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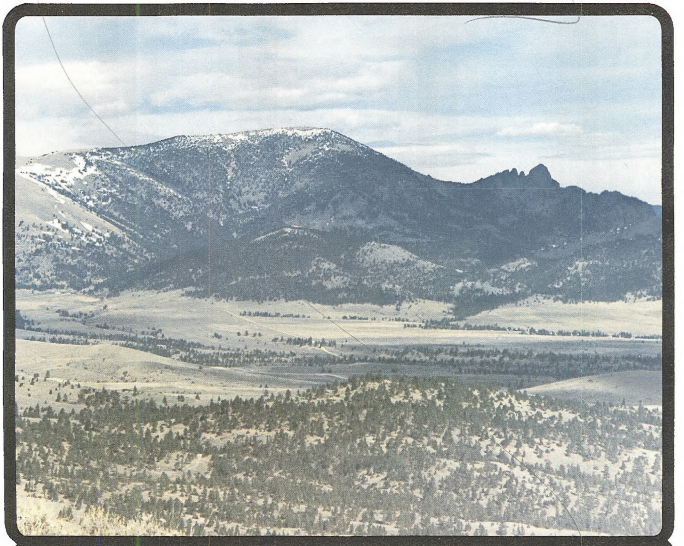
environmental assessment



SLEEPING GIANT LAND EXCHANGE

BUTTE DISTRICT

DEPARTMENT OF STATE LANDS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
STATE OF MONTANA

U.S. DEPARTMENT OF THE INTERIOR
MONTANA DEPARTMENT OF STATE LANDS

PROPOSED SLEEPING GIANT LAND EXCHANGE

BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL ASSESSMENT RECORD

and

DEPARTMENT OF STATE LANDS
PRELIMINARY ENVIRONMENTAL REVIEW

Prepared by
U.S. Bureau of Land Management, Butte District Office
Montana Department of State Lands

Commissioner
Montana Department of State Lands

District Manager
Butte District Office

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INTRODUCTION

INTRODUCTION

This study was prepared by the Bureau of Land Management (Butte District) and the Montana Department of State Lands (lead State agency) and represents a joint environmental assessment of the cumulative impacts of the Sleeping Giant proposed action.

The Sleeping Giant proposal involves an exchange and purchase that would result in a change in land ownership in the vicinity of Holter Lake, located between Great Falls and Helena. In order to accomplish the exchange, lands in eastern Montana would also be involved.

The purpose of this Environmental Assessment Record /PER is to study the impacts that would probably occur if there are certain changes in land ownership. An assessment will also be made of what may occur if there is no land exchange. An analysis of these impacts will be relied upon heavily to determine the feasibility of the proposed land exchange and purchase. The intent of this Study is to satisfy the requirements of both the National and Montana Environmental Policy Acts.

Ownership changes would be made by a three-way land exchange (BLM, Montana Department of State Lands, Ox Bow Ranch) and purchase of land by BLM from Ox Bow Ranch. The National Wildlife Federation would act as a third party in the purchase, buying certain lands from Ox Bow Ranch and holding these lands pending appropriation of public funds for BLM purchase. The process would involve land appraisals, land examination, and transfer of title.

Because of the complexity of the transaction (multiple parties, exchange and purchase, values involved) prior discussions between all parties have been held to arrive at general agreement on objectives of the proposal. There are various land title technicalities involved with this proposal (see Appendix 1). These are due to a combination of past changes in land ownership and the encumbrances on land title allowed by each owner. The land in State ownership has always been State land since title was originally vested to it by the United States. The Ox Bow Ranch land has been transferred a number of times since originally patented. The BLM land in the Holter Lake area has never left federal ownership, whereas the BLM land near Terry went into private ownership and, a number of years later, was reacquired by the federal government. Each of the land owners over the years granted rights-of-way, easements, reserved minerals, and made reservations in conveyance documents. Certain leases are still outstanding.

The initial step in this proposal involves an exchange of lands between the Ox Bow Ranch and the State of Montana in the Sleeping Giant area. State lands in the Sleeping Giant area would then be exchanged for BLM lands near Terry, Montana, on an equal value basis to assist in consolidating both agencies' land holdings. The National Wildlife Federation would assist in this proposal by purchasing and temporarily holding some of the Ox Bow Ranch lands until BLM has received appropriations to purchase these lands. The final steps would be the purchase by BLM of the lands held by the National Wildlife Federation and additional lands from Ox Bow Ranch to complete the consolidation of public lands and shoreline in the Sleeping Giant area on the southwest side of Holter Lake.

Public input has been a continuing process including meetings, planning sessions, and response to media information. This Study will be widely circulated for a 30-day period to obtain public and agency comment that will be used in forming decisions on the proposed actions. Public hearings will be announced and held at Helena, Great Falls, and Terry, Montana.

Following these reviews and meetings the BLM Butte District Manager will make recommendations to the BLM Montana State Director on two points:

1. If there are significant enough negative environmental impacts that the proposal should not be completed; or

2. If the proposal represents a major federal action impacting the environment and with a level of public interest that requires the preparation of an environmental impact statement.

Furthermore, the Montana State Land Board will review the environmental assessment and consider the public and agency inputs in determining if it is in the State's interest to complete the exchange.

SUMMARY

SUMMARY

This environmental assessment presents information on a proposed three-way land exchange involving the BLM, the Department of State Lands, and the Ox Bow Ranch. The lands involved in the exchange are in the Sleeping Giant area, located about 20 miles NE of Helena, and other lands located near Terry in eastern Montana. The objectives of BLM and the Ox Bow Ranch are to consolidate their holdings in the Sleeping Giant area. The State, through participation in the proposed exchange, could benefit by obtaining land that would increase revenue for the school trust fund.

The proposed action and one alternative are discussed in the analysis. The proposed action is a three-way exchange and purchase as detailed in Chapter 1. Alternative 1, is that of "no action", i.e. no exchange. Other alternatives are mentioned but are not analyzed because they are not acceptable to all parties concerned.

The Sleeping Giant proposed action is a land consolidation program that, when completed, would mutually benefit the State of Montana, BLM, and the Ox Bow Ranch.

The present land pattern of fragmented ownership west of Holter Lake does not provide the major landowners, private or government, with a block of land that permits establishing effective management objectives.

Following completion of the proposed action, the BLM and Ox Bow Ranch would consolidate their land holdings into more manageable units. The State, through participation in the exchange, would benefit by obtaining BLM lands in eastern Montana that would increase revenue for the school trust fund through use in livestock grazing or raising small grains.

Through this exchange and purchase the BLM would add 8.6 miles of continuous shoreline as public land and consolidate an area of 11,000 acres of public land in the Sleeping Giant Area. Water access across Holter Lake is available from the BLM, State, and private boat launching sites located on the north end of the lake. This area contains lands of high scenic, natural, historic, and wildlife values which under public ownership would provide greatly increased outdoor recreation opportunities. It will also provide permanent protection of a spectacular stretch of Missouri River by adding continuous public shoreline to that already held by the Forest Service Gates of the Mountain Wilderness Area to the south and the State of Montana Beartooth Game Management Area on the east shore of Holter Lake.

Access to the State selected lands in the Terry area would be at the discretion of the State and the leaseholder. Ranchers that presently hold federal grazing leases on BLM lands that would be obtained by the State near Terry could possibly retain existing preference rights to use these lands.

CHAPTER 1

PROPOSED ACTION

PROPOSED ACTION

BACKGROUND

The Sleeping Giant Area proposed exchange and purchase is located adjacent to Holter Lake, mid-way between Helena and Great Falls, Montana. Since an early study in 1969, the BLM has recognized the diverse recreation values and substantial public demand in the area. In 1971, the former owner of the Ox Bow Ranch made inquiries about consolidating land ownerships. It soon became apparent that a three-way exchange between BLM, Ox Bow Ranch, and the Department of State Lands was needed. Numerous regulatory limitations prevented further progress.

In 1972-73, the BLM completed a land use plan for the region. The Management Framework Plan (MFP) outlines the possibilities of such an exchange and recommended it be pursued if proper authority existed. It was evident that both an exchange and purchase would be required. During the planning process there was a great deal of support from the public, and no opposition was expressed at that time.

In October 1976, the passage of the Federal Land Policy and Management Act (FLPMA) gave BLM the necessary authority to complete the proposal. The current owner of the Ox Bow Ranch has indicated a willingness to complete the proposal. Extensive talks between BLM and the Department of State Lands resulted in approval of the concept of the proposal by the State Land Board. Authority for the State to enter into exchange of lands with the United States comes from Revised Codes of Montana (1947), Chapter 3, Part 83-304.

All three parties have pursued the necessary preliminary details. The exchange and purchase actions are based on the fair market value of the lands as established by an independent fee appraiser in 1978. The Secretary of the Interior has approved the preliminary plan for the proposal. The National Wildlife Federation has been contacted to purchase some lands from the Ox Bow Ranch, and to hold these lands for later purchase by BLM. The Montana Department of State Lands has selected certain tracts of BLM land near Terry, in eastern Montana, to exchange with the BLM for State lands in the Sleeping Giant Area.

PROPOSED ACTION

The Sleeping Giant proposed action is a land consolidation program that, when completed, would mutually benefit the State of Montana, BLM, and the Ox Bow Ranch. The steps in completing the proposed action of exchange and purchase of lands are shown in the following maps and descriptions.

Map 1 shows the present land pattern of fragmented ownership west of Holter Lake that does not provide any of the major landowners, private or government, with a block of land that permits effective management.

Map 2 shows the land ownership pattern following completion of the proposed action. The Bureau of Land Management and the Ox Bow Ranch would consolidate their land holdings into more effective management units. The State of Montana, through participation in the exchange, would benefit by obtaining BLM lands in eastern Montana that would increase revenue for the school trust fund.

Through this exchange and purchase the BLM would add 8.6 miles of continuous shoreline as public land and consolidate an area of 11,000 acres of public land in the Sleeping Giant Area. Public access to the Sleeping Giant area would be available by boat across Holter Lake from BLM, State, and private boat launching sites. This area contains lands of high scenic, natural, historic, and wildlife values which under public ownership would provide increased outdoor recreation opportunities. It will also provide permanent protection of a spectacular stretch of Missouri River by adding continuous public shoreline to that already held by the Forest Service Gates of the Mountain Wilderness Area to the south and the State of Montana Beartooth Game Management Area on the east shore of Holter Lake.

Maps 3 through 6 indicate the basic steps of the land exchange and purchase procedures that would be followed in completing the proposed action. A brief explanation is given below for each of these maps with reference to the detailed description of acreages shown in Table 1, LANDS IN PROPOSED ACTION.

Map 3 shows the initial step in this proposal which is an exchange of lands between the State of Montana and the Ox Bow Ranch in the Sleeping Giant Area. See Table 1, I. STATE-OX BOW EXCHANGE.

Map 4 shows the lands that State would convey to BLM in the Sleeping Giant Area. See Table 1, II. STATE-BLM EXCHANGE, for a detailed description of these lands. In exchange, the State would select BLM lands of an equal value located near Terry, Montana. See Table 1, II. STATE-BLM EXCHANGE, for a listing of the BLM lands near Terry, Montana, from which the State will make selections. The BLM lands near Terry, Montana, are shown on Maps 7, 8, 9, and following exchange would be administered by the Department of State Lands and be subject to all applicable federal, state, and local laws, regulations, and policies. Pursuant to State policy, detailed soil analyses and studies would be conducted prior to the State considering lands from these tracts for agricultural leases. Where significant adverse impacts from farming in agricultural leases would likely occur, those tracts would not be considered for conversion from grazing. If farming occurred and unforeseen serious erosion resulted, farming would be discontinued and the land would be converted back to grazing.

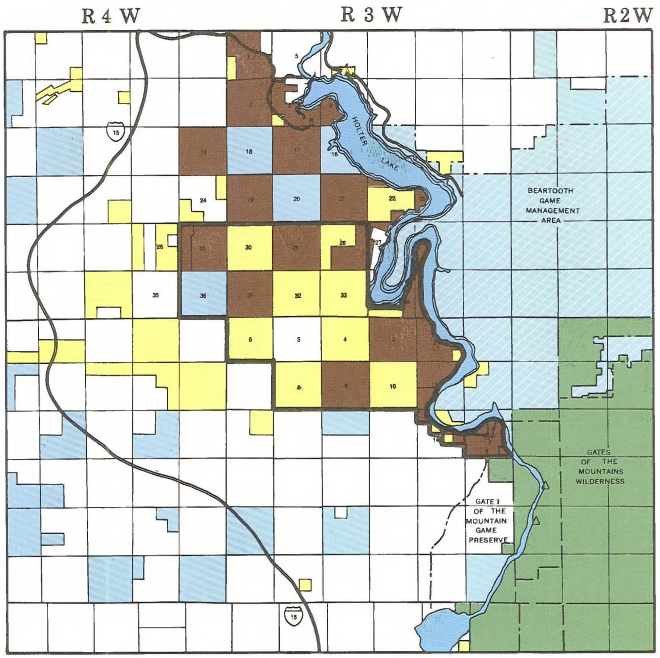
Map 5 shows an exchange of scattered parcels between the BLM and the Ox Bow Ranch. See Table 1, III. OX BOW-BLM EXCHANGE. Map 5 also shows shoreline lands that BLM would purchase from Ox Bow Ranch. See Table 1, VI. BLM PURCHASE FROM OX BOW, Fiscal Year 1979.

Map 6 shows lands that National Wildlife Federation would purchase in 1979 from Ox Bow Ranch. The National Wildlife Federation would hold these lands (shown on Map 6 in red) for purchase by BLM in 1981. See Table 1, IV and V.

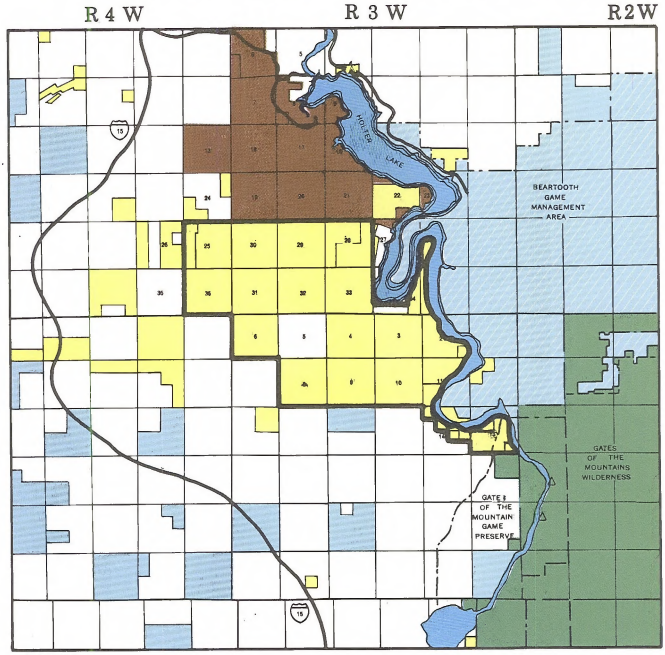
The final steps necessary to complete the proposed acton of land consolidation as shown on Map 2, LAND PATTERN AFTER EXCHANGE, are the BLM obtaining from Ox Bow Ranch those lands described in Table 1, VI. BLM PURCHASE FROM OX BOW, Fiscal Years 1980, 1981, 1982; and the conveyance to BLM of the land held by the National Wildlife Federation (Table 1, V).

The sequence of exchange and purchase described in these maps and narratives is accurate as of March 1979. Subject to approval of appropriations by National Wildlife Federation and BLM, there may be some modifications. However, the final results of the proposed action, as shown in Map 2, are the same.

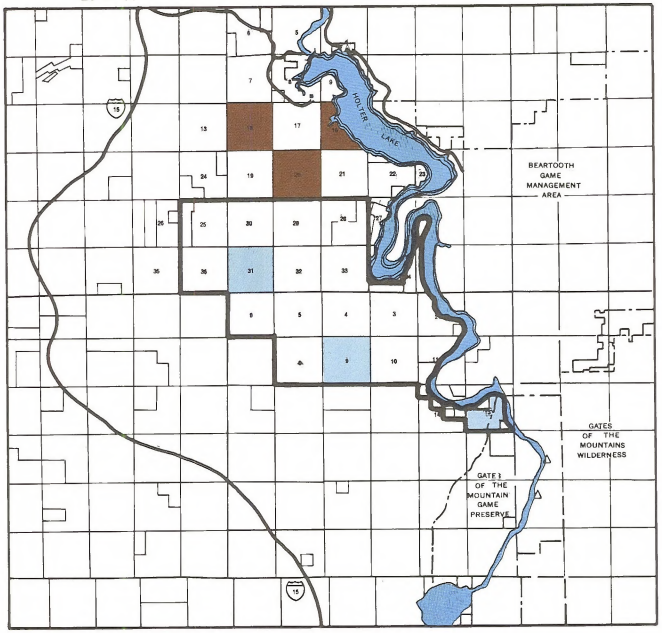
MAP I
SLEEPING GIANT
PRESENT LAND PATTERN



MAP 2
SLEEPING GIANT
LAND PATTERN AFTER EXCHANGE



MAP 3
SLEEPING GIANT
STATE – OXBOW EXCHANGE

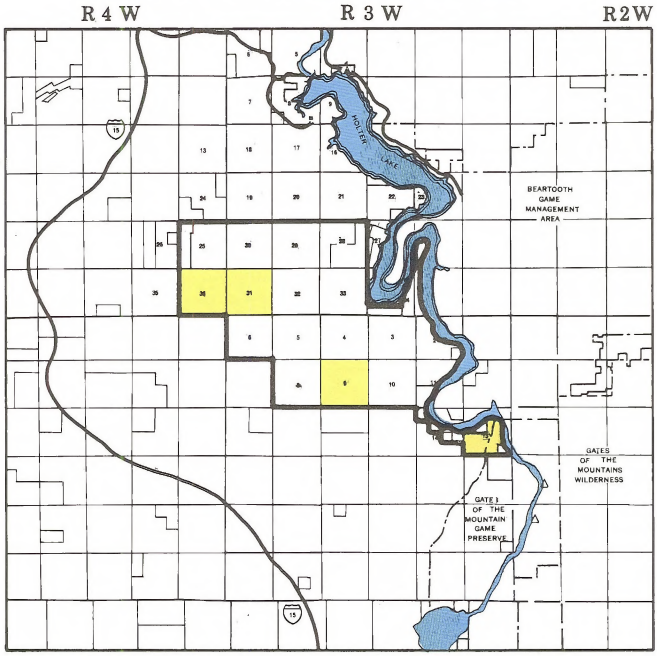


LEGEND

Ox Bow, Convey to State

State, Convey to Ox Bow

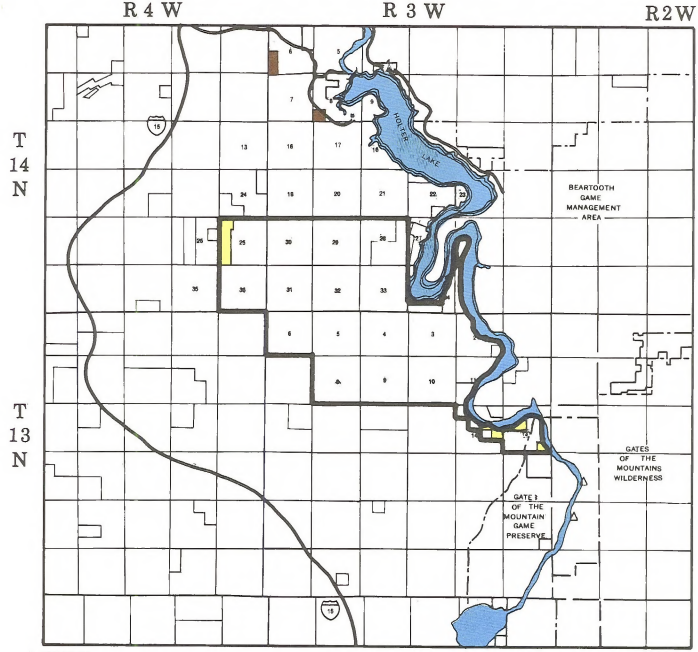
MAP 4
SLEEPING GIANT
STATE-BLM EXCHANGE



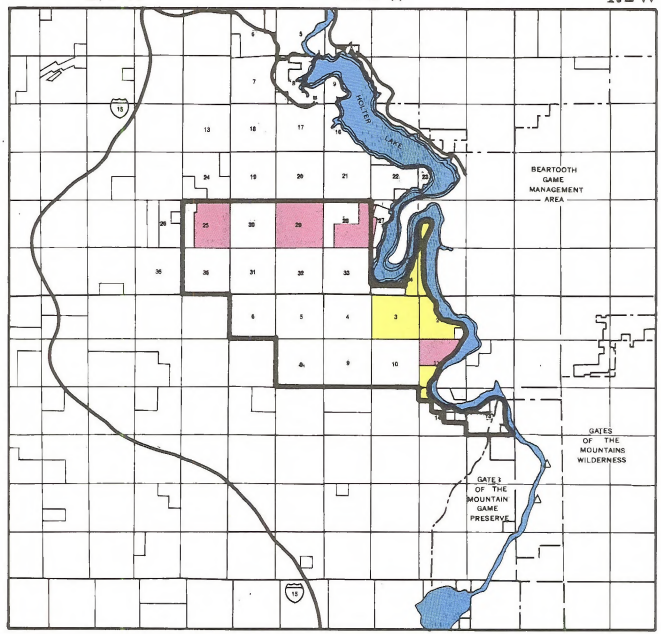
MAP 5

SLEEPING GIANT

OX BOW - BLM EXCHANGE AND BLM PURCHASE

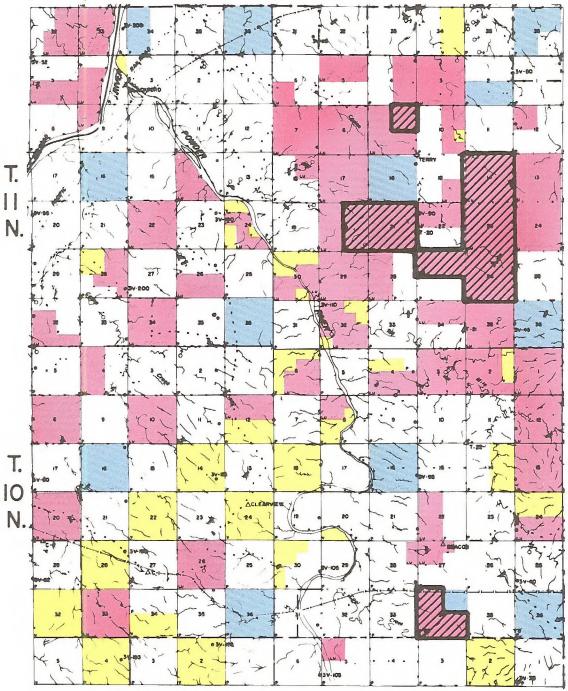


MAP 6
SLEEPING GIANT
OX BOW RANCH CONVEY TO NWF AND BLM



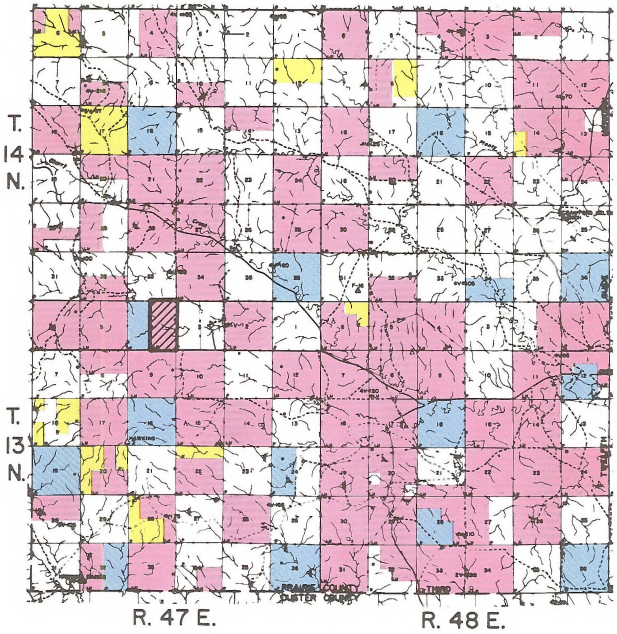
MAP 7

EASTERN MONTANA
EXCHANGE LANDS



MAP 8

EASTERN MONTANA
EXCHANGE LANDS



Lands to be exchanged with State

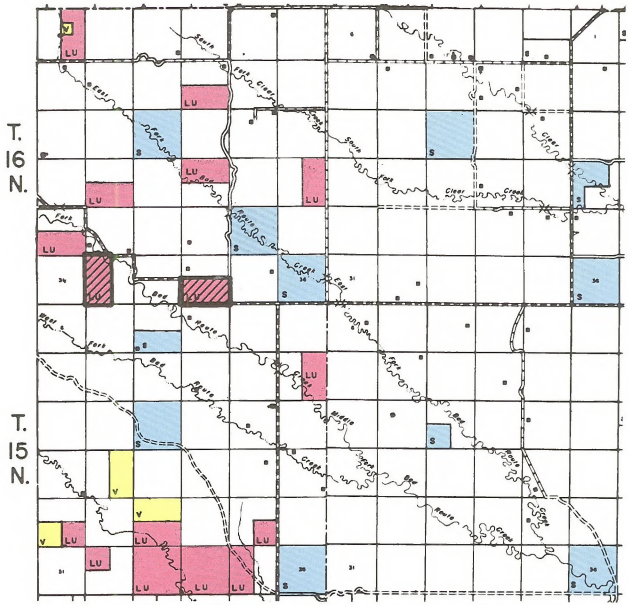
State Lands

Vacant Lands (B. L. M.)

L. U. Lands (B. L. M.)

MAP 9

EASTERN MONTANA EXCHANGE LANDS



Lands to be exchanged with State

State Lands

Vacant Lands (B. L. M.)

L. U. Lands (B. L. M.)

TABLE 1

LANDS IN THE PROPOSED ACTION

I. STATE-OX BOW EXCHANGE (Map 3)

A. State Convey to Ox Bow Ranch

T. 14 N., R. 3 W., P.M.M.	Acres
Sec. 16, Parts of Lots 3, 5, 6, $NW\frac{1}{4}$, $NE\frac{1}{4}SW\frac{1}{4}$	311.46
All of Lots 7, 8, 9, and 10	
Sec. 18, Lots 1, 2, 3, 4, $E\frac{1}{2}$, $E\frac{1}{2}W\frac{1}{2}$	612.44
Sec. 20, All	640.00
TOTALS	1,563.90

B. Ox Bow Ranch Convey to the State

T. 13 N., R. 3 W., P.M.M.	Acres
Sec. 9, All	640.00
Sec. 13, Lots 7, 8, 11, $SW\frac{1}{4}$, $W\frac{1}{2}SE\frac{1}{4}$	292.72
T. 14 N., R. 3 W., P.M.M.	
Sec. 31, All	690.76
TOTALS	1,542.48

TABLE 1 (continued)

II. STATE-BLM EXCHANGE

A. State Convey to BLM in the Sleeping Giant Area (Map 4)

	Acres
T. 13 N., R. 3 W., P.M.M.	
Sec. 9, All	640.00
Sec. 13, Lots 7, 8, 11, SW¼, W½SE¼	292.72
T. 14 N., R. 3 W., P.M.M.	
Sec. 31, All	609.76
T. 14 N., R. 4 W., P.M.M.	
Sec. 36, All	640.00
TOTALS	2,182.48

B. BLM Convey to the State in Area Near Terry, Montana (Maps 7, 8, 9)

Tract No.	Description	Acres
1.	T. 11 N., R. 51 E., P.M.M. Sec. 9, NE¼	160.00
2.	T. 11 N., R. 51 E., P.M.M. Sec. 14, All	639.00
3.	T. 11 N., R. 51 E., P.M.M. Sec. 23, All	640.00
4.	T. 11 N., R. 51 E., P.M.M. Sec. 21, All	640.00
5.	T. 11 N., R. 51 E., P.M.M. Sec. 27, N½	320.00
6.	T. 16 N., R. 50 E., P.M.M. Sec. 32, W½	320.00
7.	T. 16 N., R. 50 E., P.M.M. Sec. 34, S½	320.00
8.	T. 11 N., R. 51 E., P.M.M. Sec. 26, All	640.00
9.	T. 11 N., R. 51 E., P.M.M. Sec. 20, E½	320.00
10.	T. 13 N., R. 47 E., P.M.M. Sec. 4, Lots 1, 2, S½N½, SE¼	325.60
11.	T. 10 N., R. 51 E., P.M.M. Sec. 34, S½, NW¼	480.00

TABLE 1 (continued)

III. OX BOW-BLM EXCHANGE (Map 5)

A. Ox Bow Convey to BLM

T. 14 N., R. 4 W., P.M.M.	Acres
Sec. 25, W½W½, W½E½W½, W½NE¼NE¼NW¼	245.00

B. BLM Convey to Ox Bow

T. 14 N., R. 3 W., P.M.M.	
Sec. 6, Lots 6 and 7	58.01
Sec. 8, SW¼SW¼	40.00
TOTALS	98.01

IV. NWF PURCHASE FROM OX BOW (Map 6)

A. Fiscal Year 1979

T. 14 N., R. 3 W., P.M.M.	Acres
Sec. 27, Portion	80.00
Sec. 28, E½NE¼, E½SW¼, SE¼	320.00
Sec. 29, All	640.00
T. 14 N., R. 4 W., P.M.M.	
Sec. 25, E½, E½NE¼NE¼NW¼, SE¼NE¼NW¼, E½SE¼NW¼, E½E½SE¼SW¼	395.00
T. 13 N., R. 3 W., P.M.M.	
Sec. 11, Lots 1 and 2, and all of NW¼NE¼, NW¼	224.36
TOTALS	1,659.36

V. BLM PURCHASE FROM NWF (Map 6)

A. Fiscal Year 1981

Lands identified in IV above.

TABLE 1 (continued)

VI. BLM PURCHASE FROM OX BOW

A. Fiscal Year 1979 (Map 5)

T. 13 N., R. 3 W., P.M.M.	Acres
Sec. 13, Lots 5, 6, and 12	58.73
Sec. 14, Lots 6 and 7	50.74
TOTALS	109.47

B. Fiscal Years 1980, 1981, 1982 (Map 6)

T. 13 N., R. 3 W., P.M.M.	Acres
Sec. 2, Lots 3, 4, 5, 8, 9, SW¼NW¼, SW¼, SW¼SE¼	306.30
Sec. 3, Lots 1, 2, 3, 4, S½N½, S½	579.41
Sec. 11, Lots 6, 7, NW¼SW¼	93.74
Sec. 14, Lot 4	28.55
T. 14 N., R. 3 W., P.M.M.	
Sec. 26, Lots 3, 6, 7	56.52
Sec. 27, Lots 6, 14	.86
Sec. 34, Lots 1, 9, 10, SE¼SE¼	101.09
Sec. 35, Lots 3, 6, 7	53.23
TOTALS	1,519.70

CHAPTER 2

DESCRIPTION OF THE ENVIRONMENT

DESCRIPTION OF THE ENVIRONMENT

In this chapter and in Chapter 3, separate analyses will be done so that all lands involved in the proposed action can be adequately discussed. The first anlaysis, or part "A", refers to the private, State, and BLM lands in the Sleeping Giant area being considered for purchase and exchange. The second analysis, or part "B", refers to BLM lands in eastern Montana which would be acquired by the State of Montana.

A. SLEEPING GIANT AREA

Climate

The Sleeping Giant area is windy both fall and winter. It is in a chinook belt, and during the cold season the influence of Canadian air often causes inversions. Air stagnation on a large scale and on a continuing basis does not occur. Both Pacific Ocean and Canadian air masses influence the climate of the area.

As with other mountainous areas, it is susceptible to heavy northern storms. Snow can be expected from September through May. Depending on chinook conditions, there are periods of snow accumulation and melt all winter long. Thunderstorms are frequent from May through July with maximum occurrence during July. These storms can be expected about 50 days per year. Precipitation is about 15.2 inches per year and most of it occurs in the winter.

The growing season on the mountain slopes is from mid-June to mid-August with freezes occurring at anytime. The shortest growing season occurs along the high valleys where cool air drainage dominates the night time atmosphere.

At Holter Dam (the nearest weather station) average annual temperature is 47.8 degrees Farenheit with a maximum of 108 degrees and a minimum of -44 degrees Farenheit recorded.

Air Quality

The nearest air quality monitoring station to the Sleeping Giant is at East Helena, about 20 air miles to the south. At that monitoring station, sulphur dioxide (SO_2) and particulate matter are measured. The Sleeping Giant area is a Class II air quality area. Montana's present ambient air quality standard for particulates is 75 micrograms per cubic meter ($\mu g/m^3$) for an annual average, and 200 $\mu g/m^3$ for a 24-hour maximum period. Respective average values for SO_2 concentrations are 0.02 parts per million (ppm) and .10 ppm. Particulate and sulphur dioxide concentrations are the two most important pollutants in the Helena Valley.

The Helena area had an annual average SO_2 concentration of 0.008 ppm and an average maximum 24-hour reading of 0.14 ppm in 1975. The annual average is under the State's standard, but the 24-hour reading exceeded the State standard.

Due to the prevailing winds from the west and northwest, sulphur dioxide emissions from East Helena do not drift toward the Sleeping Giant. Some pollution in the form of particulate matter probably could be measured though. Since the particulates in the area originate from small sources such as unpaved roads, etc., the amount of pollution would probably be small and not seriously effect the overall good air quality. Some smoke from forestry and agricultural burning may be in the area for brief periods during the fall or spring months.

Geology

Stratigraphy

Sedimentary rocks range from Precambrian shales to Quaternary lake deposits and have a minimum total thickness of 19,165 feet. Most of the sediments in the area strike NW-SE and dip 15 degrees to 35 degrees to the SW. Intrusives and volcanics are present, and to a large degree, contribute to the bold relief of the area.

The rocks that underlie the subject area are briefly described below:

Sedimentary Rocks

Greyson Shale: Precambrian age; dark gray, brown gray, weathering to rusty slabs and plates of shale.

Spokane Shale: Precambrian age; pale green, purplish maroon, buff and cream shale.

Madison Limestone: Mississippian age; light gray, massive, crinoidal limestone.

Marias River Shale: Mid-Cretaceous age; dark gray, olive gray, dark brownish gray shale, with minor lenses of yellowish orange bentonite.

Two Medicine FormationT1: Upper Cretaceous age; lower member composed of gray and brown sandstone and mudstone; upper member composed of alternating beds of green, red, and gray tuff; green sandstone, purple and green siltstone.

Alluvium and Lake Deposits: Quaternary age; consisting of alluvium and colluvium. Lake deposits consist of light grayish yellow, brown, and gray silt and sand.

Intrusive Rocks

Latite: Upper Cretaceous age; gray, grayish purple, greenish and brown weathered; massive and porphyritic with abundant phenocrysts of labradorite.

Monzonite: Lower Tertiary age; light gray fine-grained with an abundance of hornblende. Forms dikes and sills. Outcrops only in a few areas.

Minerals

The area lies astride the overthrust belt, a geologic feature that extends north into Canada and across neighboring states to the south. The thrust faults within the Sleeping Giant area trend NW-SE. For the past few years the term "overthrust belt" has received wide attention from oil and gas interests due to strikes in southwest Wyoming and northeast Utah. All lands in the Sleeping Giant area are considered by BLM geologists to be prospectively valuable for oil and gas. Although there is potential for oil and gas discoveries, the amount of potential is not yet known because of lack of exploratory information.

There is evidence of a limited amount of past prospecting activity in the Sheep Creek drainage. Some current mining of slate is taking place in Towhead Gulch (T. I3 N., R. 3 W., NE1/4 and W1/2 Section 8), which is near the consolidation area but not actually in it.

Topography

The main mountain mass lies east and west with the Sleeping Giant's head (Beartooth Mountain) on the eastern edge of the area, just above Holter Lake. Drainages start high on the mountain and course steeply down to empty into Prickly Pear Creek on the north and Holter Lake on the south. The drainages are characterized by steep gradients and narrow V-shaped valleys.

The topography of the lands involved in the exchange varies from a shoreline along Holter Lake at an elevation of 3,578 feet to mostly rugged terrain up to an elevation of 5,430 feet in the southwest corner of Section 18, T. 14 N., R. 3 W. The highest point within the area of the Sleeping Giant is Beartooth Mountain at 6,792 feet. The slopes of these lands generally vary from 20 to 35 percent. An exception is the flat portion of Section 16, T. 14 N., R. 3 W., along Holter Lake which is so flat that a 5,000 foot air strip crossing part of this land has an equal elevation at both ends.

Soils

The Soil Conservation Service is conducting a soil survey of Lewis and Clark County. They have identified the major soils in the area of the proposed land exchange, but because the survey has not been completed, estimates for the area occupied by each soil type cannot be made. A list of the soils in the area and some general use interpretations for these soils follow.

Crago series: This soil is classified as a loamy-skeletal and coarse-loamy, carbonatic Borollic Calciorthid. The soil is deep, well-drained and is formed in alluvium on slopes of I5 to 40 percent. The lack of moisture in this soil restricts its agricultural uses to rangeland and perhaps some small grain cropping. The tendency for cut banks to cave in, the high content of gravel and stone in the soil, the frost action in the soil and the steepness of the slope pose moderate to severe hazards for septic tanks, roads, buildings, and irrigation.

Farnuff series: The Farnuff series is a fine-loamy, mixed Typic Argiboroll. It has formed in deep loamy alluvium on terraces and fans on slopes from 2 to 50 percent. It is well-drained, has slow to medium runoff and slow permeability. It is currently used for irrigated and non-irrigated cropland. The slow permeability poses moderate restrictions for septic tanks. The shrinking and swelling of the soil as it alternates from wet to dry conditions and the frost action in the soil poses moderate restrictions for buildings and roads. Since this soil occurs on a wide range of slopes (2 to 50 percent), it may pose severe restrictions to all except grazing.

Hilger series: The classification of this soil is a loamy-skeletal, mixed Typic Argiboroll. It is a deep, well-drained soil occurring on fans and footslopes of slopes of 9 to 35 percent. It has slow permeabil-

ity and medium to rapid runoff. This soil is used mostly for rangeland. The slow percolation poses moderate restrictions on septic tanks while the frost action poses moderate restrictions on buildings and roads. Severe restrictions for intensive uses occur on slopes greater than 15 percent.

Parshall series: This soil is a coarse-loamy, mixed Pachic Haploboroll. It occurs on slopes of 9 to 15 percent. The coarse texture may cause erosion hazards on the steeper slopes, but otherwise this soil is well suited for most uses.

Perina series: This series is classified as a loamy-skeletal, mixed, frigid Aridic Haploboroll. It occurs on slopes of 9 to 15 percent. The lack of moisture in this soil restricts its agricultural use to rangeland and some small grains. Frost action poses moderate restrictions on roads and buildings but otherwise this soil can support most uses.

Shallow soils: Loamy, mixed lithic Cryoborolls, loamy-skeletal, mixed Lithic Haploborolls, and rock outcrops occur in this group of soils. The steep slopes, shallow depth to bedrock (0-50 cm) and resulting low productivity restrict the use of these soils to light grazing use. Because of the low productivity and resulting sparse vegetative cover, the erosion hazard is high.

Water

Falls and Towhead Gulches are the primary streams in the area, with water flowing across the proposed Sleeping Giant lands most years. Upper Sheep Creek is an intermittent stream, which drains the northwest portion of the area. There are two unidentified drainage basins two square miles or larger that are wholly contained within the exchange lands. Various smaller basins drain the steep slopes adjacent to Holter Lake.

Generally, the water quality for the area is excellent (Water Quality Inventory and Management Plan, Missouri-Smith-Sun Basin, Department of Health and Environment Sciences). There is probably some natural sediment production occurring due to the steepness of many of the slopes within the exchange. There are many steep talus slopes that are devoid of vegetation, and hence, a possible source of sediment. Surface water is used for stock watering.

Vegetation

The area in the vicinity of Sleeping Giant is more than half Douglas fir forest type. Present timber stands are the results of plant successions. Due primarily to a short growing season, low rainfall, poor soils, and steep, rocky terrain, most of the forested area is not capable of management on a sustained yield basis. Physical features are such that conventional logging would result in irreparable damage, and harvesting of timber should not be considered. Regeneration following logging would be nearly impossible either naturally or artificially. The primary values of the timber are for the visual attributes and watershed as well as the cover provided for numerous animals in the area.

Approximately 35 percent of the area is unsuitable for livestock grazing because of steep topography, distance from water, or sparsity of forage (i.e., timbered or extremely low productivity per acre). Much of the unsuitable areas are valuable for wildlife forage or cover.

The untimbered or lightly timbered areas are mountain bunchgrass vegetation types, predominantly bluebunch wheatgrass, rough fescue, and Idaho fescue. Production of these grasslands in the proposed area ranges from moderate (6 acres per AUM) to low (30 acres per AUM) with an average of approximately 25 acres per AUM. Total production in this area is approximately 230 AUM's per year. All of this may not be available to cattle as big game needs must also be considered.

Additionally, there are numerous other species of grasses, forbs and shrubs that comprise a minor portion of the total production but which provide valuable vegetative diversity and aesthetic appeal. A list of these is in the Appendix.

No official endangered or threatened plant species are known to occur in this area.

Animals

Endangered Species

The only endangered species inhabiting the area are bald eagles and possibly peregrine falcons.

Bald eagles — Observations are limited. Some sightings of these raptors have been made during the spring, fall, and winter seasons. There are no documented summer observations, although it is probable that a few birds are in the area at that time.

Much of the area on both shores of Holter and Upper Holter Lakes appears suitable for nesting habitat, although presence of nesting birds is unverified. See Map 10 for location of suitable eagle habitat.

Peregrine falcon — Precipitous areas on Beartooth Mountain (T. 13 N., R. 3 W., Sec. 10) appear suitable for nesting habitat. We have no record of Peregrine falcon observations in this area. See Map 10 for location of suitable habitat.

Big Game Species

Bighorn sheep — The Sleeping Giant is yearlong range for about fifteen sheep. This area received transplants in 1942, 1943, and 1968, but none have proven very successful. This may be connnected to excessive livestock use of potential winter range and dispersal of the sheep themselves. Refer to Map 11 for a display of the Bighorn sheep use area.

Mountain goat — About fifteen goats reside yearlong in the area. These animals are part of the larger population that occupies habitat on the east side of the Missouri River as well as the Sleeping Giant. At one time, Montana Department of Fish and Game trapped goats on the slopes of Beartooth Mountain (T. 13 N., R. 3 W., Sec. 10) and used them as stock for transplants to other areas. Refer to Map 11 for distribution data.

Elk — Twenty-five elk were counted in the Sleeping Giant area during a January 1978 aerial survey. Flight data is generally lacking for the area, but several ground counts have been made that support the figure of 25 head. It is thought that these elk are yearlong residents. Therefore, a small amount of elk calving occurs somewhere in the general area but a specific area is unknown. Data is sketchy, but it appears that they winter at lower elevations to the north of the Sleeping Giant on private lands and possibly portions of Sections 18 and 20, T. 14 N., R. 3 W.

The main habitat problems suppressing elk in the area of the Sleeping Giant are livestock-elk competition for forage and space. Livestock occupy both elk summer and winter range. It has been reported that the Sleeping Giant supported up to 75 elk in the past. Habitat conditions, at present, could not sustain that large a number along with livestock grazing. Access for hunting is very limited, being at the discretion of adjacent private land owners.

Distribution of elk by season is shown on Map 11.

Mule deer — A total of 91 mule deer were seen during a January 1978 aerial survey flight. That is the only data available regarding population numbers.

It has been reported that deer move from the west across Interstate 15 into the Sleeping Giant to winter. Most wintering takes place on private land to the north and west as shown on Map 11.

The Sleeping Giant itself has limited capacity as summer range due to its small size.

An important wildlife value of Sections 16, 18, and 20, T. 14 N., R. 3 W., which would ultimately be transferred to the Ox Bow Ranch, is for mule deer winter range. The actual use of Section 16 is quite limited, however. These wildlife values are not considered as important as the elk, bighorn sheep, and mountain goat habitat found on the private lands to be acquired in the proposal by BLM and on the adjoining BLM lands being retained in federal ownership.

Other Wildlife Species

The Sleeping Giant is habitat for a wide array of game and nongame species, which include mountain lion, coyote, badger, mink, otter, antelope, black bear, golden eagle, prairie falcon, and turkey vulture. Of particular interest along the Holter Lake shore itself is the osprey nesting areas. Personnel of the Montana Department of Fish and Game have observed the osprey activity in this area. Many boaters are attracted to the occupied osprey nests along the lake shore.

Livestock

The public land in the exchange area is covered with a grazing lease by Ox Bow Ranch. This area has received light grazing pressure for many years.

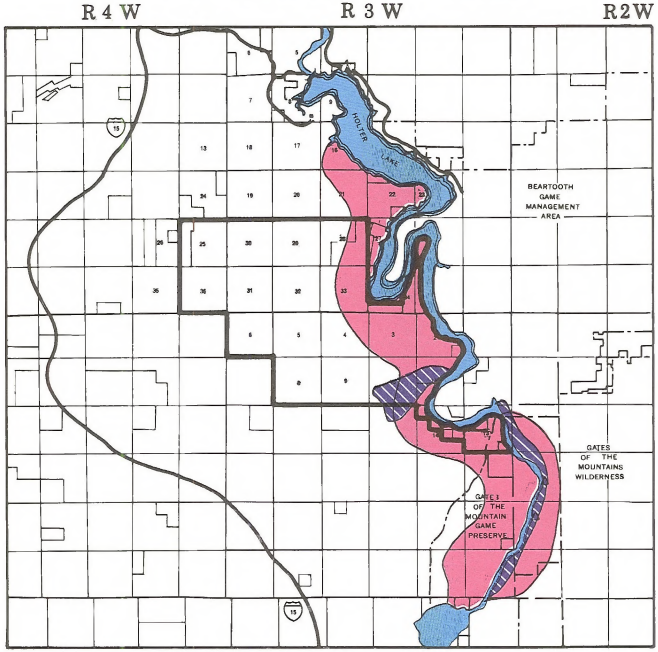
A shoreline area across from Ming Bar and southeast of Beartooth Mountain has been utilized by cattle that drift onto the area from nearby private land. A newly constructed fence along the BLM property lines will eliminate most of this historical conflict between livestock use and recreational use of the shoreline.

Grazing on public land in this area is under the jurisdiction of Section 15 of the Taylor Grazing Act of 1934, as amended.

Cattle are in the area during the period June-September. They primarily use the drainage bottoms and make secondary use of ridge tops and side slopes of less than 30 percent.

Livestock grazing priviliges on State land involved in the exchange are leased to Ox Bow Ranch.

MAP 10
SLEEPING GIANT
ENDANGERED SPECIES



MAP 11
SLEEPING GIANT
BIG GAME DISTRICT

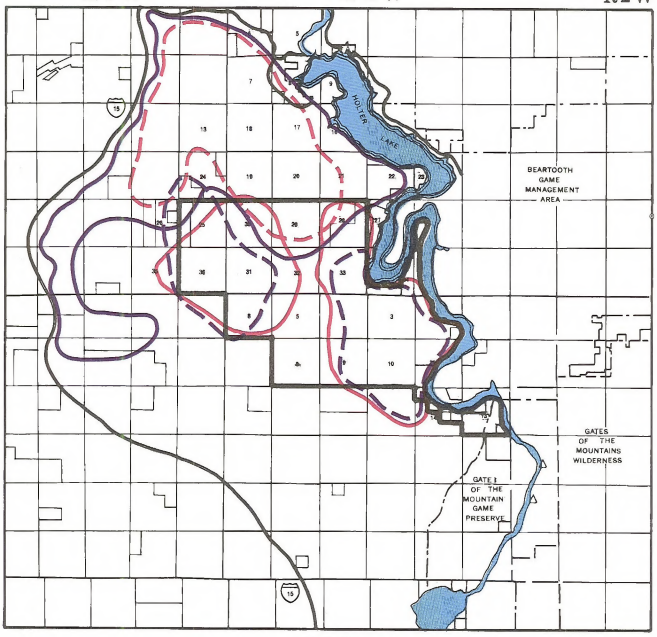


Figure 1

The Sleeping Giant as Seen From Helena

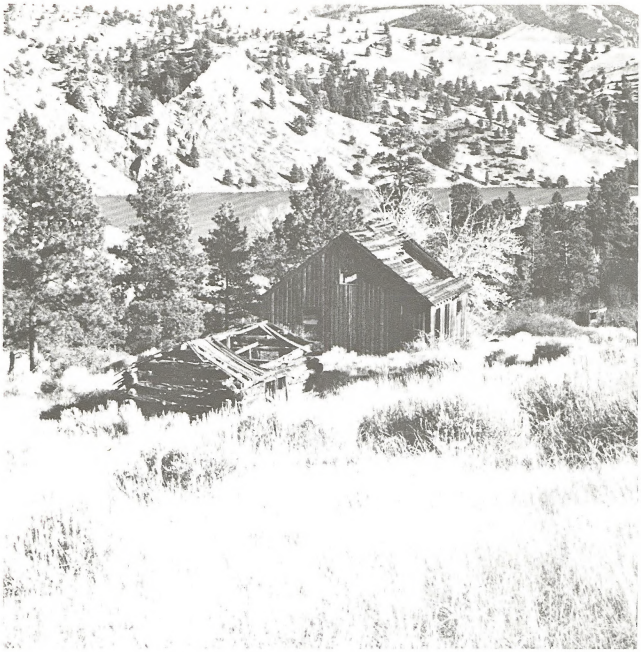


Figure 2

Grass and Sagebrush Surrounding Abandoned Buildings

Prehistoric and Historic Features

The BLM lands which are to be transferred to the Ox Bow Ranch by this proposal have been inventoried and there are no cultural resources present that are listed on the National Register of Historic Places and there are none that are eligible for listing on that register. A survey of the cultural resources on the State lands will be made by the State Historical Preservation Officer.

Aesthetics

Land Character

The most obvious feature of this area is the "Sleeping Giant", a figure formed by the profile of Beartooth Mountain and an adjacent mountain when viewed from the south. (See Figure 1).

The basic landform elements: color, form, line and texture vary greatly. The dominent yellows, grays and browns of the area are tempered by more muted greens and earth colors of the conifers, lichens, mosses, soils and rocks.

Timbered draws and slopes contrast attractively with broad expanses of open grassy parks. Changing with the seasons, the colors display additional variations and contrasts (Figure 2). Topography in the area is rugged. On the east side, steep hills drop suddenly to the Missouri River. The sheer cliffs of Beartooth Mountain dominate the scene from many angles. To these visual elements, broad valleys in the south and west and placid Holter Lake to the north provide backdrop.

The views from the river side (east side) are appreciably different than from other directions. The area is considerably more rugged and diverse and offers a high quality of scenery as a result of this diversity.

As in much of the mountainous country, location of the observer dictates the impression the terrain will provide visually. Steep drainages, which cut into the mountains, are often timbered, offering contrasting factors affecting visual character in the area (Figures 3 and 4). The diverse land and vegetative pattern creates a variety of scenes. Scenic quality of the area has been determined using the BLM's Recreation Information System (RIS). The planning system identified certain primitive/wilderness values which qualifies the BLM lands for Class I management, which provides primarily for natural ecological changes only.

In viewing an area, an intrusion is considered to be a feature (land, vegetation, or structure) which is generally considered out of context with the characteristic landscape. Usually these intrusions are modifications to the natural landscape resulting from the activities of man.

Visual Resource Management Classes

Visual resource management is the BLM's procedure by which visual resources on public land may be identified, mapped, evaluated and managed.

To determine the visual resource management (VRM) classes, scenic quality, sensitivity level and visual zone maps are combined for each area. Each VRM class describes a different degree of modification allowed in the basic elements of the landscape. The primary character of the landscape should be retained regardless of the degree of modification.

Recreation Resources

The BLM Recreation Information System (RIS) has identified the Sleeping Giant as having very high primitive values. Visitor use data is limited to that which has been collected on the Missouri River. More intensive visitor use data gathering to determine use on the river and the Sleeping Giant will continue.

Sightseeing — Scenic, Historical and Zoological

The Sleeping Giant is visible from Helena and is viewed primarily from Interstate Highway I-I5 and the Missouri River. Public access is available by boat across Holter Lake from BLM, State, and private boat landings.

Nearby Gates of the Mountains (named by Lewis and Clark in their journals) provides a popular sightseeing tour due to its geologic attractions. Boat tours from upper Holter Lake through the Gates of the Mountains continue up to the Sleeping Giant thereby exposing it to thousands of visitors annually. In addition to this, many people camp along the shores of the lake (see Map 12 for undeveloped sites). Much of this use occurs on private land which could be terminated at any time depending on the attitude of the landowner.

Opportunities for recreational developments exist in Section 16, T. 14 N., R. 3 W. which is owned by the State of Montana. A cove on Holter

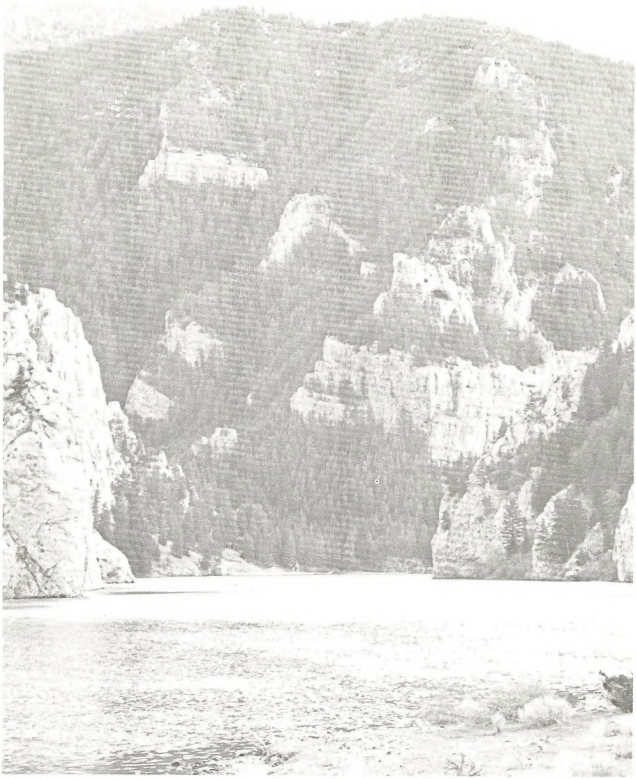


Figure 3

River View South of Sleeping Giant

Figure 4

Holter Lake From the Sleeping Giant Area

Lake makes part of this area particularly attractive for potential development for residences and/or campgrounds, etc. Access would be provided by water and possibly by land depending on the wishes of the owner of the Ox Bow Ranch.

Falls Gulch traverses Sections 16 and 20, T. 14 N., R. 3 W. and has a beautiful waterfall adjacent to a primitive road used for installation and maintenance of the powerline which traverses the area.

Lewis and Clark's route followed the Missouri River and adjacent land routes. In the vicinity of the Sleeping Giant, Lewis followed the river and Clark, with his contingent of men, followed an overland route traversing the Sleeping Giant (see Map 12).

Hunting

The area provides hunting opportunities for the following big game species: elk, mule deer, mountain goat, and black bear (RIS). Although bighorn sheep inhabit the area, the Montana Fish and Game Department does not issue permits for hunting them at this time.

Potential hunting opportunities rate high due to the abundance and variety of game animals and the hunting experience available (RIS). However, actual use for hunting of elk, bear, deer, and mountain goats is limited due to privately controlled access, with the exception of water access on the east side. Steepness of the terrain is a limiting factor to all but the those who gain access by boats.

Fishing

The Missouri River is a cold water fisheries and provides opportunities for good fishing (RIS). Fishing quality attracts people from Great Falls, Helena, and the surrounding area on a regular basis as well as from greater distances on a more infrequent basis. Holter Lake is a popular ice fishing area during the winter months. Power boating and float boating are popular activities associated with fishing and sightseeing in this area.

Off-Road Vehicles

ORV opportunities rate low (RIS) primarily due to lack of access and nature of the terrain. Present knowledge indicates that such use is essentially non-existent.

Natural and Primitive Values

The Sleeping Giant area was rated for its natural and primitive values (RIS) and received a very high rating. Most outstanding features are: uniqueness (Beartooth Mountain), wildlife (opportunities for viewing elk and mountain goats) and fisheries in the Missouri River.

Noise and Odor

The Sleeping Giant is approximately 20 miles north of Helena and East Helena where a lead smelter is located. Great Falls lies about 60 miles to the northeast. There are no other major sources of pollution capable of emitting offensive odors of any quantity.

Prevailing winds are from the west which provides for nearly no odor invasion.

If weather conditions are just right, noises from I-15 can be heard in certain locations as can noises from powerboats on the lake. Generally speaking, the area is free from odor and noise intrusions.

Current Social and Economic Conditions

Of the two counties affected by the exchange, Lewis and Clark County is the more urbanized. The 1975 population estimate for the county was 36,822, of which 28,051 live in incorporated places. The State capital, Helena, accounted for 93.5 percent of the population of incorporated places. Population density, at 10.5 persons per square mile, is 10 times that of Prairie County in eastern Montana, where the State would acquire lands in this exchange. The trade center effect of having a large central place (Helena) is augmented by the effect of government employment at the State capital. The result is that the largest employer in Lewis and Clark County is retailing (trade other than wholesale) while the second largest is Public Administration (Upper Midwest Council 1973). Agriculture, the dominant employer in Prairie County, only accounts for 4.9 percent of total employment in Lewis and Clark County.

Studies of the changing demand for recreational services associated with increasing urbanization (Uhlman 1976) and of the relationship between income level or occupation type and the choice of recreational pursuits (SCORP 1978) have shown that higher income, professional employees like those found in Lewis and Clark County are more prone to hiking, camping and boating recreational

pursuits than lower income or agricultural workers. Recreational services and retail trade in recreational equipment are thus a part of the dominant industry in Lewis and Clark County (retailing).

Land Use

The Lewis and Clark County Areawide Planning Organization has not yet studied the Holter Lake region nor made recommendations for the area. They do, however, intend to give Holter Lake serious attention in the coming fiscal year, particularly areas along the shoreline. There is no zoning in effect.

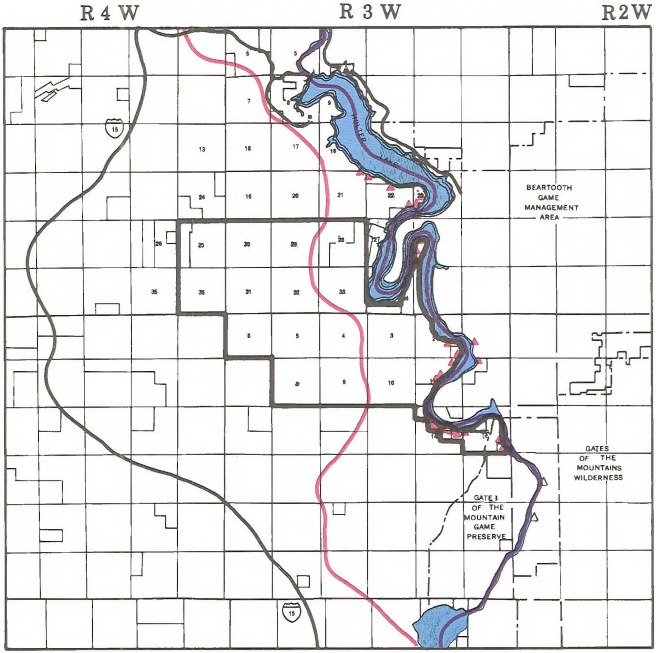
Present land use on the exchange or purchase lands in the Sleeping Giant area is principally livestock grazing and wildlife habitat. These uses would continue if the exchange and purchase is consummated. Land uses adjoining the Sleeping Giant or in the vicinity include seasonal homesite subdivision, limited commercial sites, campgrounds, Beartooth Game Management Area, and the Helena National Forest. A condominium development has been proposed along the northeast shore of Holter Lake. It is an indication that any private lands along the lakeshore have the potential of subdivision for recreational homesites. Completion of the exchange and purchase would, in effect, limit any future development to private lands along the northern third of Holter Lake. The southern two-thirds would be public lands administered by the Montana Department of Fish and Game, U.S. Forest Service, and the BLM and would remain in their present natural state.

TABLE 2

LAND OWNERSHIP - LEWIS & CLARK CO.

Ownership	Acreage	% of Total
State	166,766	7.4
Federal	1,073,106	47.7
Private	1,011,744	44.9
TOTAL	2,251,626	100.0

MAP 12
SLEEPING GIANT
RECREATION RESOURCES



B. TERRY, MONTANA AREA

Climate

The Terry, Montana area is characterized by a continental climate. This climate typically includes: abundant sunshine, low relative humidity, light rainfall confined mainly to the summer months, moderate wind movement, and large diurnal changes in temperature.

The nearest weather station is at Terry, Montana. Records from that station indicate an average annual precipitation of 11.37 inches and a growing season of about 130 days (from mid-May through September). Most precipitation also occurs during this period. January is the coldest month, with an average minimum temperature of 0.56 degrees Fahrenheit, and July is the warmest with an average maximum of 87.37 degrees Fahrenheit.

Chinooks occasionally occur during the winter and thunderstorms during the summer. Droughts are not uncommon.

Wind and low relative humidity are important factors governing vegetation production during the year. Average wind and relative humidity data for Miles City (the nearest station gathering that kind of information) is given in Tables 3 and 4.

Air Quality

In general terms, the air quality in the Terry area is very good. The State of Montana Health and Environmental Science's Air Quality Bureau has various stations in the area taking background concentration readings of some air quality parameters. The particulate concentration readings in $\mu g/m^3$ for the stations are as follows:

Station	An. Average	24-hr. Max
Miles City	16.5	50
Glendive	19.4	51
Fort Peck	19.1	88
Lindsay	18.9	156

The only SO_2 readings made were at the Fort Peck location and the amount of SO_2 present was not measurable.

The particulate standards for Montana Ambient Air Quality are 75 $\mu g/m^3$ for an annual average, and 200 $\mu g/m^3$ for a 24-hour maximum. These standards were not violated by the sample concentrations.

Geology

Stratigraphy

All of the BLM lands selected by the State are underlain by nearly horizontal sedimentary strata laid down relatively late in geologic time. The Fort Union Formation of Paleocene age underlies most of the tracts. In eastern Montana the Fort Union Formation averages 350 feet of alternating beds of sandstone, shale, and occasional seams of coal. The Tongue River, the upper member of the Fort Union Formation, is valuable for its commercial coal in parts of Montana. The Lebo, the middle shale member, has some noncommercial coal. The lower member, the Tullock, is composed of porous sandstone which may be of some value as an aquifer. The coal in the Tullock is generally too thin or impure to be of commercial value. Thin, inpure coal could become commercially valuable if gasification becomes economically feasible or better techniques are developed.

Minerals

Coal that presently could be considered commercial probably does not exist on any of the selected tracts. However, in the future, conditions could change such that coal that does exist might be considered commercial. There are no coal leases on any of the tracts nor did industry nominate any of the selected lands for future leasing when nominations were held in 1976. A water well drilled to a depth of 144 feet on the S1/2 of Section 21, T. 11 N., R. 51 E. did not encounter any coal. Generally coal cannot be economically strip mined if it is covered with more than 150 feet of overburden. Coal more than 150 feet deep would likely have to be removed by underground mining or gasification, which both have significantly higher mining costs involved. The first five land choices by the State are very close to the above mentioned water well and at nearly equal elevations; therefore, with horizontal bedding any near-surface coal would have at least 144 feet of overburden. A 1969 oil and gas wildcat well was drilled to about 5,100 feet in Section 23, T. 11 N., R. 51 E. Another well was drilled to 9,058 feet in Section 18, T. 11 N., R. 51

TABLE 3

WINDS - MILES CITY

Month	Mean Windspeed (mph)	Prevailing Direction
Dec	9.6	SSE
Jan	9.2	NW
Feb	9.3	NW
Mar	10.5	NW
Apr	11.6	NW
May	10.6	SE
June	10.1	SE
July	9.4	SE
Aug	9.5	SE
Sept	9.7	NW
Oct	9.6	SSE
Nov	9.7	SSE

SOURCE: U.S. Department of Commerce 1960

TABLE 4

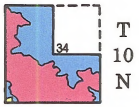
RELATIVE HUMIDITY - MILES CITY

	Relative Humidity			
Month	Hour 0500	Hour 1100	Hour 1700	Hour 2300
Dec	76	70	69	75
Jan	72	69	68	72
Feb	81	72	70	78
Mar	79	63	55	74
Apr	78	54	47	69
May	77	49	44	66
June	78	47	41	66
July	70	39	31	54
Aug	63	36	27	47
Sept	73	48	39	61
Oct	72	48	44	62
Nov	78	64	62	74

SOURCE: U.S. Department of Commerce 1960

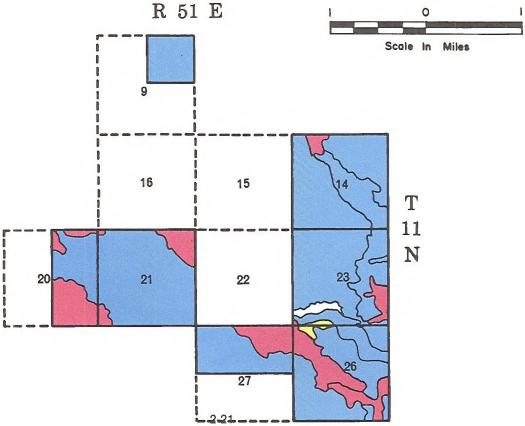
EROSION HAZARD

MAP 13



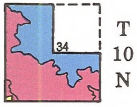
LEGEND

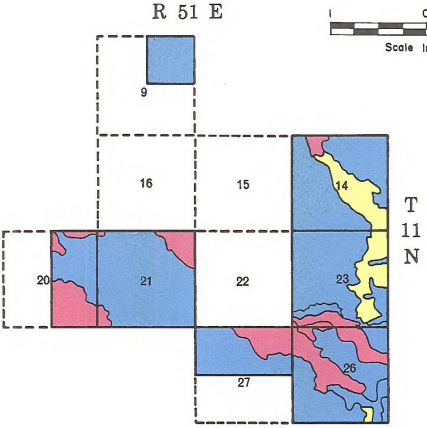
- Slight
- Moderate
- Severe



POTENTIAL USES

MAP 14





E. during 1970. Had these wells encountered a significant amount of near-surface coal, an application for a coal prospecting permit would have likely resulted.

The U.S. Geological Survey has classified all of the selected tracts prospectively valuable for oil and gas. Each of the tracts as of September 1978 is leased for oil and gas. The Pine Oil Field, 40 miles NE of the tracts in T. 11 N., R. 51 E. is the nearest producing oil field. Two wildcat wells were drilled in T. 11 N., R. 51 E. during 1969 and 1970, but no commercial oil was discovered. According to a local rancher, there still is a fair amount of interest in the above township and seismic activity was rather extensive in the spring of 1978.

There are deposits of sand and gravel under some parcels of selected land which could have commercial value if there was a nearby market.

The selected lands are not valuable for locatable minerals, such as gold, silver, uranium, and iron.

Topography

The topography of the selected lands is predominately rolling to undulating plains (Figure 5). Some of the lands are so flat that entire 160 acre subdivisions are without a single 20 foot contour line. Elevations of the tracts vary from a low of 2,390 feet to 3,160 feet. The selected land within Section 32, T. 10 N., R. 51 E., has by far the most elevational difference of any of the tracts and that is only 270 feet.

Figure 5

Typical Topography of State Selected Lands

Soils

The soils of the exchange lands are derived from alluvium, generally being deep (over 60 inches) and well drained. One of the most predominant soils (33B) is only 24 inches to gravelly sand, indicating low water holding capacity. Textures range from gravelly loams to silt loams. The use of some soils is limited to range, while others could be used for range or crops, depending upon farming practices used (Map 13). Climatic variables, structure problems and erosion potential keep many of the soils from being suitable for crop production (Map 14).

Table 5 shows the erosion hazard, potential uses and capability subclass assigned to each soil. Definitions of the erosion hazard and capability ratings are given in Appendix 2.

TABLE 5
CHARACTERISTICS

Soil Number	Erosion Hazard Water	Wind	Capability Rating	Potential[1] Use
121D	Slight	Slight	IVe	R
222D	Severe	Moderate	VIe	R
29C	Moderate	Moderate	IIIe	R
30	Moderate	Moderate	IVe; VIw	R
301	Moderate	Moderate	IVe; IIw	R
32	Slight	Moderate	IIIc	C,R
33B	Moderate	Moderate	IIIs	C,R
34	Slight	Moderate	IIIc	C,R
34C	Moderate	Moderate	IIIe	R,C
35	Slight	Severe	IVe	R
35C	Slight	Severe	IV	R
384E	Severe	Moderate	VIe	R
386F	Severe	Moderate	VIIe	R
421D	Severe	Moderate	VIe	R
47	Slight	Slight	IIIc, IIs	IC
50	Slight	Moderate	IIc	C
50C	Moderate	Moderate	IIIe	C
50D	Severe	Moderate	IVe	C,R
51D	Severe	Moderate	IVe	C,R
511E	Moderate	Moderate	VIe	R
541E	Moderate	Severe	VIe	R
551F	Severe	Moderate	VIIe	R
572D	Severe	Moderate	IVe	C,R
59C	Moderate	Moderate	IIIe	R
591C	Moderate	Moderate	IIIe	R
64C	Moderate	Moderate	IIIe	C,R
641D	Severe	Moderate	IVe	R,C
72	Slight	Moderate	IIIc	C
77	Moderate	Moderate	VIw	R
79	Slight	Moderate	IIIc	C
79C	Moderate	Moderate	IIIe	R
795E	Severe	Moderate	VIe	R
795D	Severe	Moderate	VIe	R
821D	Slight	Severe	VIe	R
84C	Moderate	Moderate	IIIe	R

[1] R = Range
C = Crops
IC = Irrigated Crops

Water

Annual average precipitation in the Terry area is 12-18 inches, while annual potential evaporation is around 33 inches, resulting in periods of seasonal soil drought. Surface water quality is quite variable, being excellent (low in sediment and salt) before reaching the Powder and Yellowstone Rivers. There are two USGS water quality stations in the immediate vicinity of the proposed exchange lands. The Powder River station near Locate (06326500) has a range of 17 to 60,000 mg/l for its sediment concentration and a range of 400 to 1900 mg/l for total dissolved solids (TDS). The Yellowstone River station at Terry (06326530) has respective ranges of 24 to 1800 mg/l for sediment concentrations and 200-600 mg/l for TDS.

There are intermittent streams on all the parcels of land except:

T. 11 N., R. 51 E. NE¼, Sec. 9
All, Sec. 21
T. 13 N., R. 42 E. E½, Sec. 4
T. 10 N., R. 51 E. S½ and NW¼, Sec. 34

Groundwater is usually found at 200 to 500 feet and is excellent quality for livestock and domestic use. Amount of available groundwater may not meet the needs for future irrigation. There are presently no irrigation systems in use.

Most of the soils fall into the "A" Hydrologic Soil Group except for the following areas:

"B" - T. 10 N., R. 51 E., S½S½, Sec. 34
"C" - T. 13 N., R. 47 E., E½, Sec. 24
T. 16 N., R. 50 E., W½, Sec. 32
T. 16 N., R. 50 E., S½, Sec. 34

There are two active water wells on the BLM lands being considered for selection by the State. Their locations are: T. 11 N., R. 51 E., Section 21, SW1/4, with a total depth of 144 feet; and T. 11 N., R. 51 E., Section 14 with a total depth of 150 feet. See Map 7, EASTERN MONTANA EXCHANGE LANDS.

A description of the hydrologic soil groups is given in Appendix 2.

Reservoirs are present on the following parcels: S1/2 Section 34, T. 16 N., R. 50 E.; and W1/2 Section 32, T. 16 N., R. 50 E.

Vegetation

The BLM lands selected by the State for exchange almost exclusively have a grassland aspect. Portions of all the tracts inspected have been disturbed by cultivation that occurred approximately 50 years ago. Most of the cultivated areas were reseeded with crested wheatgrass (Agropyron cristatum). Native vegetation occupies areas which were not cultivated and some native plants are reestablishing in seeded areas. The native vegetation can be best described as shortgrass prairie; the primary forage plants are grasses, specifically needle and thread grass (Stipa Comata) western wheatgrass (Agropyron smithii), green needle grass (Stipa viridula) and blue grama grass (Bouteloua gracilis). Many other species of plants are present in relatively small amounts in native plant communities. A small acreage of State priority number 10 has been summer fallowed in 1978 and will likely be planted with grain in 1979. The crested wheatgrass in portions of State priorty numbers 6 and 10 has been cut for hay this year. This activity is permitted on a year-by-year basis.

An intermittent drainage courses through approximately 1000 feet of Tract 6. The moist soils near the water course support some plains cottonwood trees (Populus sargentii).

The range condition of the native plant communities is generally good; plants in seeded areas display good vigor. Apparent trend in range condition is static except near livestock water where range condition may be declining.

Animals

Endangered Species

Peregrine falcon — Bluff areas in Section 20, T. 11 N., R. 51 E., and Section 34, T. 10 N., R. 51 E., appear suitable for nesting habitat. However, there are no records of birds using this area, nor any record of bird observations.

Black-footed ferret — During the course of a field examination, no prairie dog towns were seen on or near the State selected lands. Therefore, it is doubtful that any of the area is ferret habitat.

Big Game Species

Mule deer — All of the State selected tracts contain some habitat that is usable by mule deer. But due to past vegetative practices such as crested wheatgrass seeding, the tracts really do not contain high quality forage for mule deer and cannot be considered important or critical habitat. Although crested wheatgrass is suitable forage for deer in the spring, planting it probably replaced more valuable browse species. Montana Department of Fish and Game reports observation of up to 266 mule deer in the general area of the exchange land in South Prairie County (State priorities 1, 2, 3, 4, 5, 6, 8, 9, 11).

Pronghorn Antelope — The situation with pronghorn is very similar to that for mule deer. Although all tracts probably receive some antelope use they are not critical or important habitats because of the generally poor quality forage for antelope that they produce. The Montana Department of Fish and Game reports that up to 130 antelope winter in the general area of the exchange lands in south Prairie County (same area as listed for mule deer).

Upland Game Species

Sharp-tailed grouse — Coulee bottoms such as found in Section 32, T. 16 N., R. 50 E., contain habitat suitable for sharptail use. It is also possible that some of the State selected tracts have dancing grounds on them.

Waterfowl

Two small reservoirs (estimated to be under 3 acres in size) are on land selected by the State. Although they are too shallow to be considered important for fish, they do provide nesting and brood rearing habitat for dabbling ducks. The reservoirs are located on Sections 32 and 34, T. 16 N., R. 50 E.

Other Wildlife Species

This area of eastern Montana is habitat for a whole array of other game and non-game species, but data is too incomplete to provide any information other than a species list which is not necessary for this analysis.

Livestock

Livestock grazing is authorized on all the lands nominated for exchange. One State priority, number 10, comprises about 50 percent of a pasture which is used as a part of an Allotment Management Plan: The plan calls for this pasture to be grazed fall and winter of each year.

Table 6 summarizes the grazing authorizations issued for each tract.

TABLE 6
GRAZING AUTHORIZATION

State Priority Number	Operator	Season of Use	Carrying Capacity
1 & 2	R.L. Tibbets	4/10 to 10/21	9 AUMs
3, 4, 5, 8, & portion of 9	Larry Jens	3/1 to 6/15 and 9/15 to 12/31	673 AUMs
6	Tille Kuehn	Not regulated*	90 AUMs
7	Maynard Liles	Not regulated*	93 AUMs
Portion of 9	Robert Martin	4/1 to 11/30	29 AUMs
10	Polly Norris	10/1 to 2/28	90 AUMs
11	A. Lesmiester	Not regulated*	121 AUMs

*Livestock use is permitted at the operator's discretion provided the use is not detrimental to the Federal range.

Prehistoric and Historic Features

At the present time a complete inventory of the cultural resources in the Terry area has not been made. No cultural resources in this area are now listed on the National Register of Historic Places. Upon completion of the inventory in this area, all cultural resource values in the area shall, in consultation with the Montana State Historic Preservation Officer, be evaluated for eligibility to the National Register of Historic Places and to determine what effect, if any, this action will have on them. If a site having potential for nomination to the National Register is found, there would be three alternatives: 1) retain the land the site is on, 2) transfer the land after following a lengthy legal process, or 3) mitigate through data recovery.

Aesthetics

Land Character

The most obvious characteristic of these tracts is the lack of relief or variations in topography. Little variation in color, form, line and texture exists, which is characteristic of the dry grasslands of southeastern Montana. Dominant colors consist primarily of browns and grays with light greens during greenup of the vegetation. Grasses are the dominant vegetation with limited shrubs on a couple of tracts.

Topography (form) of most of the tracts is flat with a few tending toward slightly rolling. Overall, little variation exists.

Texture is mainly a monotony of smooth grass-covered terrain. Rocks and variations in vegetation do not exist which are important for textural differences.

Line, which is affected by texture and topography patterns, is essentially non-existent on all tracts.

Using the BLM's Recreation Information System (RIS), scenic quality of the area has been determined at a low "C", where "A" is the highest rating

allowed and "C" the lowest. It is estimated that even with management, the future rating would still be "C".

Visual Resource Management (VRM) Classes

Sensitivity levels for the entire area have not been completed. However, applying the VRM rating process to the subject tracts places them in Class IV defined below:

> Class IV changes may subordinate the original composition and character but must reflect what could be a natural occurrence within the characteristic landscape.

Recreation Resources

BLM's recreation inventory system has identified limited recreation potential on the selected lands.

Noise and Odor

All tracts are located in a rural, undeveloped area and are not subject to odors or noise from any major source of pollution.

Current Social and Economic Conditions

Prairie County is a sparsely populated county, 1,700 people, (Centaur Management 1978), located in the former short grass prairie of the Eastern Great Plains. The Yellowstone River bisects the county and the bottom lands along the Yellowstone are suitable for irrigated farming. the result is a mixture of agricultural uses ranging from irrigated cropping to dryland wheat and haying and, finally, to grazing of grasslands which have soils which blow when tilled. Because of its agricultural base, Prairie County has seen a decline in population since 1950 of nearly 30 percent.

The mechanization of agriculture and the consolidation of farms led to a reduction in jobs, and the people who had those jobs migrated out. This has led to a current situation where population density is very low (1.0 person per square mile, compared to 60.7 per square mile for the U.S. as a whole) and so there is little attraction for businesses to locate in the area. Thus, the central places where trade is conducted are very small.

Terry, the only significant trade center in the county, had a 1976 population of 922 people (U.S. Census, P-25, May 1977). The low level of trade activity that is evidenced in such small rural areas is accompanied by a reduced number of building starts for several reasons. A declining population has access to a number of existing older homes and there are few new housing starts. Business activity declines as people migrate out and little new business construction is needed. New community buildings, like schools, are not needed and construction only occurs when a facility needs to be replaced. Because of declining construction and trade, employment in building crafts remains low.

At the national level, construction employment is almost 6 percent of total employment, while in Prairie County, it is less than half of that at 2.6 percent. Similarly, trade represents 20 percent of the U.S. total employment, while in Prairie County, it accounts for 17 percent. The result is that agriculture is unchallenged as the dominant source of employment and income in Prairie County, representing 40.6 percent of total jobs and 53.1 percent of total income in 1976.

The exchange would result in insignificant changes in land ownership in Prairie County that would marginally affect agricultural activity. The present land ownership patterns are shown in Table 7. The BLM currently administers 450,734 acres in Prairie County. The acreage constitutes over 99 percent of total federal ownership in the county and 40.5 percent of the total county land area.

TABLE 7

LAND OWNERSHIP PATTERN - PRAIRIE COUNTY

Ownership	Acreage	% of Total
Federal (non-LU)	61,334	5.5
LU (Bankhead-Jones)	389,546	35.0
State	71,465	6.4
Private	590,615	53.1
TOTAL	1,112,960	100.0

Land Use

The City-County Planning Board for the Terry area is "non-functional" at this time, and there is no zoning which affects any of the selected lands.

Present land use of the BLM land is primarily livestock grazing and wildlife habitat, although hay production is occurring on several tracts. Other uses include stock reservoirs, roads, telephone lines, power lines, and natural gas pipelines. Some easements and reservations listed in the Appendix are no longer in use and application of reversionary clauses might be appropriate. Land use in the vicinity of the selected lands centers on dryland farming and ranching with associated scattered residences.

CHAPTER 3

ENVIRONMENTAL IMPACTS

ENVIRONMENTAL IMPACTS

This chapter presents an analysis of the environmental impacts which are anticipated with the proposed action. Alternatives will be analyzed in Chapter 5.

Part "A" refers to lands in the Sleeping Giant area, part "B" refers to Terry lands.

A. SLEEPING GIANT AREA

Climate

The proposed action will have no affect on the climate of Sleeping Giant.

Air Quality

Air quality would not be influenced by the land exchange itself. If subdivision were to occur on the Ox Bow Ranch, a minor increase in particulate matter due to dust from roads, etc., could be expected.

Topography and Geology

The mere exchange of land would have no impact on either the topography or geology. The BLM land is prospectively valuable for oil and gas; therefore, once it is in private ownership, any oil and gas exploration or drilling would probably be done with fewer protective environmental stipulations. The same would apply to State lands that would eventually end up in private ownership.

Future oil and gas leasing on the BLM controlled lands would be done to strict enviromental standards to protect the scenic qualities of the Giant.

The lands the BLM proposes to exchange are not valuable for other minerals.

Soils

Following the completion of the proposed action, on the lands conveyed to private ownership, the most probable environmental impact to soils would be if building of housing subdivisions in the vicinity of Holter Lake occurred. Of the several types of soils encountered near Holter Lake, only the loamy, mixed Lithic Cryoborolls found on slopes of 8-50 percent would present a severe slope stability problem requiring special design or intensive maintenance. The other soil types would present no frost action, shrink-swell, and slope stability problems on slopes of up to 15 percent. With development on slopes exceeding 15 percent, most of the soils would present a severe slope stability problem.

Water

Water quality of the exchanged land may be adversely affected or enhanced, dependent upon the management practices used by the new land owner.

The BLM would obtain control of 4,804 acres of watershed in the immediate area of the Sleeping Giant exchange, while the State and BLM would convey 1,661 acres to Ox Bow Ranch. BLM management control would be gained over the areas of upper Sheep Creek, upper Falls Gulch, and of various unidentified drainages draining directly into Holter Lake. This would provide the BLM with better watershed management opportunities for these lands.

State land in Sec. 36, T. 14 N., R. 4 W. would transfer to the BLM with no anticipated change in watershed management. State land in Sec. 16, 18, 20, T. 14 N., R. 3 W. would eventually fall to private ownership where change in watershed management could occur due to agriculture development, subdivision, etc. These changes could degrade water quality depending on future management, i.e., development of a subdivision could increase bacterial contamination, if adequate sanitation facilities were not developed.

The action would not cause any change in the use of the land drained by Towhead Gulch.

Vegetation

The impacts on vegetation resulting from the completion of the proposed land exchange would be beneficial in nature. The consolidation of public

land would provide for more effective management of livestock grazing and would bring a significant amount of productive land adjacent to the lake under a management system. Conversely, if the present land status pattern is maintained the most productive land would not be under the direct management of the BLM.

Transfer of State lands in Sections 16, 18, and 20, T. 14 N., R. 3 W. to the Ox Bow Ranch could result in a change in vegetation due to intensified agricultural use. Sec. 36, T. 14 N., R. 4 W. would be in BLM ownership and would probably not change in vegetation unless the area is included under an intensive livestock management system.

Animals

Wildlife

The main impact the land exchange would have on wildlife is associated with speculation concerning future developments. Privately owned shoreline of Holter Lake could be subdivided for development as could the Ox Bow Ranch.

Considering possible future development, acquisition of Ox Bow Ranch land in the Sleeping Giant area by the BLM would have the following impact:

> Shoreline on the west side of Holter Lake from Sec. 34, T. 14 N., R. 3 W., to the Gates of the Mountains Wilderness would be protected from possible subdivision development. This 8.6 miles of shoreline is important habitat for a variety of big game, raptors, and other species.
>
> A consolidated land ownership pattern would emerge. This means potential for improved wildlife habitat management.
>
> The impact on BLM land from possible future subdivisions would be reduced. This is beneficial to wildlife because it means less disturbance from subdivision activities in the form of noise, stray pets, etc.
>
> The BLM would directly acquire about 600 acres of winter range for elk and deer.

Acquisition of State land (T. 14 N., R. 4 W., Sec. 36) in the Sleeping Giant area by the BLM would have the following impact:

> An additional 640 acres of wildlife habitat would be consolidated under control of BLM, resulting in the potential for improved habitat management.

Lands in Sections 6, 8, 16, 18, and 20 of T. 14 N., R. 3 W. to be conveyed to Ox Bow Ranch would probably have the following impacts:

> Loss of public control of 1,661 acres of land that is presently in government ownership, about 700 acres of which is elk and deer winter range. The private land owner may or may not put this land to alternative uses such subdivision development, which would result in displacement of the wildlife species.

Livestock

A new management situation would result in a decrease in the amount of use to which the Ox Bow Ranch allotment area would be subjected.

In the Towhead Gulch area a newly implemented livestock management system would remain in effect regardless of the final disposition of the exchange. Again any impacts would be negligible.

State lands that would enter private ownership would probably receive continued grazing by livestock.

Prehistoric and Historic Features

The proposed action would have two affects upon any cultural resources in the area. One would be beneficial, the other adverse. The Historic Preservation Act of 1966 (as amended) requires that before a federal agency transfers any land containing properties listed in or eligible for the National Register of Historic Places, they must first obtain comments from the Advisory Council on Historic Preservation. In order to comply with this law, the Bureau has undertaken an inventory in the Sleeping Giant area and will complete an inventory on the lands near Terry in order to determine the presence or absence of any potential National Register properties. This inventory should have a beneficial effect upon cultural resources in these areas, since it will provide a data base, now lacking, that is needed for the management of these resources.

The potential adverse effect of the proposed action would be the possible loss of control and ownership of any significant cultural resources present in the transferred lands. Once the lands are transferred, either to the State of Montana or the Ox Bow Ranch, the federal laws that offer some protection to cultural resources on federal lands will no longer apply to the cultural resources located on the transferred lands.

The State of Montana does not have an archaeological requirement on the transfer of lands other than the Montana Environmental Policy Act that may require a survey prior to exchange.

Aesthetics

The anticipated impacts of the proposed action would be favorable from the aesthetics standpoint.

For lands that are now privately owned, completion of the land exchange would insure against developments and associated uses which would be detrimental to the visual resources of the area. Subdivisions and related activities along the shoreline would severely reduce the aesthetics presently enjoyed along the river.

Recreation

The proposed action would result in a continued and presumed increase in recreational use of the area. Visitor use demands will continue to increase according to the 1978 Statewide Comprehensive Outdoor Recreation Plan (SCORP) regardless of what action takes place. However, the opportunity to pursue recreational activities will vary tremendously depending on action taken.

Opportunities for sightseeing (scenic, historical, and zoological), hunting, fishing, and enjoyment of natural and primitive values should increase.

Consolidation of this land into a block of public land would facilitate use and enjoyment by the general public. The public lands would be afforded the necessary protection to preserve the natural and primitive values. A consolidated block of public land should improve hunting opportunity once a person is in the area.

There would be little change in recreation on State lands that transfer into private ownership because public use of these lands is already at the discretion of the lessee and State.

Social Conditions

The proposed exchange would allow the interests mentioned in the "no action" alternative to avoid the costs mentioned in that discussion. The interested reader is referred to that discussion to find what social costs would be avoided. In addition, the interests cited below would receive positive social benefits from the exchange.

Lewis and Clark Area Wide Planning Organization

Management of future developments should be more efficient because a consolidation of land ownership usually results in the creation of larger coordinated subdivision developments rather than a scattering of small projects. Because these larger subdivisions could satisfy the demand for cabin sites as easily as a larger number of smaller subdivisions, the number of applications could be reduced. The Director of the Planning Organization mentioned that a number of recent larger subdivisions include reservations of land within the subdivision which is to be held in common by the residents. The effect of this has been to increase values. However, this is usually more than offset by the personal satisfaction the site owner gets from having a low density area with high scenic value. The Director speculated that the effect of this would be to not only reduce management costs for his agency, but also to increase satisfaction of the recreation site owners beyond any increased price they might have to pay (Personal Communication, Director, Lewis and Clark Area Wide Planning Organization, January 5, 1979).

Local Government

By consolidating the amount of land available for development, the total number of dwellings to be served would be reduced. The area covered by dwellings and the distances between developments should also be reduced. Should large future development be proposed, the consolidated land pattern could result in more efficient and less costly social services such as police and fire, trash collection, road construction and maintenance. By reducing costs and increasing efficiency, the satisfaction of the residents with these services would be enhanced.

Concessionaire

The concessionaire who operates boating excursions on the upper lake felt that his excursions would be enhanced by the action to the point that he would lengthen the tour. As he does not intend to increase his rates, this would not result in any greater income to him or to the State. However, interviews with the concessionaire indicated that his clients would receive much greater satisfaction from a longer tour, which exposes them to more of the historical and natural values of the area (personal communication, Mr. Robert Tubbs (boating concessionaire), January 5, 1979).

Economic Conditions

An increase of 4,804 acres of BLM ownership in Lewis and Clark County would result in total BLM jurisdiction of 68,401 acres in the County. This would increase the percentage of BLM land in the county from 2.8 percent to 3.0 percent. State ownership in the county would fall from 7.4 percent to 7.3 percent and private ownership from 44.9 percent to 44.8 percent.

Following completion of the proposed action, there would probably be an increase in the value of the lands available for private development in the Holter Lake area. The effect of this anticipated increase in values is relevant to the private landowners as well as the local governments. Several papers presented at the Eisenhower Consortium for Western Environmental Forestry Research, September 1975, concluded that the resulting increase in value would be a benefit to the local governments. This is because the residents of the recreation homesites demand less in the way of public services; for example, their children attend school elsewhere and they do not demand large infrastructure investments. Recreation homesites do contribute to increased property taxes because of the high value associated with recreation development

Because of the limitations of theoretical economics and available data, we cannot accurately predict the increase in value. It is likely that the proposed action would result in greater property tax revenues for Lewis and Clark County and that this will develop into an excess of tax revenue over expenditures because of the low level of demand for services by those buying the recreation sites.

Land Use

Consolidation of private and federal lands would provide better and more cohesive land management for each area. Accomplishing the exchange would have some effect on future land use, primarily along the shore of Holter Lake. The present owner of the Ox Bow Ranch has indicated that he does not intend to develop the shoreline at this time. If the exchange is not completed, development could occur piecemeal fashion along most of the western shore as well as along the northeast shore. With the exchange and purchase, however, any future development would be restricted to the northern end of Holter Lake. Federal and State agencies would administer the southern two-thirds of the lake, managing the resources for present and future generations.

B. TERRY, MONTANA AREA

Climate

The proposed action would have no effect on the climate of the area involved in the land exchange.

Air Quality

Air quality would not be influenced by the land exchange itself. If the State selected lands were put into agricultural production, it is possible that an increase in particulate matter in the air could occur due to the action of wind on fallow fields, etc. The degree of change in particulate matter cannot be assessed at this time.

Topography and Geology

The exchange of land would have no impact on either the topography or geology.

Since there is not a lease on the coal rights at present, any future development royalties would accrue to the State school trust fund. Based on the potential for coal developmemt as discussed in Chapter 2, it is doubtful there will ever be any coal leasing in the area.

Soils

Depending upon which lands are exchanged, the BLM would lose control of various acreages of cropland, marginal cropland, and rangeland (refer to Map 14, Chapter 2).

Since the major soil impacts would occur if rangeland was converted to cropland, Table 8 shows the amount of acres that would be subjected to the various levels of erosion for those soil units that have potential for cultivation. Because the soils are generally sandy, saline seep would not be expected to occur if the lands were cultivated.

Water

If the land were exchanged and put under cultivation, erosion would occur and the sandy soils would be most susceptible. If the parcels were irrigated, this would cut down the erosion. The availability of water would be the limiting factor. The farther away one gets from a coulee or streambed, the less water is available. There is doubt that the groundwater system south of Terry would hold up under increased irrigation demands.

If there was no change in land use on the selected lands, there would be no impact on the water resource as a result of the exchange.

Vegetation

To effectively analyze the impact this exchange could have on vegetation, the three probable uses of the land and vegetation must be considered. All of the selected tracts are classified by the Soil Conservation Service as Class III or Class IV Agricultural Land, i.e., suitable for cultivation. All of the selected tracts are now being grazed and some are being mown for hay. The impact on vegetation would vary greatly depending upon what use or combination of uses the land would be put to if ownership passes to the State of Montana.

If an agricultural lease is issued by the State, the vegetation now on portions of these tracts would be plowed under and replaced by cash crops, probably small grains. If not irrigated, it is accepted practice in the area to strip-farm, that is plant only half the acreage each year and allow the other half to lie fallow to recharge soil nutrients and moisture. If irrigation systems are installed, all of the land would be planted each year.

If grazing leases are issued for the selected tracts, the vegetation now occupying the land can be expected to remain in place and not change drastically in the two or three years following the proposed exchange. Plant communities can be altered significantly by livestock grazing over a long period of time. The season of use and stocking rate are the primary factors which can be manipulated to either benefit or deplete vegetation. There is no accurate way to forecast what type of grazing management would be employed for each tract and any further discussion would be speculative.

The selected tracts could be mown for hay annually, occasionally, or not at all. If mown annually, desirable forage plants would eventually be replaced by less desirable plants. It should be noted that the lands which are now mown are cut only in

TABLE 8

SOIL ACREAGES

State Priority	Legal Description	Map Unit	Erosion Hazard (Slight, Moderate, Severe) Water	Wind	Acres
	T.11N., R.51E				
1	Section 9, NE¼	33B	Mod.	Mod.	160
2	Section 14	33B	Mod.	Mod.	475
		50C	Mod.	Mod.	75
		50	Sli.	Mod.	65
3	Section 23	50	Sli.	Mod.	47.5
		33B	Mod.	Mod.	413.75
		50C	Mod.	Mod.	65
		641D	Sev.	Mod.	30
		50D	Sev.	Mod.	27.5
4	Section 21	33B	Mod.	Mod.	572.5
5	Section 27, N½	33B	Mod.	Mod.	232.5
	T.16N.,R.50E.				
6	Section 32, W½	51D	Sev.	Mod.	43.75
		34C	Mod.	Mod.	106.75
		72	Sli.	Mod.	2.5
7	Section 34, S½	72	Sli.	Mod.	20
		32	Sli.	Mod.	57
		34	Sli.	Mod.	75
		34	Sli.	Mod.	80
	T.11N.,R.51E				
8	Section 26	33B	Mod.	Mod.	384.4
		641D	Sev.	Mod.	55
		50	Sli.	Mod.	.63
9	Section 20, E½	33B	Mod.	Mod.	174.75
	T.13N.,R.47E				
10	Section 4, E½	572D	Sev.	Mod.	27
		50C	Mod.	Mod.	95
		79	Sli.	Mod.	95
	T.10N.,R.51E				
11	Section 34, S½ & NW¼	33B	Mod.	Mod.	213.12
		47	Sli.	Sli.	.63

years when production is above average. This practice seems to have no deleterious effects on the vegetation.

Animals

Wildlife

The possibility for conversion of the land to agricultural production could be increased. Such conversion would mean direct loss of habitat for species such as pronghorn antelope, mule deer, and sharp-tailed grouse. Although the exchange lands are not really good habitat, the cumulative effect of conversion to agricultural production would not be beneficial to wildlife.

Since the area is largely uninventoried from the standpoint of sharp-tailed grouse, we do not know whether or not there are dancing grounds in the area. If there are, conversion to crop production could destroy these breeding complexes.

If the State continued to use the land for livestock range, there would be essentially no change in habitat for any of the wildlife species in the area.

Livestock

In the event that some or all of the selected tracts were cultivated for small grains, use by livestock of the cultivated areas would be limited to grazing of the grain stubble after harvest was completed.

If the present plant communities are not disturbed, it is assumed that grazing leases would be issued. The Prairie County Cooperative State Grazing District (PCCSGD) now holds state grazing leases for much of the State-owned land in the area. If the PCCSGD successfully bid for the grazing lease(s), the land would be sublet, usually to the livestock operator now grazing the tract. It is unknown if PCCSGD would receive preference when and if leases are made.

If PCCSGD was not the successful bidder, leases would be made with individual livestock operators. Table 6 summarizes the Animal Unit Months (AUMs) now permitted each operator by BLM. It is very difficult to quantify the impact a loss of pasture would have on these operators. A yearlong beef cattle operating schedule is complex; each pasture being used at a specific time to mesh with the overall operation. It can be said, however, that grazing lands available for purchase or rent in any given area are not easily located. Loss of the grazing privilege by any of the current permittees could create problems in their yearlong operation.

Prehistoric and Historic Features

As mentioned in Chapter 2 and in Part A of this chapter, a cultural resources inventory will have to be done before transfer of title can be made. The potential adverse effect of the exchange would be loss of federal control and ownership of any signficant cultural resources present in the transferred lands.

Aesthetics

Should the future management of the State selected lands change to agricultural production there would be more acreage of plowed fields each spring and fall presenting soil vegetation contrasts.

Recreation

State ownership would put access to these various land tracts at the discretion of the lessee, who may or may not allow hunting on the land. Loss of hunting opportunity at the reservoirs in Sections 32 and 34, T. 16 N., R. 50 E., would probably be the most important concern.

Social Conditions

General

No significant impacts on local housing, educational institutions, social services, or public safety and health would be expected as a result of the State exchange.

Personal Satisfaction

The possibility of conflict between Prairie County Ranchers and the State Land Board over land use after the proposed exchange was considered. Interviews with the ranchers revealed that those ranchers currently leasing State lands had a good working relationship with the Land Board and did not anticipate conflict. If the state granted them a preference right on the land then only one of the ranchers would oppose conversion from grazing to cropping. One rancher would be actively in favor of

conversion to cropping. The remaining ranchers would favor cropping if the land were of good quality. Only one of the ranchers (the one opposing conversion) lacks the necessary farm equipment needed for cropping. The remaining ranchers all currently farm some land (hay, wheat and safflower being some of the crops) and could farm the land without incurring increased costs associated with buying farm equipment. Based on this information, it was concluded that the probability of conflict and decreased satisfaction would not be significant.

Economic Conditions

Cattle Production

The approximate 3,000 acres of BLM land to be conveyed to the State has been estimated to contain the potential for about 975 Animal Unit Months (AUMs). Utilization of these AUMs would include moving the cattle to deeded bottomland during winter and feeding hay during this period off the range. Under this program, the land providing the AUMs would be part of a grazing system supporting about 310 head of cattle. Posted prices for feeder cattle as of December 18, 1978, were $52 to $70 per hundred weight. At this price, the theoretical income to the ranchers from the 975 AUMs on the 3,000 acres would be $72,000 to $152,000. (See Appendix 3 for calculations.)

Grain Production

If all of the approximate 3,000 acres of BLM land conveyed to the State were capable of being put into successful dryland wheat farming, this could result in a generated earnings of $258,000. This was determined as follows: 91,800 bushels of wheat (3,000 acres times 30.6 bushels per acre) at current price of $2.81 a bushel would bring about $258,000. This is about $106,000 more earnings than it is estimated would come from cattle sales on this amount of acreage at $70 per hundred weight, resulting in $152,000. In reviewing these estimates of prices and earnings, it is necessary to consider that, at current prices, wheat generates more revenue (but not necessarily more profits) per acre than cattle would. The theoretical rise of annual agricultural income of $106,000 flowing in Prairie County would be an increase of about 2.3 percent.

It is estimated that if the approximate 3,000 acres of conveyed land could be successfully put into dryland wheat, that the State of Montana could receive about $65,000 per year of annual income from its share of the agricultural production. If the State did not lease the land for cropping, it would receive about $1,300 to $1,600 a year from leasing the land for grazing. (See Appendix 3 for calculations.)

Land Use

Accomplishing the exchange would not have an immediate affect upon present land use. Existing Federal leases would be carried to their expiration dates, at which time, new lease arrangements would be made under applicable State law. Future conversion of some grazing land to cropland could occur, depending on the arrangement between the State and the lessee.

The conveyance of BLM lands to the State in the Terry area would result in some fragmenting of the BLM ownership pattern in that area and possibly cause additional management concerns associated with scattered ownership.

CHAPTER 4

MITIGATING MEASURES AND RESIDUAL ADVERSE IMPACTS

MITIGATING MEASURES AND RESIDUAL ADVERSE IMPACTS

Due to the nature of this action (land exchange) there does not appear to be opportunity for mitigation other than the legal and management constraints which are included in the proposal. However, there are a few residual adverse impacts and they are summarized below.

1. Mineral rights would be transferred along with the surface rights wherever possible. Ox Bow does not own the mineral estate in 1260.74 acres of ground which would transfer to BLM. In case of mineral development on those lands, the BLM would have the same rights as any other surface owner in the State as far as environmental protection is concerned, but the U.S. would not benefit financially from any mineral sale or lease (which is the case where minerals are owned by the BLM).

2. Land title for all parties would be granted subject to existing easements and rights-of-way as described in Appendix 1. This is because of outstanding prior rights on the land that cannot be terminated.

3. An archaeological inventory must be made on all land that is transferred from BLM ownership. In the event archaeological sites are found and are salvage excavated, they would effectively be destroyed and removed from future research.

CHAPTER 5

ALTERNATIVES TO THE PROPOSED ACTION

ALTERNATIVES TO THE PROPOSED ACTION

Alternative 1

In this alternative, the BLM would purchase all State land in Sections 16, 18, and 20, in T. 14 N., R. 3 W., and Section 36, T. 14 N., R. 4 W. BLM would then trade Sections 16, 18, and 20, T. 14 N., R. 3 W., to the Ox Bow Ranch for equal value land in the Sleeping Giant. The BLM would subsequently purchase the remaining Ox Bow Ranch land necessary to arrive at the land ownership configuration described for the Ox Bow Ranch and the BLM in the proposed action, and shown on Map 2.

This alternative is not presently feasible because it is policy of the Department of State Lands not to sell school trust land (Minutes of Regular Meeting of State Board of Land Commissioners, Wednesday, June 14, 1967).

Alternative 2

This alternative would involve the outright purchase of Ox Bow Ranch land by the BLM to obtain the BLM land pattern described in the proposed action and shown on Map 2.

This alternative is not feasible because it does not meet the needs of the Ox Bow Ranch; no further discussion of this alternative will be made, since it is not acceptable to all parties concerned in the exchange.

Alternative 3

An alternative to the proposed action is that of "no action" with neither exchange nor purchase taking place. The following general impacts are anticipated.

1. Portions of private land along an 8.6 mile shoreline of the Missouri River could be subdivided and/or developed for intensive uses.

2. Protection of important wildlife habitat in the consolidation area would continue to be a problem because of lack of control along the west shore of Holter Lake. This lack of unified control along the west shore could cause negative impacts on the State of Montana Beartooth Game Management area on the east shore of Holter Lake.

3. Nine miles of the proposed Lewis and Clark National Historic Trail would remain in private ownership instead of public.

4. Wilderness characteristics of BLM lands could be threatened by uncontrolled activities on intermingled private lands.

Specific impacts under the "no action" alternative are anticipated.

Wildlife

Possible subdivision developments could occur along 8.6 miles of the west shoreline of Holter Lake with impacts to game and non-game animals.

Disturbance caused by noise and harassment of big game animals such as bighorn sheep, mountain goats, and mule deer could occur. This disturbance would probably result in abandonment of habitat by the animals. Direct mortality of game could occur as a direct result of subdivision as well.

Osprey that nest along the water's edge could suffer loss of habitat and increased harassment. Bald eagles that pass through the area on migration (or possible nesting birds) could be faced with additional disturbance. The occurrence of peregrine falcons is only speculation, but human impact is generally thought detrimental to them.

Changes in livestock management would be more difficult without a consolidated land ownership. Consequently, benefit to wildlife through proper livestock management would be more difficult to achieve.

Prehistoric and Historic Features

Alternative 3 will eliminate the loss of ownership of any cultural resources and the need to obtain the comments of the Advisory Council on Historic Preservation. The cultural resource inventory of the area will be delayed, during which time any cultural resource present could be lost or damaged, either inadvertently or through neglect because the data base needed to manage these resources would not be available.

Aesthetics — Recreation

The environmental impacts of this alternative could be far reaching and extremely detrimental to the Sleeping Giant area. It is suspected that private land along the river would eventually be developed as subdivisions, thereby essentially cutting off all access to the Sleeping Giant and reducing or eliminating recreational use except by private landowners. Much of the integrity of the area would be destroyed by the introduction of various intrusions. Qualities now available for visitor's enjoyment would presumably be lost.

Development of the shoreline would seriously alter the visual qualities of the area. Contrast ratings have not been employed due to a lack of knowledge regarding degree, types, and location of suspected developments. However, an example of what could occur can be seen at Indian Trail Lodge area located on the oxbow bend of the river.

Primitive values would likely decline due to the intrusions and effects of people and domestic animals on wildlife. A negative impact on hunting values would occur and ORV use, primarily by the private landowners, could be enhanced.

Fishing qualities in the Missouri River may be reduced by the proximity of drainage and sewage systems associated with the developments. Noise and odor pollution would likely increase because of developments.

Use by private landowners may concentrate river use in relatively small areas associated with various developments.

As required by State law, the Lewis and Clark Area Wide Planning Organization reviews all applications for land subdivisions with parcels less than 20 acres in size within the county. Allowing development of the west shoreline could make their mission more difficult. It could lead to the filing of more subdivision applications or to the necessity of this organization "legislating" a limit of growth along the shoreline. The result of this legislation would limit the opportunity of individuals to dispose of their property as they see fit. (Based on personal communication with Director, Lewis and Clark Area Wide Planning Organization, January 5, 1979.)

Other Resources

Negligible change would occur with respect to the other resource values.

CHAPTER 6

CONSULTATION AND COORDINATION

CONSULTATION AND COORDINATION

Following is a listing of the individuals who participated in preparation of this environmental analysis:

Bureau of Land Management, lead agency

- Keith Bennett, Economist
- Lew Brown, Wildlife Biologist
- Loren Cabe, Economist
- Lyle Fox, Headwater Area Manager
- Leigh Freeman, Paralegal Specialist
- Steve Hicks, Geologist
- George Hirschenberger, Range Conservationist
- Millard Hulse, Public Relations Specialist
- Dave Lomas, Hydrologist
- Paul McClain, Range Conservationist
- Darrell McDaniel, Recreation Planner
- Blaine Miller, Archaeologist
- Paul Myers, Sociologist
- Dave Pickett, Chief of Resources
- Gary Roam, Environmental Specialist
- Neil Talbot, Environmental Coordinator
- Alexa Watson, Realty Specialist

Montana Department of State Lands

- Ralph Driear, Environmental Administrator
- Robert Spinney, Assistant Environmental Administrator

Private Individuals

- Bruce Bugbee, Land Use Consultant, Missoula, Montana

APPENDIX 1

APPENDIX 1

TECHNICALITIES INVOLVED IN COMPLETING THE LAND EXCHANGE

The following is a listing of known and/or recorded actions which affect land in the proposed Sleeping Giant land exchange and purchase area.

Part "A" refers to land in the Sleeping Giant Area. Part "B" refers to lands in the Terry, Montana, area that would be selected by the State.

A. SLEEPING GIANT AREA

Minerals

It is the intent of all parties concerned, where possible, to exchange lands and minerals for lands and minerals. The reason for this is so the surface owner can control mineral development with the result being better management of the land. The Geological Survey report for leasable minerals states all the land in T. 13 and 14 N., R. 3 W. is valuable for oil and gas and for coal. The land in T. 14 N., R. 4 W. is valuable for oil and gas only.

The State of Montana has all the minerals in its lands. Ox Bow Ranch has the minerals in part, but not all of its private land. Ox Bow Ranch does not have the minerals in the following land:

T. 13 N., R. 3 W., Prin. Mer., Montana
Sec. 14: Lots 6, 7

T. 14 N., R. 3 E., Prin. Mer., Montana
Sec. 26: Lots 3, 6, 7
Sec. 27: Lots 2, 6, 9, 10, 14, NW¼, NW¼SW¼
Sec. 34: Lot 1
Sec. 35: Lots 2, 3, 6, 7

T. 14 N., R. 4 W., Prin. Mer., Montana
Sec. 25: All

All the lands in Lewis and Clark County which are involved in the exchanges are determined to be non-mineral in character for location under the mining laws. This determination was made in the field by qualified BLM mineral examiners.

Grazing Leases

The State lands in T. 14 N., R. 3 W. are now leased to the Ox Bow Ranch which would be the eventual title owner. Section 36, T.14 N., R. 4 W., after the exchange with the State, would remain

in BLM ownership. This section is presently in a State grazing lease to Earl and Robert Murphy. The lease expires February 28, 1983. Through Bureau policy, the existing lease between Mr. Murphy and the State will be recognized until the expiration date. After that date, the lease area would be administered pursuant to Section 15 of the Taylor Grazing Act.

Rights-of-Way, Easements, and Reservations

Of the following items listed, Item #1 affects State-owned land and Items 2 through 8 affect Ox Bow Ranch land.

1. Section 16, T. 14 N., R. 3 W., Prin. Mer., Montana

There is a sublease agreement between the Montana Aeronautics Commission and the Ox Bow Ranch for a landing strip in the NW¼. The title which the Ox Bow Ranch would receive for this land would be subject to this agreement and the landing strip would remain.

The Montana Power Company was granted a right-of-way easement by the State along the shoreline of Holter Lake. This easement is for 16.28 acres, part of which is under water and all of which is inside the Holter Lake power project boundary. The title the Ox Bow Ranch would receive from the State would be subject to the easement which approximately falls along the 3570 foot contour level.

2. E½E½, Section 29, T. 14 N., R. 3 W., Prin. Mer., Montana

A right-of-way easement about 150 feet wide for erecting and maintaining a powerline was granted to the Capital City Improvement Company, a predecessor of the Montana Power Company. The title the BLM would receive would be subject to this easement and the powerline would remain.

3. SE¼SE¼, Section 31, T. 14 N., R. 3 W., Prin. Mer., Montana

Right-of-way for a firebreak, 20 feet wide, granted to BLM by Ox Bow Ranch. This would be cancelled since the land involved would be transferred to the BLM.

4. T. 13 N., R. 3 W., Prin. Mer., Montana
   Sec. 2: Lot 3
   Sec. 3: All
   Sec. 14: Lot 4
   Sec. 11: All lying west of the Missouri River

This is a reservation and easement owned by the Montana Power Company to "operate and maintain the dam, reservoir, and hydro-electric power plant, as the same is now operated and maintained, or as it may hereafter be constructed, operated and maintained, changed, or increase, with the right and easement to permanently flood such portions of said lands as may be necessary in connection therewith; also right-of-way and rights-of-way for construction and maintenance of pole lines, transmission lines, telephone and telegraph lines, and the right of ingress and egress through, over, and across any of said lands for the purpose necessary to the use, occupancy and enjoyment of said dam, reservoir, hydro-electric plant."*

5. T. 13 N., R. 3 W., Prin. Mer., Montana
   Sec. 13: Lots 5, 6, 7, 8, 11, 12, SW¼, W½SE¼
   Sec. 14: Lots 6, 7

   T. 14 N., R. 3 W., Prin. Mer., Montana
   Sec. 26: Lots 3, 6, 7
   Sec. 27: Lots 2, 6, 9, 10, 14, NW¼SW¼
   Sec. 34: Lot 1
   Sec. 25: Lots 2, 3, 6, 7

This is a reservation by the Montana Power Company for the right to "overflow, submerge, drain, or otherwise affect with the waters of the Missouri River all or any part of the above described lands which may be affected by the regulation and control of the waters of the Missouri River, by the maintenance and operation of the present or future hydroelectric developments; further excepting and reserving all rights-of-way, easements, and uses necessary in connection with the present or future electric and gas operations of the Montana Power Company."*

6. T. 13 N., R. 3 W., Prin. Mer., Montana
   Sec. 2: Metes & Bounds

Flooding rights were granted to the Capital City Power Company (a predecessor of the Montana Power Company) "commencing at the point on the southwest bank of the Missouri River where the line between Ts. 13 and 14. N., R. 3 W., crosses said river, and running thence west to the Section corner between Sec. 3 and 2 in T. 13 N., R. 3 thence south three quarters mile; thence east to the west or south bank of the river; thence following the bank of the river northerly to the point of the beginning."* This reservation was granted at the time Holter Dam was supposed to be built in Section 2 of T. 13 N., R. 3 W.

*Verbage copied from the land title.

7. T. 14 N., R. 3 W., Prin. Mer., Montana

Flooding rights were also granted to Capital City Power Company on this land at the same time as above.

8. Lots 9, 10, SE¼SE¼, Section 34, T. 14 N., R. 3 W.

A perpetual easement and right was granted to Capital City Power Company to "overflow and flood to the full extent to which they or any of them may or can be overflowed and flooded, by any dam or its flashboards, of sufficient height to raise the waters thereof, to an height or elevation, not exceeding a maximum height or elevation of thirty-five hundred seventy feet (3570) above sea level; and also marginal shore rights in said lands for fifty feet outward from the beyond said maximum flood line."*

Effect of Rights-of-Way, Easements, and Reservations

The airport lease in Section 16 is presently held by the Montana Aeronautics Commission and the Ox Bow Ranch. The Ox Bow Ranch would be the ultimate owner of this section if the proposed exchanges are finalized.

The BLM is the permittee for the firebreak right-of-way in Section 31 (Item 3). BLM would be the final landowner. The firebreak is part of BLM's fire management program.

The powerline in Section 29 (Item 2) is part of the existing transmission line system which runs north and south through the entire area. This powerline will not affect present or future activities of the landowner. This powerline also crosses BLM land not involved in the exchange but which is part of the proposed recreation area.

The balance of the rights-of-way, easements and reservations pertain to the presently constructed hydroelectric development of Holter Lake. The acreage within the power project boundary has been determined and is excluded from the proposed transfers and purchase. These are not considered to have any affect upon future management programs of the Ox Bow Ranch for Section 16 and BLM for the balance of the land.

Land Title

The title insurance policy indicates the Ox Bow Ranch has title only to the unflooded portions of the following lands:

T. 13 N., R. 3 W., Prin. Mer., Montana
Sec. 2: Lots 3, 4, 5, 8, 9, SW¼NW¼, SW¼, SW¼SE¼

*Verbage copied from the land title.

Sec. 11: Lots 1, 2, 6, 7, NW¼NE¼, NW¼, NW¼SW¼
Sec. 13: Lots 5, 6, 7, 8, 11, 12, SW¼, W½SE¼
Sec. 14: Lots 4, 6, 7

T. 14 N., R. 3 W., Prin. Mer., Montana
Sec. 26: Lots 3, 6, 7
**Sec. 27: Lots 2, 6, 9, 10, 14, NW¼SW¼ except those lands conveyed to Bruce and Betty Nelson
Sec. 34: Lots 1, 9, 10, SE¼SE¼
Sec. 35: Lots 2, 3, 6, 7

The acreage of the unflooded portions of the foregoing has been determined. This title transfer will not affect future management programs of the BLM.

**The Nelson deed describes the land by metes and bounds and contains 82.96 acres. Title to the balance of the land appears to be full subdivisions.

B. TERRY, MONTANA, AREA

All the State selected lands in the Terry area are "acquired" lands. This land is commonly referred to as Bankhead-Jones or Land Utilization (LU) lands. It is land that has been transferred out of Federal ownership and then reacquired after the drought and dust bowl days of the 1930's. Prior to administration being transferred to BLM in 1958, these lands were administered by the Department of Agriculture; first, through the Soil Conservation Service, and then the Forest Service.

Effect of Rights-of-Way and Easements

1. General

An on the ground examinaton of each tract will be made. If the land is transferred by exchange to the State, the rights-of-way and easements will be noted in the U.S. patent.

2. Road Rights-of-Way

Some of the roads may or may not exist today. If the road has been abandoned, the rights vest in the landowner. Those roads which are still in use provide needed access. These roads generally are on section lines and, therefore, do not affect the management of the land.

3. Other Rights-of-Way and Easements

The airport easement in Priority No. 1 has probably lapsed. There is no airport there now.

The telephone line and the gas pipelines will not affect any management programs.

Effect of Oil and Gas Leases

It is the intent to complete full exchanges; lands and minerals for lands and minerals. The United States cannot transfer existing oil and gas lease rights. A patent would be issued subject to the oil and gas lease. Upon relinquishment, termination or expiration, the oil and gas rights would vest in the patentee, in this case the State of Montana.

Following is a list of encumbrances as they appear on the BLM records:

State priority number 1
T. 11 N., R. 51 E., Prin. Mer., Montana
Section 9: NE¼

Minerals

Oil and gas lease number M-37668 in effect.

Government issued rights-of-way

Telephone line right-of-way issued 5/21/1954 by Forest Service. Easement for airport purposes issued 12/22/1944 by SCS.

Rights-of-way/easements noted in acquisition

Gas pipeline right-of-way in E½E½NE¼ and easement to Prairie Co. for 30' highway on east and north section lines.

State priority number 2
T. 11 N., R. 51 E., Prin. Mer. Montana
Section 14: All

Minerals

Oil and gas lease #M-36279 is in effect.

Government issued rights-of-way

None.

Exceptions in acquisition

SE¼, one acre for school building, with reversionary provisions.

Right-of-way/easements noted in acquisition

N½, easement to Prairie Co. 30' wide on east, north and west along section lines, with reversionary provisions, SE¼, easement to Prairie Co. 30' wide along south and east section lines, with reversionary provisions.

Other

SW¼, file shows county road on west and south section lines acquired by Prairie Co. by prescription.

State priority number 3
T. 11 N., R. 51 E., Prin. Mer. Montana
Section 23: All

Minerals

Oil and gas lease #M-36279 is outstanding.

Government issued right-of-way

None.

Right-of-way/easement noted in acquisition

N½, deed shows easement for public road on north and east sides acquired by Prairie Co. by prescription; S½, abstract shows easement to Prairie Co. for public highway 30' wide on east, south and west boundaries, with reversionary provisions.

State priority number 4
T. 11 N., R. 51 E., Prin. Mer. Montana
Section 21: All

Minerals

W½, oil and gas lease #M-37669 in effect.

Government issued rights-of-way

Telephone right-of-way issued 5/21/1954 by Forest Service.

Rights-of-way/easements noted in acquisition

E½, abstract shows easement to Prairie Co. for public road 30' wide on north, east and south, with reversionary provisions; SW¼, deed shows easement to Prairie Co. for public highway 30' wide on south and west sides, with reversionary provisions.

Other

NW¼, the file indicates at one time there may have been a road on the north side but it had been abandoned.

State priority number 5
T. 11 N., R. 51 E., Prin. Mer. Montana
Section 27: N½

Minerals

Outstanding oil and gas lease (#M-37669).

Government issued rights-of-way

A right-of-way 50' wide for a road issued 7/30/1958 by Forest Service.

Rights-of-way/easements noted in acquisition

Abstract shows on easement 30' wide to Prairie Co. for highway purposes, located on east, north and west side, with reversionary clause.

State priority number 6
T. 16 N., R. 50 E., Prin. Mer. Montana
Section 32: W½

Minerals

Oil and gas lease number M-22916 outstanding.

Government issued rights-of-way

None.

Rights-of-way/easements noted in acquisition

None.

State priority number 7
T. 16 N., R. 50 E., Prin. Mer. Montana
Section 34: S½

Minerals

Oil and gas lease #M-36600 outstanding.

Government issued rights-of-way

None.

Rights-of-way/easements noted in acquisition

None.

State priority number 8
T. 11 N., R. 51 E., Prin. Mer. Montana
Section 26: All

Minerals

Oil and gas lease #M-37669 issued.

Government issued rights-of-way

None.

Rights-of-way/easements noted in acquisition

None.

Other

Possible trespass roads on this tract.

State priority number 9
T. 11 N., R. 51 E., Prin. Mer. Montana
Section 20: E½

Minerals

Lease #M-37669 issued for oil and gas.

Government issued rights-of-way

None.

Rights-of-way/easements noted in acquisition

SE¼, abstract shows easement to Prairie Co. 30' wide for a highway on the east boundary.

State priority number 10
T. 13 N., R. 47 E., Prin. Mer. Montana
Section 4: E½

Minerals

Oil and gas lease #M-23050 is in effect.

Government issued rights-of-way

None.

Rights-of-way/easements noted in acquisition

None.

State priority number 11
T. 10 N., R. 51 E., Prin. Mer. Montana
Section 34: S½, NW¼

Minerals

Oil and gas lease #M-37666 is in effect.

Government issued rights-of-way

A right-of-way for a 12" gas pipeline issued 3/29/1950 by Soil Conservation Service. It crosses N½N½NW¼.

Rights-of-way/easements noted in acquisition

None.

APPENDIX 2

APPENDIX 2

DEFINITION OF THE EROSION HAZARD
AND CAPABILITY RATINGS

Erosion susceptibility (hazard) is a rating based on expected losses of surface soil when all vegetative cover including litter is removed. The classes are as follows:

1. Slight: Little loss of soil material is expected. Minor sheet or rill erosion may occur.

2. Moderate: Some loss of surface soil material can be expected. Rills, small gullies, and sheet erosion may occur.

3. Severe: Considerable loss of surface soil material can be expected. Rills, numerous small gullies, and sheet erosion can occur.

Suitabilities of Soil for Farm Use. Each published soil survey of an area in which farming is important describes the suitabilities of soil mapping units for the important land uses of farms in the area. These usually include use for common crops that require tillage, pasture, and woodland or forest. In some areas the suitabilities for orchards, vegetable crops, specialty crops, or irrigated crops need to be given separately. Some surveys rate the suitabilities of mapping units for especially important individual crops.

Suitability ratings require appraisal of limitations of soils, measures needed to correct their deficiencies, and predicted levels of production under management that is generally feasible. The interpretations described in the following sections on "Management Needs of Soils" and "Soil Performance" (or response to management) are used to arrive at suitability ratings. For the user of soil surveys, a logical organization is to identify the potential uses of soils first and then follow with management requirements for those uses and predicted performance of soils when management is applied.

U.S. Department of Agriculture Handbook 210, "Capability Classification" (Klingebiel and Montgomery, 1961), describes in detail the system that has been used for many years in the United States. It is a three-category interpretive system. The two highest categories, called capability classes and subclasses, are intended to give broad perspective of the suitability of mapping units for certain crops, for pasture, and for woodland, and the degrees and kinds of limitations that groups of mapping units have for these uses. The system is oriented to mechanized farming systems that produce the more common cultivated field crops, such as corn, small grains, cotton, hay, potatoes, and fieldgrown vegetables. It does not apply to farming systems that produce crops that are flooded, such as paddy rice and cranberries. Neither can it be

used for farming systems that depend on primitive implements and much hand labor. The capability classes and subclasses can help people to understand very broad generalizations about potentialities and limitations of soils for use in types of farming to which the system applies.

The highest category of the capability system consists of eight "capability classes." Classes I, II, III, and IV are rated as suitable for mechanized production of common field crops as well as for production of plants of pastures and woodlands. Limitations for production of cultivated crops are progressively greater from Class I through Class IV. Limitations that may affect production in a given year as well as risks of permanent soil deterioration, as by erosion, are considered.

Classes V, VI, and VII are generally not suited to mechanized production of common field crops without special management systems but are suitable for production of permanent cover such as adapted grasses and trees. The severity of soil limitations for these uses increases from Class V through Class VII. Class VIII is generally not suitable for use for production of crops, pasture, or wood products without practices that are generally impractical, except for a few special crops. Areas of Capability Class VIII may have high potential for other uses, such as recreation or wildlife.

The capability classes are groups of soils described in terms of (1) general suitability for broad kinds of use common on farms and ranches and (2) the degree of limitations for suitable uses. They do not identify the kinds of limitations. All except Capability Class I are subdivided into four capability subclasses that do identify the predominant kind of limitation. These are designated as subclasses "e", "w", "s", and "c". Class I is not subdivided because its soils have few limitations.

Capability Subclass "e" identifies susceptibility to soil erosion as a dominant kind of limitation. Subclass "w" identifies excess water as a dominant kind of limitation, including both excess water in the soil and susceptibility to flooding. Subclass "s" identifies limitations within the rooting zones, such as low available water capacity, salinity or sodicity, limiting amounts of stones, layers that restrict rooting, and the like. Subclass "c" identifies limitations related to climate, such as unfavorable soil temperature regimes, length of growing season, and lack of adequate moisture, as for aridic soil moisture regimes. The system provides guidelines about which subclass to use when two or more kinds of limitations are nearly equally restricting.

DESCRIPTION OF HYDROLOGIC SOIL GROUPS

Group A: Soils having high infiltration rates even when thoroughly wetted, consisting chiefly of deep (3-6'+) well to excessively drained sands (loamy sands, sandy loams and sands) and/or gravel. These soils have a high rate of water transmission and would result in a low runoff potential (3.00+" infiltration per hour).

1. Paralithic soils - Granitic soils more than 20" deep with a deep decomposed contact zone.

Group B: Soils having moderate infiltration rates consisting chiefly of moderately deep (20"+), moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (1.25 to 3.00" per hour).

1. Paralithic soils - Granitic soils less than 20" with a decomposed contact zone.

Group C: Soils having slow infiltration rates consisting chiefly of (1) soils with a layer that impedes the downward movement of water and (2) soils with moderately fine to fine texture and a slow infiltration rate. These soils have a slow rate of water transmission (0.5 to 1.24" per hour).

1. Change of one or two percolation classes within 10" of the surface, depending on roots and structures.

2. Moderately fractured limestone: less than 20"

3. Change in permeability in less than 20".

4. Soils showing moderate compaction in the upper 8" of profile.

PLANT SPECIES OF THE SLEEPING GIANT AREA

Grasses

Major forage producers -

Bluebunch wheatgrass	Agropyron spicatum
Rough fescue	Festuca scabrella
Idaho fescue	Festuca idahoensis
Prairie junegrass	Koleria cristata
Needle-and-thread grass	Stipa comata
Green needlegrass	Stipa viridula
Thickspike wheatgrass	Agropyron dasystachyum

Less important forage producers -

Blue grama	Bouteloua gracilis
Cheatgrass	Bromus tectorum
Three awn	Aristida longiseta
Sandberg bluegrass	Poa sandbergii
Kentucky bluegrass	Poa pratensis
Sedges	Carex spp.

Forbs

Pussytoes	Antennaria spp.
Aster	Aster spp.
Thistle	Cirsium spp.
Daisy	Erigeron spp.
Blazingstar	Liatris punctata
Prickly pear	Opuntia polycantha
Prairie coneflower	Ratibida columnifera
Clubmoss	Selaginella densa
Groundsel	Senecio spp.
Arrowleaf balsam root	Balsamorhiza sagittata
Scrarlet globe mallow	Sphaeralcea coccinea
Salsify	Tragopogon spp.

Shrubs

Major Browse species -

Chokecherry	Prunus virginiana
Willow	Salix spp.
Silver Sagebrush	Artemisia cana
Big sagebrush	Artemisia tridentata
Rabbitbrush	Chrysothamnus spp.
Serviceberry	Amelanchier alnifolia
Fringed Sagewort	Artemisia frigida

Less important Browse species -

Rose	Rosa woodsii
Skunkbrush	Rhus trilobata
Snowberry	Symphoricarpos spp.
Snakeweed	Xanthocephalum sarothrae

APPENDIX 3

APPENDIX 3

SOCIO-ECONOMIC ANALYSIS

This appendix presents an analysis of possible social and economic impacts of the proposed action in Prairie County and the probable significance of these impacts.

A part of the proposed action analyzed in this environmental assessment is that State lands in the Sleeping Giant area would be exchanged for BLM lands in eastern Montana within Prairie County near Terry, on an equal value basis to assist in consolidating both agencies' land holdings.

Of the 4,805 acres of BLM land near Terry being considered for conveyance to the State, approximately 3,000 acres will be selected by the State. These lands are shown on Maps 7, 8, 9 and are described in Table 1, II. STATE-BLM EXCHANGE.

The lands conveyed from BLM to State ownership would be administered by the Department of State Lands subject to all applicable federal, state, and local laws, regulations, and policies. After detailed studies, the State may consider lands from these tracts for agricultural leases in crops such as wheat. In estimating the returns from alternate land uses such as grazing or production of grain crops, the values used are for purposes of illustration and are only approximate to real values.

Grain Production

If all of the approximate 3,000 acres selected by the State were put into wheat with a return of 30.6 bushels per acre, this would result in production of about 91,800 bushels of wheat at a generated gross earnings of $258,000. This is about $106,000 more gross earnings than it is estimated would result from cattle sales on this amount of acreage at $70 per hundred weight, 700 pound average for 310 head, resulting in $152,000.

An estimate of the income the State would receive as sharecropping income is shown in Table A3-1.

TABLE A3-1

CROPPING OPTION

Montana Income Effect

Cropping land use fee	1/4 of production	
(times) production level	91,800	
(equals) units received	22,950	
(times) price per bushel	2.81	1/
(equals) State return	64,489.50	

1/ State Department of Agriculture, telephone conversation, 12/21/78

The effect on Prairie County governmental revenues from a State decision to crop the land conveyed from the BLM to the State is shown in Table A3-2. The numbers used are only approximate to real values. While the actual tax difference is thus only an approximation (highly dependent on changes in inventory practices[1], it does show that conversion to cropping would decrease county revenues from property taxes.

TABLE A3-2

POSSIBLE PRAIRIE COUNTY REVENUE LOSS

	Pre-Exchange Revenue from the Exchange Lands	Post-Exchange Revenue from the Exchange Lands
Federal "In Lieu of Taxes"	$ 588.00[4]	0
State Equalization	0	$ 463.00[2]
Property Tax	$3100 - $6700[3]	$1050 - $1100[3]
TOTALS	$3688 - $7288	$1513 - $1563

1 For example, if the rancher bought all his calves, his inventory for 310 head would be the average of the months when he had the entire herd and the months when he had 0 head. Most of Montana's wheat is exported (heavily to the Orient). Significant grain deals with China could deplete the inventory on hand and thus (for all practical purposes) eliminate all property tax on wheat in storage. Finally, the entire calculation is speculative because, while the State may lease the land for cropping, there may be no taxes on the cropping option.

2/ See Table A3-4.

3/ See Table A3-3.

4/ Source: Prairie County Treasurer's Office.

TABLE A3-3

CROPPING PROPERTY TAX EFFECTS

Property Taxes on Agricultural Production

	Wheat Calculation	Cattle Calculation	
Exchange Land Productive Capacity	91,800 bushels	310 head	
(times) Adjustment to Show Inventory Practices	.856[1]	.75[2]	
(equals) Taxable Inventory	77,896 bushels	233 head	
		(at) 450 lb. per head	700 lb. per head
(times) Price	$2.25 bushel[3]	$.52 lb.[4]	$.70 lb.[4]
(equals) Appraised Value	$175,266.00	$54,522.00	$114,170.00
(times) Assessment Percentage	.035	.3334	.3334
(equals) Taxable Value	$6,134.31	$18,177.63	$38,064.28
(times) Tax Rate	.175	.175	.175
(equals) Tax	$1,073.50	$3,181.09	$6,661.25

1/ Source: Montana Department of Agriculture, ration of 1977 wheat still in inventory as of January inventory date.

2/ Based on the assumption that the smallest number of breeding animals is half the number of those the average inventory would be, approximately 1/2 the difference between peak number and low number.

3/ Source: Montana Department of Revenue

4/ .52/lb. at 450 lb. average; .70/lb. at 700 lb. average (Source: Miles City Livestock Yards, 12/18/78).

TABLE A3-4

A comparison of state equalization payments to Prairie County to Federal "in lieu of taxes" payments is shown in Table A3-3. As the maximum loss the county could anticipate is less than 2/100 of 1% of their 1977 budget, this issue was considered to be insignificant[1] and further analysis was dropped.

$$\frac{\text{1977 Federal Payment (Estimated - \$588.00}^{2}}{\text{1977 Estimated State Equalization Payments*}}$$

As Rangeland - $46.00[3]

As Cropland - $463.00[4]

* Assuming the 3,000 acres had been State land in 1977.

1/ Insignificant when compared to other losses and gains. This may remain significant to the county and they may wish the State to guarantee they receive at least as much as they had from Federal payments.

2/ $\frac{\text{Total 1977 Federal In Lieu of Payments}}{\text{Federal Acres in Prairie County}} = \frac{\$88,511.52^{5}}{450,078} = 19.6¢/\text{acre}$

19.6¢/acre x 3,000 acres = $588.00

3/ 3,000 acres assessed as grade 3 grazing land ($3.72 per acre)[6] times 30% taxable value times 175 mills less .92123 State exemption.

4/ 3,000 acres assessed as grade 1A dryland wheat fields ($37.32 per acre) times 30% taxable valuation times 1975 mills less .92123 State exemption.

5/ Source: Prairie County Treasurer, telephone conversation.

6/ Source: Personal Communication, Prairie County Treasurer.

Cattle Production

As shown in Table A3-5, the total of 1,567 Animal Unit Months (AUMs) of use distributed over the 4,805 acres of BLM land being considered for exchange to the State indicates an average of about 3.066 acres per AUM. The approximate 3,000 acres to be exchanged would thus contain about 975 AUMs. Wise utilization of the AUMs includes a program of moving the cattle to deeded bottomland during winter and feeding hay during this off-the-range period. Under such a program, the 1,567 AUMs would be part of a grazing system which supported about 310 head of cattle. Posted prices for feeder cattle as of December 18, 1978, were $.52 to $.70 per pound.1/ At this price, the theoretical income to the ranchers from the 975 AUMs would be $72,000 to $152,000.

1/ At average weights of 450 pounds per head and prices of $52 per hundred pounds and/or 700 pounds per head and prices of $70 per hundred pounds (Source: Miles City Livestock Yard, telephone conversation).

TABLE A3-5

Principal Rancher	Township	Range	Section	AUMs
R. L. Tibbetts	11N	51E	9	186
R. L. Tibbetts			14	199
Larry Jens			21	178
Larry Jens			23	182
Larry Jens			N½, 27	90
Sam Kuehn	16N	50E	W½, 32	90
Maynard Liles			S½, 34	93
Larry Jens	11N	51E	26	181
Robert Martin, Sr. & Larry Jens			E½, 20	68 42
Polly Norris	13N	47E	E½, 4	90
Arnold Lesmeister	10N	51E	W½, SE¼, 34	168
				1,567

SOURCE: BIM Big Dry Resource Area Lease Records

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