

LEGEND

- Federal
- State
- Private

0 4 8 12
SCALE, MILES

BLAINE CO.
PHILLIPS CO.

CHARLES M. RUSSELL
NATIONAL WILDLIFE RANGE

FERGUS CO.
PETROLEUM CO.

CHOUTEAU CO.
BLAINE CO.

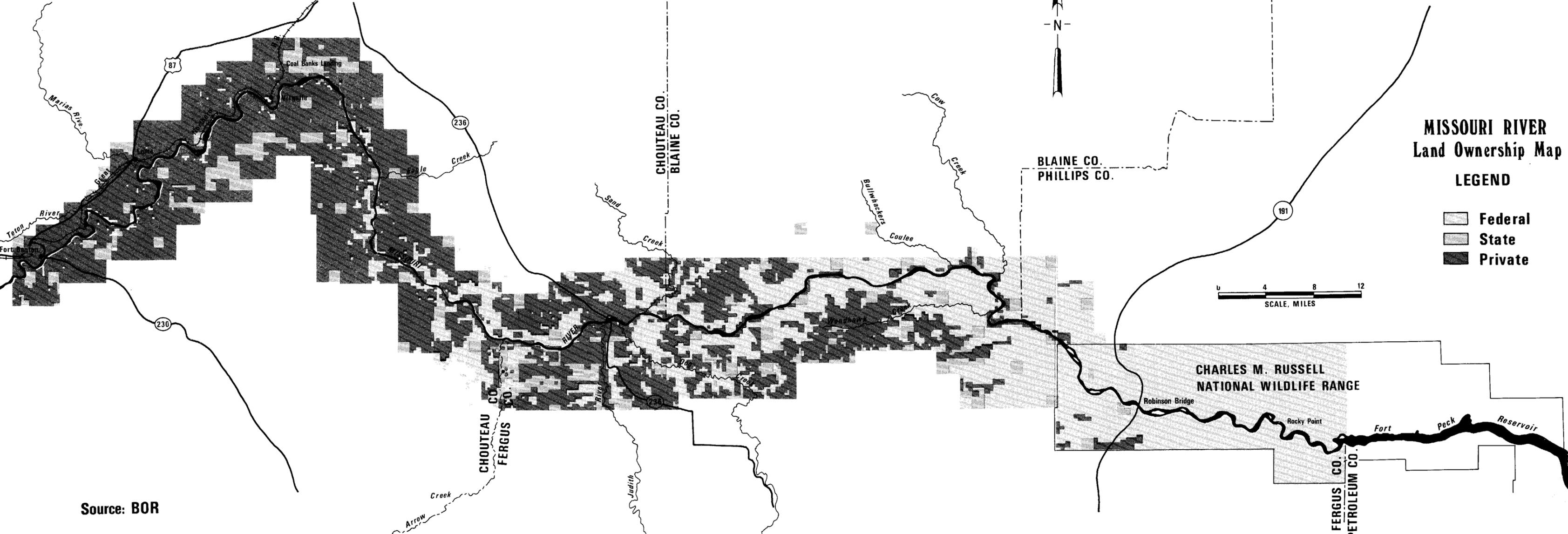
CHOUTEAU CO.
FERGUS CO.

87

236

230

191





Cattle using river and shade from cottonwoods near Arrow Creek

Although livestock grazing near the river is important, in many cases, the greatest value for livestock is use of the river for drinking water and cottonwood groves for shade. Livestock use along the river is predominantly spring-summer-fall cattle grazing with only a few ranches running cattle in the winter.

A trend of developing the private land adjacent to the river to cottage and residential is being experienced.

Water Rights

The basic water law recognized in Montana is the prior appropriation doctrine. This doctrine is a "time-use" doctrine in which the concept of "first in time, first in right" is the principal criteria for determining or recognizing the relative status of alleged water rights. The acceptance and development of the appropriation doctrine rather than the riparian doctrine was due to, first, the climate and the particular type of frontier settlement (mining and ranching) which occurred in Montana and, secondly, the fact the most of the land was in public domain.

No person owns water in Montana. Rather, the State has ownership of water by virtue of the State constitution (which holds that the use of water is a public use) and by the opinion of the Montana Supreme Court. An individual has (owns) the right to use the water as long as he does not infringe on rights of prior appropriators.

Within this stretch, from the records of the 1963 Montana Water Resources Survey, there are 22 filed appropriations and 10 use rights. All appropriations, but one, are by private operations with irrigation being the principle use, and that one is for domestic use by the town of Fort Benton.

As the Missouri River was used for navigation on the date Montana was admitted to the Union as a State, the river is considered a navigable stream. Section 67-302 of the Revised Code of Montana 1947 declares that the State is the owner of all land below the water of a navigable lake or stream.

Access

From Fort Benton to Rocky Point, road access to the Missouri is very poor. (See Regional Map.) At the upstream terminus of the study area, U.S. 87 and State Highway 230 connect Fort Benton and the community of Loma to the region's peripheral highway system. Access to Virgelle is by improved county road connecting with U.S. 87. The north-south U.S. 191, the only paved highway within the study area, connects Malta and Lewistown, and crosses the area in the Charles M. Russell National Wildlife Range at James Kipp State Recreation Area via the Fred Robinson Bridge.

One secondary road, State 236, bisects the area, its light traffic crossing the Missouri via the Lohse Ferry near the Judith River

confluence. The Montana Department of Highways has plans to replace this ferry with a bridge. In addition to the crossings at the Robinson Bridge and Lohse Ferry, all other access and public crossings are by earth and gravel roads at Loma Ferry, Virgelle Ferry and Stafford Ferry.

There are many jeep or 4-wheel-drive roads and trails throughout the area. Some of these are county roads which receive minor maintenance, but most have come into existence merely through use of ranchers and hunters. Under ideal conditions, a passenger car may be used in driving some of these roads; however, the "gumbo" soil will turn into a sea of mud when moistened and normally cannot be traveled with a passenger car.

Soils

There are three major physiographic areas along the Missouri River with distinct soil patterns. Sedimentary uplands constitute the majority of the adjacent lands. These are characterized by undulating to steep landscapes, primarily the Missouri River breaks and the "badlands" associated with prominent sandstone and shale outcrops. Soils are generally shallow and sandy to clayey with slow permeability. Consequently, fertility is poor. The soil is droughty and difficult to manage and revegetate because of the narrow range of moisture conditions under which it can be worked. These soils are particularly subject to water and wind erosion, with relative erodability depending

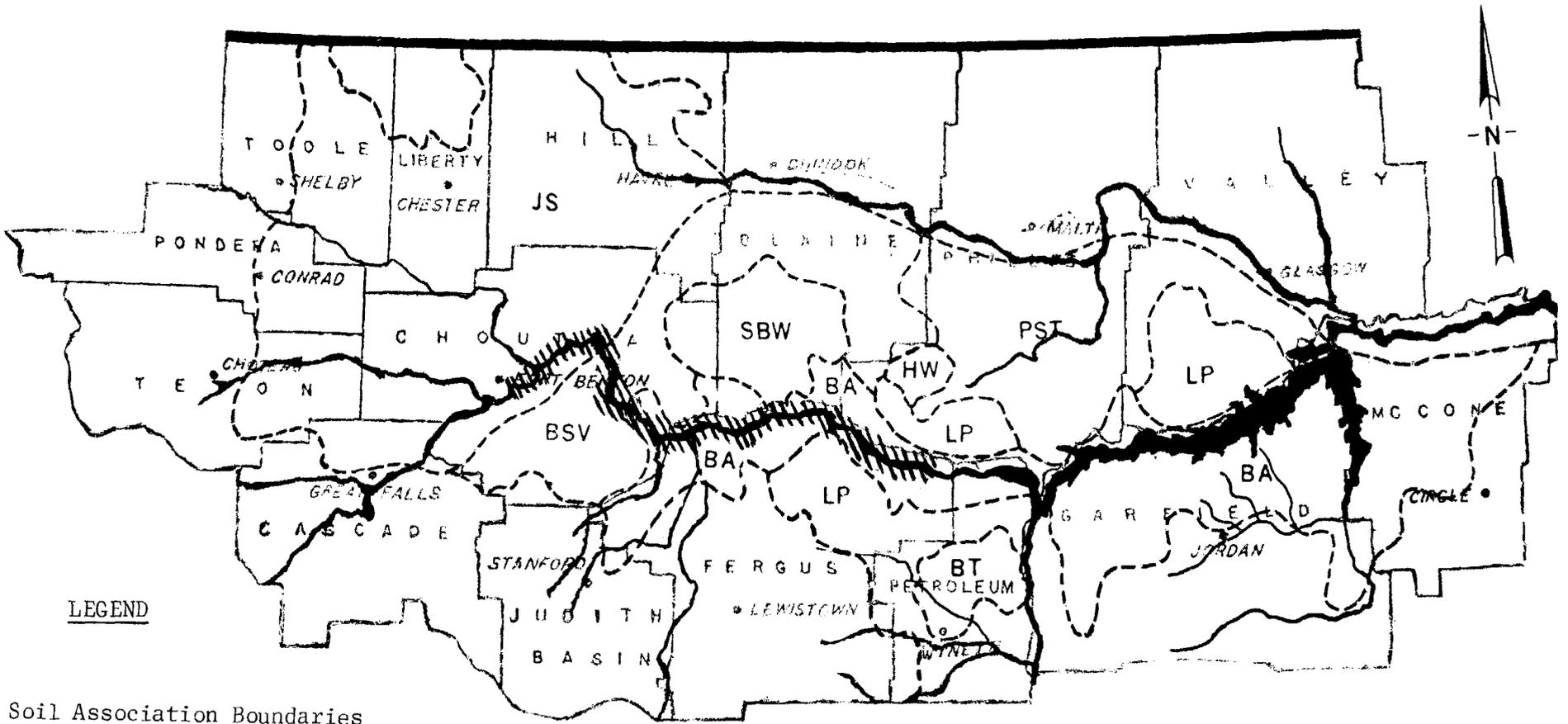
upon the amount and kind of vegetative cover, the shape and steepness of the slope, and the climatic features of drought and precipitation intensity.

The second major soil pattern, the glaciated uplands, is characterized by undulating glacial plains. They were primarily developed in weathered clay loam material underlain by clay and clay loam subsoils. The clay subsoils are extremely hard when dry. These soils are highly susceptible to water erosion but generally fertile where soil depth is sufficient and deposits of lime and salt are not within the plow layer. They are commonly used for grain and hay production and grazing.

The third major soil pattern consists of alluvial terraces, toe slopes, and sloping fans of tributary drainages from the uplands and river breaks, as well as the flood plains of the Missouri River and its tributaries. These soils vary widely in depth and texture, ranging from deep sandy to clayey with variable internal and external drainage and flooding potential. Alluvium can contain high salinity and immature soils with no horizon development, but fertility is fairly high where these factors are low. Where protected from flooding, crops can be grown with irrigation.

Broad correlations can be made between soils and associated vegetation types. In general, conifers are found on the badland soils, but are

SOIL ASSOCIATIONS



LEGEND

Soil Association Boundaries

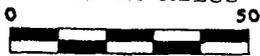


Study Area

(Not drawn to scale)



Scale in Miles



1:2,500,000

- BA - Badlands(Bainville, Midway, Lismas, Pierre)
- BSV - Bearpaw - Sprole - Vida(Landusky, Williams, Zahl, Thoeny, Elloam, Laurel)
- BT - Bainville - Tullock(Cushman, Flasher, Midway, Thurlow)
- HW - Hughesville - Woodhurst(Spring Creek, Blaine)
- JS - Joplin - Scobey(Telstad, Kelvin, Zahl, Bew, Thoeny)
- LP - Lismas - Pierre(Vananda, Promise)
- PST - Phillips - Scobey - Thoeny(Zahl, Telstad, Zurich, Elloam, Laurel)
- SBW - Spring Creek - Blaine - Woodhurst

Properties of Selected Soil Series

Soil Series	Thickness of Solum	Dominant Surface Textures*	Subsoil Textures*	Underlying Material (Substrata)*	Topography (Position)	Special Management	Range** Soil Group	1968 Classification Great Group
Bainville	***	sil	sil	soft siltstone & sandstone	Convex slopes on ridge crests & valley sides	Wind & water erosion	Si	Torriorthent
Bearpaw	15-26	cl	cl & c	cl glacial till	Undulating till plains	.....	Si-Cy	Argiboroll
Bew	14-21	cl & sicl	c	c & cl	Level & rolling fans, terraces & uplands	Water erosion	Cy	Haplargid
Blaine	10-31	stl, cl & c	stcl	sands of monzonite	Rolling & steep areas near highlands	Water erosion	Si-Cy	Argiboroll
Cushman	9-10	cl & l	cl	shale & sandstone	Nearly level to rolling uplands	Water erosion	Si-Cy	Haplargid
Elloam	7-13	cl & c	c	cl glacial till with some gypsum	Micropits on sloping till plain	.....	Cy-DC	Natrargid
Flasher	***	lfs & fsl	fs	fs or soft sandstone	Steep slopes on sides of plateau & valley	Wind & water erosion	Sy	Haploboroll
Hughesville	10-18	l & cl	cl & sicl	limestone	Moderately steep slopes below limestone ridges	Water erosion	Sv-Si-Cy	Cryoboroll
Joplin	7-12	l & cl	cl	l & cl till	Nearly level to rolling till plain	Water erosion	Si-Cy	Haploboroll
Landusky	12-24	cl	c	c glacial till	Nearly level to gently sloping till plain	Water erosion	Cy	Chromustert
Laurel	***	l & cl	l & cl	stratified l, sil & fsl	Level terraces, valley bottom & seeped areas	Drainage, control of water table & salts	SS	Salorthid
Lismas	7-18	c	c	shale	Rolling hills, uplands	Wind & water erosion	+SWC	Torriorthent
Midway	***	cl	cl	soft shale & sandstone	Convex slopes on ridge crests & valley sides	Wind & water erosion	Cy	Torriorthent
Phillips	7-27	l	cl & c	cl	Level to undulating till plain	Water erosion	Cy-Si	Paleargrid
Pierre	12-18	c	c	shale	Undulating to hilly uplands	Water erosion	Cy	Camborthid
+Promise	12-19	c	c	clay & shale	Nearly level to hilly uplands	Water erosion	Cy	Pelloxerert
Scobey	11-25	cl or l	c	cl glacial till	Nearly level to rolling till plain	Water erosion	Cy-Si	Argiboroll
Spring Creek	3-10	stgl	stgl	igneous and metamorphic rocks	Steep broken uplands	.....	SwN	Haploboroll
Sprole	9-18	l & cl	cl	l glacial till	Level to rolling till plain	Water erosion	Si-Cy	Argiboroll
Telstad	8-15	l & cl	c	cl glacial till	Undulating till plain	Water erosion	Cy-Si	Argiboroll
Thoeny	5-22	l & cl	c	cl glacial till	Nearly level till plain	.....	Si-Cy	Natrargid
Thurlow	17-28	cl	cl & c	cl	Nearly level to sloping fans & terraces	Water erosion	Cy	Haplargid
Tullock	8-15	fsl	fsl	lfs	Steep uplands	Wind erosion	Sy	Torripsamment
Vananda	***	c	c	saline-alkali clay	Level to sloping uplands	Massive, crusty surface, Water erosion	DC-SU	Camborthid
Vida	6-10	c	c	cl glacial till	Level to rolling till plain	Water erosion	Si-Cy	Argiboroll
Williams	20-35	l	l	l glacial till	Rolling till plains	Water erosion	Si	Haplustoll
Woodhurst	12-30	stl	stcl	quartz monzonite porphyry	Steep mountain slopes	.....	Forested	Cryoboroll
Zahl	5-10	l	l	friable glacial till	Rolling till plain	Water erosion	Si	Haploboroll
Zurich	less than 10"	cl	cl-c	firm glacial till	Rolling till plain	Water erosion	Si	Argiboroll

*fine sand.....fsl
 loamy fine sand.....lfs
 fine sandy loam.....fsl
 loam.....l
 stony loam.....stl
 stony gravelly loam....stgl
 silt loam.....sil
 clay loam.....cl
 silty clay loam.....sicl
 stony clay loam.....stcl
 clay.....c

***These soils have limited solum development and thickness of solum has little meaning.

+Tentative classification.

+SWC - [Author does not define. Presumably similar to SwN, a shallow clayey soil underlain by rock.]

SOURCE: Montana Agriculture Experiment Station Bulletin 621, Montana State University Bozeman, February, 1969.

**The following definitions for Range-Soil Groups are adapted from Technical Guide, Part II, E, Soil Conservation Service.

- SS - SALINE SUBIRRIGATED: Subirrigated land where salt and/or alkali accumulations are apparent and halophytes occur over a major part of the area.
- Sv - SAVANNAH SITE: Uplands on which grass cover with isolated trees is normal (climax). Do not confound with savannah type of cover resulting from overgrazing of natural grassland or the cutting of natural forest land. This site is common at margins of forest climates. Within grassland climates it occurs where soil moisture relations especially favor tree growth. Bedrock at the surface usually indicates a Very Shallow site.
- Sy - SANDY: All normal coarse to fine sandy loams (not true sands) plus dark nearly level loamy fine sands, and loamy very fine sands; excepting relatively impervious (cemented) kinds which are better classed as Thin Sandy, or a type of Shallow or Very Shallow.
- Si - SILTY: All normal very fine sandy loams, loams, silt loams, and silts.
- Cy - CLAYEY: All normal relatively pervious sandy to silty clay loams and clays--normally granular.
- SwN - SHALLOW NONLIMY: Shallow neutral to acid soils (10-20 inches) underlain by rock virtually impenetrable by roots.
- DC - DENSE CLAY: Relatively impervious deep but dispersed clays--may be overlain by thin but ineffectual layers of other materials. The dispersed layer is Very Hard to Extremely Hard when dry and Very Sticky when wet.
- SU - SALINE UPLAND: Uplands of ordinary depth where salt and/or alkali accumulations are apparent and halophytes occur over a major part of the area. Common only in arid climates.

NOTE: In this bulletin some soil series are placed into more than one Range-Soil Group. This violates the intent of the original article but appears to be useful when considering a soil series throughout its area of occurrence.

not limited to this type. Sagebrush is found on the fine textured, heavy, clay soils while greasewood is located on alluvial-type material near stream bottoms. Grasslands are widely scattered among the various associations and generally overlap with other vegetative communities (see Vegetation, page 66).

More detailed soil information for the study area is contained in the accompanying Soil Associations map and Soil Properties chart, and in the narrative descriptions below. The large soil association areas, labelled with capital letters on the map, identify characteristic groupings of smaller soil series comprised of contrasting soils and occurring together in an intricate pattern. The letter symbols designate the names of the dominant soil series in that area. The first mentioned soil, for example Bearpaw, comprises the largest single soil area in the BSV delineation. These soils are described in the paragraphs below. Included soils, listed in parentheses on the map, occur in scattered areas too small to be separated, but comprising sizeable areas if taken collectively. Included soils are described in the Soil Properties chart.

The following descriptions are taken from Montana Agriculture Experiment Station Bulletin 621, Montana State University, Bozeman, February 1969:

Bainville soils are formed on weakly consolidated sandstone and siltstone. The light brown, platy surface soil is underlain by a blocky silt loam subsoil. These soils are calcareous throughout.

They occur on convex slopes on ridge crests and valley sides of the uplands. Depth to bedrock ranges from 4-24 inches.

Bearpaw soils are formed on firm clay loam glacial till. A granular clay loam surface soil rest on a prismatic clay subsoil, which extends to depths of 10 to 20 inches where a lime accumulation is encountered. They occur on the undulating glacial till plains of north-central and northeastern Montana.

Blaine soils are developed on stony deposits (from basic and intermediate igneous rock). The surface soil is a stony clay loam lying on a very stony clay subsoil. The gravels and stones make up 80 percent by volume of the subsoil and substratum. A lime zone is usually present at a depth of 15 inches. Hard bedrock is encountered at depths greater than 40 inches. They occur on rolling and steep landscapes.

Hughesville soils are developed on deep unconsolidated alluvium from limestone. A brown, platy and granular loam surface soil lies beneath the forest litter. The subsoil is a blocky silty clay loam. The lime horizon is encountered at about 2 feet. These soils occur on smooth fans and forested slopes.

Joplin soils are developed on calcareous glacial till. The brown, granular loam surface soil rests on a prismatic clay loam subsoil. A lime zone occurs at about 10 inches. The underlying glacial till

is highly calcareous and friable. These soils occur on nearly level to undulating glacial till plains.

Lismas soils are developed on shale. These are clay soils that are very hard when dry, and sticky and plastic when wet. They are weakly calcareous and have some gypsum crystals just above the bedrock, which is usually encountered at less than 18 inches. The topography on which these soils occur is rolling, hilly and steep uplands.

Midway soils are formed on fine-textured sedimentary rocks. The brown granular clay loam surface lies on a platy clay loam subsoil. These soils are calcareous throughout. Bedrock occurs at 10-20 inches. They occur on convex slopes at crests of hills and ridges.

Phillips soils are developed on calcareous saline glacial till. The surface soils are light-colored loam and overlie brown prismatic clay subsoils which are very hard when dry. The lime layer is beneath the clay subsoil at a depth of about 14 inches and may extend to 3 feet or more. Below the lime layer, an accumulation of salt is encountered, usually below 3 feet. These soils occur on plane and concave slopes of nearly level to undulating glacial till plain.

Pierre soils are shallow to moderately deep clayey soils formed on shale. The textures are clay throughout and are very hard when dry. They may be a salt accumulation in the subsoil or substratum. The shale bedrock is encountered at less than 40 inches.

Scobey soils are developed on clay loam glacial till. The grayish brown, granular clay loam surface rests on a slightly darker prismatic clay subsoil. A lime zone is present at about 14 inches. These soils occur on nearly gently rolling glacial till plains.

Spring Creek soils are developed on igneous and metamorphic rocks. The surface soil is a brown, granular gravelly loam. The lime zone occurs at about 5 inches and bedrock at about 12 inches. These soils occur on steep and broken slopes with gradients in excess of 15 percent.

Sprole soils are developed on friable loam and clay loam glacial till. A dark, loam surface soil rests on a prismatic, clay loam subsoil. The lime zone is usually found at depths of 11-17 inches. These soils occur on undulating glacial till plains.

Thoeny (Tee-ne) soils are developed on calcareous glacial till. They have a platy, loam surface soil overlying a columnar clay subsoil. The combined thickness of the surface and subsoil ranges from 10 to 22 inches. A zone of lime accumulation occurs at about 12 inches and may extend to a depth of 4 feet. These soils occur on plane and concave slopes on the nearly level to rolling till plains.

Tulloch soils are moderately deep and formed on weakly consolidated sandstone. The dominant textures are sandy loams and loamy fine sands. A thin, brownish-gray, fine sandy loam surface soil lies on yellowish-

brown fine sandy loam subsoil. The substratum is a fine sandy loam to loamy fine sand. They are sometimes underlain by sandstone at 24-36 inches. Tullock soils occur on undulating to sharply rolling uplands.

Vida soils are developed on friable glacial till. The thin clayey subsoil, which is prominent under range conditions, is incorporated in the plow layer in tillage. A lime layer is encountered at about 7-10 inches. Fertility problems may arise when large amounts of lime are incorporated in the plow layer, or where erosion has removed most of the surface soil and tillage is carried out in the lime zone. These soils occur on the nearly level to strongly undulating till plain.

Woodhurst soils are developed on fine-grained igneous rocks high in quartz. They have a thick, dark-colored surface soil over a stony clay loam subsoil. Bedrock is found at about 2 feet. These soils occur on sloping to very steep mountain slopes.

Geology

Geologically, the landscape has been carved from a series of sedimentary rocks of Upper Cretaceous Age. The story of the origin of the present course of the Missouri River is interesting and an important chapter in the area's geology.

The course of the river flows through a fine section of generally horizontal sedimentary layers of Upper Cretaceous Age crossing progressively younger beds of this series, covering ten million years or more of time. During the Upper Cretaceous Age (roughly between 70 and 80 million years ago), most of the present Great Plains and midwest sections of the United States were beneath the waters of a great inland sea; but this sea did not cover the Missouri River country throughout all this period. On the contrary, now and then during the Upper Cretaceous time, this area had seashore conditions with deltas and coastal plain deposits laid down. Because of the margin of the sea moved back and forth as the sea expanded and contracted over millions of years, the varied rock layers--some marine with sea animal fossils, other land deposits with coal and dinosaur fossils--represent a rather complete record of changing ancient geological conditions.

The present canyon of the Missouri is of recent origin, having been cut by the river in the past 1,000 years or so, during and after the retreat of the last continental glacier. Thus, the slopes are steep, the channel is well below the general elevation of the plains on either side, and the river is actively eroding its channel deeper.

From Fort Benton, the river passes river bluffs of thick marine shale of the Colorado Group. These beds represent a great flooding by the sea and are exposed across a vast expanse of territory west of here. At Coal Banks Landing, and for 15 miles downstream, the

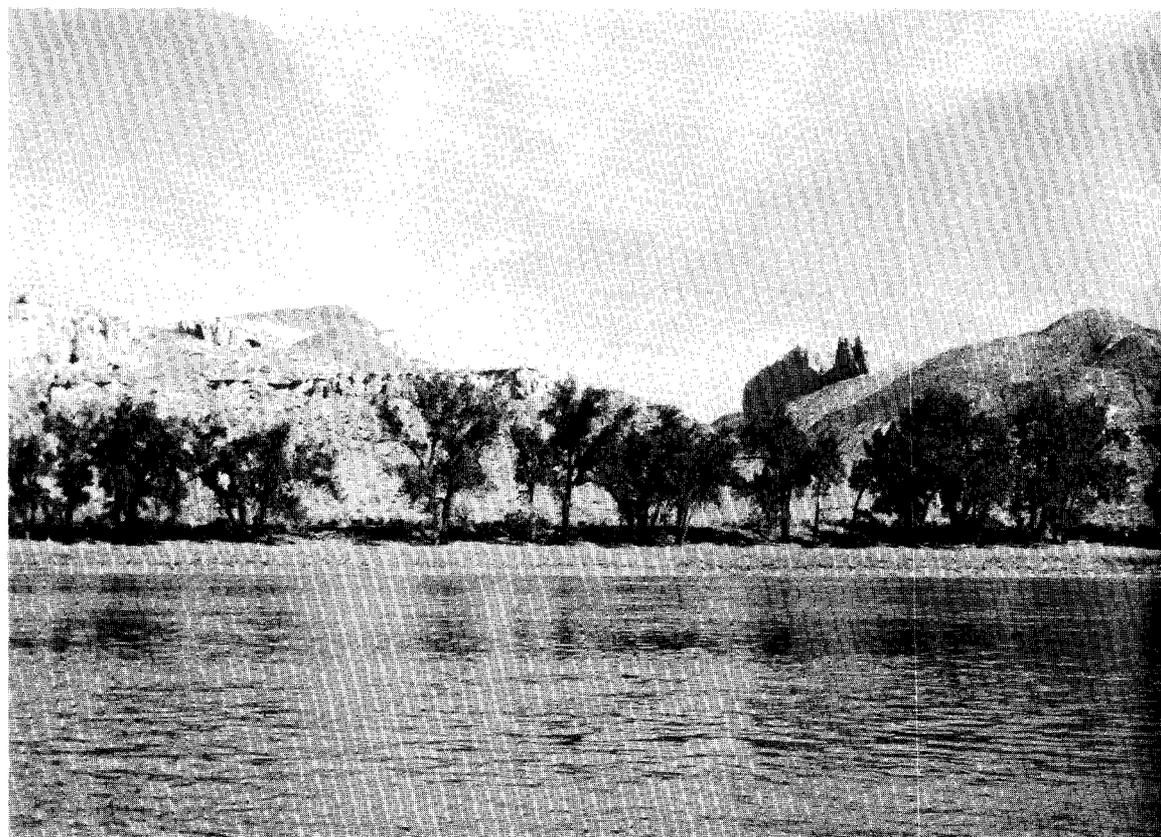


First view of White Rocks Area below Coal Banks Landing

rocks of the Colorado Group lie beneath the surface except where thrust up along faults, and the overlying white Eagle sandstone makes up the canyon walls. The Eagle sandstone formation commonly known as the "white rocks" caps the Colorado shale. This formation represents a shoreline depositional phase, having no marine fossils, but with a few thin coal veins and scattered plant fossils. From about 15 miles below Coal Banks Landing, the soft shales of the Colorado Group, which have been upthrust along faults, form gently sloping valley walls to about the confluence of Arrow Creek, except where replaced by Eagle sandstone. Also, in this stretch, conspicuous stocks and plugs and numerous dikes of all igneous rock, rise above the surrounding sedimentary strata and add variety to the scenery.

Below the confluence of Arrow Creek, exposures of Claggett shale become conspicuous, and below the Judith River are more or less continuous until cut off by faulting near Stafford Ferry. Mostly a dark, marine shale, the Claggett shale represents another advance of the ancient sea.

In the same stretch of river, the overlying Judith River formation, mostly sandstone, forms impressive cliffs and picturesque rock pillars. Of continental origin, the Judith River formation represents a period when deltas and expanding coastal plains "pushed" the sea eastward. Although this formation outcrops a few miles below the Judith River, it does not appear at water surface until below Powerplant Ferry. From this point downstream, to the end of the area, faulting has produced an unusual mosaic outcrop pattern, and the



Steamboat Rock formation within White Rocks Area

base of the Judith River formation is repeated as many as eight times. Here, too, numerous concretions and bentonite beds are exposed above the Judith River formation, representing one of the last great expansions of the Upper Cretaceous sea.

Paleontological interpretive values are little known. The continental beds might well be found to contain fossils of such dinosaurs as Ornithomimus and Trachodon, and possible fragmentary remains of very primitive mammals.

The marine beds (Claggett shale and Bear Paw shale) might be found to yield such typical fossils of this period as sea-going reptiles (Monosaurs and Plesiosaurs). Conspicuous invertebrates as Ammonites and Baculites are known to be locally abundant.

Perhaps the geological resources which will have the greatest impact upon the visitor are the "white rocks" of the Eagle Formation and the faults which are so clearly exposed in the lower section of the river segment.

Minerals

The area within or near the proposal is favorable for gas and possibly oil, thin beds of subbituminous coal, and thin beds of bentonite.

The area lies in a province that is regarded favorable for shallow (less than 2,000 feet) natural gas accumulation because of

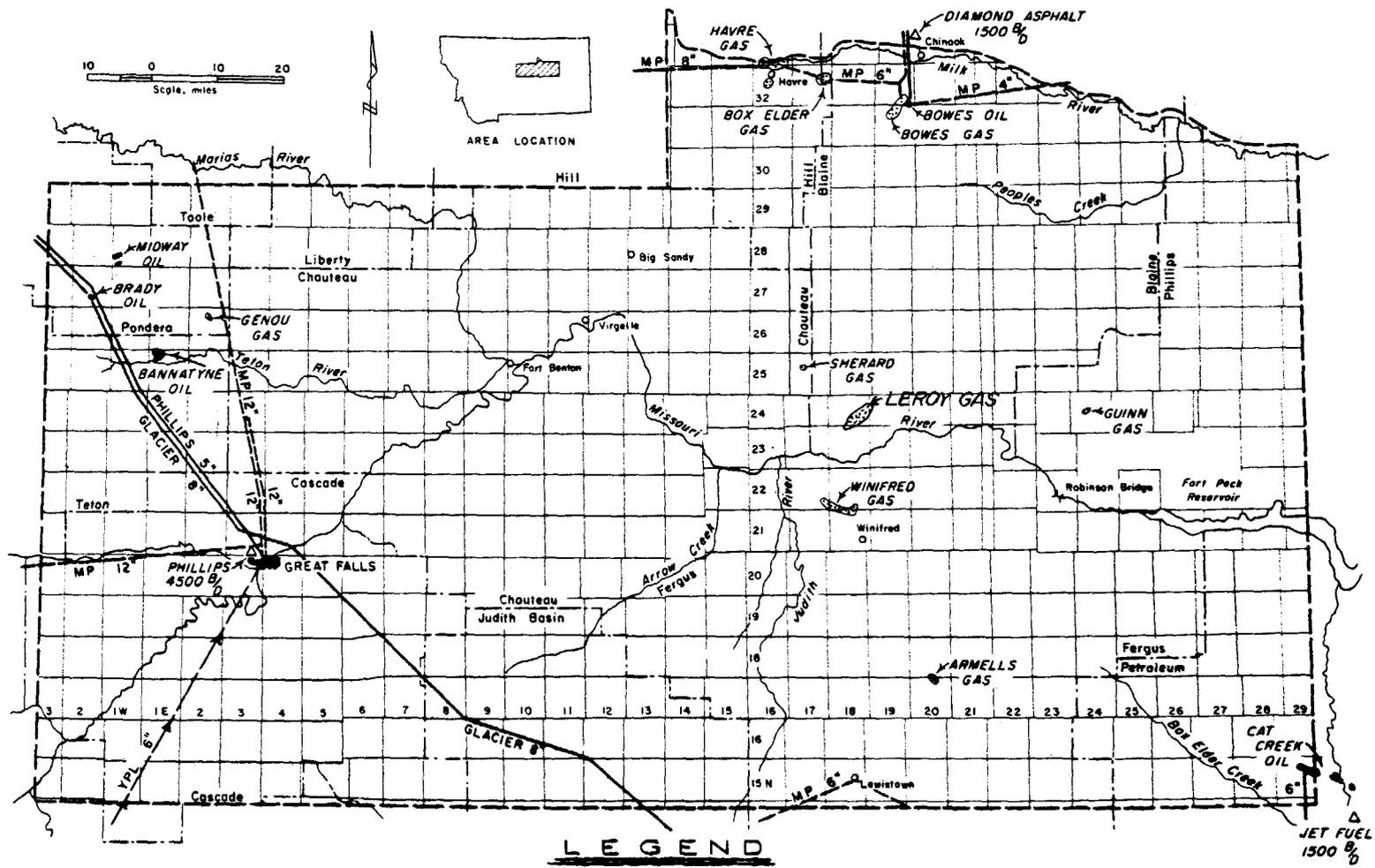
availability of structural and stratigraphic traps, proximity of known near-commercial gas fields, and maturity of possible source rocks. Shut-in natural gas fields are located close to the river-- Winnifred and East Winnifred fields are about 6 to 7 miles to the south and the Sherard field is about 14 miles to the north.

One of Montana's newest, most productive, and fastest growing field is the Leroy gas field, which is located north of the Bearpaw Mountains. The area south of the mountains has a similar potential as the same reservoir rocks underlie the Missouri River. (See Oil and Gas Fields Map.)

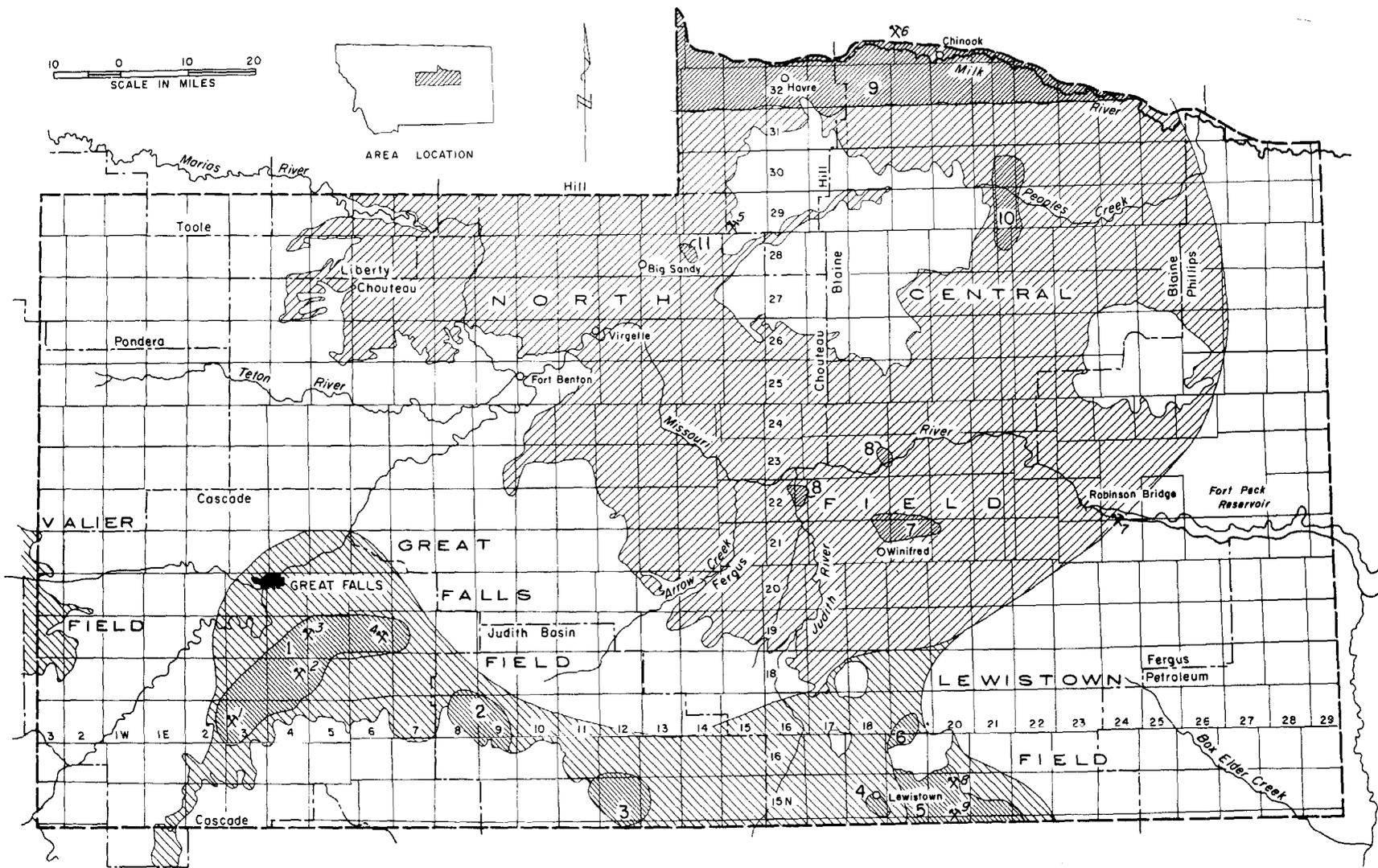
The possibility of a commercial oil field in the proposed area cannot be eliminated. Five potential producing horizons underlie the area. Insufficient information is known about the extent of oil in this area.

The Eagle sandstone and Judith River Formations contain subbituminous coal from the vicinity of Virgelle, to the east boundary of the area. The coal has been mined for local use, and to supply a small power plant, but no mines are known to have been active for 15 or more years.

The coal in much of the area is less than 2 1/2 feet thick, lenticular, and of variable quality. Some small areas that contain coal more than 2 1/2 feet thick may warrant consideration as of value at some future time, but most of the area has little coal resource potential. (See Coal Fields Map.)



MISSOURI RIVER STUDY AREA Oil and Gas Fields



MISSOURI RIVER STUDY AREA Coal Fields

- SYMBOLS**
-  Bituminous
 -  Sub-bituminous
 -  Mine

Beds of bentonite are in three formations exposed within the proposal. Most beds are less than 18 inches thick and are covered by 50-100 feet of overburden. Samples from various beds were tested and some were found satisfactory for brick. Others were suitable for light-weight aggregate and possibly for foundry molding sand. The beds are not economically important at the present time.

Vegetation

The study area is within one of the largest grasslands in the world--The Great Plains. As with the overall Great Plains, the Missouri River area is typically semi-arid. However, the river valley has its own special characteristics. Rather than the typical grassland, vegetation is varied, with trees and shrubs on the broken slopes, river bottoms and islands. Although grasses and forbs still predominate, trees and shrubs with their ecological niches and colorful flowers accent the scenic character of the river valley.

Native trees are ponderosa pine, limber pine, Douglas fir, Rocky Mountain juniper, cottonwood, ash, willow, and boxelder. The conifers grow predominantly on the bluffs, while the deciduous types are found along the riverbanks and on islands. It is estimated that 25 percent of the land is timbered with limited use of the timber for fence posts by the ranchers. The predominant shrubs are greasewood, shrub willow, wild rose, squawbush, snowberry, rabbitbrush, shade scale-saltbush, and various types of sagebrush.

The more common grasses are buffalo grass, blue grama, western wheatgrass, June grass, needlegrasses, and prairie sandreed.

Fish and Wildlife

Wildlife is one of the most important of the natural components of the Missouri River, particularly in the eastern part of the area which begins in the vicinity of the mouth of the Judith River. The rugged breaks and timbered coulees downstream from the mouth of the Judith River, and especially below Cow Creek, represent by far the most valuable units for big-game animals within the area. Because of its importance to several nationally significant diminishing species of wildlife such as the golden eagle and the bald eagle, this remnant of a rapidly disappearing range type is considered to be of importance.

This area is also within the historic range of the black-footed ferret, a species included on the U.S. Department of the Interior's List of Endangered Fauna. However, there have been no positive sighting of black-footed ferrets in this area in recent years. Hopefully, ongoing scientific investigations of possible habitats will determine whether or not the species occurs in the river area.

Mule deer, white-tailed deer, antelope, elk, and bighorn sheep are all found along the segment of river below Cow Creek. White-tailed

deer are distributed on the islands and wooded bottom lands along the river and along major tributary streams. Elk are more limited to distribution and numbers, and are confined for the most part to the Charles M. Russell National Wildlife Range in the rougher breaks adjacent to the river.

Rocky Mountain bighorn sheep have been introduced on the Range. Antelope range mainly along the edge of the breaks and are seldom seen in the rougher portions or along the river bottoms. A few remnant colonies of prairie dogs still can be found along with associated species such as the burrowing owl and possibly the extremely rare black-footed ferret.

A variety of upland game birds is found in this area. Native species, such as sharp-tailed and sage grouse, are scattered along the breaks. Hungarian partridge occur adjacent to grainfields. Pheasants are found along the river bottom. Wild turkeys, which have been introduced along the breaks, complement Native bird populations. Thousands of mourning doves are produced annually along this reach of the Missouri River, and numerous songbirds use the river bottom.

Golden and bald eagles and other raptors frequent this portion of the river, using the ledges in the more inaccessible badlands as nesting sites. The reach of river extending to the mouth of the Judith River is of particular value for Canada goose nesting. Heron rookeries also are present in many of the cottonwood groves.

Fishery of this segment of the Missouri include yellow perch, goldeye, sturgeon, burbot, channel catfish, sucker, buffalo carp, sucker northern pike, and paddlefish. It should be noted that sturgeon and paddlefish are two fishes currently being considered as candidates for potential listing as either Endangered or Threatened Species.

History

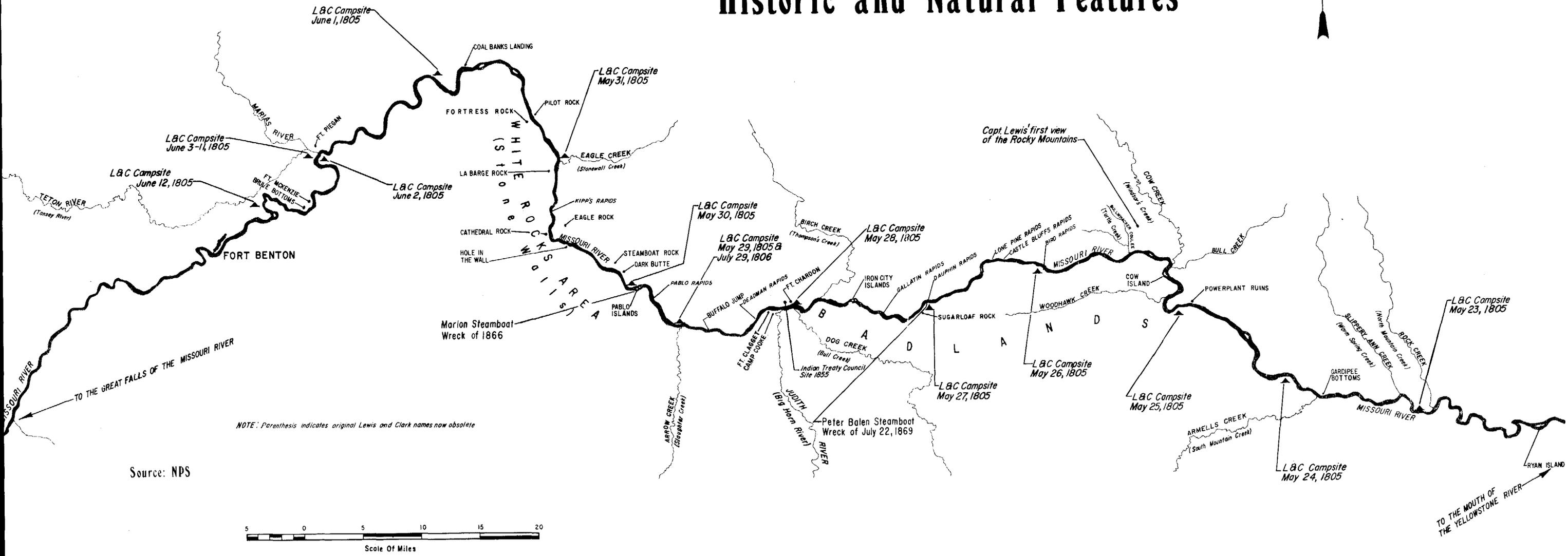
This segment of the Missouri River has outstanding national historical interest. It is the last important section where major aspects of the era of westward expansion can be commemorated in their original unspoiled setting. There are several major elements in American history represented here: the Lewis and Clark expedition, the early western fur trade, military and Indian affairs, the mining era, the era of Upper Missouri steamboat navigation, and a later short-lived homestead era.

Lewis and Clark were in this area from May 23 to June 10, 1805, and more briefly on Lewis' return journey in 1806. Between Fort Benton and Rocky Point are 14 Lewis and Clark campsites and most of the topographic and natural features which commanded their great admiration. (See Historic and Natural Features Map.) The journals tell of back-breaking toil in ascending the Missouri at spring flood in canoes or pirogues, moved alternately by towline, sail, and oars.

Every bend in the river contains features which are remainders of incidents on the great journey of discovery. Bullwhacker Coulee,

MISSOURI RIVER

Historic and Natural Features



NOTE: Parenthesis indicates original Lewis and Clark names now obsolete

Source: NPS





Lewis and Clark campsite at Eagle Creek

then called Turtle Creek, marks the point where on May 26, 1805, Captain Lewis ascended the highlands and first caught a distant view of what he thought to be the Rocky Mountains, "the object of all our hopes and the reward of all our ambition."

Arrow Creek was called by them "Slaughter Creek" because they found near there the remains of hundreds of buffalo that had been stampeded by Indians over a cliff, or "buffalo jump."

The Judith River was named by Captain Clark for a childhood sweetheart. One of the spectacular camps of the expedition was on Eagle Creek, which is centrally located in the area of the river called the White Rocks of the Missouri. The explorers commented enthusiastically on the striking geologic forms here which they likened to grotesque animal figures, sculptured columns and galleries, the ruins and desolated magnificance of ancient cities, in all, a scene of "visionary enchantment."

The Marias River was named for a cousin of Meriwether Lewis. At the mouth of the Marias was one of the most significant encampments. The Captains remained here for over one week in early June in order to resolve a dilemma as to which was the principal stream to be followed; and they explored considerable distance up the Marias before coming to the decision that the Missouri River was the correct channel which would lead them to their transcontinental goal.

The interior of the Missouri Breaks country was successfully penetrated by fur traders in 1831 when emissaries from Fort Union

managed to establish a contact with a branch of the Blackfeet Nation called Piegan; and a trading post called Fort Piegan, also known as Fort McKenzie, was established at the confluence of the Marias and the Missouri. After the first season, this original fort was destroyed and subsequently a second Fort McKenzie was built on Brule Bottoms. This flourished until 1843, when hostilities were renewed and the trader Chardon withdrew to establish a short-lived post, Fort Chardon, opposite the mouth of the Judith River.

The brief but violent Missouri fur trader era is commemorated by several names which have survived, such as Gardipee Bottoms, Kipp's Rapids, and Dauphin Rapids. The latter name is a remainder of the visit in 1833 by Prince Maximilian and his retinue from Fort Union to Fort McKenzie. Karl Bodmer, artist in the employ of Maximilian, has left sketches of Fort McKenzie and Missouri River scenery which are of priceless historic value.

The flatlands opposite the mouth of the Judith River were the setting for two important Indian peace councils during the waning days of the fur trade. In 1846, the famous Catholic missionary, Father De Smet, and a band of Flathead Indians had a meeting here with the Blackfeet. In 1855, there was a large Indian treaty council here, engineered by Washington Territorial Governor Isaac Stevens. At the same time, 3,500 Indians assembled here, including representatives of the Blackfeet, Nez Perce, and Flathead Nations. As a result of this

treaty, the Blackfeet ceased their incessant and bloody raids, and met their former enemies on friendly terms upon common hunting grounds. Also, the treaty cleared the way for large settlements which were soon to spring up on the headwaters of the Missouri.

The first steamboat arrived at Fort Union in 1832, but the Missouri River above that point was considered unnavigable until 1859 when the steamboat Chippewa reached Brule Bottoms.

The discovery of gold near Bannack City and Virginia City in the early 1860's started a great gold rush to Montana. The Missouri River then became a major transportation route, with the amazing shallow-draft paddle wheel steamboat the principal mode of travel.

Fort Benton was established by Alexander Culbertson of the American Fur Company in 1846, later becoming a military post and Indian Agency. The first steamer arrived at this ultimate point of navigation on the Missouri River in 1860. In the peak year of 1869, there were 39 steamboat arrivals. For a time, Fort Benton was the commercial capitol of Montana, with wagons radiating to the interior mountain towns and into Canada. The old riverbank landing where the steamers were once tied up still remains, and much of the city as it was in its heyday is admirably preserved. Only fragments of the adobe walls of the original Fort Benton survive, and it has been designated a Registered National Historic

Landmark by the Department of the Interior. Local planning calls for historic restoration and preservation of remaining sections of the old town.

In about 1883 or 1884, Fort Carroll was moved from its original site about 3 miles upstream to Rocky Point where it grew into an important trading post. When the river boat era ended and mines in the area were closed or ceased to produce, Rocky Point was abandoned and succumbed to rot and decay. In 1965, remnants of the remaining buildings were renovated to preserve this historic site.

It was during the steamboat era that the Indian War had an impact on this section of Montana. In 1866, the Army established Camp Cooke at the mouth of Judith River. It was built of logs in classic quadrangular pattern. The fort was abandoned in 1870, but the nearby Fort Claggett trading post, operated by T. C. Powers and Company, continued in operation for a few years longer. A large stone building which serves as a barn at the modern PN Ranch was built in 1880 as a warehouse for Judith Landing.

A period of agricultural settlement beginning early in this century reached its peak in 1911. Based on false promotion tactics and speculation, the settlement boom was given a shocking blow by the post World War I recession, and final collapse by the Great Depression of the 1930's. Today, a number of abandoned cabins along the river

bottom are bleak reminders of an inhospitable environment and economic conditions that are generally unfavorable to crop production and human settlement.

Archeology

During the summer of 1962, a cursory survey of the archeological potential of the Upper Missouri area between Fort Benton and Armells Creek at the east end of James Kipp State Recreation Area was made by the Smithsonian Institution. The results of this survey are included in a report entitled An Archeological Appraisal of the Missouri River Breaks Region in Montana, October 1963.

In addition to the historic sites just described, three types of archeologic sites are found in the region: open camp, burial, and bison kill.

Of the various camps located, some 20 were marked by the presence of teepee rings. The predominant type of teepee ring is a single circle of stones ranging in diameter from 7 to 21 feet, with a median diameter of 9 to 12 feet. At a few of the sites, teepee rings composed of two concentric circles of stones occurred.

Since the majority of the campsites are small and have sparse cultural materials associated with them, it would appear that the prehistoric occupants of the upper Missouri River were nomadic bands of hunters and gatherers who were poor in material goods. This was further evidenced by the lack of any indication of horticulture or of village-type dwellings.

Water Resource Developments (see Proposed Dams and Reservoirs Map.)

Two proposed water resource projects could affect the river included within the proposal--the Fort Benton Dam proposed by the Bureau of Reclamation and the High Cow Creek Dam proposed by the Corps of Engineers. These two projects were identified in the joint Department of the Interior - Department of the Army study and report on the feasibility of water and related land development.

The High Cow Creek project would be foregone and the operation of the Fort Benton project might require modification if the proposed river area is established.

Fort Benton Unit--This unit, part of the Pick-Sloan Missouri Basin Program consists of the dam, reservoir, powerplant, afterbay dam, and irrigation facilities.

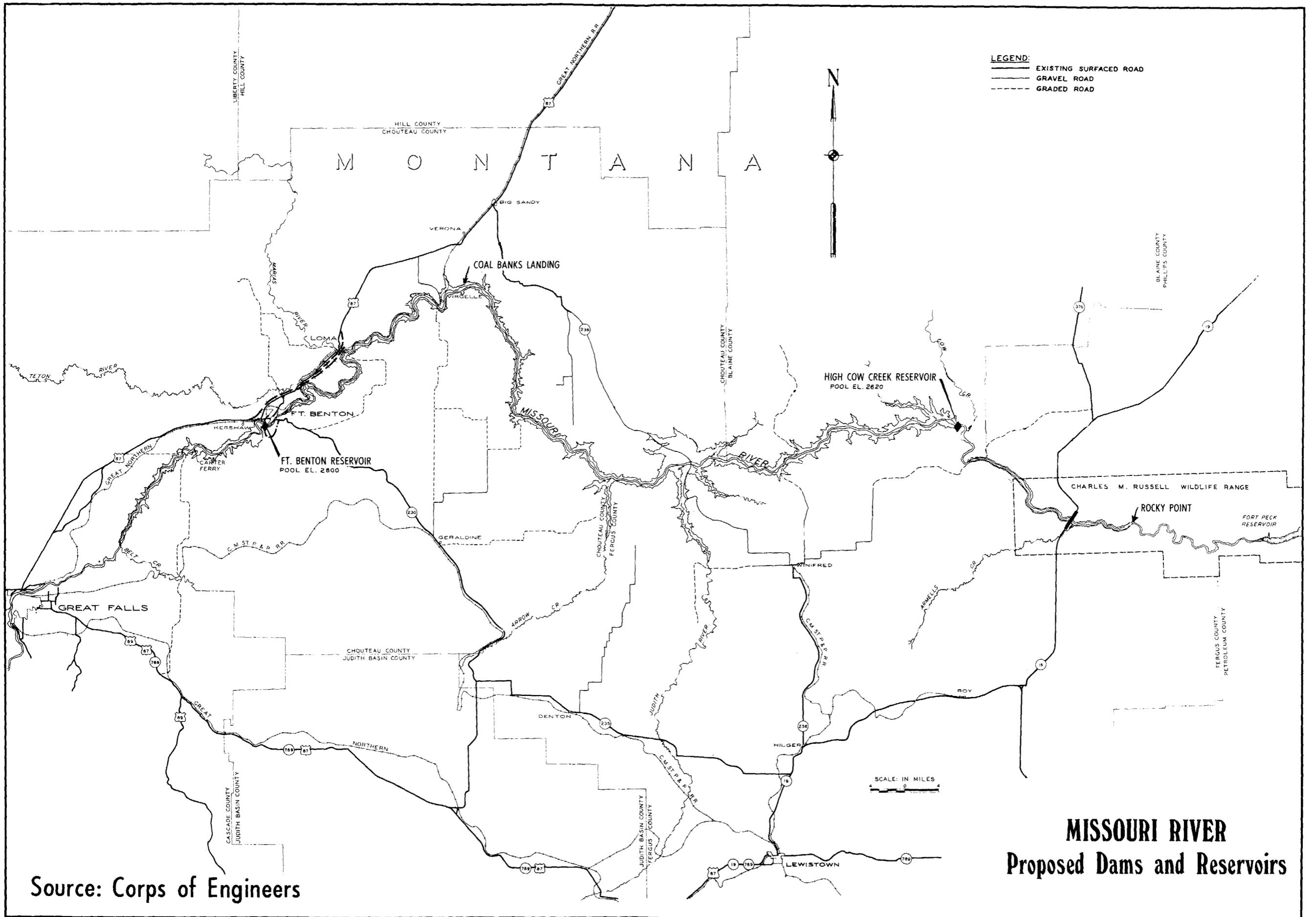
In addition to hydroelectric power production, irrigation, recreation, fish and wildlife, and flood control would be the project purposes.

Fort Benton Dam would be located on the Missouri River about one mile upstream from the town of Fort Benton. The dam would be an earthfill dam about 204 feet high and 4,550 feet long, with a storage capacity of 880,000 acre-feet, and a water surface area of 10,200 acres at maximum operation elevation of 2,815 feet. The reservoir would back water upstream to the existing Morony Dam, a distance of about 30 miles. An afterbay dam would be located about

11 miles downstream for control of reservoir releases. The afterbay dam would be about 65 feet high, backing water to Fort Benton Dam site. Total installed hydroelectric capacity of the Fort Benton Unit would be 360,000 kw., with a dependable peaking capacity of 400,000 kw.

The first detailed investigation of the Fort Benton Unit by the Bureau of Reclamation began in 1965 and was completed in 1971, with preparation of a Status Report. That report concludes that while the Unit had potential for peaking power for integration with baseload steam plants in the area, and while future consideration of the Unit might be warranted under conditions of increased regional power needs, construction of the Fort Benton Unit was neither economically justifiable under the present level of construction costs and at the present rate of interest nor financially feasible under existing market and rate conditions. This data was followed by further information in 1976 from the Department of the Army. It indicated that based on current information furnished by the Federal Power Commission and the Bureau of Reclamation on power benefits and financial feasibility, the Fort Benton project is not economically or financially feasible.

High Cow Creek Dam and Reservoir--Hydroelectric power production, flood control and recreation would be the essential project purposes



Source: Corps of Engineers

of the dam and reservoir proposed for construction by the Corps of Engineers 23 miles upstream from the Fred Robinson Bridge.

The dam would be an earthfill dam approximately 365 feet high and 4,950 feet long. Elevation of the top of the dam would be 2,650 feet providing 4,200,000 acre-feet of usable storage. The reservoir area at maximum elevation of 2,620 feet would be 77,500 acres. The reservoir would back water upstream to the Fort Benton site. The total installed hydroelectric capacity would be 720,000 kw., with a dependable peaking capacity of 780,000 kw.

The Division Engineer's report was submitted to the Chief of Engineers in 1963 and was forwarded to Federal agencies and the Governor of Montana in 1964 for review and comment. The Governor of Montana opposed construction of the project.

Constructing the High Cow Creek in any form would completely eliminate approximately 130 miles of the free-flowing values of this river area. It should be noted that information received by the Department of the Army in 1976 indicated that based on current information furnished by the Federal Power Commission and the Bureau of Reclamation on power benefits and financial feasibility, the High Cow Creek project is not economically or financially feasible.

Public Law - 566 Projects--There are no P.L. 566 projects underway or planned within the river study area. However, the Soil Conservation Service of the Department of Agriculture, working with the local Soil Conservation Districts, administers watershed projects under this program

on tributaries of the Missouri in the 15-county region. These projects are designed to solve local watershed problems by improving water quality and reducing runoff and sediment production. These projects do not directly affect the section of the Missouri under study.

Recreation Use

Existing recreation uses in the study area consist chiefly of fishing, hunting, and boating. Fishing in the river as a recreation activity is usually incidental to other recreation pursuits. There are, however, a number of spots that local residents consistently use for bank fishing. The abundance of wildlife and large tracts of public lands make hunting one of the area's principal recreation activities, attracting about 2,000 hunters a year. Good hunting is available throughout the entire stretch of the river for both mule deer and white-tailed deer. A limited number of bighorn sheep and elk are also harvested. Ducks, geese, and upland game species inhabiting the area provide excellent hunting.

Increasing numbers of people are enjoying boat trips down the Missouri. Latest estimates indicate about 3,000 boaters use the area annually, mostly in organized groups varying in size from 2-25 boats, the average stay being 3-5 days. Most trips begin at Fort Benton or Virgelle and end at Judith River or the Fred Robinson Bridge.

OTHER ALTERNATIVES CONSIDERED

Other alternatives considered were (1) no action, (2) protection through existing authorities, (3) Lewis and Clark National Wilderness Waterway and (4) different segments and boundaries.

NO ACTION

The 128-mile segment of the Missouri River and 147,800 acres comprising its immediate environment would not be added to the National Wild and Scenic Rivers System under this alternative. Of the 147,800 acres included in the proposal, 101,500 acres are in Federal ownership; with 81,600 acres managed by the Bureau of Land Management and 19,900 acres managed by the Fish and Wildlife Service; 10,300 acres are in State ownership with the remaining 36,000 acres in private ownership. The lands presently administered by the Fish and Wildlife Service will continue to be managed for comprehensive wildlife purposes. The lands presently administered by the Bureau of Land Management would continue under current authorities for multiple use and sustained yield purposes. Under this type of management, the lands could be managed for one or more of the following objectives:

Domestic livestock

Fish and wildlife development and utilization

Mineral production

Occupancy

Outdoor recreation

Preservation of public values

Watershed protection

Within the multiple use management, the Bureau of Land Management could classify portions of all of the lands it administers adjacent to the river and its immediate environment under various public land laws.

Multiple use programs of the Bureau of Land Management are carried on under a myriad of laws and regulations. Management framework plans are developed for large blocks of public lands under its jurisdiction. These are prepared with public input and must comply with the provisions of the National Environmental Policy Act.

Land classifications for retention in Federal ownership or disposal into private ownership are discretionary. Likewise, the decision as to which of the several multiple uses, or combination of uses, will apply to the Missouri River and its immediate environment is discretionary.

The trend toward more permanent and seasonal residential development would continue on privately owned lands. Eventually such development would probably be controlled only by natural limitations, such as terrain and flooding conditions. Accompanying an increase in developed areas would be more frequent incidences of erosion, sedimentation, and debris with increased chances of effluent entering the river from private septic systems. Vegetation and

wildlife habitat would be disturbed and destroyed during the construction of these cottages and auxiliary facilities necessary for residential development.

The alternative of "no action" does not remove existing or provide new statutory authority. However, discretion to manage the river environment for recreation, scenery, and primitive character is reduced. The basic reduction is caused by the fact that the desirability for including the Missouri River in the National Wild and Scenic Rivers System will have been considered and formerly rejected.

This alternative was rejected for the following reasons:

1. There would be relaxed control over coal, gas, oil or bentonite exploration or regulation to prevent unnecessary impairment of the scenery.
2. The short-range and long-range demand for improved and unimproved surface access to, from and through the river corridor would be expected to increase, especially where private lands are developed for residential development.
3. Historical sites and areas of archeological significance especially those associated with the Lewis and Clark Expedition would be subject to being overrun or destroyed by ranching operations or subject to vandalism by visitors.
4. Development of private lands into commercial or residential homes or cottages is a real possibility.

PROTECT THE RIVER THROUGH USE OF EXISTING AUTHORITIES

Under this alternative, the Bureau of Land Management, U. S. Fish and Wildlife Service and the State of Montana would enforce and implement existing laws and range management practices to maintain the quality of the resources of the area. These would include the implementation of a flood plain management program as envisioned in the Montana Flood Plain Management Act of 1972 and implementation of range management programs on public domain lands.

This alternative was rejected as it would not preclude alteration or impoundment of the river at some time in the future, nor would it provide any significant degree of protection for historic and archeological sites. Recreation use of the river and adjacent lands would not be affected. However, the potential for overuse of more popular camping areas would not be controlled. This alternative would cause some changes in existing land uses and practices, but the overall effect of these changes would be to enhance ranching activities while, at the same time improving the natural and aesthetic conditions in the river area. Existing land ownership patterns would not be affected and no public expenditures other than those for range management would be required.

LEWIS AND CLARK NATIONAL WILDERNESS WATERWAY

Under this alternative, approximately 181 miles of the Missouri River and 159,053 acres of land, between Fort Benton and Fort Peck Reservoir would be set aside as the Lewis and Clark National Wilderness Waterway and would be developed and managed by the National Park Service (See Alternative Map A.)

To achieve the goal of both preservation and use, it is proposed that the 181-mile section of the Missouri River be established as the "Lewis and Clark National Wilderness Waterway," and that this area be managed in three units as follows:

(1) The Fort Benton - Virgelle Unit to remain essentially in its present ownership, but to be zoned or otherwise controlled to keep the river course and its immediate banks relatively undisturbed.

River Miles	42
Total Acres	29,000
Land Acquisition	200 in fee at Fort Benton

(2) The White Rocks - Badlands Unit to be owned by the Federal Government and administered by the Department of the Interior through the National Park Service.

River Miles	100
Total Acres	130,000 (Federal government and private)
Land Acquisition	5,000 in fee, 28,000 scenic easement

(3) The Fort Peck Game Range Unit to remain under its present ownership and administration with the desired use of the land and preservation of its natural landscape assured through cooperative agreements between Federal and State agencies.

River Miles	39
Total Acres	53
Land Acquisition	0

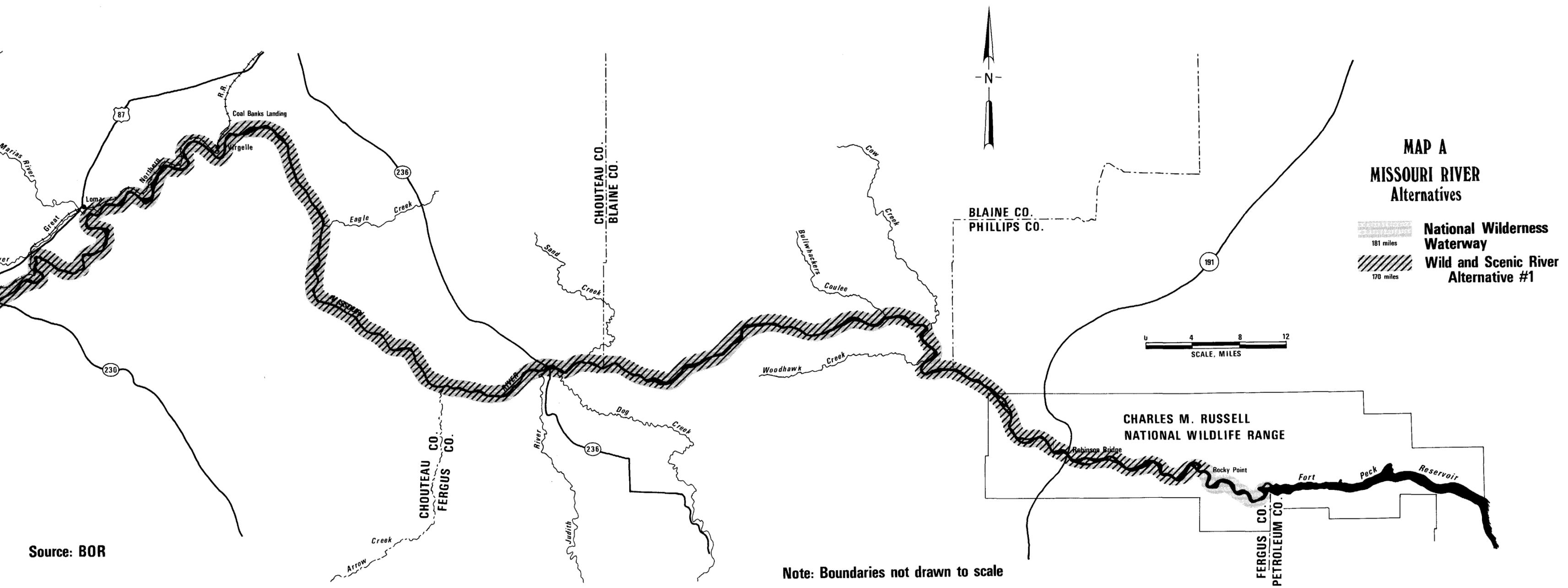
Total land acquisition cost estimates: \$2,957,000

In Fee	=	5,200
Scenic Easement	=	<u>28,000</u>
Acres		33,200

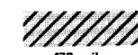
Development and Use

While preservation is a controlling objective, public enjoyment parallels it. Because of the nature and quality of the river and its scenic setting in combination with historic, and scientific attributes, the opportunities for its use by the public are many and varied.

The recreational resources in this area offer much to those interested in sightseeing, boating, fishing, camping, picnicking, hiking, bird watching, auto touring, photography, and horseback riding. Those with interests in history, archeology, geology, botany and wildlife would find experiences here most rewarding. Excellent hunting is now provided in the Game Range and some in the Fort Benton to Virgelle Unit. Under the proposed formula public hunting would continue.

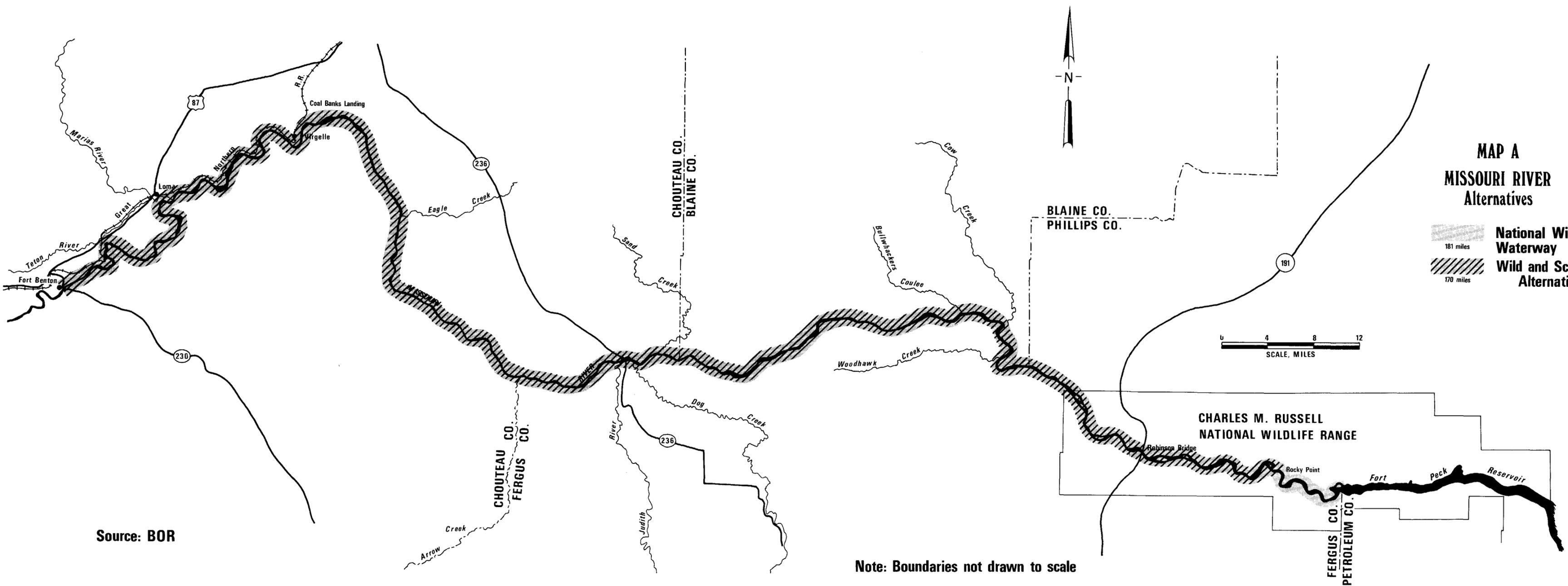


MAP A
MISSOURI RIVER
Alternatives

-  181 miles
National Wilderness Waterway
-  170 miles
Wild and Scenic River Alternative #1

Source: BOR

Note: Boundaries not drawn to scale



MAP A
MISSOURI RIVER
 Alternatives

 181 miles
National Wild Waterway
 170 miles
Wild and Scenic Alternative


 SCALE, MILES

CHARLES M. RUSSELL
NATIONAL WILDLIFE RANGE

Note: Boundaries not drawn to scale

Source: BOR

Park naturalists and historians would interpret the rich, natural and human history of this area for the visitor. Conducted float trips, nature walks, and campfire programs would enable those interested to have unforgettable experiences in the area. Interpretive markers, self-guiding trails, and wayside exhibits would provide interesting details of the natural and historical scene for the benefit of those exploring on their own.

Park personnel would be stationed within the White Ricks-Badlands Unit at strategic locations where the public could be served to the best advantage. One of the better locations for a contact and interpretive station would be at the mouth of the Judith River.

Certain small areas in the Fort Benton-Virgelle Unit would be acquired to preserve historic features such as Lewis and Clark campsites, and to provide camp and water access facilities. Cooperative planning with the agency administering the Fort Peck Game Range Unit would insure good continuity of visitor facilities. The Kipp State Park under its present administration ties in quite nicely with the proposed overall scheme for the Lewis and Clark National Wilderness Waterway.

Park headquarters would possibly be located at Fort Benton where year-round accessibility by highway and railroad is excellent. Most visitors would make their first contact here at a visitor center, preferably near the site of the historic Fort itself. The visitor center

would consist of administrative offices and a museum. This would be the interpretive and information center of the park.

Historic Fort Benton would not be overlooked. Its site should be included within the boundaries of the Waterway, and the Fort itself should receive its proper share of interpretation. Also, restoration of a portion of the Fort Benton waterfront to its appearance during the steamboat era would be considered.

This alternative would encompass approximately 159,053 acres of land and 181 miles of the Missouri River and its immediate environment. Acquisition costs associated with this alternative are estimated at \$2,957,000. Proposed developments would cost an estimated \$2,240,000. The average annual operation and maintenance cost for the first five years is estimated at \$198,500.

While this is also a feasible alternative, it is not recommended. On November 16, 1973 the Secretary of the Interior transmitted to the President the first Nationwide Outdoor Recreation Plan entitled "Outdoor Recreation--A Legacy for America." This plan states "unless otherwise designated by Congress....Federal recreation areas will be administered by the Federal agency having the major landholdings within the boundaries of the area at the time of establishment."

The Bureau of Land Management currently manages all of the Federal lands in the area, 81,600 acres. Acceptance of this

alternative would introduce another Federal agency to manage essentially an elongated park in an area with fragmented ownership. Management problems would be complicated with the Bureau of Land Management continuing to manage lands adjacent to the Missouri Breaks National River area.

DIFFERENT SEGMENTS AND BOUNDARIES

Under this alternative, three major boundary changes with varying lateral boundaries have been considered. Two are for increasing the length, and one is a reduction in length.

ALTERNATIVE SEGMENT NO. 1:

Designate Missouri River from the Vicinity of Fort Benton to Rocky Point "Historic" Site (boundary - first ridgeline)

Under this alternative, approximately 170 miles of the Missouri River and 72,200 acres of its immediate environment would be designated as a component of the National Wild and Scenic Rivers System. The lateral boundaries are placed at the first ridgeline. This alternative would average approximately 425 acres per mile over the entire 170-mile segment.

(See Alternative Map A.)

This alternative was rejected because:

1. The development of lands lying within the sight line of the river (approximately 100,000 acres) but outside the lateral boundaries would not be controlled. Development of these adjacent lands could have a significant impact on the scenic values of the river corridor.
2. The historic and archeological sites on lands adjacent to the boundary considered in this proposal would not be protected from adverse use. This could have a significant impact on these values.

3. Recreationists using the proposal area are likely to increase the incidences of trespass and vandalism, especially in the upper 42-miles segment of this alternative as more private lands are involved.

ALTERNATIVE SEGMENT NO. 2:

Designate Missouri River from Vicinity of Fort Benton to Rocky Point "Historic" Site (boundary - sightline)

Under this alternative, approximately 170 miles of the Missouri River and 173,600 acres of its immediate environment would be designated as a component of the National Wild and Scenic Rivers System. The lateral boundaries would include almost all of the land that can be viewed from the river. This alternative would average approximately 1,015 acres per mile over the entire 170-mile segment. (See Alternative Map B.)

This alternative was rejected because:

1. Recreationists using the proposal area will increase the incidences of trespass and vandalism, especially in the upper 42-mile segment of this alternative as more private lands are involved.
2. The extensive private ownership involved and the cost of providing the required protection.

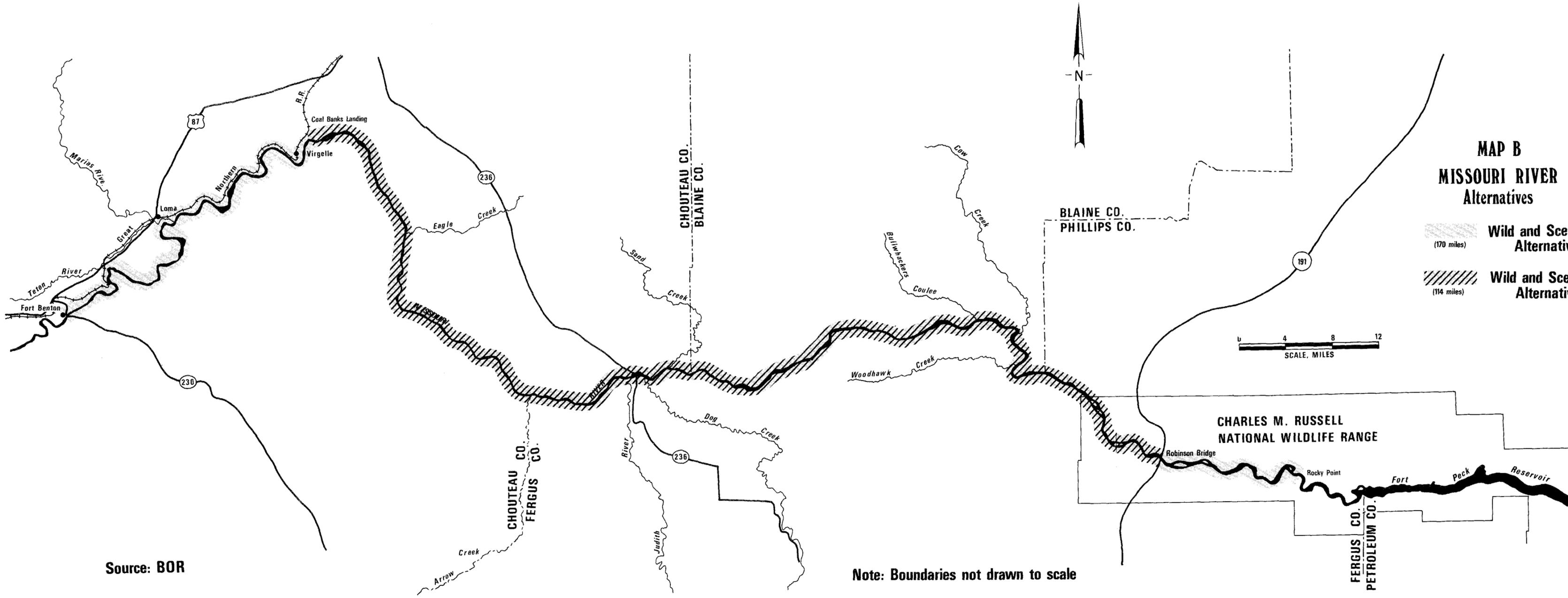
ALTERNATIVE SEGMENT NO. 3:

Designate Missouri River from the Vicinity of Coal Banks Landing to Robinson Bridge (boundary - first ridgeline)

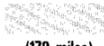
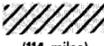
Under this alternative, approximately 114 miles of the Missouri River and 55,500 acres of its immediate environment would be designated as a component of the National Wild and Scenic Rivers System. The lateral boundaries are placed at the first ridgeline. This alternative would average approximately 487 acres per mile over the entire 114-mile segment. (See Alternative Map B.)

This alternative was rejected because it eliminates a 14-mile segment from the Robinson Bridge downstream to Rocky Point "Historic" Site. Since this area is already in Federal ownership and management, it should be included as a component of the National System; also, the elimination of the 14-mile segment would eliminate an area of significant wildlife value.

The following table provides a comparison of existing ownership, approximate acreage, and estimated costs for the proposal, National River, and the three alternatives of different segments and boundaries.



MAP B
MISSOURI RIVER
 Alternatives

-  Wild and Scenic Alternative (170 miles)
-  Wild and Scenic Alternative (114 miles)

Source: BOR

Note: Boundaries not drawn to scale

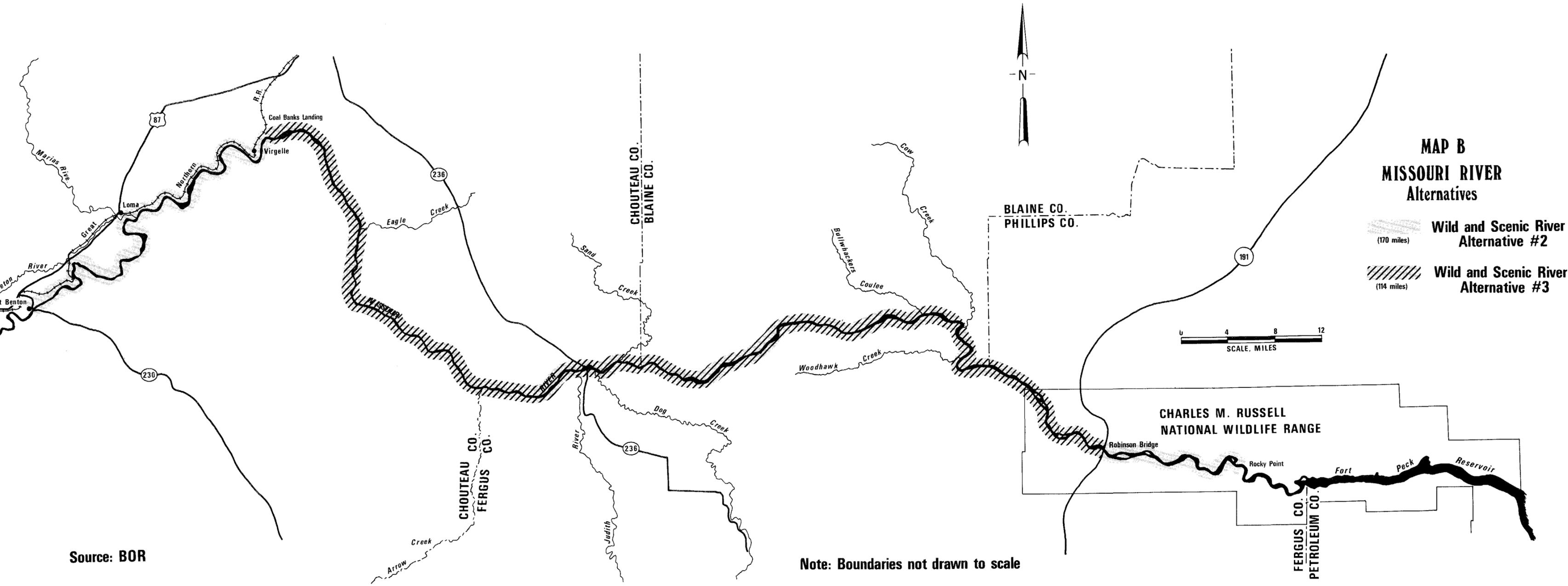
CHARLES M. RUSSELL
 NATIONAL WILDLIFE RANGE

BLAINE CO.
 PHILLIPS CO.

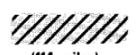
CHOUTEAU CO.
 BLAINE CO.

CHOUTEAU CO.
 FERGUS CO.

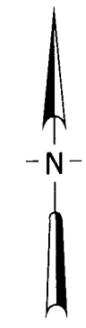
FERGUS CO.
 PETROLEUM CO.



MAP B
MISSOURI RIVER
 Alternatives

-  Wild and Scenic River Alternative #2
(170 miles)
-  Wild and Scenic River Alternative #3
(114 miles)

0 4 8 12
 SCALE, MILES



Source: BOR

Note: Boundaries not drawn to scale

CHARLES M. RUSSELL
NATIONAL WILDLIFE RANGE

CHOUTEAU CO.
 BLAINE CO.

BLAINE CO.
 PHILLIPS CO.

CHOUTEAU CO.
 FERGUS CO.

FERGUS CO.
 PETROLEUM CO.

Merias Riv. Great River Benton Loma Virgelle Coal Banks Landing Eagle Creek Sand Creek Woodhawk Creek Dog Creek Arrow Creek Judith River Sand Creek Bullhatchers Coulee Cow Creek Robinson Bridge Rocky Point Fort Peck Reservoir

COMPARISON OF EXISTING OWNERSHIP, APPROXIMATE ACREAGE AND ESTIMATED COSTS FOR THE PROPOSAL AND OTHER ALTERNATE PLANS

Alternative 1 - From Fort Benton to Rocky Point Historic Townsite (width - from river to first series of hills or bluffs).
 Alternative 2 - From Fort Benton to Rocky Point Historic Townsite (width - includes lands which can be viewed from river).
 Alternative 3 - From Coal Banks Landing to Robinson Bridge (Hy. 191) (width - same as Alternative 1).
 Proposal - From Coal Banks Landing to Rocky Point Historic Townsite (width - same as Alternative 2).
 National Wilderness
 Waterway - From Fort Benton to backwater of Fort Peck Reservoir (width - sightline)

	<u>Alternative 1</u>	<u>Alternative 2</u>	<u>Alternative 3</u>	<u>Proposal</u>	<u>National Wilderness Waterway</u>
River Miles	700	170	114	128	181
Total Acres <u>1/</u>	72,200	173,600	55,500	147,800	159,053
Acres/Mile	425	1,015	487	1,154	879
Ownership (acres)					
Federal	34,200	103,100	28,700	101,500	56,553
State	4,100	12,400	4,100	10,300	10,300
Private	<u>33,900</u>	<u>57,100</u>	<u>22,700</u>	<u>36,000</u>	<u>62,200</u> <u>3/</u>
TOTAL	72,200	172,600	55,500	147,800	159,053
Land Acquisition (acres)					
Private	33,900	57,100	22,700	36,000	33,200
(Fee)	(5,700)	(5,700)	(5,400)	(6,100)	(5,200)
(Easement)	(28,200)	(51,400)	(17,300)	(29,900)	(28,000)
Land Costs	\$1,696,500 <u>2/</u>	\$2,539,000 <u>2/</u>	\$1,155,700 <u>2/</u>	\$1,747,000 <u>2/</u>	\$2,957,000 <u>4/</u>
Developments	\$835,200	\$835,000	\$505,000	\$556,000	\$2,240,000
Annual O & M	\$143,500	\$143,500	\$91,000	\$130,500	\$198,500

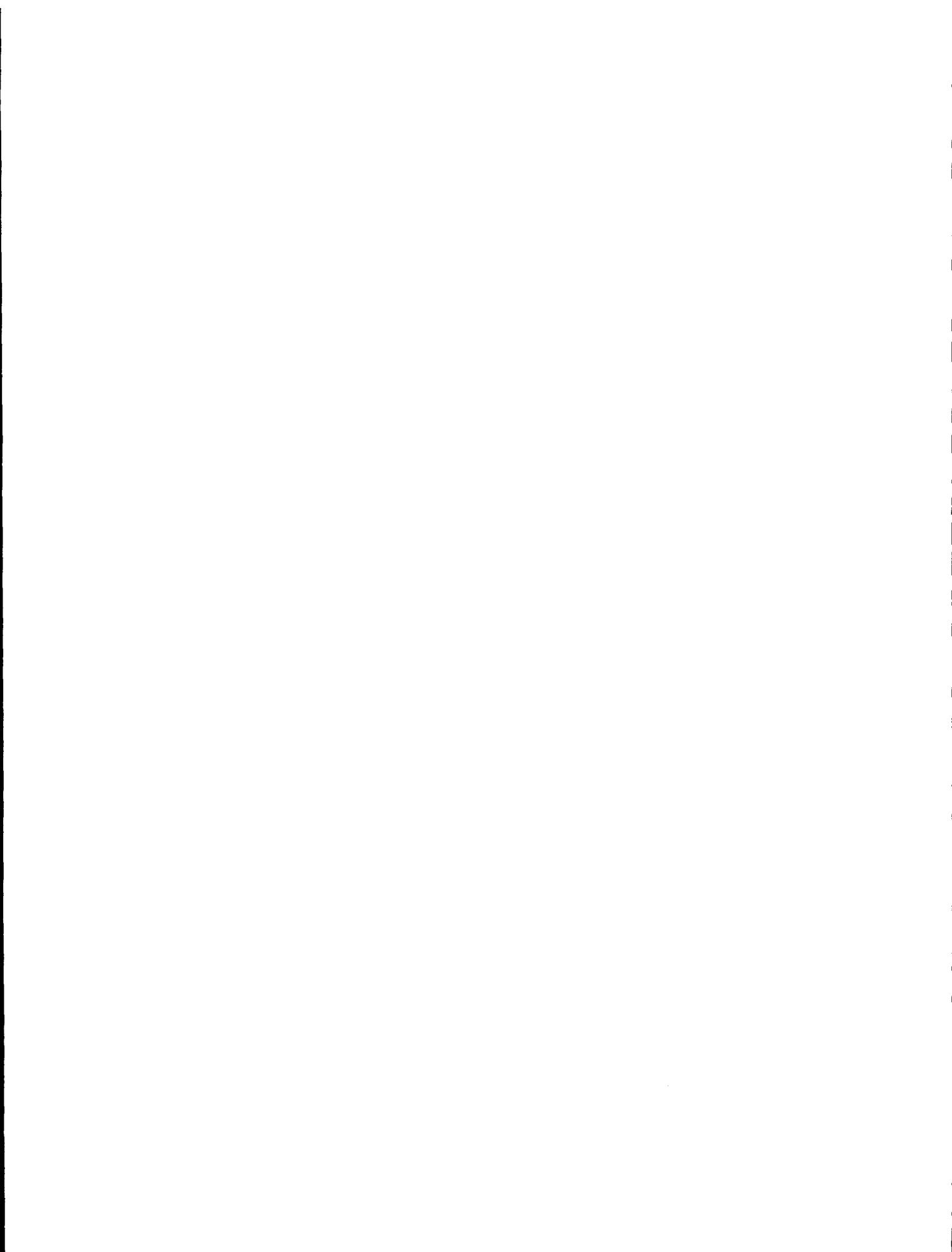
(average first 5 years)

1/ Includes Islands.

2/ Cost per acre: Land areas - \$80/acre Fee, \$40/acre Easement; Island areas - \$170/acre Fee, \$80/acre Easement. (1972 cost estimates supplied by BLM)

3/ This figure includes 29,000 acres of private lands in the Fort Benton - Virgelle Unit which are to be subject to locally enacted zoning.

4/ April 1971 Prices. Includes fee, easement, administrative, severance, and relocation costs.



Appendix 1.
Letters Of Comment



United States Department of the Interior

6223(370)

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

AUG 27 1975

Memorandum

To: Director, Bureau of Outdoor Recreation
Through: Assistant Secretary, Land and Water Resources
From: Director, Bureau of Land Management
Subject: Review of Upper Missouri Wild and Scenic River Report

We have reviewed the Missouri Wild and Scenic River Study Report and agree with its concepts and recommendations. We urge that the report be finalized and submitted to the President and the Congress at your earliest convenience. If we can be of any assistance in this effort, please call on us.

Grant R. Kline



Save Energy and You Serve America!



UNITED STATES WATER RESOURCES COUNCIL

SUITE 800 • 2120 L STREET, N.W. WASHINGTON, D.C. 20037

OCT 29 1975

Mr. William W. Lyons
Deputy Under Secretary
of the Interior
Washington, D. C. 20240

Dear Mr. Lyons:

This is in reply to your letter of May 29, 1975, requesting the Council to review and comment on your Department's proposed Missouri Wild and Scenic River Study report.

The Council finds that the proposed report does not provide the information required by the Principles and Standards. Information is not presented on the costs of classifying the Missouri River as a Wild and Scenic River in terms of uses or values foregone, either economic or social, and no information is presented to show that other alternatives were considered and their effects compared. The proposed report also fails to identify the extent of coordination with other water resources planning studies in the region.

The Council recommends that in the addendum now being prepared there be added a more complete analysis of the impacts associated with a decision to include the Missouri River in the National Wild and Scenic River System. At a minimum, information should be included in the addendum which describes an abbreviated National Economic Development plan alternative. The beneficial and adverse impacts associated with the NED plan and the recommended plan, and the tradeoffs between the two plans utilizing the system of accounts illustrated in the Principles

BOR Mail Control No. 22711



and Standards, should be presented. The Missouri River Basin Commission may be able to provide assistance in this effort.

The Council appreciates the opportunity to comment on the proposed report.

Sincerely,

A handwritten signature in cursive script, appearing to read "Warren D. Fairchild".

Warren D. Fairchild
Director

cc: Honorable John W. Neuberger
Chairman
Missouri River Basin Commission



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, D.C. 20310

24 FEB 1976

Mr. Douglas P. Wheeler
Deputy Assistant Secretary
for Fish, Wildlife and Parks
Department of Interior
Washington, D. C. 20240

Dear Mr. Wheeler:

This letter is a follow-up to my letters of 28 July 1975 and 7 November 1975 concerning your Department's proposed report on inclusion of the Upper Missouri River in the national wild and scenic river system.

The Division Engineer, Missouri River has completed sufficient studies of the High Cow Creek and Fort Benton projects to determine that, based on current information furnished by the Federal Power Commission and the Bureau of Reclamation on power benefits and financial feasibility, neither project is at this time economically or financially feasible.

Consequently, this letter constitutes a withdrawal of our request that your Department's proposed wild river report be held in abeyance until completion of the Corps on-going study of the Upper Missouri River has been finalized.

Sincerely,

A handwritten signature in cursive script that reads "Charles R. Ford".

Charles R. Ford
Deputy Assistant Secretary of the Army
(Civil Works)





DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD (G-WS/73)
400 SEVENTH STREET SW.
WASHINGTON, D.C. 20590
PHONE: (202) 426-2262

• 8 JUL 1975

• Honorable William W. Lyons
Deputy Under Secretary
Department of the Interior
Washington, D. C. 20240

Dear Mr. Lyons:

This is in response to your letter of 29 May 1975 addressed to the Secretary of Transportation concerning the proposed report on the Missouri River, Montana - Wild and Scenic Rivers.

The Department of Transportation has reviewed the material submitted. We have no comments to offer nor do we have any objection to the proposed additions.

The opportunity to review this proposed report is appreciated.

Sincerely,



W. R. RIEDEL

Acting Deputy Chief, Office of Marine
Environment and Systems
By direction of the Commandant



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, D.C. 20310

28 JUL 1975

Honorable William W. Lyons
Deputy Under Secretary of the Interior
Washington, D. C. 20240

Dear Mr. Lyons:

This is in response to your recent letter requesting views of the Department of the Army on your proposed report, "Missouri River - A Wild and Scenic River Study."

The river reach proposed for Wild, Scenic, or Recreational River status is included in our current "Umbrella Study" of the Missouri River - South Dakota, Nebraska, North Dakota and Montana. This study is scheduled for completion in 1977. Water resources problems and potentials will be reviewed with reference to current and future water supply and energy needs of the Nation. As shown by earlier investigations, the most significant potential for hydroelectric energy generation yet undeveloped in the Missouri River Basin lies primarily in the reach concerned. Economic feasibility of water resources development, including hydropower generation has not been found categorically infeasible in the past as stated in the proposed report; rather, levels of feasibility and public interest were considered too marginal for recommendation under conditions then current. As you are aware, these conditions may have changed significantly.

Present studies have not progressed sufficiently to permit conclusions about current feasibility and environmental values. It should be recognized that because of the environmental advantages of hydropower over other methods of generation, development of hydropower facilities along with other beneficial water resources development could be desirable. We are aware of the environmental and historical attributes of this reach and full consideration is being given to them in our studies.

The uniqueness, wildness, and historical importance of the reach are unquestioned. The level of significance is not clearly established by this proposed report, however, and support for a national level of

Honorable William W. Lyons

significance seems to have diminished sharply from the 1962 concept of a National Wilderness Waterway worthy of inclusion in the National Park System. The level of significance is highly pertinent to any discussion of alternative uses.

There is clearly an area of potential conflict between need for water resources development and for preservation of the same resources in unaltered condition. In view of the language in Section 4(a) of PL 90-542 that there be a full discussion of "reasonably foreseeable potential uses of land and water which would be curtailed or foreclosed" by designation of wild or scenic rivers, the possibly difficult choice among alternatives which must be made by Congress should be grounded upon the most complete and up-to-date information possible. Consequently, we request that the proposed report be held in abeyance until the current Corps of Engineers study of Upper Missouri River potentials and problems is completed in 1977.

Sincerely,



Charles R. Ford
Deputy Assistant Secretary of the Army
(Civil Works)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

In Reply Refer To:
OBS/EA

SEP 18 1975

Memorandum

To: Director, Bureau of Outdoor Recreation
Deputy Associate

From: Director, Fish and Wildlife Service

Subject: Missouri River (Montana) Wild and Scenic River Study--Review
and Comment on Department's Proposed Report

This is in response to the letter of May 29 to officials of concerned departments and agencies requesting review of the subject report.

We offer the following comments on the Missouri River report:

1. Water Quality and Stream Flow (last sentence of paragraph, page 5). The water quality criteria (in the so-called "Green Book"), cited in this paragraph are now obsolescent, according to informal advice from the Environmental Protection Agency. EPA is preparing a two-volume document, entitled "Criteria for Water Quality," now in draft form, which will become the official reference on water criteria. This information, together with an EPA estimate of the publication date of the document, could be appropriately footnoted on this page.
2. Map (page 19). Since the Conceptual Plan was first developed, recreation policy has changed and we no longer plan to establish new campgrounds. However, primitive camping is permitted anywhere along the river within the Charles M. Russell National Wildlife Range. Specifically, the four most westerly stars within the Wildlife Range should be deleted, as well as the star south of the river just east of Robinson Bridge. A triangle should be placed on the north side of the river at that latter point. At Rocky Point the symbol should be changed to a triangle. At the junction of Highway 191 and Missouri River, move the symbol from the west side to the east side of the highway.
3. Water Quality (pages 43 and 44). We assume from reading this section that existing State and Federal laws, including the provisions of the



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Federal Water Pollution Control Act Amendments of 1972, are being implemented with respect to the Missouri River. If so, a statement to this effect would improve the section, as well as in the Findings on water quality (page 5).

4. Chemical Pesticides Use. If no data on use of chemical pesticides were found, a brief comment in the report (in the Water Quality, Land Use, or other sections) to that effect would be appropriate. If data were found, a summary of known facts and views about past and/or planned future use of chemical pesticides, including an assessment of effects on study area waters, lands, vegetation and fish and wildlife, and on the wild and scenic river proposal, is needed.

Concerning use of pesticides in the river area, if included in the national system, the text of the report and/or the master plan should state in substance that:

The application of pesticides within or affecting the river corridor, including applications on forest, pasture, and cropland adjacent to the corridor should comply with the Federal Environmental Pesticide Control Act of 1972 (P.L. 92-516). Consideration should be given to banning, in the above-named areas, the use of all pesticides classified as "restricted" under the act. Aerial spraying of any pesticide should be minimized, restricted to allow adequate buffer zones, or prohibited.

5. Black-Footed Ferret. All references in the report to the occurrence of black-footed ferrets in the area under review should be deleted. The following wording should be substituted for the last sentence of the first paragraph under Fish and Wildlife (page 68), either at that point in the text or in a new paragraph:

This area is also within the historic range of the black-footed ferret, a species included on the U.S. Department of the Interior's List of Endangered Fauna. However, there have been no positive sighting of black-footed ferrets in this area in recent years. Hopefully, ongoing scientific investigations of possible habitats will determine whether or not the species occurs in the river area.

6. Potential Endangered or Threatened Species (page 69, bottom). The sturgeon and paddlefish mentioned in the last paragraph are two fishes being considered as candidates for potential listing as either Endangered or Threatened species.

7. Water Resource Developments (on pages 79-80). The text on these pages indicates that a 1971 Bureau of Reclamation study determined that construction of a dam at Fort Benton was not feasible economically. It also states that the 1963 U.S. Army Corps of Engineers report on the High Cow Creek Dam proposal was opposed by the Governor of Montana. The Fort Benton and High Cow Creek sites, however, are being re-evaluated by the Corps of Engineers as part of their Missouri River Umbrella Study. The Corps is also evaluating the feasibility of proposed pump-back storage facilities along the Missouri River. However, we have not yet been informed if any such proposed facilities occur in the Wild and Scenic River study area.

8. Addendum (Procedure No. 1, Principles and Standards). Section 4 on page 5 of the Addendum states that the proposal represents an optimum environmental quality plan for the resources under analysis, and that the alternatives discussed in the report represent alternative environmental quality plans. We question whether this is really the "optimum" environmental plan. While the proposal appears to be an "acceptable" environmental plan, we believe that "optimizing" such a plan might include additional land acquisition and land-use control in the area, and possibly, less emphasis on recreational use. Additionally, we question whether the "No Action" alternative should logically be considered as an alternative "environmental quality" plan.

We appreciate the opportunity to comment on the Department's Proposed Report of the Missouri River Wild and Scenic River Study.

H. J. Olden, Jr.

FEDERAL ENERGY ADMINISTRATION

WASHINGTON, D. C. 20461

OCT 14 1975

Honorable William W. Lyons
Deputy Under Secretary of the Interior
Washington, DC 20240

Dear Mr. Lyons:

This is in response to your July 9, 1975 letter requesting our comments on the Bureau of Outdoor Recreation's Bruneau Wild and Scenic River Study report, dated January 1975, and the Missouri Wild and Scenic River Study, dated January 1975.

From our review of these documents we find that the recreational, scenic, historic, and wilderness values of the two river segments involved have been assessed and evaluated in considerable detail. However, we find that the potential for future energy resource developments in these two areas did not receive similarly detailed treatment, which we believe detracts from the overall value of the reports.

Although earlier cost benefit studies did not indicate the possibility of economical hydroelectric power potential, recent increases in energy costs may significantly alter those previous conclusions. Accordingly, a detailed economic analysis should be performed which would evaluate the trade-offs should the area under consideration be included in the wild and scenic system. Thus, we must withhold final concurrence pending completion of this analysis.

We appreciate the opportunity to review these studies.

Sincerely,

Frank G. Zarb

Frank G. Zarb
Administrator



DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20250

September 23, 1975

Honorable Kent Frizzell
Acting Secretary of the Interior
Washington, DC 20240

Dear Mr. Secretary:

This is in reply to Deputy Under Secretary Lyons' May 29 letter requesting our views on your Department's proposed report on the Missouri Wild and Scenic River Study.

In our review of the report, we do have some concern with the generalized nature of the evaluation of impacts on the private lands, and the existing use of these lands. If the proposal is implemented, approximately 36,000 acres of private land would be affected. About 6,100 acres would be purchased in fee, and scenic easements would be acquired on the remaining 29,900 acres. We feel the report is deficient in that it fails to discuss, except in a general way, the present and anticipated uses of these lands and what would be precluded if the Missouri is included in the National System. The opportunity costs associated with the uses that would be precluded are in addition to costs for land acquisition and facility development.

Another concern has to do with the application of the Water Resources Council's Principles and Standards in the development of the proposal. It appears the development proposal is restricted to development for recreation and related purposes exclusively. However, under the Principles and Standards, one alternative should present the potential for optimizing economic development. Perhaps this alternative is not ideal for the study reach of the river. However, it should be included in the alternative displays to provide the decisionmakers a complete picture of the trade-offs between economic development and the proposed wild and scenic river.

A choice of action probably should not be made at this time without an in-depth analysis of all alternatives. The data for this analysis should be available now, or within a reasonable time, from the ongoing studies involving the Missouri River Basin. These

Honorable Kent Frizzell

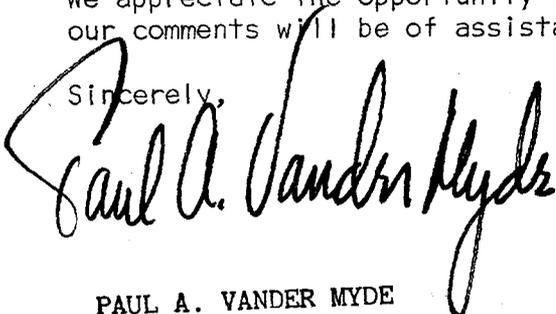
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ongoing studies include the Umbrella Study of the Corps of Engineers; the Total Water Management Study being conducted by the Bureau of Reclamation; the Missouri River Basin Commission's update of the Comprehensive Coordinated Joint Plan for the Missouri Basin; and the National Water Assessment of the Water Resources Council.

Based on the information contained in the report, it is difficult to select the most desirable alternative for the future management of this segment of the Missouri River. Obviously, the many natural values associated with the river and adjacent lands assure the river's qualification as a component of the National System. And, though we have some concern that the report does not provide a full analysis of the economic and other development potentials foregone if the proposal is implemented, there is no apparent conflict with programs or projects of this Department. We offer no strong objections to submission of the proposal to the President for his consideration. However, we suggest that prior to such action, the proposal should be fully coordinated with the ongoing studies in the Missouri Basin.

We appreciate the opportunity to present our views, and hope that our comments will be of assistance in developing your final proposal.

Sincerely,

A handwritten signature in black ink, reading "Paul A. Vander Myde". The signature is written in a cursive style with a large, sweeping initial "P".

PAUL A. VANDER MYDE
Deputy Assistant Secretary



United States Department of the Interior

BUREAU OF RECLAMATION
WASHINGTON, D.C. 20240

IN REPLY
REFER TO: 725

121.

SEP 19 1975

Memorandum

To: Chairman, Interdepartmental Study Group on Wild and Scenic Rivers, Bureau of Outdoor Recreation

From: James J. O'Brien, Bureau of Reclamation Representative, Interdepartmental Study Group on Wild and Scenic Rivers

Subject: Proposed Report--Missouri River, A Wild and Scenic River Study

This is in response to the May 29, 1975, letter from Deputy Under Secretary William W. Lyons to the Honorable Russell E. Train (copy to this office) distributing the subject report for a 90-day review.

We appreciate the opportunity to review the subject report and find it to be a significant improvement over the draft report we reviewed in 1973. The report provides a fairly good summary of the proposals; however, as we indicated in our memorandum dated June 14, 1973, the factual information presented in the report seems to be insufficient for decisionmaking other than on a judgmental basis. This results in the analysis of the plans appearing to be inadequate.

The addendum, paragraph 3a, states that "Recreation use has been considered as an environmental quality objective." Even though the plan may emphasize environmental quality, it should be made clear that recreational visitation is a national economic development benefit.

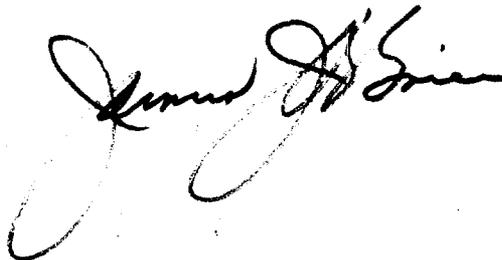
The reasoning for not knowing what would take place in the future without this proposal indicates that the study is incomplete and tends to weaken the findings and recommendations. This also applies to the analysis of other alternatives. A display comparing benefits and costs would be valuable.



Save Energy and You Serve America!

Paragraph 3f of the addendum implies that the Corps of Engineers will reevaluate the Fort Benton storage project. We are continually reviewing the status of Fort Benton and are not aware of any evaluation of this site by the Corps of Engineers. We are pleased to note that the recommended proposal excludes the Fort Benton site from the area recommended for inclusion in the National Wild and Scenic Rivers System.

On page 95 of the report, the draft bill does not provide for the escalation of costs, especially land values. It would be worthwhile to add such a provision to recognize inflation and escalating costs.

A handwritten signature in black ink, appearing to read "James H. Soren". The signature is written in a cursive style with a large, looping initial "J".



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
FEDERAL BUILDING, 1961 STOUT STREET
DENVER, COLORADO 80202

July 9, 1975

REGION VIII

IN REPLY REFER TO:
8DP

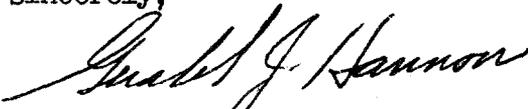
Honorable William W. Lyons
Deputy Under Secretary of
the Interior
Washington, D.C. 20240

Dear Mr. Lyons:

My office has reviewed your proposed report, A Wild and Scenic River Study, Missouri River, and we have no comments to make.

Thank you for making this report available for our review.

Sincerely,


Robert C. Rosenheim
Regional Administrator



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, D.C. 20410

JUN 19 1975

OFFICE OF THE ASSISTANT SECRETARY
FOR COMMUNITY PLANNING AND DEVELOPMENT

IN REPLY REFER TO:
CSP
Your Reference:
D4219-Missouri River

Honorable William W. Lyons
Deputy Under Secretary of
the Interior
Washington, D. C. 20240

Dear Mr. Lyons:

Secretary Hills has asked me to reply to your letter of May 29, 1975, requesting our comments in accordance with the Wild and Scenic Rivers Act, on the Interior Department's report on the Missouri River in Montana.

I have forwarded the report to our Denver Regional Office for direct reply to you. Mr. Robert C. Rosenheim is the Regional Administrator. His address is Federal Building, 1961 Stout Street, Denver, Colorado 80202.

Sincerely,

A handwritten signature in cursive script, appearing to read "David O. Meeker, Jr.".

David O. Meeker, Jr. FAIA, AIP
Assistant Secretary



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 12 1975

William W. Lyons
Deputy Under Secretary of the Interior
Department of the Interior
Washington, D.C. 20240

Dear Mr. Lyons:

The Administrator has asked me to respond to your letter of May 29, 1975, requesting comments on the Wild and Scenic River Study of the Missouri River, Montana.

My staff has reviewed the study and concurs in the recommendation that 128 miles of the Missouri River be included in the Wild and Scenic Rivers System and be managed by the Bureau of Land Management. We also concur in the other recommendations on pages 11 and 12 of the study.

The EPA Regional Office in Denver recommends that pages 24 and 43 of the final draft include references to the Middle Missouri Water Quality Inventory and Management Plan prepared under Section 303(e) of the Federal Water Pollution Control Act Amendments of 1972.

The Inventory and Management Plan addresses monitoring and control of various pollution sources and can be obtained from the Water Quality Bureau, Montana Department of Health and Environmental Sciences, or from the EPA Regional Office in Denver.

Thank you for the opportunity to comment on this proposal.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Victor J. Keenan for".

Andrew W. Breidenbach, Ph.D.
Acting Assistant Administrator for
Water and Hazardous Materials

FEDERAL POWER COMMISSION
WASHINGTON, D.C. 20426

IN REPLY REFER TO:

AUG 18 1975

Honorable Kent Frizzell
Acting Secretary of the Interior
Washington, D.C. 20240

Reference: D4219 - Missouri River

Dear Mr. Secretary:

This is in reply to Deputy Under Secretary Lyons' letter of May 29, 1975, transmitting for the Commission's comments, pursuant to the provisions of the Wild and Scenic Rivers Act, (P.L. 90-542), the proposed report of your Department on the Missouri River, Montana.

The cited report recommends that the 128-mile reach of the Missouri River from the town of Virgelle downstream to the Rocky Point "Historic" Site be included in the National Wild and Scenic Rivers System. Two segments totaling about 17 miles are recommended for recreational designation, two segments totaling 72 miles are recommended for wild designation, and one segment of 39 miles is recommended for scenic designation. It is also recommended that the area, delineated by boundaries to be determined at a later date, be administered and managed by the Bureau of Land Management.

The Federal Power Commission staff has reviewed the proposed report of your Department to determine the effects of the recommended actions on matters affecting the Commission's responsibilities. Such responsibilities relate to the development of hydroelectric power and assurance of the reliability and adequacy of electric service under the Federal Power Act, and the construction and operation of natural gas pipelines under the Natural Gas Act.





United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

L76-LF

SEP 3 1975

Memorandum

To: Director, Bureau of Outdoor Recreation
Attention: Assistant Director for State Programs and Studies

Through: Assistant Secretary for Fish and Wildlife and Parks CB 9/5

From: ~~Acting~~ Director, National Park Service

Subject: Missouri River Wild and Scenic River Study Report

We have reviewed the Missouri River wild and scenic river study report prepared by the Bureau and sent to the Administrator of the Environmental Protection Agency as an enclosure to the Deputy Under Secretary of the Interior's memorandum of May 29, 1975.

Unlike the situations of other proposed Wild and Scenic Rivers, the historic resources along the Missouri River are not incidentally interesting to its significance. They are of prime importance to the entire Nation. The river both accounted for and directed the Lewis and Clark expedition. Along and in part because of the river, the West was opened to trapping, trading, settlement, and mining. The native American sites along the river are equally valuable. The range of historic themes and resources represented along this section of the Missouri is without counterpart in the United States. And it is one of only five or so rivers in the country so influential in the Nation's settlement and development. Moreover, the wildness of the river in this area that recommends it for consideration as a Wild and Scenic River is in fact a historic resource, as much as the archeological sites and fort ruins.

Although some recreation uses can be compatible with historic preservation and historical interpretation on the Missouri River, the purpose for which this area is established and managed will determine the emphasis given each use. The differences in management may be obvious or subtle, but they will affect every phase of planning and development ranging from the kinds of boats permitted on the river to the amount of money spent on historical research. That reality is illustrated by the report, written as it is to consider a recreation facility. Although the study acknowledges that "It is the last



important section where major aspects of the era of westward expansion can be commemorated in their original unspoiled setting," the management objectives given do not even address historic preservation. They refer briefly to historical interpretation, but are directed primarily to the waterway itself and its use and maintenance.

The report considers three alternatives to the area's proposed development as a Wild and Scenic River under the management of the Bureau of Land Management. In none of these are the River's historic associations and resources given primary emphasis. For this reason the report should be revised to include as an alternative our proposal for the establishment of a Lewis and Clark National Wilderness Waterway. The text describing that proposal was attached to our memorandum of July 25, 1975, requesting you to substitute it for the text beginning on page 86 of the Missouri River wild and scenic river study report.

Russell E. Dickenson

The Commission staff review shows that there are no existing or no known current plans to construct electric generating plants or major power transmission facilities within the reach of the Missouri River proposed for inclusion in the National Wild and Scenic Rivers System. The staff notes, however, that there are important possibilities for the development of hydroelectric power within this river segment. The possible High Cow Creek multiple-purpose project and the possible Rocky Point project have the potential for the development of 720,000 and 94,000 kilowatts of capacity, respectively. Also, the operation of a possible 300,000-kilowatt hydroelectric development at the upstream Fort Benton multiple-purpose reservoir site could require modification if the river segment downstream were included in the National System. It is understood that studies are currently under way by the Corps of Engineers concerning possible water resources developments on this portion of the Missouri River.

By letter of June 12, 1964, to the Chief of Engineers, the Commission commented on the Corps of Engineers' proposed report on the Missouri River, Fort Peck Reservoir to vicinity of Fort Benton, Montana. The Commission concluded that the proposed Fort Benton and Cow Creek multiple-purpose reservoir projects were economically justified and would constitute desirable units in the development of the Missouri River basin. The letter also noted that additional power could be developed at the Rocky Point site. Recent increases in the cost of power from alternative sources as a result of rising fuel prices would appear to enhance the economics of these potential hydroelectric power developments.

Your Department's proposed report recognizes that, although generally no future utility transmission lines should cross the river segment proposed for wild or scenic river classification, such essential facilities would be permitted if designed and located to minimize the impact on the environment of the area.

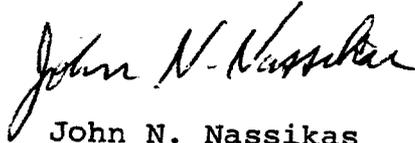
There are no existing and no known plans to construct natural gas pipelines across the river segment proposed for inclusion in the National System. As stated in the report, however, there has been an increasing amount of oil and gas exploration in the vicinity. Shut-in natural gas fields are located six to seven miles to the south of the river and some 14 miles to the north.

Honorable Kent Frizzell

-3-

Based on its consideration of the proposed report of your Department and the studies of its own staff, the Commission concludes that the proposed scenic, recreational, and wild river designations of the 128-mile reach of the Missouri River would conflict with the possible development of major amounts of hydroelectric power, and recommends that the power benefits foregone be thoroughly considered in deciding whether or not to include this reach of the river in the National Wild and Scenic Rivers System.

Sincerely,



John N. Nassikas
Chairman

1078



United States Department of the Interior

BUREAU OF MINES
WASHINGTON, D.C. 20240

September 22, 1975

Memorandum

To: Chief, Resource Areas Studies, Bureau of Outdoor Recreation

Through: Assistant Director--Field Operations *SPW*

From: Bureau of Mines Member, Wild and Scenic River Study Group

Subject: Missouri River - A Wild and Scenic River Study; Blaine, Chouteau, Fergus, and Phillips Counties, Montana

The Missouri River corridor studied under authority of the Wild and Scenic Rivers Act originally included a 180-mile segment that has subsequently been reduced to 128 miles. The corridor averages about 1.8 miles in width and encompasses 147,800 acres, including 36,000 acres of private land and 10,300 acres of State land. The remaining land is under Federal ownership with 81,600 acres managed by the Bureau of Land Management and 19,900 acres in the Russell Wildlife Range managed by the Fish and Wildlife Service. It is estimated that it would cost about \$1,747,000 to acquire the private holdings through purchase of lands and scenic easements. It is not reported if this cost is for surface acquisition only or if it includes subsurface mineral values.

A general but adequate description of the area's geology is included on pages 59-63. The mineral appraisal on pages 64-66 and on page 5, paragraph "g" of the Addendum, is reasonably accurate. However, inasmuch as the page 12 recommendations propose protection with limited recreation developments, no mineral recovery of any kind would be permitted in the designated corridor. Because management of certain yet unknown lengths of the corridor will be under State or local control, this conceivably might change.

What is not contained in the report is an analysis of what, if any, oil and gas drilling, for example, might be allowed in certain of the wild, scenic or recreational segments proposed for classification. Realistically, the area's potential for oil and gas should be more than merely mentioned and possibly some general concepts should be developed that would permit mineral search and recovery with adequate protection of the environment.

We have received information from Fuelco of Denver and the Montana Board of Oil and Gas Conservation which indicates that significant natural gas potential exists at shallow depths in and around this segment of the Missouri River proposed for designation. The Leroy gasfield, in the Bearpaw Arch area, is actively being developed. At present, the Leroy field includes 15 producing or potentially producing gas wells. Test production rates for

them range from 0.1 million cubic feet per day to 3.5 million cubic feet per day with a mean of 1.2 million cubic feet per day. Exploration and development is continuing to the east and southeast on both sides of the river. However, we notice that the Leroy field has not been identified in the narrative discussion on minerals nor identified on the oil and gas map included in the report. Relative to this, a pipeline outlet which follows a northerly route has been built but not identified in this report.

In terms of the present proposal, we believe this field, since it lies within a 12-mile stretch of the Missouri to be designated as "Wild," must be given greater emphasis in terms of what it portends for future discoveries. To propose classification under the Wild and Scenic Rivers Act in a way to preclude further search would, we believe, not be in the best interests of the public at this time. Potential resources, even within the one-quarter mile limit, could be developed with minimal long-term environmental impact, as the wellheads and distribution systems could be made inconspicuous by camouflage or burial.

A compromise of leasing with no surface disturbance within one-quarter mile limit would not be satisfactory in this case. Directional drilling from sites outside the one-quarter mile limit would not be technically or economically feasible because of the characteristically shallow depth to the producing horizons. Thus, in view of the continuing shortage of natural gas not only in Montana but across the Nation, we urge that this be adequately considered before making decisions which, for all intents and purposes, would foreclose the options for continued search.

While each withdrawal proposal may appear to be minor in itself relative to the loss of the mineral resources involved, we believe the Department in view of its responsibility for mineral adequacy should be cognizant of the potential cumulative impact of these withdrawals. We therefore, recommend that you include language that would identify the Department's concern for both oil and gas adequacy as well as adequate environmental protection. We offer the following additional comments for your consideration:

The assumption is made on page 84, reason 1, that there would be no environmental protection by government agencies if the area remained under the "multiple use" management program. We believe that it would be more realistic for Interior to advocate the proposed classification under reasonable environmental controls for optimum land use.

The assumption is made on page 4 of the Addendum that land acquisition costs have remained constant since 1972 while development and operation costs are rising in line with national averages. While the authors of the study have undoubtedly studied land values in the area concerned, we would point out that constant land prices since 1972 make this area of the country rather unique. If, in fact, land prices have risen appreciably, then the cost-benefit ratios would change and the optimization value for withdrawing land for single purpose use could be greatly increased.

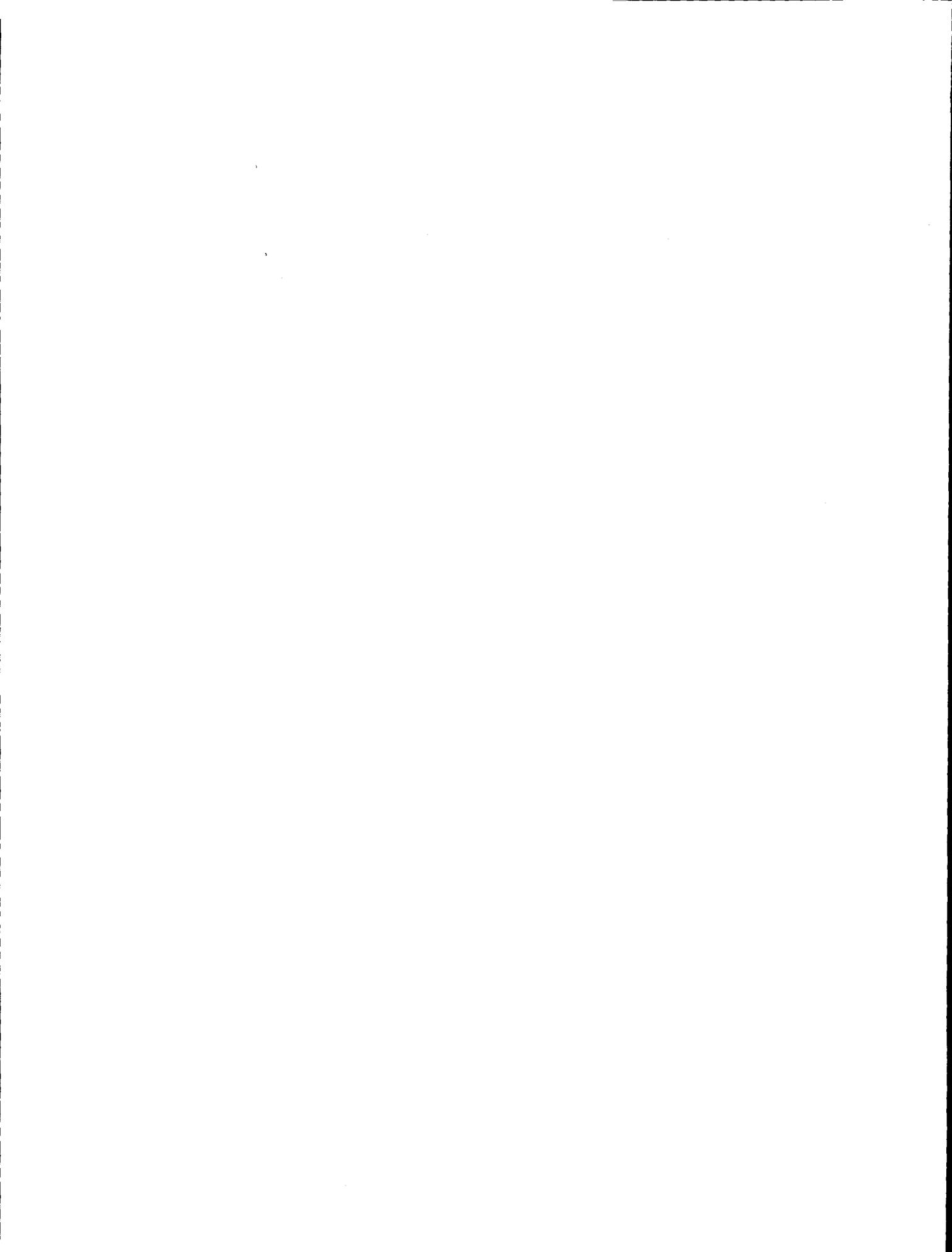
The statement in paragraph "g," page 5 of the Addendum, that mineral fuel development could be allowed if found to be critically needed in the future is not in keeping, at least for oil and gas, with the present urgent need and the long leadtime required for actual production. It is further stated in this paragraph that the impact of mineral development on benefits and costs is not thought to be significant. This should be revised in view of the critical need for energy fuels and recent natural gas discoveries in the area.

It is stated in the last paragraph, page 5 of the Addendum, that the proposal represents an optimum environmental quality plan for the resources under analysis. We have difficulty understanding how any quantity that is only partially known can be optimized.

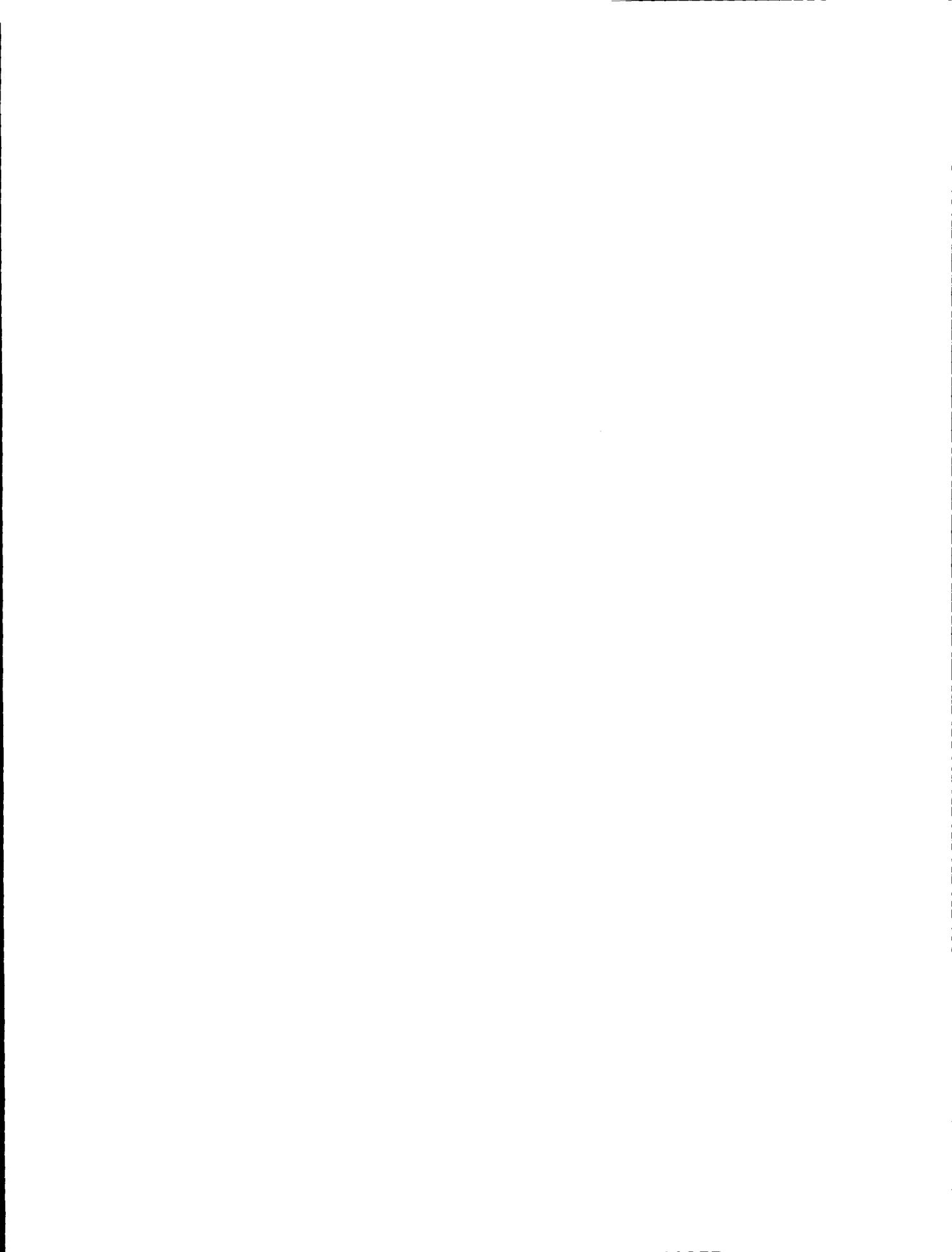
We recommend that the statements referred to above be deleted or modified and an effort made to present a more accurate assessment of the effects of the proposal on minerals availability.

A handwritten signature in black ink, appearing to read "W.L. Dare", with a long, sweeping underline.

W.L. Dare



Appendix 2.
Missouri River Supplemental Analysis



Missouri River Supplemental Analysis

1. Purpose

This supplemental analysis provides a brief summary of various alternatives for including the Missouri River in the National Wild and Scenic Rivers System. A display is provided which identifies impacts and effects upon various plan components which would result from implementation of each of six alternative plans. Impacts are also summarized for projected future conditions which would take place if none of the alternatives are implemented and the Missouri River is not added to the national system. The quantitative and qualitative expressions of plan impacts are arrayed into four accounts, vis. National Economic Development (NED), Environmental Quality (EQ), Social Well Being (SWB) and Regional Development (RD).

2. National Economic Development Plan

Proposals for water resources utilization which would significantly and, for all practical purposes, irreversibly alter the potential uses of water and related land resources of an area, must consider alternatives which range from developing those resources for optimum national economic return to preserving and enhancing the natural environmental conditions. Similarly, the Principles and Standards planning procedures would be applied to proposals for wild, scenic and recreational rivers and national recreation areas when establishment of such areas would foreclose water resource development opportunities emphasizing national economic development.

Proposals to establish wild, scenic and recreation rivers have the objective of enhancing environmental quality and may not involve an irreversible commitment of resources over the long term or a significant conflict in the preferences of society for the utilization of the water and related land resource. In the planning process, efforts were made to identify conflicts which could provide the basis for a viable national economic development alternative which could meet the tests of acceptability, effectiveness, efficiency and completeness. The search for such conflicts included review of previous planning efforts, contact with agencies which conceivably could be in the process of formulating plans and solicitation of public reaction. The search for conflicting uses of the water and related land resource of the Missouri River focused on the Corps of Engineers' "umbrella study" to review water resource problems and potentials with reference to current and future energy needs of the nation. Two proposed projects, Fort Benton and High Cow Creek were identified as potential conflicts with wild and scenic river alternatives which might form the basis for a National Economic Development alternative.

However, by letter dated 24 February 1975, the Deputy Assistant Secretary of the Army (Civil Works) has informed us that "The Division Engineer has completed sufficient studies of the High Cow Creek and Fort Benton projects to determine that, based on current information furnished by the Federal Power Commission and the Bureau of Reclamation on power benefits and financial feasibility, neither project is at this time economically or financially feasible". Consequently, there is no National Economic Development objective plan that meets the four tests required by the Principles and Standards. These projects are treated as potential benefits foregone under the component "preserve free flowing river" in the NED and RD accounts since it is possible that economic or financial conditions in the future could change in a way not currently foreseen to make the projects feasible.

3. Environmental Quality Objective

In the absence of a viable National Economic Development alternative, the six alternative plans for the Missouri River all relate to the environmental quality objective. The recommended plan would designate 5 segments totaling 128 miles from Coal Banks Landing to Rocky Point as a component of the National Wild and Scenic Rivers System. If designated, the river would be managed to preserve it in its present relatively undeveloped condition, to provide high quality primitive recreation opportunities and to protect historical, archeological, biological and scenic resources of the stream corridor. Administration of the resource management area would be the responsibility of the Bureau of Land Management, the Fish and Wildlife Service and the State of Montana. Each entity would continue to manage those lands currently under their jurisdiction. A management plan for the river corridor would be prepared within one year of designation as a Wild and Scenic Rivers System component. Alternative plans include protection through existing authorities wherein changes would be made to existing programs to enhance ranching and improve the natural conditions of the river. This alternative is not recommended because it is felt that existing authorities do not provide enough protection over the long term since they would be subject to administrative decisions to change the management objectives. The Lewis and Clark National Wilderness Waterway alternative would stress historical and archeological preservation and interpretation. Management authority would be vested in the National Park Service.

Three alternative plans were formulated which would have the same management objectives as the recommended plan but would include longer or shorter segments and a narrower river corridor width.

Different segment options I and II would include the 42 miles from Fort Benton to Coal Banks Landing. These plans are not recommended because it is felt that any increase in trespass along this mostly privately owned segment would be unacceptable to the landowners. Different segment options I and III would include lands in the stream corridor only to the first ridgeline rather than to the sightline. These plans are not recommended because it is felt that inclusion of all lands to the sightline is necessary in order to insure the high quality primitive outdoor recreation experience of floating the river.

MISSOURI RIVER
ENVIRONMENTAL QUALITY ACCOUNT

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Lewis and Clark National Wilderness Waterway	Different Segments and Boundaries		
					Number I	Number II	Number III
Preserve free flowing river	Fort Benton to Fort Peck Reservoir	Coal Banks Landing to Rocky Point	Fort Benton to Fort Peck Reservoir	Fort Benton to Fort Peck Reservoir	Fort Benton to Rocky Point (lateral boundary to first ridgeline)	Fort Benton to Rocky Point (lateral boundary to sight-line)	Coal Banks Landing to Robinson Bridge (lateral boundary to first ridgeline)
a) miles of wild river classification	0	2 segments 72 miles	not applicable	not applicable	2 segments 72 miles	2 segments 72 miles	2 segments 72 miles
b) miles of scenic river classification	0	1 segment 39 miles	not applicable	not applicable	1 segments 39 miles	1 segments 39 miles	1 segments 25 miles
c) miles of recreational river classification	0	2 segments 17 miles	not applicable	not applicable	2 segments 59 miles	2 segments 59 miles	2 segments 17 miles
d) total miles of river pre-served	0	5 segments 128 miles	not applicable	3 segments 181 miles	5 segments 170 miles	5 segments 170 miles	5 segments 114 miles

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MISSOURI RIVER
ENVIRONMENTAL QUALITY ACCOUNT(Continued)

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Lewis and Clark National Wildcerness Waterway	Different Segments and Boundaries		
					Number I	Number II	Number III
	This 181 mile segment is one of 5 rivers in the Montana Recreational Waterway System which has the intent of maintaining the free flowing nature of the river. However, the Recreational Waterway System has no legal status and past attempts to establish a state wild and scenic river system through legislation have been unsuccessful.	Preservation of the river's free flowing condition is legislatively assured.	Effects are essentially similar to "without plan" considerations.	Preservation of the river's free flowing condition is legislatively assured.	Preservation of the river's free flowing condition is legislatively assured.	Preservation of the river's free flowing condition is legislatively assured.	Preservation of the river's free flowing condition is legislatively assured.

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e) maintain water quality

Increased development and uncontrolled recreation use may result in increased sediment and effluent into the river.

Increased recreation use will aggravate soil erosion on streambank and cause problems associated with human waste disposal. These impacts will be mitigated by controlling the number and distribution of recreationists.

Effects are similar to "without plan" consideration. In addition, emphasis on ranching operations may encourage additional feedlot operations with attendant water quality problems.

*****Effects are essentially similar to the "recommended plan".*****

MISSOURI RIVER
ENVIRONMENTAL QUALITY ACCOUNT (Continued)

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Lewis and Clark	Different Segments and Boundaries		
				National Wilderness Waterway	Number I	Number II	Number III
Control land use in the stream corridor							
a) Total acres included in the resource management areas.	0	147,800	not applicable	149,053	72,200	173,600	55,500
b) Acres acquired in fee simple	0	6,100	not applicable	5,200	5,700	5,700	5,400
c) Acres controlled by scenic easement.	0	29,900	not applicable	28,000	28,200	51,400	17,300
d) acres controlled presently by public.	0	111,800	not applicable	96,853	38,300	115,500	32,800

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MISSOURI RIVER
ENVIRONMENTAL QUALITY ACCOUNT (Continued)

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Different Segments and Boundaries			
				Lewis and Clark National Wilderness Waterway	Number I	Number II	Number III
e) Impact on scenic values	Accelerated seasonal residential development of privately owned lands will be accompanied by increased erosion, silt loads, and the possibility of effluent entering the river from individual septic systems. Public lands will continue to be managed for livestock, fish and wildlife, mineral production, outdoor recreation and watershed protection. Increased development will bring about demands for improved roads leading to the river. Scenic values of the river will be degraded.	Scenic values will be preserved; however, increased use by recreationists may result in loss of streamside vegetation through trampling and may increase littering along the river.	Effects are the same as "without plan" consideration.	Effects are similar to the "recommended plan" however the Wilderness Waterway will cover an additional 53 miles of river.	Development could take place on the 100,000 acres outside of the lateral boundary but which are still within line of sight from the river. This could adversely impact the scenic values of the stream corridor.	Effects are similar to the "recommended plan", however this alternative will cover an additional 42 miles of river.	Effects are similar to Different Segment Number I except that this alternative covers 56 miles less of the river.

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MISSOURI RIVER
ENVIRONMENTAL QUALITY ACCOUNT (Continued)

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Lewis and Clark National Wilderness Waterway	Different Segments and Boundaries		
					Number I	Number II	Number III
f) Impact on wild-life resources	Public lands will continue to be managed for wildlife protection as one of several objectives.	Emphasis will be placed on identification and protection of areas used by golden and bald eagles.	Effects are the same as "without plan" considerations	*****Effects are the same as for the "recommended plan".*****			
Provide for high quality outdoor recreation opportunities	Continuation of the indiscriminate use of the river corridor by 4 wheel drive vehicle users. Limits on visitor use and distribution will not be possible; thus certain popular areas of recreation use will be subject to degradation as a result of overuse.	An analysis of recreation use would be undertaken to develop optimum use levels and appropriate management guidelines would be established. Public access would be provided at a limited number of points to preserve the primitive values for which the river is designated. Powerboats and off-road vehicles would be limited to designated areas and seasons of use.	Effects are essentially the same as "without plan" consideration.	Effects are similar to the "recommended plan" but cover different areas.			

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MISSOURI RIVER
SOCIAL-WELL-BEING ACCOUNT

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Lewis and Clark National Wilderness Waterway	Different Segments and Boundaries		
					Number I	Number II	Number III
Preserve free flowing river	Future availability of this very high quality river resource for scientific research, education and recreation is not assured.	Legislation assures that Missouri River will be available to future generations in a free flowing condition much the same as when first seen by Lewis and Clark on their monumental expedition to the west coast. Opportunities for research, education and recreation on this important Waterway will be guaranteed for the future.	Effects are the same as for "without plan" consideration.	*****Effects are the same as for the "recommended plan".*****			
Control land use within the stream corridor	The current trend of fragmentation of private land into residential lots will continue on privately owned lands in the stream corridor.						

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MISSOURI RIVER
SOCIAL-WELL-BEING ACCOUNT (Continued)

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Lewis and Clark	Different Segments and Boundaries		
				National Wilderness Waterway	Number I	Number II	Number III
Control land use (Cont.)	Areas of historical and archeological significance will be subject to being overrun and destroyed.	Management plan will provide for identification and interpretation of significant historical and archeological resources.	No significant degree of additional protection is provided for historical and archeological resources.	Effects are similar to the recommended plan however the historical and archeological resources of different areas would be protected commensurate with the resource management area boundary.			
	Land use decisions on privately owned lands continue to be made by private landowners within the stream corridor.	Land use decisions on presently privately owned lands will be limited by scenic easements and eliminated by fee simple acquisition. Condemnation authority will be limited since over 50% of proposed area is already in public ownership. Thus condemnation authority can be used to provide public access easements, scenic easements or to clear title.	Effects are the same as "without plan" considerations.	Land use decisions on lands presently privately owned will be limited by scenic easements and eliminated by fee simple acquisition. Specific legislation to establish the Waterway may authorize condemnation of all lands within the proposal boundary which could distress some of the present landowners.	Effects are similar to the "recommended plan" but are distributed over a different area depending upon length and lateral boundary of alternative segments.		

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MISSOURI RIVER
SOCIAL-WELL-BEING ACCOUNT (Continued)

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Different Segments and Boundaries			
				Lewis and Clark National Wilderness Waterway	Number I	Number II	Number III
Provide for high quality outdoor recreation opportunities							
a) existing recreation facility sites.	8	8	8	8	8	8	6
b) additional standard recreation sites.	0	3	0	undetermined	3	3	3
c) additional primitive recreation sites.	0	9	0	undetermined	9	9	9

Continuation of present trend of increases in visitor use of the river. Latest estimates indicate approximately 3,000 boaters use the river annually.

The great distance from population centers and the uncertainty of the future energy situation preclude an estimate of future use of the river. Optimum visitor carrying capacity for the 90 day peak season is estimated to be 41,850 boaters. The plan would provide the means to limit and/or disperse use when necessary.

Effects are the same as "without plan" considerations.

Historical interpretation would be emphasized under this plan.

Visitor use under these three alternatives is substantially the same as the recommended plan. The inclusion of 42 miles from Fort Benton to Coal Banks Landing or the exclusion of 4 miles from Robinson Bridge to Rocky Point would not have a significant effect on the amount of visitor use generated by National recognition of the river.

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MISSOURI RIVER
SOCIAL-WELL-BEING ACCOUNT (Continued)

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Different Segments and Boundaries		
				Lewis and Clark National Wilderness Waterway	Number I	Number II
	<p>If future energy conditions permit continuation of long distance travel to outlying natural areas it is expected that recreation pressure will soon surpass the area's use capabilities.</p>					
d) Recreation management responsibility.	BLM/F&WS/state	ELM/F&WS/state	BLM/F&WS/state	NPS	Effects are the same as for "recommended plan".	

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MISSOURI RIVER
NATIONAL ECONOMIC DEVELOPMENT ACCOUNT

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Lewis and Clark National Wilderness Waterway	Different Segments and Boundaries		
					Number I	Number II	Number III
Preserve free flowing river	Two impoundment sites in the study area have been intensively studied by water resource development agencies. Neither project is at this time economically or financially feasible, however conditions in the distant future could change and the projects might be able to meet the four tests of P&S.	Any further consideration of High Cow Creek Dam would be precluded. Fort Benton Dam could be built in the future if economic circumstances permit. If constructed, the Fort Benton project would be required to maintain adequate instream flows for recreation and fish and wildlife purposes below the dam.	Effect is the same as "without plan" consideration	*****Effect is the same as for the "recommended plan"*****			
	High Cow Creek Dam, as proposed, would have 4,200,000 acre-feet of usable storage and a hydroelectricity capacity of 720,000 kw. Fort Benton Dam, as proposed, would have 880,000 acre-feet of usable storage and a hydroelectric capacity of 860,000 kw.						

MISSOURI RIVER
NATIONAL ECONOMIC DEVELOPMENT ACCOUNT (Continued)

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Lewis and Clark	Different Segments and Boundaries			
				National Wilderness Waterway	Number I	Number II	Number III	
Control land use in the stream corridor								
a) Total acquisition cost of land in fee simple and scenic easements.	0	-\$1,747,000	0	-\$2,957,000	-\$1,696,500	-\$2,539,000	-\$1,155,700	
b) Fossil fuels	Exploration for fossil fuels will continue and development will occur if deposits are discovered which are economically worthwhile. The proposal area is favorably regarded for natural gas, subbituminous coal and possible oil potentials. Insufficient data precludes a determination of potential values of fossil fuels in the stream corridor.	Exploration and Production of fossil fuels would be precluded, subject to valid existing rights along 72 miles of Wild river and controlled along remaining segments (56 miles) to prevent a degradation of the visual corridor. Controls may increase costs for exploration and exploitation. Values of fossil fuels cannot be determined due to insufficient data on reserves.	Effects are the same as for "without plan" consideration.	Impact on fossil fuel exploration and production would be dependent upon the language of legislation to support this proposal. It is expected that such legislation would preclude any activity associated with fossil fuels in all areas included in the Wilderness Waterway.	Effects are similar to recommended plan except that controls on fossil fuel development would not cover 67,300 acres of public domain included in the recommended plan.	Effects are similar to recommended plan except that controls on fossil fuel development would cover an additional 1600 acres of public domain not included in the recommended plan.	Effects are similar to the recommended plan except that controls on fossil fuel development would not cover 72,800 acres of public domain included in the recommended plan.	

MISSOURI RIVER
NATIONAL ECONOMIC DEVELOPMENT ACCOUNT (Continued)

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Levis and Clark	Different Segments and Boundaries		
				National Wilderness Waterway	Number I	Number II	Number III
c) Ranching	Conversion of land use from ranching to seasonal residential on privately owned lands will have a very minor impact on grazing.	Grazing would be restricted in some areas such as Cottonwood Groves and recreation facility developments. The number of acres removed from cattle production would be determined during the master planning stage; however it is expected to be small in comparison to total acres available.	Changes would be made administratively under existing programs to enhance ranching while simultaneously improving the natural conditions of the river.	Grazing would be allowed to continue to the extent that it does not interfere with the primary purpose of the Wilderness Waterway. Some acreage would be removed from cattle production, particularly along the river banks and near historical sites, however, the effect is expected to be minimal.	Effects are essentially the same as for the "recommended plan.		
Provide for high quality outdoor recreation opportunities							
a) additional facility development cost	0	-\$556,000	0	-\$2,240,000	-\$835,000	-\$835,000	-\$505,000
b) additional annual operation and maintenance cost	0	-\$130,500	0	-\$ 198,500 (first 5 year average)	-\$143,500	-\$143,500	-\$ 91,000

MISSOURI RIVER
REGIONAL DEVELOPMENT ACCOUNT

Component	Without Plan	Recommended Plan	Protection Through Existing Authority	Lewis and Clark National Wilderness Waterway	Different Segments and Boundaries			
					Number I	Number II	Number III	
Control land use in the river corridor								
a) annual loss in local property tax revenue.	-\$ 0	-\$ 427	-\$ 0	-\$ 364	-\$ 399	-\$ 399		-\$ 378
b) Feedlot operation		Expansion or establishment of feedlot operations would be precluded in the river corridor. These operations could be located outside of river corridor.			*****Effect is the same as for the "recommended plan".*****			
Provide for high quality outdoor recreation opportunities.	Increasing recreation use will continue to benefit local economy	National recognition will encourage development of new business such as canoe rental, guides and outfitters. Local economy will benefit.	Effect is the same as for "without plan" consideration.		*****Effects are essentially the same as for the "recommended plan".*****			

