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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

BLACK MOUNTAIN

FOREST MANAGEMENT PLAN

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Grand Junction District  
Glenwood Springs Resource Area

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UNITED STATES

DEPARTMENT OF THE INTERIOR

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BLACK MOUNTAIN

FOREST MANAGEMENT

Grand Junction District

Glenwood Springs Resource Area

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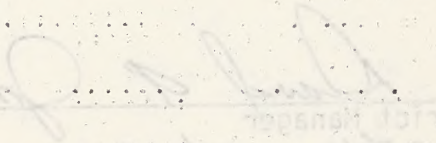
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 District Manager  
 Date of \_\_\_\_\_

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# BLACK MOUNTAIN FOREST MANAGEMENT PLAN

## I. Introduction

### A. Purpose

This plan has been prepared in order to carry out multiple use land management objectives for the Black Mountain Management Area. Generally, this plan will define the resource, identify management objectives, outline general silvicultural and harvest practices which will maintain the health and vigor and perpetuate the timber resource while considering other multiple uses.

### B. Background

This Forest Management Plan is written for 4,132 acres of public land in Routt County, Glenwood Springs Resource Area, Grand Junction, Bureau of Land Management, Colorado (see map I-1 & I-2). Timber stand data for this plan is taken from the BLM 1973 Extensive Forest Inventory, District Allowable Cut Plan (see appendix A), BLM Manual Series 5000, 1979 Operational Inventory, and individual cruise plot data.

Black Mountain is a contributing part of the Grand Junction allowable cut forest resource base as identified by the 1973 extensive inventory and Allowable Cut Plan (see appendix A).

In developing the Allowable Cut Plan and this document, certain management assumptions (see page 34, Chapter II) were made without benefit of a unit resource analysis (URA) or management

1. Introduction

A. Purpose

This plan was developed in 1983. A forest management plan is a document that sets out the objectives, policies, and strategies for the management of a forest. It is a key tool for forest owners and managers to ensure that their forest is managed in a sustainable and profitable way. The plan should be updated regularly to reflect changes in the forest and in the market. This plan is intended to provide a clear and concise statement of the forest owner's objectives and the strategies for achieving them. It will also provide a framework for the development of more detailed management plans for individual areas of the forest.

2. Description

The Black Mountain Forest is located in the State of North Carolina. It is a 14,000-acre tract of land that is currently managed as a pine plantation. The forest is owned by the Black Mountain Forest Company, a subsidiary of the Black Mountain Industries, Inc. The forest is situated on a steep slope and is surrounded by other forested areas. The climate is temperate and the soil is fertile. The forest is currently managed using a clear-cut system. The plan is intended to provide a clear and concise statement of the forest owner's objectives and the strategies for achieving them. It will also provide a framework for the development of more detailed management plans for individual areas of the forest.

3. Management Objectives

The primary objective of the Black Mountain Forest is to produce a sustainable yield of high-quality pine timber. This will be achieved through the implementation of a clear-cut system. The plan also includes objectives for the protection of the forest's natural resources, including its wildlife and fish and wildlife habitat. The plan is intended to provide a clear and concise statement of the forest owner's objectives and the strategies for achieving them. It will also provide a framework for the development of more detailed management plans for individual areas of the forest.



frame work plan (MFP) decision, now called resource management plans (RMP's). This was necessary because planning for this area is not scheduled for completion until 1983. A forest Management Plan has been developed for the adjoining National Forest. The assumptions made in their plan are consistent with those identified in this plan. Also, decisions and assumptions made during the plot classification done in connection with the extensive forest inventory and Allowable Cut Plan are carried through in this plan.

The FMP area is bounded on the north by the Routt National Forest. The Forest Service has developed the "Blacktail Land Use Plan" that identifies approximately 14,000 acres of timber that are available for harvesting on a sustained yield basis. Under a cooperative agreement, BLM plans a joint timber sale with the Forest Service in 1981. The sale should benefit both agencies in the partial implementation of our respective management plans. See appendix B for details of the agreement, and Chapter VII, environmental analysis for Little Whiskey Creek - Black Mountain Integrated Timber Sale.

The Little Whiskey Creek - Black Mountain integrated sale will provide an opportunity to develop a single road system and offer timber for sale in the most economically efficient

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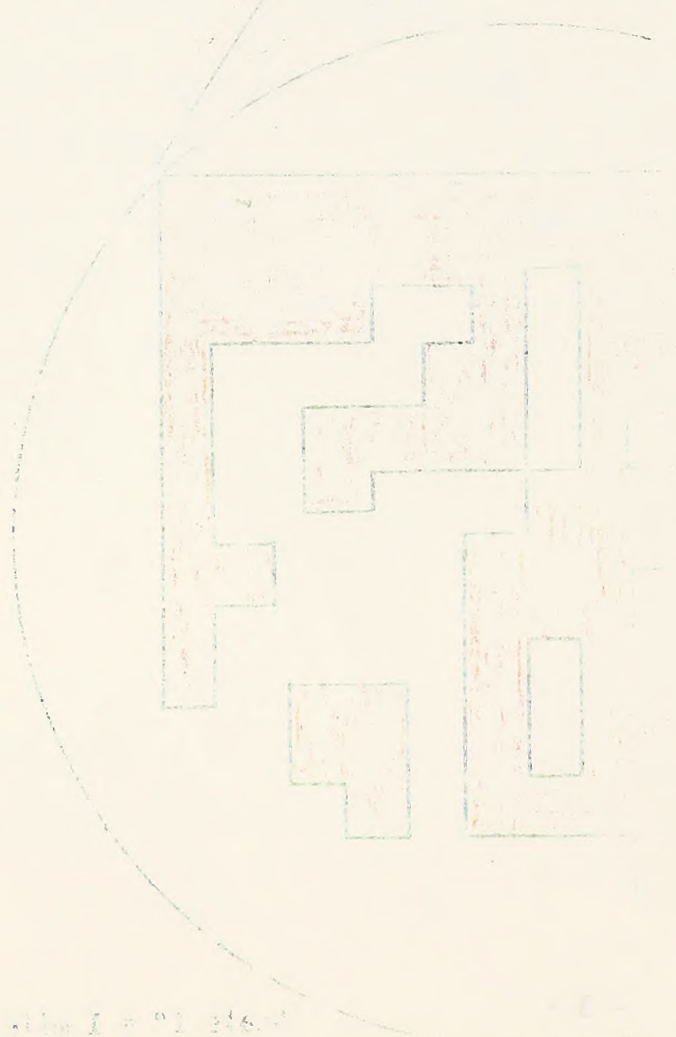
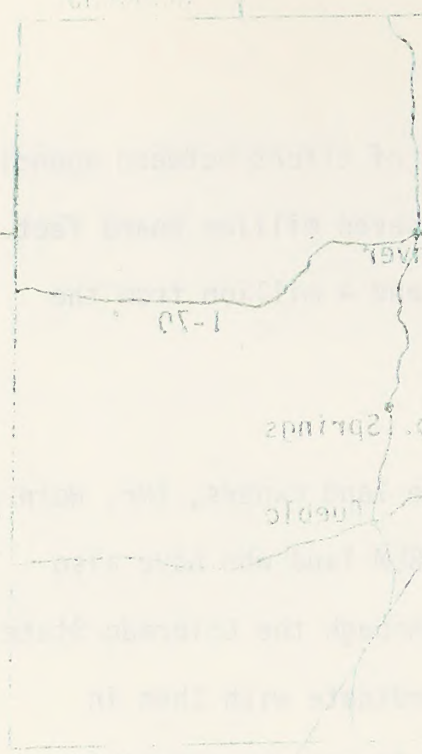
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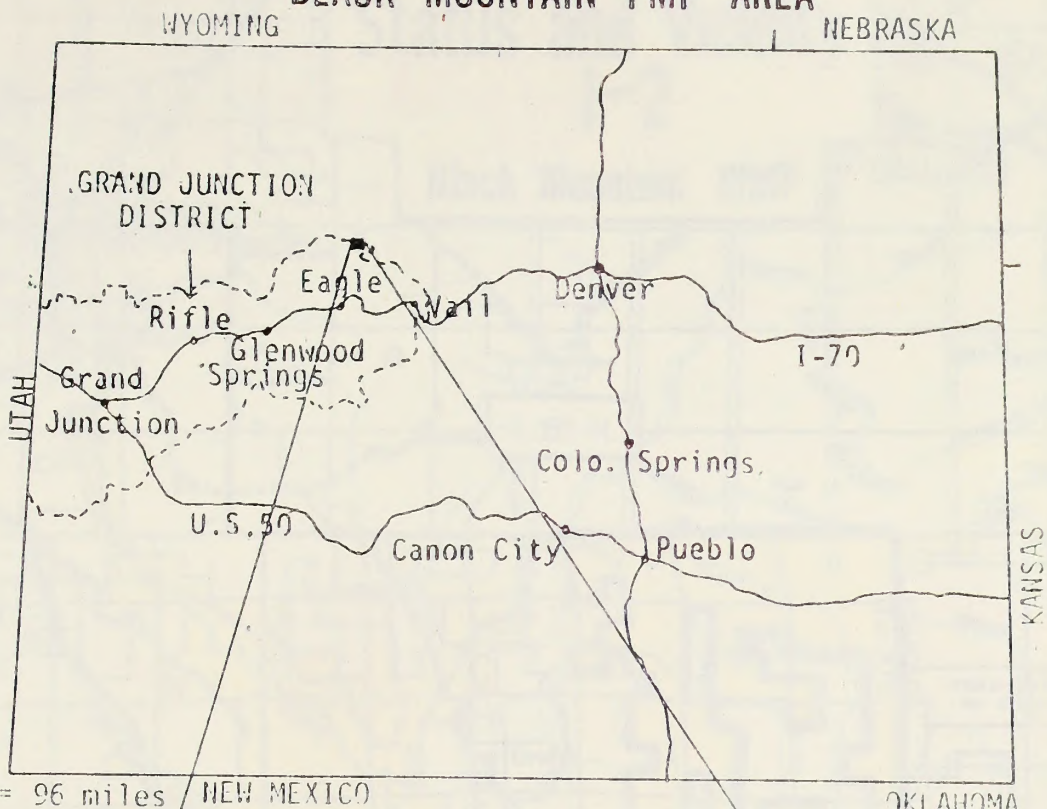
manner by eliminating duplication of effort between agencies. The estimated volume to offer is seven million board feet. Approximately 3 million from BLM and 4 million from the Forest Service.

In addition, there are two private land owners, (Mr. Horn and Mr. Leonard Roades), adjacent to BLM land who have also expressed a desire to cooperate through the Colorado State Forest Service. We will also coordinate with them in developing and implementing sound forest management in the Black Mountain area.

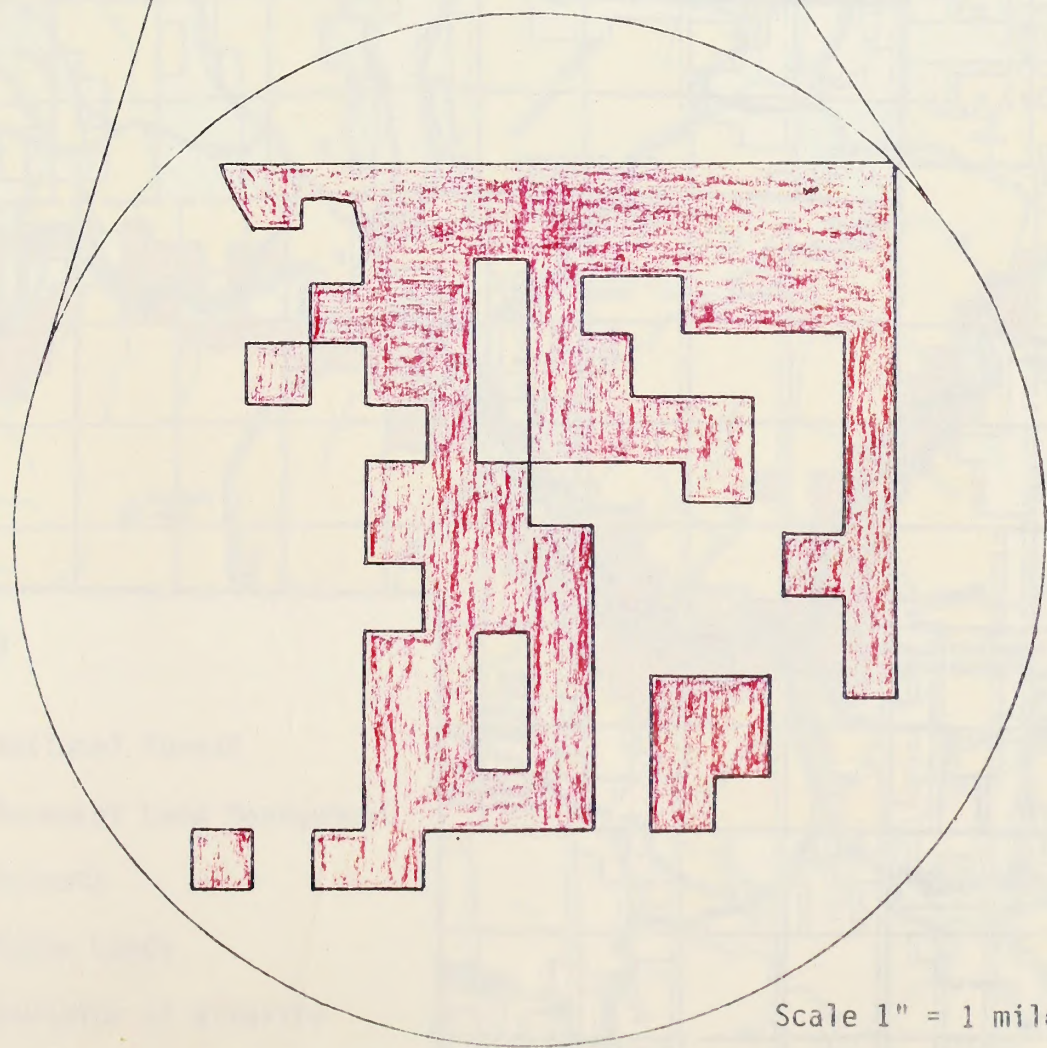


Scale 1" = 1 mile

# LOCATION MAP BLACK MOUNTAIN FMP AREA



Scale 1" = 96 miles



Scale 1" = 1 mile



MOUNTAIN EMP

R. 83 W

R. 83 W

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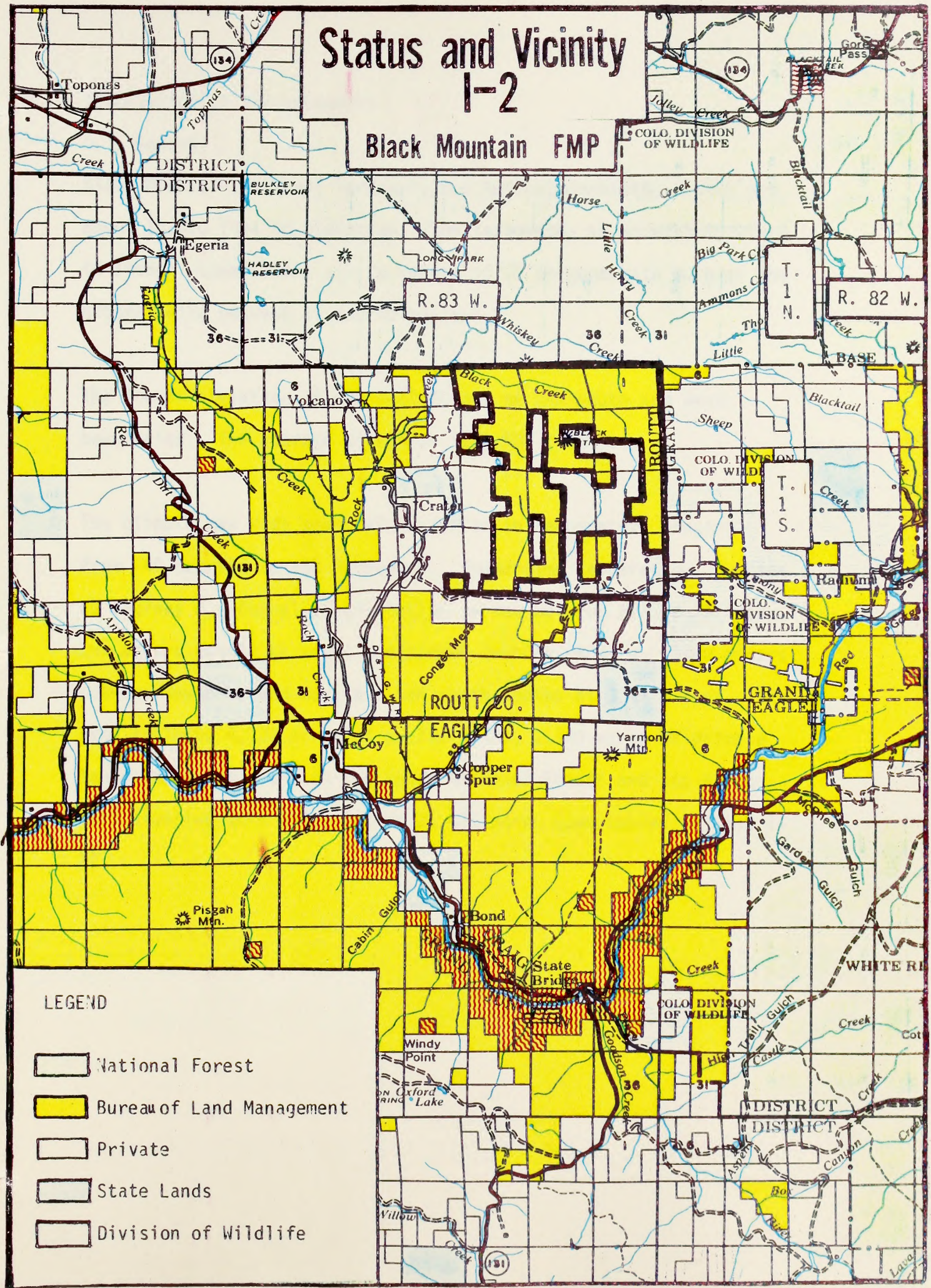
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




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# Status and Vicinity 1-2

## Black Mountain FMP



### LEGEND

-  National Forest
-  Bureau of Land Management
-  Private
-  State Lands
-  Division of Wildlife

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the problem and the objectives of the research.

2. The second part of the report is a detailed description of the methods used in the study. It includes a description of the experimental design, the data collection procedures, and the statistical methods used for data analysis.

3. The third part of the report is a discussion of the results of the study. It presents the findings of the research and discusses their implications for the field of study. It also compares the results with those of previous studies and discusses the limitations of the study.

4. The fourth part of the report is a conclusion and a list of references. The conclusion summarizes the main findings of the study and provides recommendations for further research. The references list the sources of information used in the study.



C. Description of the Resources

1. General

Black Mountain, a local landmark, has two prominent knobs that are about 10,400 feet in elevation. The topography is moderately steep to steep. Some slopes are in excess of 40 percent with much of the ground being between 15 and 40 percent.

The lowest elevation, 8,400 feet occurs on the south and west boundaries. The average elevation is 9,600 feet.

The climate has wide seasonal variation in temperature ranging from -40 degrees to +80 degrees F. Summertime temperatures average 60 degrees F. Annual precipitation varies between 20 and 30 inches and occurs mostly as snow, and summer thunder showers. Snow occurs between November and May, and can reach depths of 3 to 4 feet. The area includes 4,132 acres of public lands, 3,160 acres of private lands and is adjacent to the Routt National Forest and its Black Tail planning unit which covers 23,475 acres (see tables I-1 and I-2).

1. Introduction

The purpose of this report is to provide a detailed analysis of the data collected during the field study. The data shows a clear trend in the behavior of the subjects, which is consistent with the theoretical model proposed in the literature. The results are discussed in detail in the following sections.

The data was collected over a period of six months, during which time the subjects were exposed to various conditions. The results are presented in the following tables and figures.

The first table shows the distribution of the data across the different conditions. The results are as follows:

The data shows a clear trend in the behavior of the subjects, which is consistent with the theoretical model proposed in the literature. The results are discussed in detail in the following sections. The data was collected over a period of six months, during which time the subjects were exposed to various conditions. The results are presented in the following tables and figures. The first table shows the distribution of the data across the different conditions. The results are as follows:

TABLE I-1

FMP ACREAGE TABLE

Classification	Acres
Total FMP area	7,292
Total private land in FMP area	3,160
Total BLM land in FMP area	4,132
Nonforested BLM land	890
Productive forest land (PFL) in FMP area	3,242
PFL with no planned harvest (due to multiple use constraints)	694*
PFL with a planned harvest (allowable cut base)	2,548

\*See table III-1

ACREAGE BY TIMBER TYPE

<u>TYPE</u>	<u>STOCKING LEVEL**</u>	<u>ACRES</u>	<u>PERCENT OF TOTAL</u>	
			<u>STOCKING LEVEL</u>	<u>BY SPECIES</u>
Lodgepole Pine, Sawtimber (LP9)	W	1,657	51%	69%
	M	517	16	
	P	90	2	
Lodgepole Pine, Poles (LP3)	W	682	21	23
	M	41	1	
	P	16	1	
Aspen Poles (A8)	W	129	4	7
	M	108	3	
Douglas-Fir, Sawtimber (DF9)	W	2	1	1
TOTALS		3,242 AC.	100%	100%

\*\*Stocking Levels

W - Well stocked, 70%+ Crown Density

M - Medium stocked, 40 - 69% Crown Density

P - Poorly stocked, 16 - 39% Crown Density

TABLE 1

THE 1972 TABLE

1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900
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TABLE 2

TYPE	STANDARD	SCALE	STANDARD	SCALE	STANDARD	SCALE
Category 1	1	100	1	100	1	100
Category 2	2	200	2	200	2	200
Category 3	3	300	3	300	3	300
Category 4	4	400	4	400	4	400
Category 5	5	500	5	500	5	500
Category 6	6	600	6	600	6	600
Category 7	7	700	7	700	7	700
Category 8	8	800	8	800	8	800
Category 9	9	900	9	900	9	900
Category 10	10	1000	10	1000	10	1000
Category 11	11	1100	11	1100	11	1100
Category 12	12	1200	12	1200	12	1200
Category 13	13	1300	13	1300	13	1300
Category 14	14	1400	14	1400	14	1400
Category 15	15	1500	15	1500	15	1500
Category 16	16	1600	16	1600	16	1600
Category 17	17	1700	17	1700	17	1700
Category 18	18	1800	18	1800	18	1800
Category 19	19	1900	19	1900	19	1900
Category 20	20	2000	20	2000	20	2000
Category 21	21	2100	21	2100	21	2100
Category 22	22	2200	22	2200	22	2200
Category 23	23	2300	23	2300	23	2300
Category 24	24	2400	24	2400	24	2400
Category 25	25	2500	25	2500	25	2500
Category 26	26	2600	26	2600	26	2600
Category 27	27	2700	27	2700	27	2700
Category 28	28	2800	28	2800	28	2800
Category 29	29	2900	29	2900	29	2900
Category 30	30	3000	30	3000	30	3000
Category 31	31	3100	31	3100	31	3100
Category 32	32	3200	32	3200	32	3200
Category 33	33	3300	33	3300	33	3300
Category 34	34	3400	34	3400	34	3400
Category 35	35	3500	35	3500	35	3500
Category 36	36	3600	36	3600	36	3600
Category 37	37	3700	37	3700	37	3700
Category 38	38	3800	38	3800	38	3800
Category 39	39	3900	39	3900	39	3900
Category 40	40	4000	40	4000	40	4000
Category 41	41	4100	41	4100	41	4100
Category 42	42	4200	42	4200	42	4200
Category 43	43	4300	43	4300	43	4300
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Category 46	46	4600	46	4600	46	4600
Category 47	47	4700	47	4700	47	4700
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Category 49	49	4900	49	4900	49	4900
Category 50	50	5000	50	5000	50	5000
Category 51	51	5100	51	5100	51	5100
Category 52	52	5200	52	5200	52	5200
Category 53	53	5300	53	5300	53	5300
Category 54	54	5400	54	5400	54	5400
Category 55	55	5500	55	5500	55	5500
Category 56	56	5600	56	5600	56	5600
Category 57	57	5700	57	5700	57	5700
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Category 62	62	6200	62	6200	62	6200
Category 63	63	6300	63	6300	63	6300
Category 64	64	6400	64	6400	64	6400
Category 65	65	6500	65	6500	65	6500
Category 66	66	6600	66	6600	66	6600
Category 67	67	6700	67	6700	67	6700
Category 68	68	6800	68	6800	68	6800
Category 69	69	6900	69	6900	69	6900
Category 70	70	7000	70	7000	70	7000
Category 71	71	7100	71	7100	71	7100
Category 72	72	7200	72	7200	72	7200
Category 73	73	7300	73	7300	73	7300
Category 74	74	7400	74	7400	74	7400
Category 75	75	7500	75	7500	75	7500
Category 76	76	7600	76	7600	76	7600
Category 77	77	7700	77	7700	77	7700
Category 78	78	7800	78	7800	78	7800
Category 79	79	7900	79	7900	79	7900
Category 80	80	8000	80	8000	80	8000
Category 81	81	8100	81	8100	81	8100
Category 82	82	8200	82	8200	82	8200
Category 83	83	8300	83	8300	83	8300
Category 84	84	8400	84	8400	84	8400
Category 85	85	8500	85	8500	85	8500
Category 86	86	8600	86	8600	86	8600
Category 87	87	8700	87	8700	87	8700
Category 88	88	8800	88	8800	88	8800
Category 89	89	8900	89	8900	89	8900
Category 90	90	9000	90	9000	90	9000
Category 91	91	9100	91	9100	91	9100
Category 92	92	9200	92	9200	92	9200
Category 93	93	9300	93	9300	93	9300
Category 94	94	9400	94	9400	94	9400
Category 95	95	9500	95	9500	95	9500
Category 96	96	9600	96	9600	96	9600
Category 97	97	9700	97	9700	97	9700
Category 98	98	9800	98	9800	98	9800
Category 99	99	9900	99	9900	99	9900
Category 100	100	10000	100	10000	100	10000

1 - First Standard, 100 - One Cent  
 2 - First Standard, 200 - Two Cents  
 3 - First Standard, 300 - Three Cents  
 4 - First Standard, 400 - Four Cents  
 5 - First Standard, 500 - Five Cents  
 6 - First Standard, 600 - Six Cents  
 7 - First Standard, 700 - Seven Cents  
 8 - First Standard, 800 - Eight Cents  
 9 - First Standard, 900 - Nine Cents  
 10 - First Standard, 1000 - Ten Cents  
 11 - First Standard, 1100 - Eleven Cents  
 12 - First Standard, 1200 - Twelve Cents  
 13 - First Standard, 1300 - Thirteen Cents  
 14 - First Standard, 1400 - Fourteen Cents  
 15 - First Standard, 1500 - Fifteen Cents  
 16 - First Standard, 1600 - Sixteen Cents  
 17 - First Standard, 1700 - Seventeen Cents  
 18 - First Standard, 1800 - Eighteen Cents  
 19 - First Standard, 1900 - Nineteen Cents  
 20 - First Standard, 2000 - Twenty Cents  
 21 - First Standard, 2100 - Twenty One Cents  
 22 - First Standard, 2200 - Twenty Two Cents  
 23 - First Standard, 2300 - Twenty Three Cents  
 24 - First Standard, 2400 - Twenty Four Cents  
 25 - First Standard, 2500 - Twenty Five Cents  
 26 - First Standard, 2600 - Twenty Six Cents  
 27 - First Standard, 2700 - Twenty Seven Cents  
 28 - First Standard, 2800 - Twenty Eight Cents  
 29 - First Standard, 2900 - Twenty Nine Cents  
 30 - First Standard, 3000 - Thirty Cents  
 31 - First Standard, 3100 - Thirty One Cents  
 32 - First Standard, 3200 - Thirty Two Cents  
 33 - First Standard, 3300 - Thirty Three Cents  
 34 - First Standard, 3400 - Thirty Four Cents  
 35 - First Standard, 3500 - Thirty Five Cents  
 36 - First Standard, 3600 - Thirty Six Cents  
 37 - First Standard, 3700 - Thirty Seven Cents  
 38 - First Standard, 3800 - Thirty Eight Cents  
 39 - First Standard, 3900 - Thirty Nine Cents  
 40 - First Standard, 4000 - Forty Cents  
 41 - First Standard, 4100 - Forty One Cents  
 42 - First Standard, 4200 - Forty Two Cents  
 43 - First Standard, 4300 - Forty Three Cents  
 44 - First Standard, 4400 - Forty Four Cents  
 45 - First Standard, 4500 - Forty Five Cents  
 46 - First Standard, 4600 - Forty Six Cents  
 47 - First Standard, 4700 - Forty Seven Cents  
 48 - First Standard, 4800 - Forty Eight Cents  
 49 - First Standard, 4900 - Forty Nine Cents  
 50 - First Standard, 5000 - Fifty Cents  
 51 - First Standard, 5100 - Fifty One Cents  
 52 - First Standard, 5200 - Fifty Two Cents  
 53 - First Standard, 5300 - Fifty Three Cents  
 54 - First Standard, 5400 - Fifty Four Cents  
 55 - First Standard, 5500 - Fifty Five Cents  
 56 - First Standard, 5600 - Fifty Six Cents  
 57 - First Standard, 5700 - Fifty Seven Cents  
 58 - First Standard, 5800 - Fifty Eight Cents  
 59 - First Standard, 5900 - Fifty Nine Cents  
 60 - First Standard, 6000 - Sixty Cents  
 61 - First Standard, 6100 - Sixty One Cents  
 62 - First Standard, 6200 - Sixty Two Cents  
 63 - First Standard, 6300 - Sixty Three Cents  
 64 - First Standard, 6400 - Sixty Four Cents  
 65 - First Standard, 6500 - Sixty Five Cents  
 66 - First Standard, 6600 - Sixty Six Cents  
 67 - First Standard, 6700 - Sixty Seven Cents  
 68 - First Standard, 6800 - Sixty Eight Cents  
 69 - First Standard, 6900 - Sixty Nine Cents  
 70 - First Standard, 7000 - Seventy Cents  
 71 - First Standard, 7100 - Seventy One Cents  
 72 - First Standard, 7200 - Seventy Two Cents  
 73 - First Standard, 7300 - Seventy Three Cents  
 74 - First Standard, 7400 - Seventy Four Cents  
 75 - First Standard, 7500 - Seventy Five Cents  
 76 - First Standard, 7600 - Seventy Six Cents  
 77 - First Standard, 7700 - Seventy Seven Cents  
 78 - First Standard, 7800 - Seventy Eight Cents  
 79 - First Standard, 7900 - Seventy Nine Cents  
 80 - First Standard, 8000 - Eighty Cents  
 81 - First Standard, 8100 - Eighty One Cents  
 82 - First Standard, 8200 - Eighty Two Cents  
 83 - First Standard, 8300 - Eighty Three Cents  
 84 - First Standard, 8400 - Eighty Four Cents  
 85 - First Standard, 8500 - Eighty Five Cents  
 86 - First Standard, 8600 - Eighty Six Cents  
 87 - First Standard, 8700 - Eighty Seven Cents  
 88 - First Standard, 8800 - Eighty Eight Cents  
 89 - First Standard, 8900 - Eighty Nine Cents  
 90 - First Standard, 9000 - Ninety Cents  
 91 - First Standard, 9100 - Ninety One Cents  
 92 - First Standard, 9200 - Ninety Two Cents  
 93 - First Standard, 9300 - Ninety Three Cents  
 94 - First Standard, 9400 - Ninety Four Cents  
 95 - First Standard, 9500 - Ninety Five Cents  
 96 - First Standard, 9600 - Ninety Six Cents  
 97 - First Standard, 9700 - Ninety Seven Cents  
 98 - First Standard, 9800 - Ninety Eight Cents  
 99 - First Standard, 9900 - Ninety Nine Cents  
 100 - First Standard, 10000 - One Dollar

Table I-2

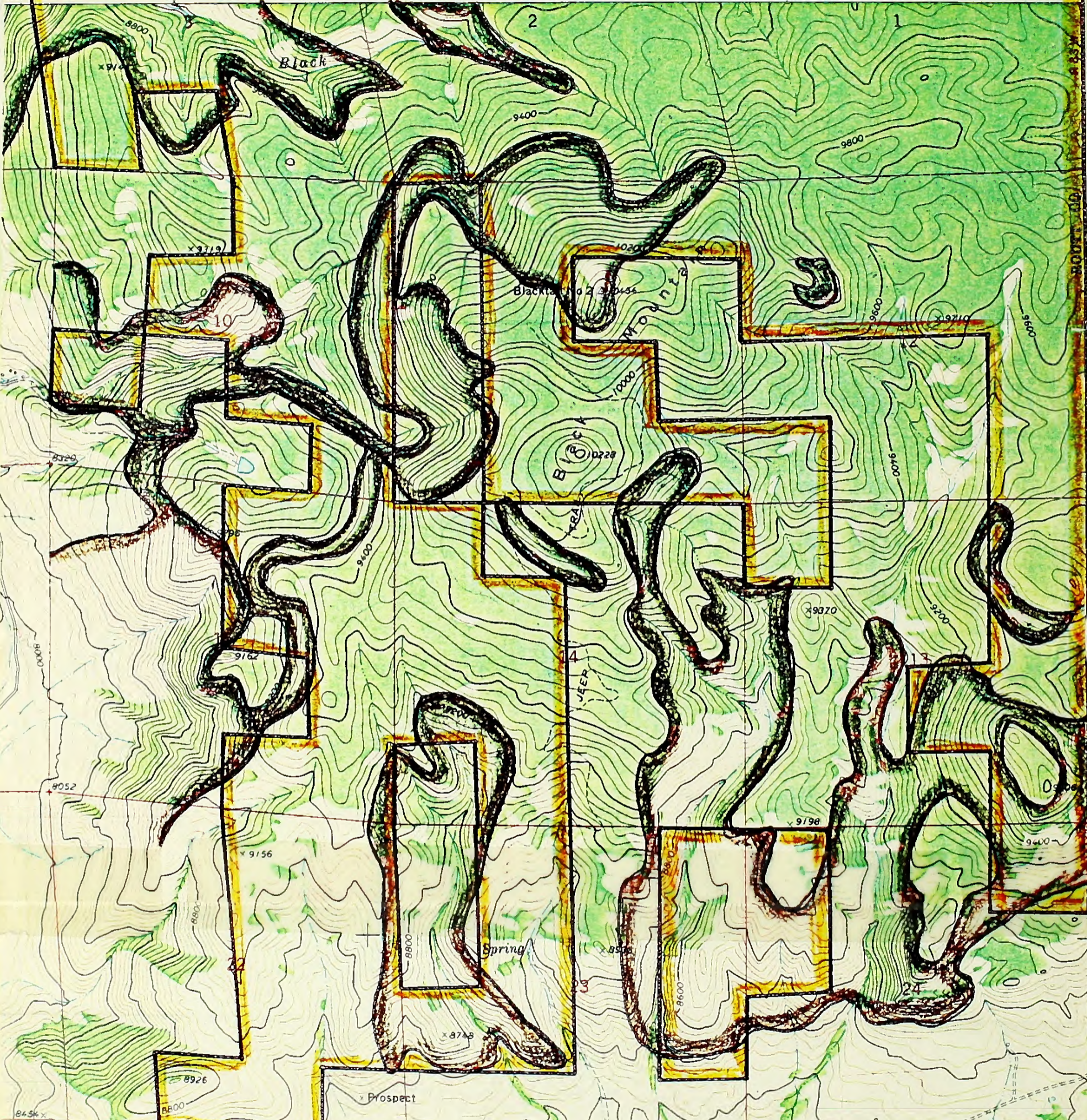
ACREAGE BY SECTION AND OWNERSHIP

	<u>Total Acres</u>	<u>BLM</u>	<u>Private</u>
Sec. 1	502.3	- 502.3	.0
Sec. 2	457.4	457.4	.0
Sec. 3	456.2	416.2	40.0
Sec. 10	640.0	360.0	280.0
Sec. 11	640.0	360.0	280.0
Sec. 12	667.7	467.6	200.0
Sec. 13	656.8	256.8	400.0
Sec. 14	654.2	254.2	400.0
Sec. 15	658.0	298.0	360.0
Sec. 22	640.0	320.0	320.0
Sec. 23	640.0	280.0	360.0
Sec. 24	640.0	120.0	520.0
Sec. 21	40.0	40.0	.0
	<u>7,292.5</u>	<u>4,132.5</u>	<u>3,160.0</u>

Table 1-2  
ANALYSIS OF SECTION AND DISTRICT

Year	Rate	Total	Per Cent
1900	100.0	100.0	100.0
1901	100.0	100.0	100.0
1902	100.0	100.0	100.0
1903	100.0	100.0	100.0
1904	100.0	100.0	100.0
1905	100.0	100.0	100.0
1906	100.0	100.0	100.0
1907	100.0	100.0	100.0
1908	100.0	100.0	100.0
1909	100.0	100.0	100.0
1910	100.0	100.0	100.0
1911	100.0	100.0	100.0
1912	100.0	100.0	100.0
1913	100.0	100.0	100.0
1914	100.0	100.0	100.0
1915	100.0	100.0	100.0
1916	100.0	100.0	100.0
1917	100.0	100.0	100.0
1918	100.0	100.0	100.0
1919	100.0	100.0	100.0
1920	100.0	100.0	100.0
1921	100.0	100.0	100.0
1922	100.0	100.0	100.0
1923	100.0	100.0	100.0
1924	100.0	100.0	100.0
1925	100.0	100.0	100.0
1926	100.0	100.0	100.0
1927	100.0	100.0	100.0
1928	100.0	100.0	100.0
1929	100.0	100.0	100.0
1930	100.0	100.0	100.0
1931	100.0	100.0	100.0
1932	100.0	100.0	100.0
1933	100.0	100.0	100.0
1934	100.0	100.0	100.0
1935	100.0	100.0	100.0
1936	100.0	100.0	100.0
1937	100.0	100.0	100.0
1938	100.0	100.0	100.0
1939	100.0	100.0	100.0
1940	100.0	100.0	100.0
1941	100.0	100.0	100.0
1942	100.0	100.0	100.0
1943	100.0	100.0	100.0
1944	100.0	100.0	100.0
1945	100.0	100.0	100.0
1946	100.0	100.0	100.0
1947	100.0	100.0	100.0
1948	100.0	100.0	100.0
1949	100.0	100.0	100.0
1950	100.0	100.0	100.0
1951	100.0	100.0	100.0
1952	100.0	100.0	100.0
1953	100.0	100.0	100.0
1954	100.0	100.0	100.0
1955	100.0	100.0	100.0
1956	100.0	100.0	100.0
1957	100.0	100.0	100.0
1958	100.0	100.0	100.0
1959	100.0	100.0	100.0
1960	100.0	100.0	100.0
1961	100.0	100.0	100.0
1962	100.0	100.0	100.0
1963	100.0	100.0	100.0
1964	100.0	100.0	100.0
1965	100.0	100.0	100.0
1966	100.0	100.0	100.0
1967	100.0	100.0	100.0
1968	100.0	100.0	100.0
1969	100.0	100.0	100.0
1970	100.0	100.0	100.0
1971	100.0	100.0	100.0
1972	100.0	100.0	100.0
1973	100.0	100.0	100.0
1974	100.0	100.0	100.0
1975	100.0	100.0	100.0
1976	100.0	100.0	100.0
1977	100.0	100.0	100.0
1978	100.0	100.0	100.0
1979	100.0	100.0	100.0
1980	100.0	100.0	100.0
1981	100.0	100.0	100.0
1982	100.0	100.0	100.0
1983	100.0	100.0	100.0
1984	100.0	100.0	100.0
1985	100.0	100.0	100.0
1986	100.0	100.0	100.0
1987	100.0	100.0	100.0
1988	100.0	100.0	100.0
1989	100.0	100.0	100.0
1990	100.0	100.0	100.0
1991	100.0	100.0	100.0
1992	100.0	100.0	100.0
1993	100.0	100.0	100.0
1994	100.0	100.0	100.0
1995	100.0	100.0	100.0
1996	100.0	100.0	100.0
1997	100.0	100.0	100.0
1998	100.0	100.0	100.0
1999	100.0	100.0	100.0
2000	100.0	100.0	100.0
2001	100.0	100.0	100.0
2002	100.0	100.0	100.0
2003	100.0	100.0	100.0
2004	100.0	100.0	100.0
2005	100.0	100.0	100.0
2006	100.0	100.0	100.0
2007	100.0	100.0	100.0
2008	100.0	100.0	100.0
2009	100.0	100.0	100.0
2010	100.0	100.0	100.0
2011	100.0	100.0	100.0
2012	100.0	100.0	100.0
2013	100.0	100.0	100.0
2014	100.0	100.0	100.0
2015	100.0	100.0	100.0
2016	100.0	100.0	100.0
2017	100.0	100.0	100.0
2018	100.0	100.0	100.0
2019	100.0	100.0	100.0
2020	100.0	100.0	100.0
2021	100.0	100.0	100.0
2022	100.0	100.0	100.0
2023	100.0	100.0	100.0
2024	100.0	100.0	100.0
2025	100.0	100.0	100.0
2026	100.0	100.0	100.0
2027	100.0	100.0	100.0
2028	100.0	100.0	100.0
2029	100.0	100.0	100.0
2030	100.0	100.0	100.0

164 SS 62 500 357 40' 358 359 1 680 000 FEET (NORTH) 360 361 106



Legend:


 Topography Greater Than 40%









Photo I-1  
South Side of Black Mountain  
from Copper Spur Ranch



Photo I-2  
This draw currently provides the only road access to  
Black Mountain and crosses private land.



The area has been used since the 1880s for livestock grazing and ranching. BLM records indicate grazing use by cattle since inception of the Taylor Grazing Act of 1934. This cabin in Section 14 is a reminder of the historic years of grazing.



Photo I-3

"The line shack." Note the invasion of Aspen trees into the old cleared area around the cabin.



Four broad vegetative types occur: they are the Lodgepole pine-sedge type; the Aspen-subalpine fir type; Aspen-forb-grass type; and the Willow-wet meadow type. Lodgepole pine is the largest vegetative type occurring.



Photo I-4

Lodgepole Pine-Sedge type vegetation and existing access road.



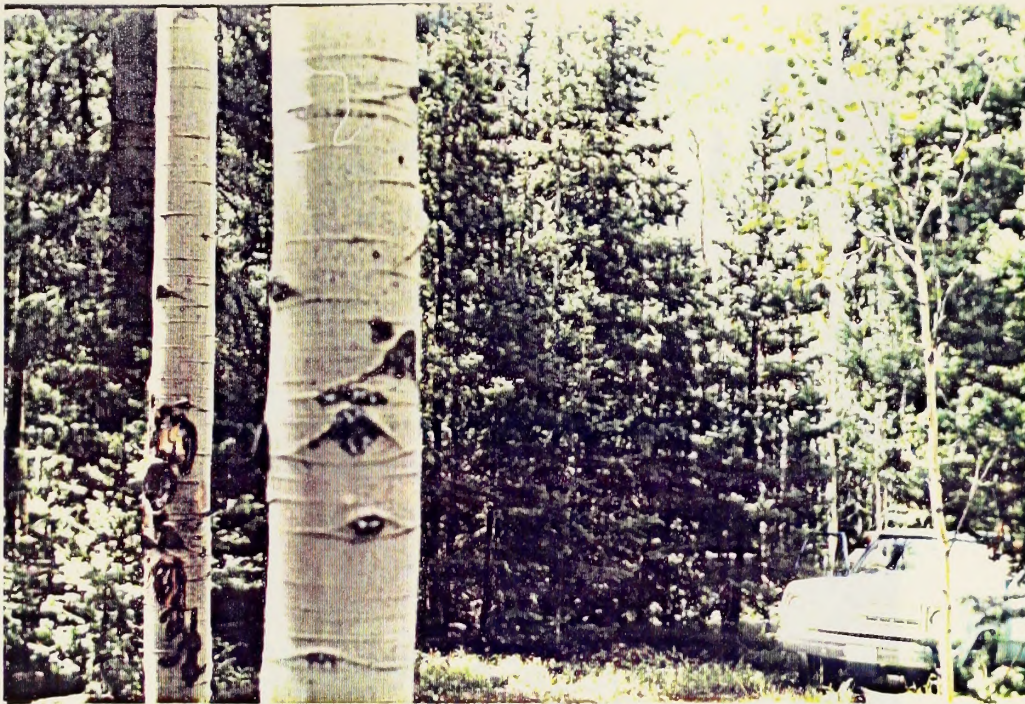


Photo I-5  
Aspen-subalpine fir vegetative type.



Photo I-6  
Aspen-forbs-grass vegetation type, typical noncommercial  
aspen stands in the unit.







Photo I-7

Willow-wet meadow vegetative type



## 2. Water & Soil

The unit is bisected by a minor hydrologic divide. Generally, the area south and east of Black Mountain is drained by small, unnamed, ephemeral stream channels which carry runoff south directly into the Colorado River. Runoff from the remainder of the unit flows north-westerly into Rock Creek via Whiskey Creek and Black Creek. Approximately 7,300 acres (5.8%) of the Rock Creek Watershed lies within the unit. Typically, streams in the area exhibit seasonal variation in discharge, with 60 to 70% of the flow occurring in May and June from snowmelt runoff.

Limited water quality data are available for the unit. Field observations indicate water quality is high, exceeding the Colorado State Water Quality Standards for Class B-1 cold water fisheries (USDA Forest Service, 1976).

Flow requirements for fish, recreation, and other uses have not been established.

The soils are stable, they do not exhibit mass movement, and they are moderately erosive. (See table 1-4 ) The soils were mapped by the Soil Conservation Service in 1979.

## 3. Wildlife

Elk, deer and a limited number of beaver and bear are the major game species of wildlife in the unit. Smaller wildlife species found in the area are red squirrels, snowshoe hare, numerous song birds, coyotes, and other small rodents. Blue grouse and morning



doves are the only game birds found on the unit. East of the Black Mountain unit are 22,000 acres of land managed by the Colorado Division of Wildlife (DOW) and the Craig BLM District. These areas are managed for deer and elk winter range. The Black Mountain unit is used as spring, summer, and fall range but actual numbers are not known. Elk calve in all drainages and do not congregate in any large numbers. Primary calving grounds have not been identified. Conflicts between cattle and elk use does not seem to be a problem. Threatened or endangered species are not known to inhabit the unit. Spring use by bear has been observed and there are old beaver dams in Whiskey Creek but there is no sign of recent activity.

#### 4. Minerals

To date no patented or unpatented mining claims have been noted in the unit and there is no sign of past prospecting or exploration. Geological reports and the lack of mining and exploration activity indicates an apparent low potential for locatable minerals, oil, or gas. There are no oil and gas leases in the unit.

#### 5. Recreation

The unit has no public vehicle access or developed recreation sites. At least three perennial hunter camps are used seasonally. One camp has two corrals for pack animals. Hunting by local residents appears to be the primary use. Other uses may include snowmobiling and hiking, although there are no hiking trails, just some primitive roads. Roads developed for timber harvest will be single use roads that cross the National Forest and will be closed to the public for motor vehicle use on the National Forest portion. Timber management access and snowmobile use are the only exceptions at present.



## 6. Wilderness

The unit has been inventoried for wilderness potential and found not to have wilderness characteristics.

## 7. Air Quality

There are no industrial pollution sources and no nearby population centers that would contribute to poor air quality. This is a high elevation, high quality airshed at present.

## 8. Visual Resource

The unit has been inventoried as to scenic quality and has a Visual Resource Management classification of IV. (See BLM Manual 8411.6 for definitions). The "C" level of scenic quality describes this landscape, which is background or seldom seen. This class allows visual contrasts to attract attention but requires that form, line, color and texture be repeated.

## 9. Fire Management

There is no recent history of fire occurrence but large fires have occurred maintaining even aged Lodgepole and Aspen plant communities. Forest fuels are accumulating in most old lodgepole stands and will continue to increase the fire hazard as the stands deteriorate. Access is very limited and there are few natural fuel breaks to aid in the control of large forest fires.





10. Transportation and Access

The only access is across private land from the south via a poorly maintained 4-wheel drive road. Access for timber harvest will be developed to the north across the Routt National Forest in cooperation with the Forest Service (see map I-4). Spur roads and skid trails will be of a temporary nature.

11. Range

This unit contains three grazing allotments. Three grazing licenses authorize 569 animal unit months of use under Section 15 of the Taylor Grazing Act. This results in 48 cattle grazing the area from April 12 through the end of October.

Table I-3  
ALLOTMENT SUMMARY

<u>Licensee</u>	<u>Allotment</u>	<u>Number Cattle</u>	<u>Months of Use</u>	<u>AUM's</u>
Horn, Raymond	Horn	21	05/01-10/31	249
Copper Spur Corp	Copper Spur	18	04/01-10/31	211
Cronin	Black Mtn.	9	06/01-10/31	109

12. Timber

Lodgepole pine is the predominant forest type (92 percent).

Timber inventories show 3,242 acres of productive forest land, of which 2,548 acres are suitable and available for intensive management and sustained yield harvest, see forest type map (back leaf) and table I-6 page 26, for appropriate data.

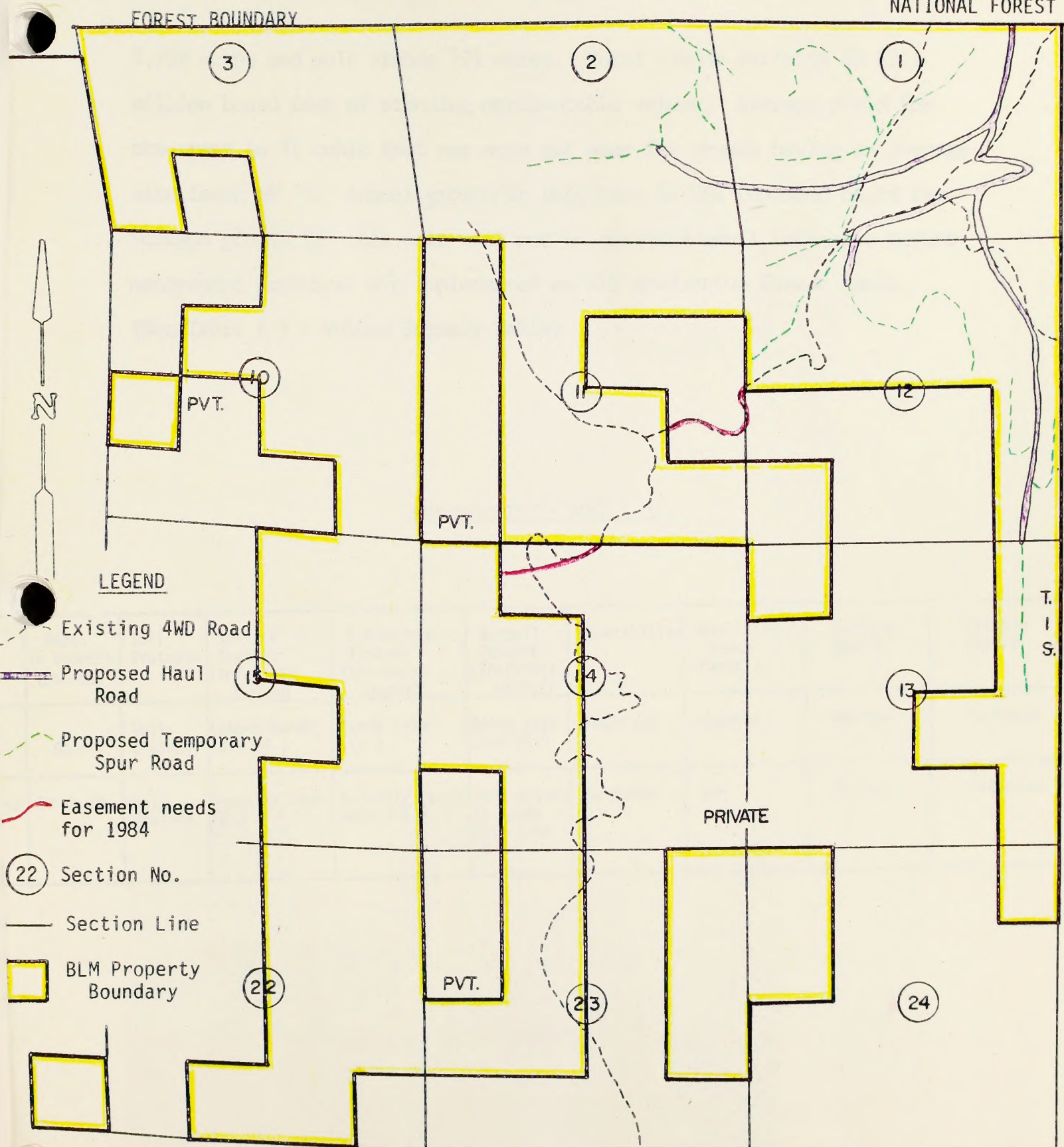
Saw timber stands with a planned harvest occupy



MAP I-4  
EXISTING AND PROPOSED ROADS

ROUTT  
NATIONAL FOREST

FOREST BOUNDARY



Black Mountain FMP  
Scale: 2" = 1 mile



1,757 acres and pole stands 791 acres. Total volume estimate is 13.4 million board feet of standing merchantable volume. Average yield for the stand is 31 cubic feet per acre per year for stands having an average site index of 37. Annual growth at this time is 252 thousand board feet. Maximum growth for this unit will not be realized until intensive forest management practices are implemented on all productive forest lands.

(See Table 1-5 - Volume Summary Table)

SOIL PROPERTIES - TABLE 1- 4

Depth to Bedrock (inches)	Soil Drainage	Surface Texture (Thickness inches)	Subsurface Texture (Thickness inches)	Subsoil Texture (Thickness inches)	Permeability	Available Water Capacity	Surface Runoff	Erosion Hazard
60 +	Well drained	Cobbly sandy loam (8 )	Sandy loam (24 )	Sandy clay loam (7 )	Moderate	Moderate	Medium	Moderate
10 to 20	Well drained	Gravelly loam (2 )	Gravelly sandy loam (13 )	Very gravelly sandy clay loam (3 )	Moderate	Low	Medium	Moderate



Table I-5

VOLUME SUMMARY TABLE

	<u>Sawtimber Stands</u>	<u>Pole Stands</u>	<u>Combined</u>
Average Site Index	37	37	
Average DBH	10.7"	8.5"	
Average BA/acre			108.67
Average Yield	31/cu.ft/ac/yr.	29/cu.ft/ac/yr	
Average growth in BF	116 BF/ac.	61 BF/ac.	
Acres	1,757	791	2,548
Average annual BF Vol/ac. sustained yield	*203.8 MBF	*42.2 MBF	252 MBF

Average vol/ac 3,256 BF x 2548 ac = 13.4 MMBF standing volume.

\* present production

Lodgepole pine (Pinus contorta). All sawtimber stands are 100 years of age or older and show signs of deterioration. The oldest stands are about 140 years have mistletoe infections, snags, snag top trees and subalpine-fir reproduction.



Photo I-8

Decadent Lodgepole pine stand. Note evidence of "brooming" caused by dwarf mistletoe.





In wet draws only remnant lodgepole stands remain and have been succeeded by subalpine fir and some spruce. There is very little commercial material in these stands.



Photo I-9

Overstock spruce fir stand, established under an over mature and dying out lodgepole stand.

Pole stands are also overstocked, slow growing, with almost no understory vegetation. Wood fuels are increasing on the forest floor from normal mortality.





Photo I-10

Overstocked pole stand inefficiently thins itself. Note absence of vegetation on the forest floor.

These stands provide a good opportunity for management since they grow on good sites and offer commercial material in the 5- to 9-inch diameter size. Increased growth is expected once the stands are thinned.

Sawtimber stands in the 9- to 15-inch diameter breast height class offer the largest volumes, up to 8,000 board feet per acre. These stands are more open, have vegetation in the understory and in places have some lodgepole reproduction. These stands are at or just beyond maturity. Some mortality occurs but generally the stands are still healthy with no disease problems.





Photo I-11

Mature, well-stocked lodgepole pine stand 9- to 15-inch diameter breast height. Good height and diameter growth indicates that this is a good site.

Aspen (*Populus tremuloides*). Most aspen stands have fallen out of the allowable cut base as unmerchantable; however, an aspen market is developing and 68 acres have been included in the base on Black Mountain. These stands occur as small pockets of pure aspen and as mixed stands having aspen in the overstory with an understory of subalpine fir.





Photo I-12

Aspen sawtimber in scattered pockets will be selected for harvest where practical. Note subalpine fir understory and natural small opening typical of this type.

See the timber type on the back cover leaf for details for individual stands and table I-6, page 26.





Table I-6

## INDIVIDUAL STAND ACREAGE

## LOGEPOLE PINE SAWTIMBER, WELL-STOCKED (LP9W)

<u>Stand No.</u>	<u>Stand Acres</u>	<u>Nonrestricted Acres</u>	<u>Restricted Acres</u>
#103	219	129 Ac.	90 Ac.
110	42	42	0
112	681	581	100
123	10	10	0
130	56	23	33
136	26	26	0
142	66	16	50
144	237	190	47
151	8	0	8
154	138	138	0
158	34	34	0
159	<u>140</u>	<u>140</u>	<u>0</u>
TOTAL ACRES	1,657	1,329	328

Nonrestricted - Productive forest land without multiple use restrictions regarding the planned harvest of wood products.

Restricted - Productive forest land with no planned harvest due to multiple use constraints.



Table I-6, continued

## LOGEPOLE PINE SAWTIMBER, MEDIUM STOCKED (LP9M)

<u>Stand No.</u>	<u>Stand Acres</u>	<u>Nonrestricted Acres</u>	<u>Restricted Acres</u>
#102	5	0	5
105	14	10	4
109	22	22	0
113	10	10	0
114	22	22	0
127	6	6	0
128	7	7	0
129	38	23	15
132	31	0	31
135	14	14	0
137	18	0	18
139	8	8	0
141	40	32	8
150	3	3	0
152	38	38	0
155	43	43	0
156	43	43	0
157	44	44	0
162	7	7	0
163	66	66	0
164	8	8	0
169	8	8	0
172	22	18	4
TOTAL ACRES	517	431	86



Table I-6, continued

LOGEPOLE PINE SAWTIMBER, POORLY STOCKED (LP9P)

<u>Stand No.</u>	<u>Stand Acres</u>	<u>Nonrestricted Acres</u>	<u>Restricted Acres</u>
#171	69	0	69
104	9	7	2
140	<u>12</u>	<u>12</u>	<u>0</u>
TOTAL ACRES	90	19	71



Table 1-6 continued

## LOGEPOLE PINE POLES, WELL-STOCKED (LP8W)

<u>Stand No.</u>	<u>Stand Acres</u>	<u>Nonrestricted Acres</u>	<u>Restricted Acres</u>
#111	44	44	0
118	192	192	0
119	10	10	0
120	34	34	0
121	19	19	0
122	35	35	0
124	20	20	0
125	19	19	0
126	5	5	0
131	54	54	0
133	7	0	7
134	12	12	0
143	117	117	0
145	32	29	3
153	14	14	0
161	10	10	0
165	7	7	0
166	7	7	0
167	14	14	0
168	12	12	0
170	8	8	0
173	<u>10</u>	<u>10</u>	<u>0</u>
TOTAL ACRES	682	672	10





Table I-6 continued

LOGEPOLE PINE POLES, MEDIUM-STOCKED (LP8M)

<u>Stand No.</u>	<u>Stand Acres</u>	<u>Nonrestricted Acres</u>	<u>Restricted Acres</u>
108	4	4	0
160	7	7	0
	<u>30</u>	<u>30</u>	<u>0</u>
TOTAL ACRES	41	41	0



Table I-6 continued

LOGEPOLE PINE POLES POORLY STOCKED, (LP8P)

<u>Stand No.</u>	<u>Stand Acres</u>	<u>Nonrestricted Acres</u>	<u>Restricted Acres</u>
#147	<u>16</u>	<u>10</u>	<u>6</u>
TOTAL ACRES	16	10	6



Table I-6 continued

DOUGLAS-FIR SAWTIMBER, WELL-STOCKED (DF9W)

<u>Stand No.</u>	<u>Stand Acres</u>	<u>Nonrestricted Acres</u>	<u>Restricted Acres</u>
#101	<u>2</u>	<u>0</u>	<u>2</u>
TOTAL ACRES	2	0	2



1. Forest Management Objectives

Management objectives are:

- A. To ensure 2,500 acres of productive forest land in a sustained yield state.
- B. To protect 250 acres not suitable for intensive forest management with such uses as it is feasible to manage their interests.
- C. To develop an action plan for timber production. This plan will tie into the State National Forest System and will be coordinated with national environmental goals.
- D. To identify intensive forest management opportunities and practices that are consistent with the objectives of sustained yield and multiple use resource management.
- E. To coordinate with other resource objectives.

Details for planned action are found in Chapter 3. Chapter 4 also states the proposed general objectives for other resources which will be facilitated through the forest management objectives.

Objectives are normally defined in RFP's and are based on a specific use as a result of that process. In this case, basic forest management objectives were made in the absence of a completed planning process. Objectives will be stated at the National Forest System. Other plans will be coordinated in keeping with objective "E".





## II. Forest Management Objectives

Management objectives are:

- A. To manage 2,548 acres of productive forest land on a sustained yield basis.
- B. To protect 694 acres, not suitable for intensive forest management until such time as it is feasible to manage them intensively.
- C. To develop an access plan for timber harvesting. Haul roads will tie into the Routt National Forest System and will be constructed with minimal environmental damage.
- D. To identify intensive forest management opportunities and practices that are consistent with the principle of sustained yield and multiple use resource management.
- E. To coordinate with multi resource objectives.

Details for planned actions are found in chapter V. Chapter V also states how assumed general objectives for other resources would be facilitated through the forest management objective.

Objectives are normally defined in RMP's and are based on a decision made as a result of that process. In this case, basic forest management assumptions were made in the absence of a completed planning document. Objectives will be aimed at the lodgepole sedge type. Other types will be maintained in keeping with objective "B".



Basic assumptions made are:

1. Revisions will be made to the plan as a result of RMP decisions to be made in 1983.
2. Timber harvest and intensive forest management is consistent with established Bureau policy and practices.
3. Timber harvesting and production is important to the national and local economy.
4. A transportation system must be developed in order to manage the timber resource.
5. The Black Mountain unit does not qualify as a wilderness area.
6. Conflicts with other resources can be resolved readily and will not be of major significance.
7. Cultural values, scenic quality, recreation values, wildlife, fisheries, range, water quality and minerals management will receive equal consideration in implementing forest management actions.
8. All management actions will be in conformance with accepted procedures, existing regulations and policy.



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MANAGEMENT FRAMEWORK PLAN - STEP 1  
ACTIVITY OBJECTIVES

Name (MFP)	Black Mountain
Activity	Forest Management
Objective Number	A

A. To manage 2,548 acres of productive forest land on a sustained yield basis.

Rationale:

Demand for wood products is increasing and the resource base is shrinking. In order to contribute to future needs, wise use of all resources is necessary and profitable. It is good stewardship to improve, renew and maintain the public resources.

Planned Actions

1. Conduct timber production capability classification inventory on these acres.
2. Harvest 3 million board feet in 1981 and 2 MMBF in 1985 in order to reduce stands that are overmature. Harvest 750,000 board feet at 3-year intervals beyond 1985. The 1981 sale of 3 million board feet will be integrated with a Forest Service sale of 4 million board feet. The Environmental Assessment for this sale addresses 7 million board feet.
3. Commercially thin 45 acres in pole stands annually.
4. Construct approximately 4 miles of 14 feet wide road with turnouts in conjunction with the USFS under cooperative agreement, and an added 2 miles in conjunction with the 1985 sale.
5. Obtain cultural clearance.

Benefits to other resource objectives: (1) increased forage and grass production for range and wildlife and (2) improved access for administration of all resources.



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MANAGEMENT FRAMEWORK PLAN - STEP 1  
ACTIVITY OBJECTIVES

Name (MFP)	Black Mountain
Activity	Forest Management
Objective Number	B

B. To protect all stands, 694 acres, not suitable for intensive forest management until such time as it is feasible to manage them intensively.

Rationale:

Stands not immediately suitable for harvest may be suitable for commercial harvest as value increases and technology advances.

Planned actions

1. Protect from fire
2. Monitor insect and disease activity
3. Conduct TPCC inventory

Benefits to other resource activities

1. Soil is protected by maintenance of forest cover
2. Cover for wildlife is maintained
3. Maintenance of visual quality
4. Maintenance of watershed quality





UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MANAGEMENT FRAMEWORK PLAN - STEP 1  
ACTIVITY OBJECTIVES

Name (MFP)	Black Mountain
Activity	Forest Management
Objective Number	C

C. Develop an access plan for timber harvesting. Haul roads will tie into the Routt National Forest System and will be constructed with minimal environmental damage.

Rationale:

Access is a necessary part of timber harvest.

Planned Actions:

1. Obtain access from USFS under existing cooperative agreements.
2. Survey, design, and construct actual road.
3. Rehabilitate cuts and fills.
4. Obtain easement for south side access across the private inholdings for future sales, 3/4 mile.

Benefits to other resources:

Improved access for administration of all resources, i.e., range use supervision and fire suppression.



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MANAGEMENT FRAMEWORK PLAN - STEP 1  
ACTIVITY OBJECTIVES

Name (MFP)	Black Mountain
Activity	Forest Management
Objective Number	D

D. Identify intensive forest management opportunities and practices that are consistent with the principle of sustained yield and multiple use resource management.

Rationale:

The identified harvest includes enhancement of the resource. Total management requires development of the resource as well as harvest through thinning and silvicultural practices.

Planned Actions:

1. Identify commercial and precommercial thinning areas on a timber type map.
2. Inventory areas needing reforestation.
3. Plan for seed collection and subsequent growing of planting stock. This stock will be used in the event that natural regeneration is inadequate, 5 years following harvest. Stocking will be judged adequate if there are a minimum of 300 established seedlings per acre.
4. Identify silvicultural practices that will:
  - a. Secure the prompt establishment of stands of optimum stocking through natural means.
  - b. Prevent or relieve the stagnation of young stands.
  - c. Maintain a high rate of growth in developing stands.
  - d. Produce a final timber product of desired size and quality.
  - e. Accomplish different multi-resource objectives on forest areas through a defined level of timber harvest.
  - f. Protect timber-growing environments for the sustained yield of timber products.



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MANAGEMENT FRAMEWORK PLAN - STEP 1  
ACTIVITY OBJECTIVES

Name (MFP)	Black Mountain
Activity	Forest Management
Objective Number	E

Benefits to other resources

- a. Increased forage for wildlife and cattle
- b. Increased water yields and streamflows through increased snowpacks and less loss of soil moisture through transpiration.

4. Coordinate with multi-resource objectives.

Rationale: Multiple use management policy requires trade-offs, coordination and development of many resources. Often one can enhance the other through cooperation. See chapter IV for details on cooperation with others.

Planned actions:

1. Develop an FPM that considers all forest uses as opposed to a timber management plan that considers only single use timber.
2. Revise according to input from RMP to be completed in 1983.

Benefits to other activities

See chapter IV, co-ordination, for benefits to each resource activity.



### III. Constraints

Historically, the timber management and harvest program has been constrained by very limited access to roads and equipment. The only vehicle access is across a series of private land tracts. Cooperation with the Forest Service will be needed to establish access roads from the north across the Road Forest and a few other lands under contract.

Other constraints are listed in Table III-1. They were derived by consulting resource specialists and using the same methodology mentioned in chapter II along with the following constraints. A total of 206 acres are considered to be of multiple use constraint status.

Table III-1

#### FOREST LAND CONSTRAINTS BY OTHER MULTIPLE USE CONSIDERATIONS

Type of Restriction	Acres Restricted	Percent Restricted
Stream side	130	100
Noncommercial forest type	149	100
Topographic	96	100
Historical (archaeological) only	0	0
Wildlife (archaeological only)	0	0
Total acres	375	
Total FPL acres	2,041	
% of FPL restricted	18.4	
% of harvest area	22.0	

Some sites are being used for archaeological investigations. Sites identified as being of historical importance are placed in the timber program unless of overriding cultural value. The necessary





### III. Constraints

Historically the timber management and harvest program has been constrained by very limited access both legal and physical. The only vehicle access is across 6 miles of private jeep trail. Cooperation with the Forest Service will enabled us to plan to obtain access from the north across the Routt Forest under a joint timber sale contract.

Other constraints are listed in table III-1. They were derived by consulting resource specialists and using the basic assumptions mentioned in chapter II along with the allowable cut plan decisions. A total of 694 acres are constrained by other multiple use considerations.

Table III-1

#### FOREST LAND CONSTRAINED BY OTHER MULTIPLE USE CONSIDERATIONS

<u>Type of Restriction</u>	<u>Acres Restricted</u>	<u>Percent Restriction</u>
Stream side	130	100
Noncommercial Aspen type	169	100
Topographic	395	100
Watershed, silvicultural only	0	0
Wildlife, silvicultural only	0	0
Total acres	<u>694</u>	
Total PFL acres	= 3,242	
PFL not restricted	= 2,548	
PFL constrained	= 694	

There were no constraints identified due to archeological considerations. Therefore, whenever constraints are placed on the timber programs because of overriding cultural values, the necessary



adjustments must be made in the allowable cut calculations.  
Cultural values, if present, will be identified in the associated Environmental Assessment.

Table III-2  
PERCENT OF ACRES RESTRICTED BY STAND

<u>Stand Number</u>	<u>% of Acres Restricted *</u>
171	100
132	100
133	100
130	60
129	40
151	100
115	100
137	100
112	15
117	100
116	100
142	75
172	20
145	10
144	20
147	40
141	20
107	100
105	30
Unnumbered	100
102	100
104	20
103	40
100	100
101	100

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\*Restricted - Productive forest land with no planned harvest due to other multiple use constraints.



2. Environmental Impact Statement

A. Project Description

The project will consist of the construction of a dam and a powerhouse. The dam will be located on the main stem of the river. The powerhouse will be located on a tributary of the river. The project will have a total length of approximately 1.5 miles. The project will be completed in 1985.

The project will have a total length of approximately 1.5 miles. The project will be completed in 1985.

The project will have a total length of approximately 1.5 miles. The project will be completed in 1985.

B. Project Description

The project will have a total length of approximately 1.5 miles. The project will be completed in 1985.



#### IV. Coordination with Other Activities

##### A. Wildlife Management Coordination

Lodgepole pine stands constitute the most extensive forest type on public lands in the FMP area. Consequently, forest practices on these lands can enhance or adversely affect wildlife habitat to a significant degree.

Stipulations have been developed to protect important wildlife values. See Manual 6512 and 5400 and instruction memorandums No. CSO 75-254, (appendix C).

A Habitat Management Plan has not been developed for the unit, however, a Resource Management Plan/EIS will be completed in Fiscal Year 1983 and will provide additional information and direction concerning wildlife and forest management coordination. The environmental assessment for each project needs to identify elk calving areas and deer fawning areas in the interim. At the beginning of each field season a trip conducted by the biologist and forester should be scheduled to inspect planned silvicultural projects and to identify potential wildlife problems.

##### B. Fisheries Management Coordination

The fishing potential is limited to Whiskey Creek and Black Creek.

A small population may be maintained in an existing beaver dam.

Maintaining buffer strips along streams, keeping logging equipment out of stream channels, and limiting clearcut harvesting to 40-acre parcels or less should adequately protect fisheries values in the area. Harvest methods will result in increased snow packs and enhance streamflows.

All actions will be subject to analysis by an interdisciplinary team which will include a fisheries biologist.





### C. Livestock Management Coordination

Ranchers use the area April 1 through October for grazing with a total of 48 cattle. The land is not grazed uniformly due to heavily forested areas that do not support forage. The lower elevations receive most of the use. Timber harvesting should initially increase the carrying capacity. Range managers will need to identify potential water developments and fencing needs through the EA or 1983 EIS and coordinate with forestry personnel on installation and financing. A cattleguard will be installed at the forest boundary on the proposed timber haul road. The road does not cross any other fences.

Currently there are no grazing allotment management plans (AMP's) developed for the unit. AMP's may be developed after the EIS is completed.

These two resources are, fortunately, mostly complementary to each other. Basically, timber harvest allows initial increased production of grass, shrubs, and forbs in the understory, which is beneficial to livestock, especially during the first few years after harvest.

Standard timber sale contract stipulations currently allow the forester to specify closing of gates, protection of range improvements, and use of the contract area by livestock during operations. No significant problems are anticipated at this time.

### D. Recreation Management Coordination

Recreational, visual, and cultural objectives as they relate to the forestry program deal mainly with the visual aspects of land treatments and the protection of cultural sites. Therefore, archeological clearance will be done before each timber sale.



Any significant cultural site will be protected per requirements outlined in 36CFR800. Stipulations may be included in the terms of the timber sale contract. Also, contrast ratings will be included in all forest management actions and projects will be kept within established criteria.

There are no planned or developed recreation sites and timber access will provide for public use on a limited basis. Because of the limited access recreation development would be limited to hiking, crosscountry skiing and horseback activities such as hunting and riding. Silvicultural practices will maintain a green aspect through partial cutting and small clearcuts.

An old cabin in Section 14 on private land is the only known cultural site. See photo 3-Chapter I.

#### E. Watershed Management Coordination

Increased reproduction that results from overstory removal will in the long term maintain soil stability. Some soil movement can be expected for the short term. Increased turbidity can occur during peak run-off periods.

Late season stream flow can be increased when the overstory is removed since this increases available soil moisture and interflow to streams.

Timber cutting will increase the snow pack since less is lost to interception and wind deposits snow in openings.

Stipulations will be coordinated with the watershed management specialist that will protect or rehabilitate the watersheds.



#### F. Minerals Management Coordination

There is no evidence of past exploration or mining. There are no known existing coal, oil or gas leases, or applications for leasing in the unit, and there are no recorded mining claims.

#### G. Fire Management Coordination

Fire can be useful to prepare sites for reforestation, dispose of right-of-way slash not suitable for fuelwood and in reducing fire hazard. Certain stand conditions exist, i.e. stagnated doghair stands and heavy concentrations of ground fuels, which may benefit from prescribed burning. Close coordination with the District fire management specialist on such projects will be necessary.

Fire management plans will be prepared for each proposal.

As it has in the past, fire suppression in the Black Mountain area will continue to be under the District fire management program.

Suppression within the Resource Area consists of aerial patrol and twenty-four hour "on-call" initial attack crews.

#### H. Forest Pest Management Coordination

Normal insect and disease activity occurs in the Black Mountain area. Overall the activity is in an endemic stage. Small isolated stands may have a higher degree of infestation. Silvicultural practice, such as small patch cuts, selective cuts, overstory removal, or thinning may be necessary to aid in insect and disease control. The silvicultural prescription will be based on the degree of activity present and the current condition of the stand.



Mistletoe is present but like the insect problem, it can be managed in conjunction with normal forest silvicultural practices.

I. Support Activities

1. Engineering: Survey and design and route analysis for South Side Easement, 3/4 mile. Fiscal Year 1981 and 1982.
2. Cadastral survey 30 miles of property line determination, average of 6 miles per year for 5 years. The township has a brass cap survey and most corners are located.
3. Approximately 1,000 acres will need cultural clearance in Fiscal Year 1980-81.





### Planned Actions

The planned actions for the first 10-year period are discussed for the Black Mountain Forest Management Area. These actions, listed by fiscal year, are directly referenced to the management objectives presented in Chapter II (see page 34). In some instances, a planned action may extend over a period of years.

A BMP project map is provided as show location of the project locations (see map V-1). Also included is a bar graph illustrating the planned actions to be done each fiscal year.

An environmental assessment (EA) has been completed and approved for the Black Mountain - Little Whiskey Creek Timber Sale (Black Whiskey Sale), a cooperative BLM-USFS sale effort. This EA is a separate document detailing the proposed management actions of the sale. With the writing of this BMP, a management base is provided for necessary EA's and timber sale plans on proposed projects in the BMP area.

More details of the Black Mountain - Little Whiskey Creek Timber Sale (BMP) can be found in the Black Mountain - Little Whiskey Creek Timber Sale EA and the Black Mountain - Little Whiskey Creek Timber Sale BMP.



## V. Planned Actions

The planned actions for the first 10-year period are presented for the Black Mountain Forest Management Area. These actions, listed by fiscal year, are directly referenced to the management objectives presented in chapter II (see page 33). In some instances, a planned action may extend over a period of years.

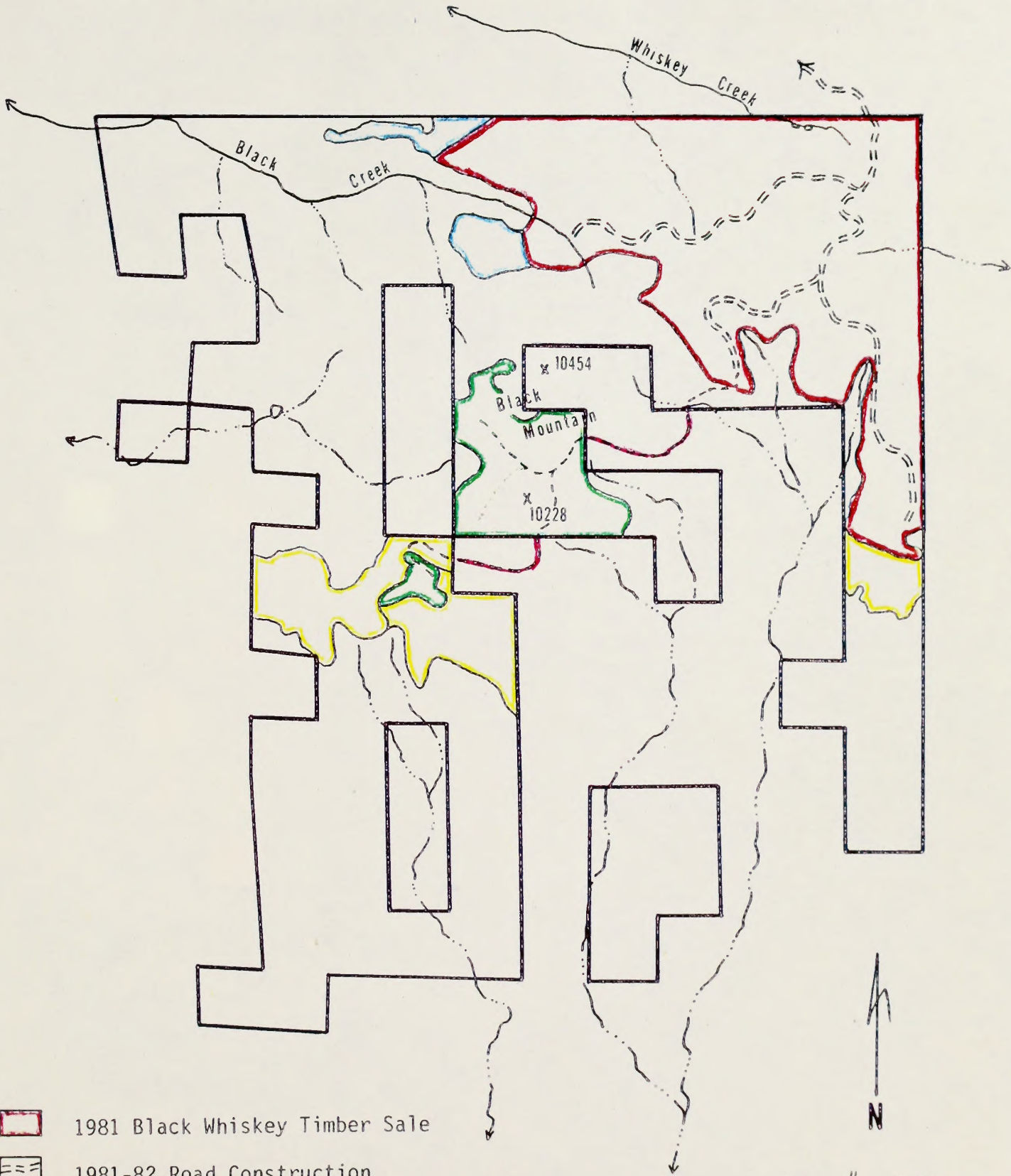
A FMP project map is provided to show proposed timber sale locations (see map V-1). Also included on page 66 is a bar graph illustrating the planned actions to be taken each fiscal year.

An environmental assessment (EA) has been completed and approved for the Black Mountain - Little Whiskey Creek Timber Sale (Black Whiskey Sale), a cooperative BLM-USFS sale effort. This EA is a separate document detailing the proposed management actions of the sale. With the writing of this FMP, a management base is provided for necessary EA's and timber sale plans on proposed projects in the FMP area.







Upon completion of the Glenwood Springs Resource Management Plan (RMP)/Environmental Impact Statement (EIS), revisions of these planned actions may be desired.



# BLACK MOUNTAIN PROJECT MAP



Scale 1" = 3000 ft

-  1981 Black Whiskey Timber Sale
-  1981-82 Road Construction
-  Easement Acquisition
-  1985 2MMbf Timber Sale
-  1988 750Mbf Timber Sale
-  Commercial Thinning



Fiscal Year 1980

Objective A - To manage 2,548 acres of productive forest land on a sustained yield basis.

Complete the Black Whiskey Timber Sale layout and cruise. Refer to Project Map and also Map V-2 on page 51 for the sale area. Under the BLM - USFS cooperative agreement, BLM will contribute three million board feet (3 MMbf) of lodgepole pine to the overall 7 MMbf sale volume. USFS cruise procedures will be used to assure continuity necessary for an accurate volume determination.

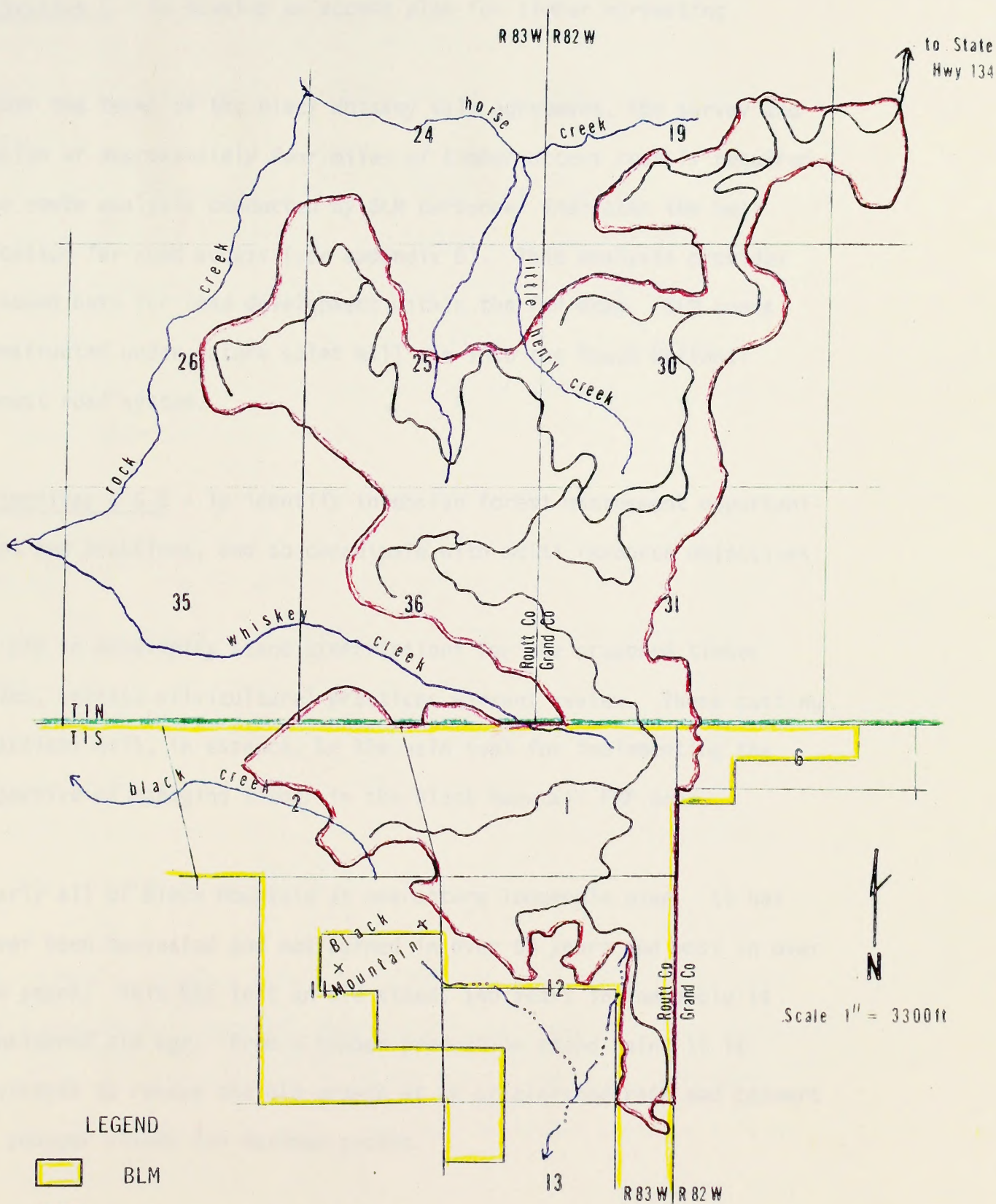
Aside from the forester's normal sale layout and prep duties to be completed, he should arrange for six miles of section corner location with the USGS. Cadastral Survey Section corners adjacent to the sale boundary should receive priority, and once placed, can assist the Forester in determining private boundary lines and exact road and sale boundary locations.

Finalize Timber Production Capability Classification (TPCC) for the acreage identified in this objective. Developed procedures will be used as directed in BLM Manual 5450.1 and 5450.2 - CSO operational Inventory - TPCC instructions.









# BLACK WHISKEY TIMBER SALE



### LEGEND

-  BLM
-  USFS, Routt National Forest
-  Approximate Sale Boundary
-  Approximate Road Location



Objective C - To develop an access plan for timber harvesting.

Under the terms of the Black Whiskey sale agreement, the survey and design of approximately four miles of timber access road is required. The route analysis conducted by BLM personnel indicates the best location for road access (see appendix D). This analysis provides a sound base for road development within the FMP area. BLM roads constructed under future sales will tie into the Routt National Forest road system.

Objectives D & E - To identify intensive forest management opportunities and practices, and to coordinate with multi resource objectives.

To aid in developing stand prescriptions for the proposed timber sales, certain silvicultural practices warrant review. These cutting practices will, in essence, be the main tool for implementing the objective of managing timber in the Black Mountain FMP area.

Nearly all of Black Mountain is overmature lodgepole pine. It has never been harvested and not burned in over 60 years and most in over 140 years. This has left an old stand; 140 years in lodgepole is considered old age. From a timber production stand point it is desirable to remove the old growth at an accelerated rate and convert to younger stands for maximum growth.



From a silvicultural point of view, clearcutting is a sound and practical way of bringing mature and overmature lodgepole pine forests under management. Clearcutting is desirable for several reasons:

- a. Lodgepole pine is intolerant to shade, and regenerates best when overstory competition is removed or significantly reduced.
- b. Dwarf mistletoe, a parasite present in varying degrees in the stands, is best controlled by separating old and new stands.
- c. Blowdown, while not a serious problem in the unit, is always a threat when partial cutting.

Timber Management however, is only one resource use of lodgepole pine forests. The FMP unit is also important for water yield and quality, wildlife habitat, hunting, recreation, and scenic beauty. Clearcutting is not always compatible with the objectives of these other multiple use resources. What is needed are silvicultural practices that can be used in combination with clearcutting to maintain forest cover while the old stand is being replaced with a healthy vigorous new stand.

The following research papers represent the state of our knowledge and the most up-to-date and accepted silvicultural practices available. It will be the standard and guide for our silvicultural management actions in this planning area. The papers, listed below, are filed in the forestry library.



Table V-1

SILVICULTURAL REFERENCE LIST

Alexander, Robert R., 1972.  
Partial cutting practices in old-growth lodgepole pine. USDA  
Forest Service Research Paper RM-92, 14 p.

Alexander, Robert R., 1971.  
(Revised 1972) Initial partial cutting in old-growth spruce-  
fir. USDA, Forest Service Research Paper RM-76, 10 p.

Alexander, Robert R., 1973.  
Partial cutting in old-growth spruce-fir USDA, Forest  
Service Research Paper RM-110, 16 p.

Alexander, Robert R., 1974.  
Silviculture of the subalpine forests in the central and  
southern Rocky Mountains: A status of our knowledge. USDA,  
Forest Service Research Paper RM-121, 88 p.

Jones, John R., 1974.  
Silviculture of southwestern mixed conifers and Aspen: The  
status of our knowledge. USDA, Research Paper RM-122, 44 p.

Alexander, Robert R., 1974.  
Silviculture of central and southern Rocky Mountain forests:  
a summary of the status of our knowledge by timber types.  
USDA, Forest Service Research Paper RM-120, 36 p.

Alexander, in his 1972 publication "Partial Cutting Practices in  
Old-Growth Lodgepole Pine", describes several partial cut alternatives  
for enhancement of other resources while meeting the forest management  
needs of a particular stand. The Black Mountain unit will apply





Alexander's individual and group tree selection method of partial cutting in combination with clearcutting of patches up to 5 or 6 times the average tree height of the stand but in no instance larger than 40 acres in size.

Field personnel will need to familiarize themselves with the guidelines and use professional judgment as to which cutting practice will be applied to each stand. Generally, partial cutting will not remove more than 30 percent of the crown cover, and will be used to maintain a forest canopy. Clearcutting will be used on disease and insect infested areas and will promote regeneration and maximum growth.

#### Fiscal Year 1981

Objective A - To manage 2,548 acres of productive forest land on a sustained yield basis.

Under the terms of the Black Whiskey Timber Sale agreement, the BLM and USFS will jointly offer for sale 3 MMbf of BLM lodgepole pine. Contract, sale and administration procedures are to be conducted according to policies set forth in the cooperative agreement and BLM Manual 5400 (see appendix B).



Four miles of road construction will begin under timber sale contract provisions. The flow of timber hauling will be north across new USFS roads and onto the existing USFS road system. It is the forester's responsibility to coordinate with USFS personnel on administration of road construction and logging operations on BLM lands. The 7 MMbf sale volume suggests a period of 3 to 5 years to complete the road work and timber harvest.

Objectives B & D - To protect 694 acres, not suitable for intensive forest management until such time as it is feasible to manage them intensively. To identify intensive forest management opportunities and practices that are consistent with the principle of sustained yield and multiple use resource management.

The BLM forester will conduct a thorough reforestation study of the Black Mountain FMP area. Findings will be incorporated into the ongoing RMP process, identified on timber type maps, and added to the TPCC data.

Objective C - To develop an access plan for timber harvesting.

A route analysis will be initiated to ascertain the best access route to the proposed 1985 timber sale. An estimated two miles



of additional road will be necessary to harvest the volume in the 1985 sale (see Project Map). In conjunction with the route analysis, an EA will be completed. The EA will ensure the BLM of a working base with which to negotiate an easement across private holdings.

### Fiscal Year 1982

Objectives A & C - To manage 2,548 acres of productive forest land on a sustained yield basis. To develop an access plan for timber harvesting. Haul roads will tie into the Routt National Forest System and will be constructed with minimal environmental damage.

The forester will assist in conducting a survey and design of the estimated two miles of road required for the 1985 timber sale (see Project Map). Proceedings to acquire 3/4 mile of easement for the timber haul road should begin. The District Access Specialist will take lead responsibility on this project.

In conjunction with these easement proceedings, an additional 6 miles of Cadastral Survey will be needed in the project area.

Corner locations will be essential for an exact survey and legal documentation.

Objective D - To identify intensive forest management opportunities and practices that are consistent with the principle of sustained



yield and multiple use resource management.

Based on the findings of the reforestation studies conducted in FY 1981 on the FMP area, a reforestation plan should be developed. Considerations should be made for seed collection within the FMP area.

Fiscal Year 1983

Objective A & C - To manage 2,548 acres of productive forest land on a sustained yield basis, and to develop an access plan for timber harvesting.

Under the direction of the District access specialist, easement proceedings will be finalized. This will allow the BLM an access route to the 1985 sale area.

Cadastral Survey work will continue on section corner subdivisions and property line locations pertaining to the 1985 sale area.

Interest expressed by adjacent landowners to participate in a separate and/or joint timber sale with the BLM should be monitored. Should such interest exist, the forester will coordinate with the Colorado State Forest Service in arranging a joint sale or sale adjacent to





public lands that would require use of public roads. An interest in such sales has been expressed by adjacent landowners.

Objective D - To identify intensive forest management opportunities and practices that are consistent with the principle of sustained yield and multiple use resource management.

As harvest operations continue on the Black Whiskey sale, contract modifications should be made to log any areas of blowdown or windfall.

Objective E - To coordinate with multi resource objectives.

With the completion of the RMP/EIS in 1983, this FMP should be revised with the specific goal of incorporating the recommendations of the RMP/EIS into the document.

#### Fiscal Year 1984

Objective A - To manage 2,548 acres of productive forest land on a sustained yield basis.

Timber sale layout and cruise will be conducted for 2 MMbf of lodge-pole pine located in Section II on the southern slope of Black Mountain (see Project Map). The sale will be accessible across the



3/4 mile easement segment of private land and 1 1/2 mile piece of BLM. Road construction will be completed under the terms of the timber sale contract.

An environmental assessment will be completed to identify and mitigate the impacts of the timber sale. Resource specialists will be consulted to assure an accurate assessment of the sale's impacts. Cultural clearance will also be conducted.

Additional section corner placement should be completed prior to sale layout. Coordination with Cadastral crews will be necessary.

An EA will also be written, reviewed and approved for 150 acres of commercial thinning. This sale is projected for FY 1985 (see Project Map).

#### Fiscal Year 1985

Objective A - To manage 2,548 acres of productive forest land on a sustained yield basis.

The 2 MMbf of lodgepole pine south of Black Mountain will be offered for sale. Under the contract provisions, road construction will begin and cross segments of private land. The road work will branch from



the existing road system built under the 1981 Black Whiskey timber sale. BLM will be responsible for all contract administration of the sale.

The forester will identify layout, and offer for sale approximately 150 acres of lodgepole pine. The project goal is to offer the 150 acres as a commercial thinning, specifically treating pole-sized stands which are easily accessible with the existing road system. Providing the 1981 sale has been completed and closed, such pole stands within the Black Whiskey boundary may be thinned.

Objective D - To identify intensive forest management opportunities and practices that are consistent with the principle of sustained yield and multiple use resource management.

Slash material and concentrations of blowdown on the Black Whiskey sale will be made available to the public as fuelwood. Maps, permits and suitable advertisement should be provided as early as spring, as weather conditions may prohibit access in the fall when fuelwood demand is greatest.

Fiscal Year 1986

Objective A - To manage 2,548 acres of productive forest land on a sustained yield basis.



An EA will be required for a 750 Mbf sawtimber sale. The sale date is targeted for FY 1988. The forester should consider species marketability, road access and diseased or insect infested stands in choosing a sale location.

The slash material and any subsequent blowdown from the 1985 thinning will be offered for fuelwood. If public access is not feasible, a commercial firewood sale is recommended to help reduce the fire hazard present with slash buildups.

Objective D - To identify intensive forest management opportunities and practices that are consistent with the principle of sustained yield and multiple use resource management.

Reforestation surveys will be completed on the sale areas of the past five years. Based on the surveys results, seed collection, nursery orders, and planting contracts should be prepared.

Objective E - To coordinate with multi resource objectives.

A re-evaluation of cadastral survey needs should be considered; future corner placements and subdivisions should be identified and routed to USGS in Denver. Corner needs for the 1988 sale should





be specifically addressed.

Fiscal Year 1987

Objective A - To manage 2,548 acres of productive forest land on a sustained yield basis.

Preparation for a Lodgepole pine sawtimber sale targeted for 750 Mbf in 1988 will be done. The layout and cruise are to be completed prior to FY 1988 (see Project Map). Archeological clearance is to be conducted by the BLM archeologist.

Objective D - To identify intensive forest management opportunities and practices that are consistent with the principle of sustained yield and multiple use resource management.

Based on the results of a reforestation survey done in FY 86, planting operations will be used to upgrade any deficient stocking levels existing on the FMP area. Based on funding, this planting can be contracted or done "in-house" with the help of the District Force Account crew.

Fiscal Year 1988

Objectives A & D - To manage 2,548 acres of productive forest land



on a sustained yield basis. To identify intensive forest management opportunities and practices that are consistent with the principle of sustained yield and multiple use resource management.

The 750 Mbf of Lodgepole pine sawtimber will be offered for sale. The forester will be responsible for sale advertisement, proceedings, and administration.

The forester will layout, cruise and offer for sale approximately 150 acres of pole-sized timber to help meet the district thinning commitment (see Project Map). The sale will be marked as a commercial thinning. An EA will be prepared and approved prior to any fieldwork. Suitable stands which will respond to release from a thinning should be identified for the sale volume.

Disposal of slash material should be considered, i.e., pile and burn, lop and scatter, or sell as fuelwood.

#### Fiscal Year 1989

Objectives A & D - To manage 2,548 acres of productive forest land on a sustained yield basis. To identify intensive forest management opportunities and practices that are consistent with the principle of sustained yield and multiple use resource management.



An additional 150 acres of commercial thinning will be offered for sale. Stands capable of a measured release from such a treatment should be identified. An EA will be required for this project. Access should be a priority consideration for the sale site.

Contract modifications will be utilized to clean up any blowdown resulting from the thinning operation. Slash or blowdown may also be disposed of through a fuelwood sale.



Fiscal Year

Project	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Finalize TPCC										
Prepare EA										
Timber Sale Prep										
Cadastral Survey										
Road Survey & Design										
Road Construction										
Timber Sale										
Route Analysis										
Reforestation Survey										
Easement Acquisition										
Revise FMP (RMP/EIS)										
Commercial Thinning										
Firewood Area										
Reforest										

PROJECT SCHEDULE

Graph V-1





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This route would begin on Colorado State Hwy. 134 approximately nine (9) miles east of Toponas, Colorado. From here it follows a county road up Jolley Creek approximately 3.2 miles. From the county road the route would follow a proposed U. S. Forest Service mainline road into a timber sale area near Whiskey Creek. A spur road would then leave the mainline road in Section 36, T1N, R83W, 6th PM. and enter public land near the northeast corner of Section 1, T1S, R83W, 6th PM. The route would then pass through heavy timber on the north face of Black Mountain to a saddle on top of the ridge. The saddle is located approximately one-quarter ( $\frac{1}{4}$ ) mile east of the section corner common to Sections 1, 2, 11 & 12, T1S, R83W, 6th PM. At this saddle the road would fork with one branch going east and one branch going west. These two branches would duplicate the approximately 3.2 miles of road across the south face of Black Mountain as described in Routes A & B.

It is assumed that the county road and U. S. Forest Service roads, as proposed, will be entirely adequate for timber hauling.

Beginning in Public Lands the route passes through

Colorado State land. Approximately 3.1 miles of easement would be required.

C. Black Mountain - Route C

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it crosses the railroad tracks in three (3) locations.

The width of this county road is approximately 24-30

feet.

From the county road the route climbs the west face

of Congor Mesa, a distance of approximately two (2) miles,

to the top of the mesa. This section of road is on cross-

slopes of 40-50 percent. The vegetation is mostly sage-

brush so the heavy cuts and fills would be very visible

in this area.

From the top of Congor Mesa the route climbs the

south face of a ridge ascending toward Black Mountain into

Section 14, T1S, R83W, 6th PM. This section of road is

also on cross-slopes of 30-40 percent. The vegetation

is sagebrush and low mountain shrubs which also makes

this section highly visible.

The last approximately 3.2 miles of this road, across

the south face of Black Mountain, duplicate Route A. This

section is in heavy timber and would not be very visible.

Most of Route B is also very rocky with some ledges.

Grades on this route would average 7-8 percent. Four (4)

cattleguards and numerous culverts would be required.

Elevations on this route vary from 6690 feet at McCoy

to 10,000 feet on top of Black Mountain.

Total length of this route is 12.5 miles including

4.9 miles of county road. Approximately 0.1 mile is

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The first of the county roads is approximately 2.5 miles long and is located in the northwestern part of the county.

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From the county seat the road extends to the west for a distance of approximately 1.5 miles to the top of the mesa. This section of road is an average of 40-50 percent. The vegetation is mostly brush and the heavy cut and fill work is very little in this area.

From the top of the mesa the road extends to the south for a distance of approximately 1.5 miles to the bottom of the mesa. This section of road is also an average of 40-50 percent. The vegetation is mostly brush and the heavy cut and fill work is very little in this area.

The last approximately 1.5 miles of the road is the most level of the project. This section of road is an average of 40-50 percent. The vegetation is mostly brush and the heavy cut and fill work is very little in this area.

Approximately 10,000 feet on top of the mesa. The total length of this road is 1.5 miles including 1.5 miles of county road. Approximate 1.5 miles is

Colorado State land. Approximately 3.1 miles of easement would be required.

C. Black Mountain - Route C

This route would begin on Colorado State Hwy. 134 approximately nine (9) miles east of Toponas, Colorado. From here it follows a county road up Jolley Creek approximately 3.2 miles. From the county road the route would follow a proposed U. S. Forest Service mainline road into a timber sale area near Whiskey Creek. A spur road would then leave the mainline road in Section 36, T1N, R83W, 6th PM. and enter public land near the northeast corner of Section 1, T1S, R83W, 6th PM. The route would then pass through heavy timber on the north face of Black Mountain to a saddle on top of the ridge. The saddle is located approximately one-quarter ( $\frac{1}{4}$ ) mile east of the section corner common to Sections 1, 2, 11 & 12, T1S, R83W, 6th PM. At this saddle the road would fork with one branch going east and one branch going west. These two branches would duplicate the approximately 3.2 miles of road across the south face of Black Mountain as described in Routes A & B.

It is assumed that the county road and U. S. Forest Service roads, as proposed, will be entirely adequate for timber hauling.

Beginning in Public Lands the route passes through





known in black - further research would be done in black.  
Each route will require all the same equipment  
for each route. Each route is designed for all routes  
The route selected should be traveled for all routes  
This will probably show the route as least time (2) hours  
of each year.

### 11. Analysis -

#### A. Black Mountain - Route 1

This route begins at Hwy. 101 approximately 1-2  
miles south of Mary, Colorado. It then follows a steady  
road up an unimproved driveway to the Crown Spur Road - a  
distance of 1.5 miles. Approximately half of the route  
road is traveled. Grades, alignment and width are not  
adequate in some areas. Distance estimates are not  
adequate in very short tunnels.

From the Crown Spur Road the route follows east  
and north into the Craig District and then back into the  
Craig District District as it crosses into West  
It then enters back to the westward along the road  
back at Black Mountain the approximately 0.5 miles.  
This route passes through three (3) tunnels  
(Craig, Hunt and Hunt) and the 1.5 distance route  
(Crown Spur and Black).

shown in black. Forest Service roads are shown in green.

Each route will require all new construction except for county road segments leaving Colorado State Hwy. 131. The route selected should be gravelled for all weather use. Snow will probably block the roads at least five (5) months of each year.

## II. Analysis

### A. Black Mountain - Route A

This route begins at Hwy. 131 approximately 1.5 miles south of McCoy, Colorado. It then follows a county road up an unnamed drainage to the Copper Spur Ranch - a distance of 3.6 miles. Approximately half of the county road is gravelled. Grades, alignment and width are not acceptable in some areas. Drainage structures are not adequate to carry flood runoff.

From the Copper Spur Ranch the route swings east and north into the Craig District and then back into the Grand Junction District as it climbs onto Black Mountain. It then swings back to the southwest across the south face of Black Mountain for approximately 3.2 miles.

This route passes through three (3) counties (Eagle, Routt and Grand) and two (2) Resource Areas (Glenwood Springs and Kremling).

1 - Introduction

This analysis was made to facilitate selection of an access route into the Black Mountain area for the proposed road. This area consists of approximately 1000 (A) sections of land in the Black Mt. area. This public land is interspersed with approximately 200 (B) sections of private land. Most of the land owned by private owners and ranges from two (2) to ten (10) acres. Some of this area has been used for the past...

The area appears to have limited recreational potential other than hunting. No water is available in the immediate area.

No information is available concerning present use. All existing access roads are controlled by private land owners and located at times. Public access would probably not increase use of the area very much for recreation, even with an improved road. The road between would begin with improved access.

There (2) potential access routes are suggested for this area. All (2) routes would follow the upper portion of the area across the south slope of Black Mountain. The major differences will be access points and total miles of travel required to reach the top of Black Mountain.

The (2) routes are shown on the attached map as A-1 & C. Route A is shown in blue. Proposed route is...

BLACK MOUNTAIN - ROUTE ANALYSIS

I. Introduction

This analysis was made to facilitate selection of an access route into the Black Mountain area for timber harvest. This area consists of approximately four (4) sections of land in T1S, R83W, 6th PM. This public land is intermingled with approximately two (2) sections of private land. Most of the timber observed was quite small and ranged from two (2) inches dbh to 12 inches dbh. Some of this area has been cut over in the past.

The area appears to have limited recreation potential other than hunting. No water is available in the immediate area.

No information is available concerning present use. All existing access roads are controlled by private land owners and locked at times. Public access would probably not increase use of the area very much for recreation, even with an improved road. Timber harvest could begin with improved access.

Three (3) potential access routes are considered for this area. All three (3) routes would duplicate the approximately 3.2 miles across the south slope of Black Mountain. The major differences will be access points and total miles of construction required to reach the top of Black Mountain.

The three (3) routes are shown on the attached map as A, B & C. County roads are shown in blue. Proposed roads are





On the other hand, we have a large number of people who are not registered. This is due to the fact that many people do not register their land. This is due to the fact that many people do not register their land. This is due to the fact that many people do not register their land.

The basic reason for this is that many people do not register their land. This is due to the fact that many people do not register their land. This is due to the fact that many people do not register their land.

There are many reasons for this. One of the main reasons is that many people do not register their land. This is due to the fact that many people do not register their land. This is due to the fact that many people do not register their land.

Another reason is that many people do not register their land. This is due to the fact that many people do not register their land. This is due to the fact that many people do not register their land.

It is estimated that about 12-15% of the total population of the country is registered. This is due to the fact that many people do not register their land. This is due to the fact that many people do not register their land.

Re-establishment of forest cover provides definite benefits to the watershed, particularly in stabilizing soils and water flow. Obviously, this is beneficial to stream fish. It also insures continuous habitat required by forest-wildlife species.

On the other hand, scattered forest openings in extensive, dense forests (notably those of the Pacific slope) improve the habitat for most species. This is due to production of a more abundant food supply. During the period of forest re-establishment, these openings are a tremendous improvement for deer and elk. Studies of black-tailed deer in Oregon, for example, show that the population in virgin coastal forests may average 2 deer per square mile while on clear-cuts there may be 40 or more deer per square mile.

The heavy feeding demands of these large population build-ups of big game animals, and of rabbits and rodents as well, have an adverse effect on forester's efforts to re-establish trees. One controlled experiment with deer in the Tillamook Burn in northwestern Oregon showed that 29 deer per section caused a 5 to 7 percent seedling loss, while 62 deer per section resulted in a 40 percent loss. Research is underway on methods of alleviating animal damage with emphasis on repellent treatments.

Forest rehabilitation sometimes includes use of herbicides for site preparation and insecticides for protection of timber stands.

Some insecticides and herbicides, even in minute concentrations, are destructive to wildlife food and other habitat requirements.

When applications are necessary, use the least toxic and most specific compounds and formulations.

Carefully observe all manufacturer's recommendations, Bureau and other instructions for the proper use of pesticides.

Careful application will further minimize needless losses of wildlife.

In summary, to quote a paragraph from the U. S. Department of the Interior Conservation Yearbook #3, "The Third Wave" -

"Increasing needs of the American people require close analysis of the role of BLM forest lands. Through proper management a forest can produce wood products, recreational sites, improved wildlife habitat, and increased water quantity without damage to quality. This is the new conservation of the forest lands. Some uses will not be developed to their individual optimum, but the combination eventually adopted will yield the largest net benefits for the most people."





Shaded water is important for maintaining cool temperatures.  
Some increase in insect food supply may result from overhanging  
vegetation.

On very steep slopes, leave slash unburned.

Provide adequate drainage for roads and landings.

Seed skid trails, roadsides, and other highly erodable disturbed areas.

Leave nesting trees and selected snags for use by small animals and birds.

Reserve from cutting small areas around seeps and small meadows.

On sites subject to excessive erosion, special precautions should be taken  
or logging should be excluded.

Logging during periods of wet soil conditions is potentially the most  
destructive.

Conduct slash burning with care, if at all, on areas of important game  
habitat. Avoid burning browse ranges. Scattered slash piles provide  
upland bird cover.

Modification of logging practices may be necessary to minimize run-  
off and erosion.

The preceding section on road construction includes recommendations  
to minimize soil erosion which are applicable here. The productivity  
of soil can be maintained, restored, or destroyed depending upon mana-  
gement practices applied. All disturbance of soil should be kept to a  
minimum. Disturbed soils should be restored, as much as possible,  
to the former undisturbed status.

In some timber types research could indicate ways to improve wildlife  
habitat through modified timber cutting and stand improvement practices  
so that wildlife production would be encouraged, while watershed  
values are maintained or enhanced.

#### Forest rehabilitation

Forest rehabilitation, as used here, relates principally to re-  
establishing the desired tree species on logged or burned forest  
sites. It includes site preparation, seeding or planting selected  
tree species, and providing necessary protection until trees become  
established.

Full system data are used in the design process and generally the hydraulic values of design are based on the system capacity available under the design conditions and losses in the system.

Water Treatment

To the extent that design data are based on the system capacity available under the design conditions and losses in the system, it is possible to utilize the design data for the design of the system.

Design data may be obtained from the design process or from the design process.

Design data may be obtained from the design process or from the design process. Design data may be obtained from the design process or from the design process.

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Logging

Design data may be obtained from the design process or from the design process. Design data may be obtained from the design process or from the design process.

✓ Consult fisheries specialists on timing of project work, on special situations, and on measures for enhancement of fish habitat.

Trail systems help spread out the fishing pressure and contribute to the aesthetic values of fishing. A good trail system, properly maintained means more public access and better harvest of the wildlife resource.

### Timber harvesting

To the extent that logging opens up a closed canopy and results in the production of abundant ground cover valuable as forage, it is beneficial to wildlife.

Because logging may drastically alter ecological conditions of streams, it can be very detrimental to fish.

Removal of mature trees in the dense forests, as of the Pacific slope where understory vegetation is scarce, permits the growth of a great variety of vegetation - much of which provides excellent food and cover for wildlife. Habitat is greatly improved, or even created, for many large and small mammals and birds for a period of years following logging.

Timber harvesting is most likely to be injurious to stream fish. Principal causes are: debris in channel obstructing fish passage; mechanical disturbance or destruction of the stream bottom - particularly gravel spawning beds; siltation; and removal of stream bank vegetation.

Effects of sedimentation are increased during low flows when fish cannot escape from the sediment.

### Logging Recommendations

- Keep equipment out of streams
- Keep streams free of logs and debris
  - Avoid heavy siltation at time of removing logjams.
- Keep landings out of draws and away from streams
- Avoid tractor logging on steep terrain
- Except for careful removal of selected trees, avoid removal or unnecessary disturbance of stream bank vegetation.

Initial at the minimum grade necessary. Large amounts of water  
and at the original intended location. It is important that you be  
to ensure the flow line should be at the lowest elevation  
and located adjacent to the end of the subject.

Protection should be given to the substrate at the outlet and to  
prevent formation of a plug at that point.

Non-siphoning devices or siphon break should be provided if needed.

Subject with a natural bottom are preferred. Round bottom are  
preferred in the case of rectangular, round bottoms are preferred.

For the best design and when inlet faces into a basin, the outlet  
should be at the end.

The no siphon device of diversion devices are that some of the  
equipment from other sources will not be in the basin. These  
connections are the following:

High pressure devices. The pressure devices through which a  
creation on system utilization.

Isolated and safe removal from roadway. It could not be brought  
into streams.

Drainage devices and culverts should be maintained.

Drains should be kept out of stream channels above culverts in  
stream valleys.

Reservoirs should be filled and sealed in place.

Close gates to roads when subject reactions prevent passage of  
essential material.

Upon abandonment of road, provide adequate erosion protection  
measures, and if roads are not to be used, take measures to make  
them impassable.

Construction of roads with drainage devices should be avoided  
at these locations for the following reasons: (a) to avoid  
protection to minimize damage to land or wildlife habitat.

✓ Consult fisheries specialists on timing of project work, on special situations, and on measures for enhancement of fish habitat.

Trail systems help spread out the fishing pressure and contribute to the aesthetic values of fishing. A good trail system, properly maintained means more public access and better harvest of the wildlife resource.

### Timber harvesting

To the extent that logging opens up a closed canopy and results in the production of abundant ground cover valuable as forage, it is beneficial to wildlife.

Because logging may drastically alter ecological conditions of streams, it can be very detrimental to fish.

Removal of mature trees in the dense forests, as of the Pacific slope where understory vegetation is scarce, permits the growth of a great variety of vegetation - much of which provides excellent food and cover for wildlife. Habitat is greatly improved, or even created, for many large and small mammals and birds for a period of years following logging.

Timber harvesting is most likely to be injurious to stream fish. Principal causes are: debris in channel obstructing fish passage; mechanical disturbance or destruction of the stream bottom - particularly gravel spawning beds; siltation; and removal of stream bank vegetation.

Effects of sedimentation are increased during low flows when fish cannot escape from the sediment.

### Logging Recommendations

Keep equipment out of streams

Keep streams free of logs and debris

    Avoid heavy siltation at time of removing logjams.

Keep landings out of draws and away from streams

Avoid tractor logging on steep terrain

Except for careful removal of selected trees, avoid removal or unnecessary disturbance of stream bank vegetation.

Install at the minimum grade shown on the plan. If the original ground is higher than the proposed grade, the original ground should be maintained to the extent possible. If the original ground is lower than the proposed grade, the original ground should be maintained to the extent possible.

Protection should be given to the adjacent property at the outlet end to prevent formation of a trap at that point.

Retention tanks or other tanks should be provided if needed.

Grades with a natural drainage are preferred. If a natural drainage is not available, a drainage system should be provided.

Grades should be given and when inlet faces into a tank, the outlet should be at the bottom.

The drainage system should be designed to provide for the maximum flow of water. The drainage system should be designed to provide for the maximum flow of water.

Headwater tanks should be provided to the extent possible. The headwater tanks should be provided to the extent possible.

Grades should be given to the extent possible. The grades should be given to the extent possible.

Drainage ditches and culverts should be maintained.

Drains should be kept out of stream channels. Drains should be kept out of stream channels.

Retention tanks should be filled and covered to prevent odors.

Clear roads or tracks over retention tanks should be provided to the extent possible.

When drainage of water is required, the drainage system should be designed to provide for the maximum flow of water. The drainage system should be designed to provide for the maximum flow of water.

Grades should be given to the extent possible. The grades should be given to the extent possible.

Install at the minimum grade necessary. Large culverts should be set at the original streambed gradient if migrating fish are to pass. In streams the flow line should be at or below the lowest stream bed elevation adjacent to the end of the culvert.

Protection should be given to the substrate at the outflow end to prevent formation of a drop at that point.

Rock-stilling basins or splash pads should be provided if needed.

Culverts with a natural bottom are preferred; round bottoms are superior to flat ones. Corrugated, round culverts are satisfactory.

Headwall the upper end when inlet faces into a bank and riprap the bank at that point.

Use an adequate number of diversion culverts so that some of the sediment from ditch water will settle out in the slash rather than accumulate at the drainage.

Road maintenance concerns the fisheries resource through effects of erosion on stream siltation.

Eroded materials removed from roadways should not be dumped into streams.

Drainage ditches and culverts should be maintained.

Debris should be kept out of stream channels above culverts to prevent clogging.

Washouts should be filled and seeded to grass.

Close roads to travel when surface conditions present danger of excessive erosion.

Upon abandonment of roads, provide adequate erosion prevention measures; and, if roads are not to be used, take measures to make them impassable.

Consult with the State wildlife agency when planning to divert, obstruct, or change the natural flow or bed of any stream. Be advised of precautions to minimize damage to fish or wildlife habitat.



Keep construction away from out of view of customers

Avoid standing on asphalt during winter months

Shovel out of customer's driveway 2-3 times per week in winter. Testing shows that 1/2" of snow can cause a car to stall. First snow production usually is minimal.

Heatstroke channel changes should be made to 4 inches. Complete the change before opening water flow. High channel sides. Water should not be allowed to flow as a trickle. Spacing gravel could be considered where appropriate.

A permit from the State Wildlife Agency may be required before blasting in any water of the state.

Deposit 100 lb of water material where it will not crash against a wall or flood area. Excess material is necessary to keep it out of streams. Discard any fill material in stream bank.

Seed cuts, hills and scarps or disturbed areas in grass-land areas.

Topsoil and organic material of grass, locally recommended, can be used where competition with tree seedlings is a consideration. Legumes improve a grass stand and also provide desirable food and cover for game birds and big game. Some varieties are native to wildlife areas feeding along high speed roadways.

Plan grades and drainage so that runoff does not enter streams directly.

Avoid excessive grades. Build on steep slopes and in drainage channels by stabilizing, or by seeding grass.

Sediment settling basins may be constructed to remove silt from water before it reaches a stream.

Culvert installation needs two physical considerations: position, passage of fish and, erosion control. Lay culvert so that both ends are in the natural channel for fish passage.

Keep construction equipment out of stream channels.

Avoid changing or straightening stream channels

Sluiceways of continuous fast-running water lack necessary resting places for fish. Erosion and siltation may be increased. Fish food production usually is reduced.

Unavoidable channel changes should be held to a minimum.

Complete the change before turning water into it. Riprap channel sides. Restore natural fish habitat as much as practical. Spawning gravel could be introduced where applicable.

A permit from the State wildlife agency may be required before blasting in any waters of the state.

Deposit fill or waste material where it will not reach streams - even at flood stage.

End-haul material if necessary to keep it out of streams. Riprap any fill material on stream banks.

Seed cuts, fills and scarred or disturbed areas to grass-legume mixtures.

Non-sod forming varieties of grass, locally recommended, can be used where competition with tree seedlings is a consideration.

Legumes improve a grass mixture and also provide desirable food and cover for game birds and big game. Omit varieties attractive to wildlife when seeding along high-speed roadways.

Plan grades and drainage so that runoff does not enter streams directly.

Avoid excessive grades. Soil on steep slopes and in drainages should be stabilized, as by seeding grass.

Sediment settling basins may be constructed to remove silt from water before it reaches a stream.

Culvert installation needs two principal considerations: upstream passage of fish; and, erosion control.

Lay culvert so that both ends are in the natural channel for fish passage.

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### Head and Tail Construction

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stream bank vegetation. Extreme fluctuation of water levels and pollution are decimating factors common both to streams and impoundments.

Siltation results in covering gravel-bed spawning sites, smothering eggs, covering and suffocating tiny food organisms, and reducing sunlight penetration to stream-bottom vegetation thus breaking the food chain. Disturbing gravel beds may destroy eggs or ruin the site for future spawning. Straightening stream channels resulting in sluiceways of continuous fast-running water removes necessary resting places for fish and may increase erosion and siltation. Barriers due to debris, incorrectly laid culverts, waterfalls, dams or other causes, impede movement of anadromous fish to and from spawning areas. Pressure barriers (velocities in excess of 12 feet per second for more than 20 feet) may effectively bar upstream movement of fish. Removal of shade-producing vegetation along stream banks results in raising water temperatures, possibly rendering the habitat unsuitable for desirable species of fish (optimum for trout is between 50 and 65 degrees). Accelerated erosion and increased siltation follow removal of ground cover. Extreme water fluctuation produces lethal effects through oxygen depletion, excessive temperature, predation, or losses of food organisms. Pollution substances may be toxic to fish or fish-food species, cause oxygen depletion, or produce the same results as siltation.

Effects of road and trail construction on wildlife, other than fish, are principally due to loss of habitat. Wildlife should not be encouraged to inhabit rights-of-way along high-speed roads. Cover along other roads and trails should not be needlessly destroyed.

The following recommendations pertaining to road and trail construction are presented to assist those concerned to cause minimum losses, or to enhance, wildlife habitat.

#### Road and Trail Construction Recommendations

Keep roadways away from stream channels

An undisturbed buffer strip should remain, wherever possible, to reduce stream siltation and provide shade. This will also enhance recreation and esthetic values. Careful removal of at least some mature trees may be accomplished with a minimum of detrimental results.

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Likewise, wildlife managers must consider the forestry programs. Animal damage to trees, pest control operations, and sportsman behavior are sometimes serious problems to the forester. Educational efforts to attain public realization of these conflicts of interest and the desirability of cooperation for mutual benefits is the sound, long-range solution. The State game agency, which is already aware of the problems, has the major responsibility but all interests should actively cooperate in attainment of this goal.

The Job Corps program provides an opportunity to accomplish needed multiple use practices in the forests beyond our present capacity. Erosion control projects, timber stand improvement, stream-habitat improvement, and similar jobs requiring hand labor are possibilities.

The principal BLM forest management activities influencing the wildlife resource through effects upon its habitat are: construction of access roads, harvesting of forest products, reforestation, timber stand improvement, and pest control.

The material presented here provides guidelines recommended as having long-range public benefits. Suggested actions or modifications of programs must be practical if they are to be implemented. Economic feasibility is usually a requirement. These facts have been kept in mind during preparation of this paper.

#### Road and trail construction

Roads and trails make a valuable contribution to modern game management and are essential in providing access for most recreationists. Public access should be provided for - physically and legally - whenever possible, on roads constructed for the purpose of conducting our own programs or when granting a right-of-way to other users. A good trail system contributes to the better management and utilization of the wildlife resource - a fact to consider when planning truck or foot trails.

Damages to wildlife resulting from road construction principally concern fish habitat in streams. These losses are usually due to siltation, disturbance of gravel beds, straightening stream channels, barriers of debris, blocking passage at culverts, and removal of

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Introduction

Forest and wildlife are two important natural resources recognized by the public. Use of these resources is being managed by the public lands.

Forest management and wildlife management are closely related and should be considered together. The relationship between forest and wildlife management is a complex one. It is necessary to consider the interrelationships between the two. Each resource is managed in a different way. The interrelationships between forest and wildlife management are complex.

Resource management, including logging, fishing and game taking, are closely related to the use of forest and wildlife resources. Both forests and wildlife are being used in a way that will bring new problems and will change their characteristics.

General considerations

Management of wildlife is a complex task. It is necessary to consider the interrelationships between forest and wildlife management. The interrelationships between forest and wildlife management are complex. It is necessary to consider the interrelationships between the two.

The fundamental need of wildlife is maintenance of adequate habitat. This includes food and water. Forest and wildlife are closely related. Space requirements may also limit the population.

These requirements can be protected and enhanced when appropriate forest management practices are used. In addition, there are some opportunities for developing forest-wildlife habitat. Habitat requirements for forest and wildlife are closely related. It is necessary to consider the interrelationships between the two.

Interrelationships Between the Forest and Wildlife  
Management Programs

Frank W. Stanton

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Introduction

Forests and wildlife are two important natural resources recognized by the Multiple Use Act as requiring management on the public lands.

Forest management and wildlife management can and should be compatible. The relationship is entirely natural. Forests provide much wildlife habitat and are favorite recreation areas for the angler. If each resource is managed with consideration for the other, the two interest groups can function harmoniously.

Recreation demands, including hunting, fishing and just looking, are rapidly increasing while available space and wildlife habitat on a nation-wide basis are steadily decreasing. Both foresters and wildlife workers are aware that this will bring new problems and will demand their close cooperation.

General considerations

Management of wildlife habitat on the public lands is a BLM responsibility. State wildlife agencies have the responsibility for managing most forms of wildlife. Cooperation is both necessary and desirable for proper management of these resources.

The fundamental need of wildlife is maintenance of adequate habitat of suitable quality and quantity. Cover, food and water are basic requirements. Space requirements may also limit the population.

These requirements can be protected and often enhanced when carrying out forest management practices just by giving wildlife due consideration. This is most important. In addition, there are some opportunities for developing forest-wildlife habitat. Habitat development, however, does not replace the essential need for habitat management.





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APPENDIX

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Mr. Ed Roberts  
July 21, 1976

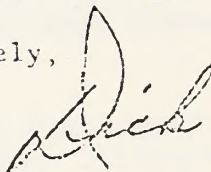
cover (coniferous trees at least 40 feet tall with average crown closure of over 80 per cent, 30 to 60 acres in extent), plus 10 per cent additionally of either thermal or hiding cover. Additionally, where deer are concerned, maintain fawning cover of low shrubs or small trees 2 to 6 feet tall, 50 per cent overstory crown cover, slopes less than 15 per cent within areas where vegetation is succulent and plentiful in June, with water available within 600 feet, and of an optimum size of 1 to 5 acres.

Protect moist summer sites (Schneider 1975). Do not permit logging in delimited calving areas between May 1 and July 15 (Davis 1970), or while cows and calves are present on calving grounds (Roberts 1974).

Maintain a balance between acreages cut on north and south slopes (Lemos and Hines 1974a, Harper 1973).

4. Reseed grasses and legumes on sites where natural revegetation is slow or not practical, on bare exposed soils and on clearcuts to provide ground cover and more rapid wildlife forage (Harper 1971, Lemos and Hines 1974a, Ward 1974). Fertilize such seedings if on rocky or dry sites (Harper 1971).
5. Leave standing snags and defective trees for small wildlife species habitat requirements for nesting, denning, perching, roosting, feeding and cover (Williamson 1974, U.S.F.S. Region 6 policy).
6. Consider prescribed burning on low elevation forests of submarginal or non-commercial quality, and within known deer and elk winter ranges, on a rotation basis for maximum sustained browse production (Leege 1969).

Sincerely,



Richard N. Denney  
Big Game Supervisor

RND:am

Enclosure - Bibliography

cc: Bob Evans  
Bob Tully  
Pete Greene



3. The size of a clearcut will vary with local conditions, but specifications for certain dimensions have been suggested. Non-continuous patches of remaining timber should not be separated by more than 300 feet (Black et al. 1976), and standing timber should be available within 200 yards of any logged unit (Harper 1971). Clearcuts should not be more than 500 yards across, nor more than 40 acres in size (Ward 1975). Square cuts should not exceed 40 to 50 acres, especially on steep terrain (Lemos and Hines 1974a), and the maximum width of cuts should not exceed 1,200 to 1,500 feet (twice the distance deer are likely to move from the forest edge). Clearcuts should be kept as small as practical for the greatest edge effect, such as 25 acres (Anonymous 1974). Deer and elk prefer small openings of less than 20 acres in spruce-fir, and up to 45 acres in ponderosa pine (Patton 1974). Clearcuts of 40 acres are recommended for greatest benefits to deer and elk in the dense coastal forests (Pengelly 1972).
4. Cutting adjacent to clearcut areas should be postponed until sufficient cover has developed to create an edge bordering the area to be harvested and so that various aged units are available to game (Lemos and Hines 1974a), Harper 1971, Edgerton 1972, Pengelly 1972).

#### Logging Debris

1. If slash is not destroyed in some manner, do not allow it to form barriers in the shape of windrows or piles (Pengelly 1972). However, in some cases slash is beneficial if utilized in windrows or piles and as road screens (Black et al. 1974a), and slash cleanup may be detrimental to deer use in ponderosa pine (Clary and Larson 1971).
2. Logging debris should be broadcast burned (Harper 1971, Lemos and Hines 1974a, Harper and Swanson 1967, Roberts 1974, Black et al. 1976).

#### General Wildlife Considerations

1. Any timber management or harvest operations should be concentrated within the shortest time period and smallest possible areas (Black et al. 1976; Ward 1974, 1975; Pengelly 1972).
2. Maintain non-activity or security areas adjacent to concentrated activity areas (Black et al. 1976, Schneider 1975, Ward 1975). Buffer strips or security zones should be left around, adjacent to, or connecting clearcut areas, along streams, around natural parks and meadows, along ridgetops, finger ridges, at the heads of draws, and in draws and gulches (Harper 1973, Anonymous 1974, Black et al. 1976). These should be at least 100 yards wide (Ward 1975), but the optimum width is 450 to 600 feet (Black et al. 1976, Harper 1971, Ward 1974).
3. Identify and plan for deer and elk movement routes and behavioral characteristics such as key areas for cover requirements, calving and fawning grounds, feeding and bedding areas seasonally, and rutting areas (Schneider 1975, Bartels and Denney 1969, Harper 1971, Lemos and Hines 1974a, Roberts 1974, Edgerton 1972, Pengelly 1972, Resler 1972). Cover specifications recommended by Black et al. (1976) should be followed: maintain a mixture of cover types in a ratio of 40 per cent cover to 60 per cent openings, on summer and transition ranges consisting of 20 per cent hiding cover (600 to 1,200 feet wide), 10 per cent thermal



6. Roads should be laid out to facilitate closure and should be closed securely after logging (Black et al. 1976, Harper 1971, Roberts 1974, and Anonymous 1974).
7. Roads should have security cover along them (Black et al. 1976, Schneider 1975, Anonymous 1974 and Lemos and Hines 1974a).
8. Roads should not be more than one-quarter mile tangents and straight stretches should be kept to a minimum (Black et al. 1976, Anonymous 1974).
9. Roads should be held to a minimum (Black et al. 1976, Anonymous 1974).
10. Logging road systems should be administered by regulations and off-road travel prohibited (Schneider 1975, Harper 1971).
11. Roads should be located for minimum impact on elk calving grounds, bedding areas, winter ranges, or other elk concentration sites (Harper 1971, Lemos and Hines 1974a).
12. Abandoned roads should be artificially seeded to ground forage species (Lemos and Hines 1974a).

Implementation of these recommendations in forest management operations would go far toward alleviating the stresses and impacts on wildlife in general, and elk, in particular, as well as reducing some of the erosion associated with logging and access roads.

### Thinning

For maximum benefit for deer habitat, precommercial thinning should be performed as early in the rotation as possible, and prior to interspace closure of sapling crowns (Lemos and Hines 1974a).

In Douglas-fir forests, a stocking of less than 600 boles per acre is of most benefit to deer (Lemos and Hines 1974a), and basal areas of less than 70 square feet per acre in ponderosa pine (Clary and Ffolliott 1966).

Maintain escape corridors of unthinned timber within thinned units of at least 100 yards in width (Harper 1971, Bartels and Denney 1969). These also serve as hiding and thermal cover (Edgerton 1972, Lonner 1975, Resler 1972 and Black et al. 1976).

### Clearcutting

1. Clearcutting should be accomplished in strips alternating with uncut timber, or in patches, to create a maximum edge effect (Lemos and Hines 1974a; Harper 1971, 1973; Black et al. 1976; Schneider 1975; Mace 1971; Ward 1975; Roberts 1974; Wallmo 1969; Patton 1969, 1974; Edgerton 1972; Resler 1972; Pengelly 1972). Clearcutting is not recommended in the spruce-fir type when it occurs in moose habitat (Schladweiler 1974).
2. The shape of a clearcutting unit is generally considered to be a choice between alternating strips, rectangular units, square-shaped areas, or circular patches. Most investigators advocate long and narrow strips of rectangular areas as most beneficial to wildlife (Mace 1971; Harper 1971; Lemos and Hines 1974a; Wallmo 1969; Patton 1969). Ward (1974) stated that the shape of clear-cut openings was more important than the size, which may be correct, but within limits!



We have dealt primarily with the relationships of timber management, especially harvest and associated impacts, with elk, and deer to some extent, but a number of investigators have delved into effects on small game and nongame birds and mammals (Gashwiler 1970, summarized from the literature by Resler 1972, Harper 1973 and Bramble and Byrnes 1972). The lack of emphasis on other than big game in this report does not imply that they are any less important in the consideration of the ecological impacts of logging, but time does not permit treating the full wildlife spectrum in relation to forest management.

Pengelly (1972) put it very well in stating that the aim of forest managers has been to get forests back into production as soon as possible after logging, which makes good sense economically, but it defeats the purpose and mandates of multiple-use management. Intensive forest management is seldom compatible with wildlife interests, therefore goals and priorities, based on public needs and desires, should be established for any area before intensive timber harvest begins. As he observed so aptly, some clearcut logging benefits some species of wildlife in some areas some of the time, and that animals adapt, move, or die if their environment is altered radically. "Benefits to wildlife should be planned for in advance and not be achieved accidentally."

There are still many questions in relation to big game ecology that remain unanswered, and are prime targets for intensive research. Lemos and Hines (1974a) wondered if using a selective harvest method would permit reestablishment and normal growth of desirable conifers, though more acreage would be logged to crop a comparable volume of logs. They also questioned whether or not more frequent but less intensive disturbance by such harvests would better sustain or stabilize wildlife populations at lower levels, and if both the wildlife and soil resources would benefit more from partial harvests.

No panacea has been found, but it is quite apparent that each timber sale and forest management practice must be tailored to the specific site. Considerations can be advocated, however, but will be governed by the variables previously listed, such as the criticality of the impact on a given wildlife species; the timber type, species, density and habitat involved; elevations, aspects and slopes; climatic conditions and geographical location; and soils. In view of these, then, the following recommendations are made, as drawn from various sources in the literature, as guidelines to be considered in any forest management application affecting wildlife in general, but specifically elk and deer.

### Roads

A number of recommendations have been evolved from the suggestions of eight literature sources to reduce the impact of logging roads on wildlife, especially elk;

1. Roads should not bisect cover areas (Black et al. 1976).
2. Roads should not be in riparian zones (Black et al. 1976, Ward 1975).
3. Meadows and openings should be screened from main roads with a buffer zone of timber (Black et al. 1976, Lemos and Hines 1974a, and Roberts 1974), up to 100 yards wide (Ward 1975).
4. Cuts and fills should be properly designed, located and maintained (Black et al. 1976). Debris barriers from roads should be broken in draws and at ridge-points to allow animals to move unimpeded up or down the slope (Pengelly 1972).
5. Roads should have minimum rights-of-way (Black et al. 1976).





tall shrubs or trees. The latter supplied food throughout the year, but were particularly valuable as emergency feed during deep snow cover in the winter. The right-of-way was heavily used by white-tailed deer, rabbits, grouse and wild turkey.

An indication of the effect of herbicide spraying on elk calving behavior was reported by Ward (1973) in a four-year study on the Big Horn National Forest in Wyoming. Elk did not change their calving or grazing behavior patterns in an area where 96.7 per cent of the big sagebrush cover was killed with 2,4-D in 85 and 45-acre areas. Fecal sample analysis showed no significant changes in the grass-forb ratios consumed, and feeding elk showed no indication that they preferred to stay close to timber. Ward concluded that sagebrush control in limited and scattered areas had no detrimental impact on elk during the calving period. Mule deer feeding patterns remained unchanged, though they remained closer to tree cover.

Winter ranges previously available to wild ungulates have been and are being lost to agricultural uses, roads, human settlement, intensive domestic grazing, recreational development and natural reforestation of prime elk winter range (Black et al. 1976, Recreation News 1975). Of all these winter range decimating factors, only the latter is within the scope of control or manipulation by foresters and wildlife managers. Habitat improvement possibilities exist on elk winter range in the form of prescribed burning (U. S. Forest Service 1975). Thomas Leege, Idaho Fish and Game Department, said that "northern Idaho elk are declining because of advancing forests and will continue to decline until low elevation timber lands are set aside and managed as elk winter range" (Recreation News 1975). The primary type of management Leege referred to is prescribed burning in such areas as 300,000 acres of elk range in the St. Joe and Clearwater drainages of Idaho that are in need of rejuvenating. Leege (1969) reported that grasses and forbs immediately take over sites on which conifer stands are destroyed, then are taken over by shrub seedlings which form dense brushfields. Browse production is mainly effected through prescribed burning, by reduction in height of existing browse, and the addition of new browse species increased as plants were browsed more heavily on burned areas after one growing season than on adjacent control areas.

In the case of an insect epidemic of the proportions which occurred on the White River in Colorado, there is an abundance of standing snags. Snags are important habitat requirements for small mammals and birds such as the pileated woodpecker (Harper 1973) and the spotted owl. A progressive step was taken by Region 6 of the U. S. Forest Service in providing assistance to cavity-nesting birds and other animals in the Pacific Northwest, by a new policy which calls for the retention of an adequate number of dead and defective trees in forest management. The trees are used by at least 43 species of birds and 11 species of mammals for nesting, denning, perching, roosting, feeding and cover (Williamson 1975). This new policy, instituted in 1975, has generated some sharp criticism from timber production sources, but it is hailed as reflecting the increased concern within the Forest Service for all the land resources.

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harvest methods applied to clearcutting and the reforestation measures employed in cutover areas are many and variable. Other factors to be considered in properly judging the removal of all trees from a prescribed area are number, size, and species of trees; size and shape of clearcut units; location with respect to other logging areas; elevation, aspect and latitude; slope; underlying soil composition, chemical and physical; and annual precipitation.

Harper (1971, 1973) correlated the amount of elk use of cutover lands to logging practices, treatment of logging debris, habitat type, distance from cover and water, aspect and steepness of slope. He observed that it is oversimplification to state that one factor is any more important than another, and that what works well in one region may not apply in others. Since each factor plays an inter-related role in creating favorable elk range, the alteration of any one factor will affect elk use.

The utilization of an area by elk was found by Harper and Swanson (1967) to be governed by vegetative changes brought about by seasonal weather changes. Elk used north slopes the least, east and south slopes moderately, and west slopes the heaviest in winter in Oregon. Conversely, in the summer months use was heaviest on north slopes, moderate on east and west slopes, and lightest on south aspects. Elk used all areas equally until slopes exceeded 80 per cent, and use generally decreased as the distance from water increased. These factors all have application in consideration of timber harvest procedures in any given timber sale.

Ward (1974) stated that the potential for making clearcut areas more usable for wildlife prior to the reestablishment of trees is high if preferred wildlife vegetation were seeded rather than leaving revegetation to nature. Harper (1971) also advocated seeding palatable grasses or legumes after burning logging debris, particularly if native vegetation doesn't provide adequate forage and soil protection. Fertilization with urea along with reseeding on roads and other disturbed areas, as well as drainage, liming and planting of swamps, swales and wet spots, are practical improvements, according to Harper. Fertilization and seeding are also applicable to areas with soil depths insufficient to produce timber, such as ridgetops and rocky outcrops. Herbicidal sprays have been used on dense stands of alder, vine maple, cascara and other shrubby vegetation (Harper 1971), in areas up to 150 acres, leaving sufficient shrub growth for cover.

A long-term ecological study of game food and cover on a sprayed utility right-of-way in central Pennsylvania illustrates what can result from intensive application of herbicides (Bramble and Byrnes 1972). In this 19-year study different spray techniques yielded distinct variations in the development of ground layer vegetation. Treatments varied from drastic broadcast sprays of ammonium sulfamate and 2,4-D+2,4,5-T to semi-basal treatments with emulsifiable acids of 2,4-D+2,4,5-T, varying from first-year low plant cover of 10 per cent to 25 per cent, respectively. A diversity of food plants valuable to wildlife developed on the right-of-way after spraying, which included common herbs of the forest and invaders. These herbs were highly nutritious and provided both summer and winter food for wildlife. The woody plants were interspersed throughout the plant community and included common blueberries, huckleberry and teaberry as low shrubs, with sweetfern and bear oak as



## DIVISION OF WILDLIFE

Grieb, Director

600 Broadway

, Colorado 80216 (325-1192)

76 JUL 26 AM 10:40



July 21, 1976

Mr. Ed Roberts  
 Wildlife Management Biologist  
 Bureau of Land Management  
 Colorado State Office  
 Room 700, Colorado State Bank Bldg.  
 1600 Broadway  
 Denver, Colorado 80202

Dear Ed:

Reference your note of June 28, 1976, just received, with the enclosures of the Oregon State Office (BLM) information memo and the guidelines on elk cover requirements in western Oregon and Washington.

guidelines submitted appear to be identical to those recommended for eastern Oregon and Washington by Black, Hugh, Richard J. Scherziner and Jack Ward Thomas, 1966. How well they may serve in other areas remains to be verified, but on general principles they sound effective. As you well know, the basic forest types, precipitation, and other environmental conditions in Washington and Oregon, particularly the western portions, are very different from those in eastern Oregon, and exceedingly different from most of the central Rocky Mountain region.

In establishing guidelines for Colorado a thorough review of the pertinent literature is required, as well as necessary investigations to fill the voids for this geographic area and its timber types. Other aspects may be of equal or more importance than cover considerations alone, such as logging roads, forage production and use, etc. We may have to borrow from data derived in similar types, but in other areas, such as Arizona, Montana, or Wyoming.

Pengelly (1963) has stated that logging is the most effective and least expensive habitat management tool at the disposition of the game manager. Clearcutting is the method of harvest that is most controversial, but in discussing the effects of clearcutting on wildlife it is important to remember that most investigators report effects on selected species within a broad spectrum of wildlife existing or potentially available in the study area (Resler 1972). The impacts of clearcutting on terrestrial game animals, particularly deer and elk, have received considerable attention in the past five years. Resler (1972) observed that the

MIRACLES (1918)

COLORADO DIVISION OF  
WILDLIFE LETTER (Big Game)



and as near water as possible. Some live standing cover  
at any time makes the leave size variable.

3. If snags are not available or cannot be retained, the  
equivalent number of live, well trees should be left to  
assure a future snag supply.

In addition, unless mandatory safety regulations prohibit, leave all  
snags in prescribed buffers, scenic corridors, and all other leave  
sites on all BLM lands. Snags left within these leave sites can be  
used to satisfy the requirement of 1 snag for every 3 acres of  
commercial timber land.

Obviously, for the best distribution of evenly-distributed wildlife,  
snags and dead trees should be as evenly distributed as possible.  
If an even distribution is not possible, any grouping or density  
is better than no snags at all.



Distribution  
R2 - 012 - 1  
R3C - (0-251) - 3  
R1 (300) - 1  
R2C (200) - 1

and as near water as possible. Some live standing cover of any kind makes the leave site more usable.

2. If snags are not available or cannot be retained, the equivalent number of live, cull trees should be left to assure a future snag supply.

In addition, unless mandatory safety regulations prohibit, leave all snags in streamside buffers, scenic corridors, and all other leave sites on all BLM lands. Snags left within these leave sites can be used to satisfy the requirement of 1 snag for every 3 acres of commercial timber land.

Obviously, for the best distribution of cavity-dwelling wildlife, snags and dead trees should be as evenly distributed as possible. If an even distribution is not possible, any grouping or density is better than no snags at all.



Distribution

WO - 412 - 2

DSC - (D-531) - 3

WO (360) - 1

DSC (360) - 1



The latest guidelines effort resulted in the distribution of "Guidelines for Maintaining and Enhancing Wildlife Habitat in Forest Management in the Blue Mountains of Oregon and Washington," by Thomas, Miller, Black, Rodick and Maser. This report covers the requirements of cavity-dwelling wildlife in northeastern Oregon. A subsequent paper, prepared by Wm. Mannon, Fish & Wildlife Service, presents further snag preservation needs for western Oregon cavity-dwelling wildlife species.

These biologists have determined that if the needs of the pileated woodpecker are met, most of the requirements of other cavity-dwellers will also be accommodated (200 snags per sq. mile with a dbh of  $\pm$  20" or roughly 1 snag per 3 acres). Also, a minimum of 3 dead snags--with a dbh of 7" either standing or down should be left for feeding trees. The above data is for a 60% to 80% potential population density for pileated woodpeckers and other cavity dwellers--a 100% possible density would raise snag requirements to 1 snag for every 2 acres.

At the present time, factors influencing the needs for snag preservation can be summarized as follows:

1. Over 40 species of birds and 11 species of mammals are dependent on dead or defective trees for their habitat in Oregon and Washington.
2. Most of these birds are insect eaters and are valuable in the prevention of insect buildups, and their subsequent control.
3. Present timber management practices and State Industrial Accident regulations have caused a severe reduction in snags and potential snags on most BLM forest lands.
4. A snag enhancement program is in keeping with the BLM wildlife general objective of stabilizing unsatisfactory or declining wildlife habitats, and in maintaining a maximum diversity of wildlife species through habitat management.

#### Policy

To satisfy the minimum requirements for most cavity dwellers, the following practices should be met on each section of BLM managed timber lands to assure a continuing supply of essential habitat.

1. Where snags are present, preserve at least 1 snag with a minimum size of 17" dbh and 25' height for every 3 acres of commercial forest lands. A minimum of 2 dead feeding trees, 7" dbh or greater, either standing or fallen, per acre should also be available for feeding. For optimum wildlife use, snags should be in groups of up to 1/2 dozen

United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Washington, D.C. 20250  
Department of the Interior  
Bureau of Land Management

MAY 12 1970

Instruction Memorandum BLM 100-141  
Expires 12/31/70

To: All District Managers  
From: State Director, BLM

Subject: Policy for Wildlife Song Protection

This office has been attempting to establish a logical song protection policy for the past few years. The major difficulty has been in coordinating with State landowners. Various policies have been developed by other States or other agencies, but the "best practice" or "best policy" of song protection has not been established. State Wildlife Conservation Plans are being developed and will be available.

Since 1964, we have been a party to the International Wildlife Conservation Conference. The main concern was the conservation of song birds. The conference was held in Washington, D.C. in 1964 and 1965. The conference was a success and we have been able to establish a policy for song protection.

- (1) Document the Wildlife Habitat Requirements
- (2) Establish the Wildlife Management Objectives
- (3) Develop a Song Protection Policy which will meet the Wildlife Management Objectives

This document is prepared for the protection and management of song birds. It is intended to provide a policy for song protection and to establish a framework for the development of song protection plans. The document is intended to be used as a guide for the development of song protection plans and to provide a framework for the development of song protection plans.



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

OREGON STATE OFFICE  
P.O. Box 2905 (779 N.E. Oregon Street)  
Portland, Oregon 97203

MAY 12 1976

Instruction Memorandum ORE No. 76- 199  
Expires 12/31/76

To: All District Managers

From: State Director, Oregon

Subject: Policy for Wildlife Snag Preservation

This office has been attempting to initiate a logical snag protection policy for the past two years. The major difficulty has been in coordinating with State Industrial Accident policies that prohibit any timber falling or other similar activity within the "near proximity" or falling radius of any snags or other so called "danger trees." State Fire Prevention administrative rules are less restrictive.

Since 1975, we have been a party to the Interagency Wildlife Habitat Guidelines Coordination Committee. The main working committee consists of Forest Service, Dept. of Fish & Wildlife (Ore.), Washington Dept. of Fish & Game, Bureau of Sport Fish & Wildlife, and BLM. Objectives included:

- (1) Document fish & wildlife habitat requirements
- (2) Establish fish & wildlife management objectives
- (3) Describe habitat types which will meet fish & wildlife management objectives.

This committee is preparing data on the protection and management of aquatic habitat, guidelines on elk escape and thermal cover requirements for eastern and western Oregon, and guidelines for maintenance and enhancement of wildlife habitat in eastern Oregon forest lands. BLM has signed an interagency mission statement agreeing to this concept of guideline preparation and distribution.



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INSTRUCTION NO.  
ORE 76-199 (Snag  
Preservation)





# A Partial List Of Wildlife Species That Gain Benefits From Cover Guidelines

## Mammals

Some bats  
Brush rabbit  
Mountain beaver  
California ground squirrel  
Mazama pocket gopher  
White-footed vole  
Creeping vole

## Reptiles

Western fence lizard  
Gopher snake

## Birds

Savannah sparrow  
Vesper sparrow  
White-crowned sparrow  
Song sparrow  
Night hawk  
Oregon junco  
Fox sparrow  
Chipping sparrow  
Rufous-sided towhee  
American goldfinch  
Bewick's wren  
Lazuli bunting  
Swainson's thrush  
Varied thrush  
Robin  
Scrub jay  
Stellar's jay  
Calliope hummingbird  
Mourning dove  
Mountain quail  
Blue grouse  
Ruffed grouse  
Long-eared owl  
Rufous hummingbirds  
Great-horned owl  
Crow  
Flicker  
Red-tailed hawk  
Band-tailed pigeon  
Downy woodpecker  
Olive-sided flycatcher  
Townsend's solitaire  
Pine siskin  
Vaux's swift

Cover strips around sensitive areas should be connected to adjacent cover strips by travel ways for the animals. Travel ways should be at least the times the strip distance in width based on the rest open conditions planned for the timber that comprises the travel way.

3. Cover Along Roads

1. The following guidelines are for roads open to public use:

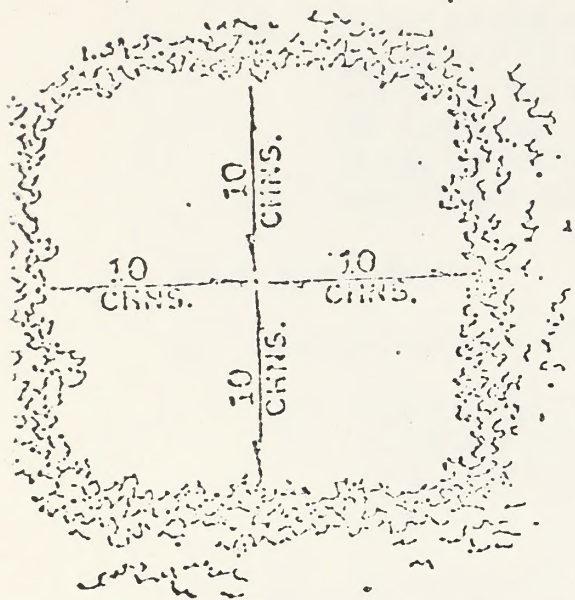
- a. Topographic breaks, brush growth or similar reproduction should provide screening facilities to animals both upstate and downstate of the road.
- b. Preferably, within 2 years following logging, vegetative strips along roads running through logged units should be of sufficient width and height to screen animals from view. Local vegetative growth in western Oregon and Washington should provide the necessary criteria.

- b. Cover strips around sensitive areas should be connected to adjacent cover stands by travel ways for the animals. Travel ways should be at least two times the sight distance in width, based on the most open conditions planned for the timber that comprises the travel way.

D. Cover Along Roads

1. The following guidelines are for roads open to public use:
  - a. Topographic breaks, brush growth or conifer reproduction should provide screening benefits to animals both upslope and downslope of the road.
  - b. Preferably, within 3 years following logging, vegetative strips along roads running through logged units should be of sufficient width and height to screen animals from view. Normal vegetative growth in western Oregon and Washington should provide the necessary criteria.





Given a fixed number of elements and a fixed distance between them, the right distance is the right distance. Right distance is the distance between the elements and the number of elements. Right distance is the distance between the elements and the number of elements.

- 111 Reproduction
- 112 15-20 feet in height
- 121 1st stage
- 122 2nd stage
- 123 3rd stage
- 124 4th stage
- 125 5th stage
- 126 6th stage
- 127 7th stage
- 128 8th stage
- 129 9th stage
- 130 10th stage
- 131 11th stage
- 132 12th stage
- 133 13th stage
- 134 14th stage
- 135 15th stage
- 136 16th stage
- 137 17th stage
- 138 18th stage
- 139 19th stage
- 140 20th stage

Right distance for each stage with this is based on the structural growth stages for the plant that will occur in the next year. For example, right distance for a plant of year 11 is produced for plant for two stages of flowering stage in year 12, on the other hand, for the next stage, not the distance produced for the next stage, not the distance for the next stage.

Development and later stage of the plant (the distance between the stages)

Development and later stage of the plant (the distance between the stages)

### Production of quality fruit

#### 1. Production of quality fruit

- a. Low, water, naturally occurring spacing
- b. Physical features that provide good light, soil, water, and air circulation
- c. Non-productive foliage

Produce sensitive plants by selecting strips of soil around each year.

Strip of soil should be a window of the plant the right distance, based on the structural growth stages for the plant. Right distance is the distance between the elements and the number of elements.

b. Cover strips between clearcut units should be a minimum of two times the sight distance in width. Sight distance (the distance you can see animals) varies with vegetative densities, but the following can be used as guides:

- |  |           |
|--|-----------|
| (1) Reproduction,<br>15-35 feet in height  | 1 chain   |
| (2) Thinned areas -<br>First stage         | 3 chains  |
| Second stage,<br>with understory           | 6 chains  |
| without understory                         | 10 chains |
| (3) 100-year-old stand,<br>with understory | 2 chains  |
| without understory                         | 3 chains  |
| (4) Undisturbed old-growth                 | 3 chains  |

c. Sight distance for cover strip width should be based on the silvicultural practice planned for the stand that will result in the most open conditions. For example, sight distance for a stand of young fir reproduction planned for two stages of thinning should be based on the chain distance required for the second stage, not the 1 chain for reproduction.

2. Regeneration and intermediate cutting (Includes shelterwood, seed tree, selective, thinning)

a. Regeneration and intermediate cuts do not provide adequate cover until crown closure reaches a minimum of 60 percent and coverage of understory species (at least 4 feet in height) attains 50 percent.

### C. Protection of Sensitive Areas

1. Definition of sensitive Areas:

- Bogs, marshes, naturally occurring openings;
- Physical features that provide cover; i.e., rocky bluffs, rimrock, stands of timber on nonproductive forestlands.

2. Protect sensitive areas by maintaining strip of cover around such areas.

a. Width of cover strip should be a minimum of two times the sight distance, based on the silvicultural practice that will produce the most open conditions within the cover strip.



The Committee has also considered the possibility of...  
...of 100-150 years...  
...of 100-150 years...  
...of 100-150 years...

Age of trees...  
...of 100-150 years...

Site 118	30-35 years
Site 119	35-40 years
Site 120	40-45 years

Site 118 is a...  
...of 100-150 years...  
...of 100-150 years...

### COVER CHARACTERISTICS

#### A. Lower Characteristics

1. The...  
...of 100-150 years...

a. ...

b. ...

2. ...

a. ...

b. ...

#### B. Cutting Characteristics

1. ...

a. ...

## Explanatory Notes

In densities and stem diameter outlined on the recommended stocking curve, after trees reach an average diameter of 7-8 inches at stocking levels of 250-300 stems per acre, Douglas-fir stands provide cover needs of Roosevelt elk; provided, at least a 50 percent ground cover of understory species 4 or more feet in height is present.

Age at which various sites produce 7- to 8-inch trees at stocking levels of 250-300 stems per acre is as follows:

Site 170	20-25 years
Site 140	25-30 years
Site 110	30-35 years

Site index is a measure of site quality based on the height of dominant trees at 100 years. A site index of 170 indicates a site that will grow a 170-foot tree in 100 years.

## COVER GUIDELINES

### A. Cover Characteristics

1. Protection from summer heat can be furnished either by conifers or by deciduous species; provided,
  - a. crown closure is 60 percent or greater;
  - b. cover stands are available along streams, on north slopes, ridgetops or other areas where free wind circulation or ground moisture provides cooling effect.
2. Protection from winter weather is provided by stands of conifers that are:
  - a. comprised of trees with average diameters of at least 7-8 inches in densities of a minimum of 250-300 stems per acre; and
  - b. available along streams, on lower south slopes and adjacent to bogs, marshes and other sites which deter deep snow accumulation.

### B. Cutting Practices

1. Clearcut logging
  - a. Cover should be available within 10 chains of any point within a clearcut unit.

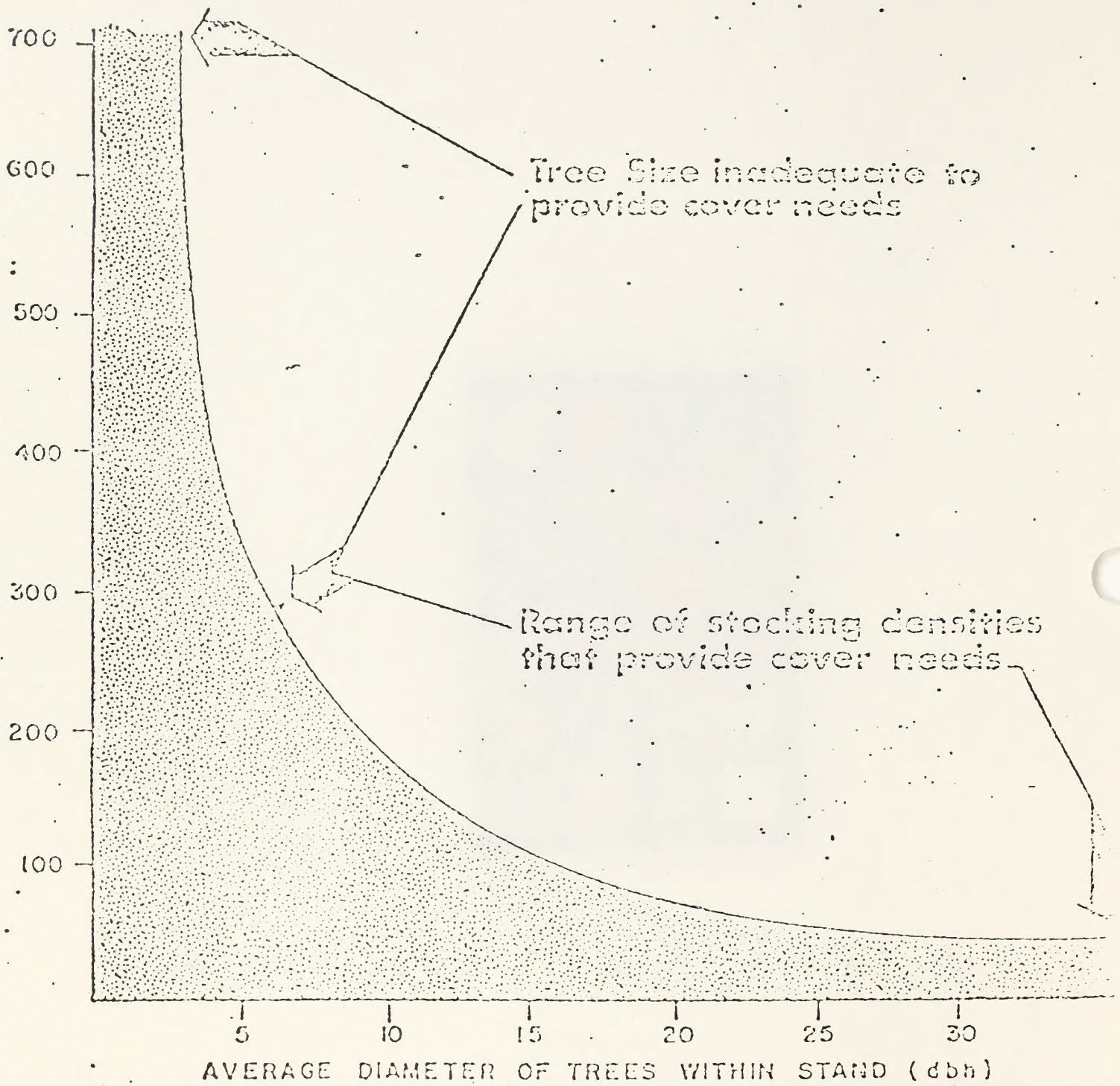
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Two size indicators to provide cover needs

Range of stocking densities that provide cover needs



(R-6, USFS) IN RELATION TO COVER REQUIREMENTS  
OF BLACK TAILED DEER AND ROOSEVELT ELK  
(SEE OPPOSITE PAGE FOR EXPLANATORY NOTES)



# GUIDELINES FOR THE DESIGN OF

## WATER TREATMENT PLANTS

### SECTION ONE: INTRODUCTION

The guidelines are based on the premise that water quality should be maintained at a level which is consistent with the requirements of the receiving water body. The design of the plant should be such that it can handle the maximum flow of water which is likely to be received. The design should also take account of the requirements of the receiving water body for the treatment of the effluent. The design should also take account of the requirements of the receiving water body for the treatment of the effluent.

It is the responsibility of the designer to ensure that the plant is designed to meet the requirements of the receiving water body. The design should also take account of the requirements of the receiving water body for the treatment of the effluent.

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### CONTENTS

The design of the plant should be such that it can handle the maximum flow of water which is likely to be received. The design should also take account of the requirements of the receiving water body for the treatment of the effluent. The design should also take account of the requirements of the receiving water body for the treatment of the effluent.

GUIDELINES FOR PROVIDING COVER FOR  
WILDLIFE ON FOREST LANDS OF  
WESTERN OREGON AND WASHINGTON

The guidelines are based on the premise that quality wildlife habitat can be maintained on lands where commercial timber is being produced and harvested. The intent of the guidelines is to coordinate cover needs of black-tailed deer and Roosevelt elk with the various silvicultural practices utilized to produce commercial timber on a sustained yield basis. Although designed for deer and elk, the cover guidelines will also benefit other wildlife species. A partial list of those species is appended.

Numerous studies have shown the dependence of wildlife on adequate cover. To include the results of these studies would only add volume and detract from the primary purpose of the guidelines.

In addition to commercial timber, cover requirements of wildlife can be met by isolation, rugged terrain, noncommercial timber stands and rocky outcroppings. The more such alternate cover is affected by road building and other silvicultural practices, the more important commercial timber becomes as a cover source.

The effects of roads on animal seclusion are considered in these guidelines, but road construction and use, per se, are not. Those factors, however, largely determine the adequacy of a given strip of cover and a road management program is essential to the effectiveness of the guidelines.

These guidelines are designed primarily for practices relating to Douglas-fir harvest and growth in western Oregon and Washington. Tree densities, understory growth and other factors relating to cover may also apply to other conifer stands, but time required to provide adequate cover will vary.

Cover needs of black-tailed deer and Roosevelt elk are not identical. However, the needs of elk are more specific and are herein outlined. Black-tailed deer can adapt readily to a variety of conditions, including timberlands managed for elk.

#### COVER CRITERIA

Elk require cover to escape harassment, gain protection from the weather, and provide isolation to bear young. Conifer reproduction at various ages and densities can provide one or the other of those needs. However, at certain stocking levels and tree size, conifer reproduction can furnish all cover needs of elk. The following graph identifies that point in relation to the recommended stocking curve for Douglas fir.

1954

United States Department of the Interior

Office of the Director

Washington, D.C. 20540



May 12 1954

Information from the Bureau - 118

To: All District Offices

From: State Director, Oregon

Subject: The Great Basin Project in Eastern Oregon and Washington

Enclosed is a copy of the Bulletin for Eastern Oregon for 1954, the first year of water storage and distribution.

This bulletin was prepared by the Oregon Department of Fish and Game, through the assistance of the Bureau of Reclamation, which has been very helpful in the preparation of the bulletin. The bulletin contains information on the Great Basin Project, including a description of the project, the water storage facilities, and the water distribution plan. It also contains information on the water storage facilities in the States of Oregon and Washington.

Because of high air pollution in the State of Oregon, the State has been advised to take certain steps to reduce air pollution. It is suggested that these steps be taken as soon as possible.

It is suggested that these steps be taken as soon as possible. The steps are: 1. To reduce the use of automobiles. 2. To reduce the use of gas stoves. 3. To reduce the use of gas furnaces. 4. To reduce the use of gas water heaters. 5. To reduce the use of gas dryers. 6. To reduce the use of gas ovens. 7. To reduce the use of gas ranges. 8. To reduce the use of gas broilers. 9. To reduce the use of gas grills. 10. To reduce the use of gas barbecues.

*E. J. Peterson*  
Director

Enclosure  
Distribution: about 100  
954 412 - 3  
954 412 - 4

## BUREAU OF LAND MANAGEMENT

OREGON STATE OFFICE  
P.O. Box 2935 1770 N.E. Oregon Street  
Portland, Oregon 97203

JUN 15 1976

Information Memo No. ORE-76 - 116  
Expires 12/31/76

To: All District Managers  
From: State Director, Oregon  
Subject: Elk Cover Requirements in Western Oregon and Washington

Enclosed is a copy of "Guidelines for Providing Cover for Wildlife in Forest Lands of Western Oregon and Washington."

These guidelines were produced by the Oregon Department of Fish & Wildlife, through the Interagency Wildlife Management Coordination Guidelines Committee, of which BLM is a member. They have been reviewed by the State Office Branches of Forestry and Range, Watershed & Wildlife, and have been accepted as general guidelines for elk habitat preservation in the timberlands of western Oregon and Washington.

Because of high elk population in the Coos Bay area, that district has been selected for intensive field testing of guidelines application, and will be contacted soon by Department of Fish & Wildlife personnel.

It is anticipated that these guidelines can be integrated into basic forestry management planning wherever it is shown that such crucial habitat needs exist.

*E. J. Peterson*  
AGRIC

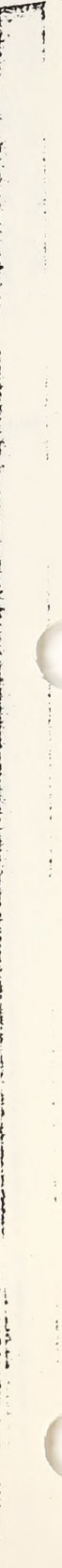
Enclosure  
Distribution: w/out encls.  
KO 412 - 2  
DSC 531 - 4



ONE 20-118 (21K 2000)  
MANUFACTURED BY...

INFORMATION MEMO NO.  
ORE 76-116 (EIK cover)





6. Leaving larger nest trees uncut and buffer areas around them.
7. Closure of four roads and other roads during the winter to avoid disturbance to wintering big game.
8. Investigation of disturbed areas with a variety of plant species useful to wildlife as food or cover.
9. Leaving of some specific areas open to provide cover for small mammals and birds.
10. Compliance with site-specific HRP decisions relating to forestry and wildlife.

*Charles W. Johnson*  
 cc 2

Attachment

6. Leaving raptor nest trees undisturbed and buffer areas around them;
7. Closure of spur roads and other roads during the winter to avoid harassment to wintering big game;
8. Revegetation of disturbed areas with a variety of plant species useful to wildlife as food or cover;
9. Leaving of some specific slash piles to provide cover for small mammals and birds;
10. Compliance with site-specific MFP decisions relating to forestry and wildlife.

*Charles W. Lucher*  
ACTING

Attachments



Recent Federal legislation - the Sikes Act of 1974 and the Endangered Species Act of 1973 - could affect wildlife considerations in areas identified for specific forest practices. This includes, but is not limited to: timber sales (harvesting), commercial and precommercial thinning, type conversion, site preparation, planting, insect and disease control, and pest control. If such forestry practices have been prescribed for an area and it is found that Endangered Species are present or Sikes Act coverage is involved, the "legal compliance" aspects of these laws safeguarding wildlife habitat must be adhered to prior to the initiation of any forestry operations.

Notebook attachments providing useful guidelines for wildlife consideration input toward timber sales are:

1. Information Memorandum No. ORE 76-116: "Elk Cover Requirements in Western Oregon and Washington."
2. Instruction Memorandum No. ORE 76-199: "Policy for Wildlife Snag Preservation."
3. Letter from Colorado Division of Wildlife Big Game Supervisor, Richard N. Denney, concerning deer and elk food and cover requirements.
4. "Interrelationships Between the Forest and Wildlife Management Programs." (F.W. Stanton, BLM, retired)

On Colorado NRL, guidance provided by Richard Denney in his letter of July 21, 1976, shall take precedence over other information and will serve as our basis for discussing wildlife-forestry considerations with Colorado Division of Wildlife personnel. In Colorado, the most common terrestrial wildlife considerations which must be addressed in timber sale contract stipulations are:

1. Snag protection for raptors and cavity-dwelling species;
2. Leaving selected live flat-topped and open-limbed trees for turkey (where appropriate);
3. Buffer strips along streams for aquatic and riparian habitat dependent species;
4. Dense tree patches to provide cover for elk;
5. Road locations which avoid elk calving areas and wet meadow forage sites;

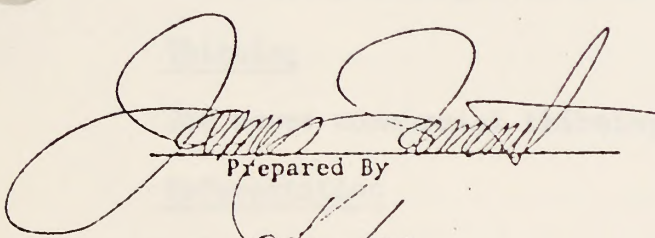


COMPARTMENT PRESCRIPTION

54929  
ROCK CREEK

Routt National Forest

Yampa Ranger District

  
Prepared By

9/29/79  
Date

\_\_\_\_\_  
Approved By

\_\_\_\_\_  
Date

54920  
ROCK CREEK

Rock Creek  
Hanger

*[Handwritten signature]*  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Compartment Description

Compartment 54929 lies west of Little Henry Creek and south of Horse Creek in T1N, R82 and 83W, Routt and Grand Counties.

Access is by foot, horseback, or jeep trail.

The compartment is composed of young growth lodgepole pine which developed under Aspen after fire. Some pockets of old growth lodgepole remain mixed in with extensive stands of pole timber and some mixed pole-sawtimber. Small aspen stands are found throughout.

Windrisk is moderate to high.

Ground fuels are light

### Prescription Summary

Detailed prescriptions for each stand are attached.

### Timber Harvest

Shelterwood and Patchcut.  
366 acres yielding 1.15 MMBF

### Thinning

280 acres commercial thinning

### Reforestation

None

### Salvage

21 acres yielding 50 MBF

### No Treatment

For 100 acres of nonforest, aspen, and marginal areas.

The timber harvest is to be in conjunction with the Little Whiskey Timber Sale.

A stand map and proposed transportation system are attached.

Department of Health and Human Services  
1000 Independence Avenue, S.W.  
Washington, D.C. 20492

Attention: Director, Office of Public Health

The Department of Health and Human Services is pleased to announce the availability of a grant program for the development of community health centers. This program is designed to provide financial assistance to eligible organizations that are committed to providing primary health care services to underserved populations. For more information, please contact the Office of Public Health at the address above.

Enclosed for review are:

1. Grant Application Form

Application Instructions

Please read the instructions carefully before completing the application form.

Eligibility

Applicants must be a non-profit organization that is currently providing or planning to provide primary health care services to underserved populations.

Application Process

Applications should be submitted to the Office of Public Health, Department of Health and Human Services, 1000 Independence Avenue, S.W., Washington, D.C. 20492.

Contact Information

Phone: (202) 205-4000

Telex: HHS-100000

If you have any questions, please contact the Office of Public Health.

Additional Information

For more information on the grant program, please contact the Office of Public Health at the address above.

The Department of Health and Human Services is an Equal Opportunity Employer. Minorities and women are encouraged to apply.

This document is available in large print format upon request. Please contact the Office of Public Health for more information.

For Nonforest - Noncommercial Stands,  
COMPARTMENT DATA ELEMENTS SUMMARY

Form I

Compartment No. 549 29

Stand No.	01		
Acres			
Type	Non Forest	and	Open
Stand Size			
Type of Survey			
Ground Land Use Class			
Component			
Slope Position			
Elevation			
Slope			
Aspect			
Soil Erosion			
Productivity Class			
Site Index			
Structure			
Distribution			
Softwood/Acre			
Volume			
BA			
Growth			
DBH			
No Stem	S/S		
	Poles		
	St		
Hardwood/Acre			
Volume			
BA			
Growth			
DBH			
No Stem	S/S		
	Poles		
	St		



Compartment # 549-29 STAND PRESCRIPTION # 02  
 Name Lodgepole Acres 222  
 Size Small Stand Origin  
 Survey Land Use Class  
 Position Ridgetop Elevation 9400  
 Slope 16-25% Aspect NE  
 Distribution Structure  
 Site Index 38 Survey Yield  
 Windthrow Hazard Moderate Soil Erosion

Stand Description & History  
Pine → Fire → Aspen → Pine

This area is on or near the ridgetops and is of generally larger size timber than the other stands.

- ① Old Growth pockets that survived the fire (≈ 30 ac.)
  - ② Pole patches - dog haired and stamant (≈ 90 ac.)
  - ③ MIXED YOUNG + OLD Growth (≈ 55 ac)
  - ④ Aspen outcrops on south aspects (≈ 30 ac)
- Nonforest (≈ 15 ac)

Softwood/Acre	
Volume	13942
Growth (cub. Net)	32
1/5 Stems	345
Pole Stems	42
ST Stems	537
Basal Area	
DBH (Ave.)	10.3

Hardwood/Acre	
Volume	
Growth (cub. Net)	
1/5 Stems	
Pole Stems	
ST Stems	
Basal Area	
DBH (Ave.)	

Timber and Other Resource Coord. Sum.

RAM Prescription  
PATCH CUT, ITN, SHELTER WOOD  
 RAM Yield  
 RAM Class  
 RAM Decade

Other Resource Coord. and Constraints

Restricted cutting along drainages

Protection Measures

Tailed Prescription, T.S.I. Needs

- TREAT EACH COMPONENT:
- 1) OLD GROWTH - patchcut to remove mistletoe, and overmature trees. This will stimulate reproduction.
  - 2) POLE TIMBER - No treatment at this time. Thin when sale is closed and roads allow access
  - 3) MIXED - remove overmature trees and young trees of poor form and vigor.
  - 4) ASPEN - no treatment
  - NON Forest - no treatment

IELDS/ACRE	LEAVE	HARVEST	TOTAL
Acres	137	85	222
Stems (Poles, ST)	539	40	579
Basal Area	86	45	131
BF	3000	4200	7200
Total Cut Vol.	357 MBF (Softw.)	Cut Vol.	(HWDW.)

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Compartment # 54977 Stand # 03

Stand Description & History

Type	<u>Redpole</u>	Acres	<u>536</u>
Stand Size	<u>1/4 mile</u>	Stand Origin	-
Type of survey	-	Land Use Class	-
Component	<u>Softwood</u>		
Slope Position	<u>Adaxial</u>	Elevation	-
Slope	<u>16-25</u>	Aspect	<u>N</u>
Distribution	-	Structure	-
Site Index	<u>33</u>	Survey Yield	-
Windthrow Hazard	-	Soil Erosion	-
Softwood/ Acre			
Volume	<u>6837</u>	Basal Area	<u>164</u>
Growth(cub.net)	<u>25</u>	DBH (Ave.)	<u>7.5</u>
S / S Stems	<u>465</u>		
Pole Stems	<u>272</u>		
ST Stems	<u>725</u>		
Hardwood/ Acre			
Volume		Basal Area	
Growth(cub.net)		DBH (Ave.)	
S / S Stems			
Pole Stems			
ST Stems			

Pine → Fire → Aspen → Pine

This stand is just off the ridge tops and is made up of slightly smaller timber - still variable.

- 1) Scattered and sparse pockets of OLD GROWTH ≈ 60 ac.
- 2) Extensive pole timber patches ≈ 190 ac.
- 3) Limited Mixed large and small pine. ≈ 200 ac.
- 4) Aspen 50 ≈ ac.

Non Forest ≈ 35 ac.

Detailed Prescription, T.S.I. Needs

TREAT EACH COMPONENT!

- 1) OLD GROWTH - patch cut to remove overmature stems, mistletoe, and to stimulate reproduction.
- 2) POLE TIMBER - no treatment at this time. Thin when gain access.
- 3) MIXED - remove overmature stems and young trees of prior form and vigor.
- 4) Aspen - no treatment

Aprx. 55 ac. of Non forest and WIZ

YIELDS / ACRE	Treatment

TM Plan- RAM Class
RAM Prescription
RAM Yield
Activity (from TM Plan EIS)
Schedule- RAM Decade:
Prescription <u>Patch cut - ITM / SHELTERWOOD</u>
MUM - Coordination
Constraints
Selected Activity- Method
Constraints

	LEAVE	HARVEST	TOTAL
Acres	<u>296</u>	<u>240</u>	<u>536</u>
# Stems (Poles, ST)	<u>721</u>	<u>25</u>	<u>706</u>
Basal Area	<u>114</u>	<u>55</u>	<u>169</u>
NBF	<u>3838</u>	<u>3000</u>	<u>6838</u>
Cunits			
Dead MBF			

Total Cut Vol. 720 MBF (Softw.) Cut Vol. \_\_\_\_\_ (HARDW.)



Compartment # 54929 Stand # 04

Stand Description & History

Type	Acres	21
Stand Size	Stand Origin	-
Type of survey	Land Use Class	-
Component		
Slope Position	Elevation	-
Slope	Aspect	North
Distribution	Structure	-
Site Index	Survey Yield	-
Windthrow Hazard	Soil Erosion	-
Softwood/ Acre		
Volume	Basal Area	125
Growth(cub.net)	DBH - (Ave.)	7.5
S / S Stems		1300
Pole Stems		105
ST Stems		1325
Hardwood/ Acre		
Volume	Basal Area	
Growth(cub.net)	DBH (Ave.)	
S / S Stems		
Pole Stems		
ST Stems		

This small stand is a North slope and very wet. Approx. 2500 BF/acre of dead volume is present and was killed by the high water-table. A new stand of spruce fir is developing with the majority of the stems in the small diameter class.  
21 Acres.

Detailed Prescription, T.S.I. Needs

Remove the dead volume.  
Sanitize the remaining stems and remove mortality trees.

TM Plan- RAM Class
RAM Prescription
RAM Yield
Activity (from TM Plan EIS)
Schedule- RAM Decade:
Prescription <u>SHELTERWOOD</u>
MUM --Coordination
Constraints
Selected Activity- Method
Constraints

YIELDS / ACRE

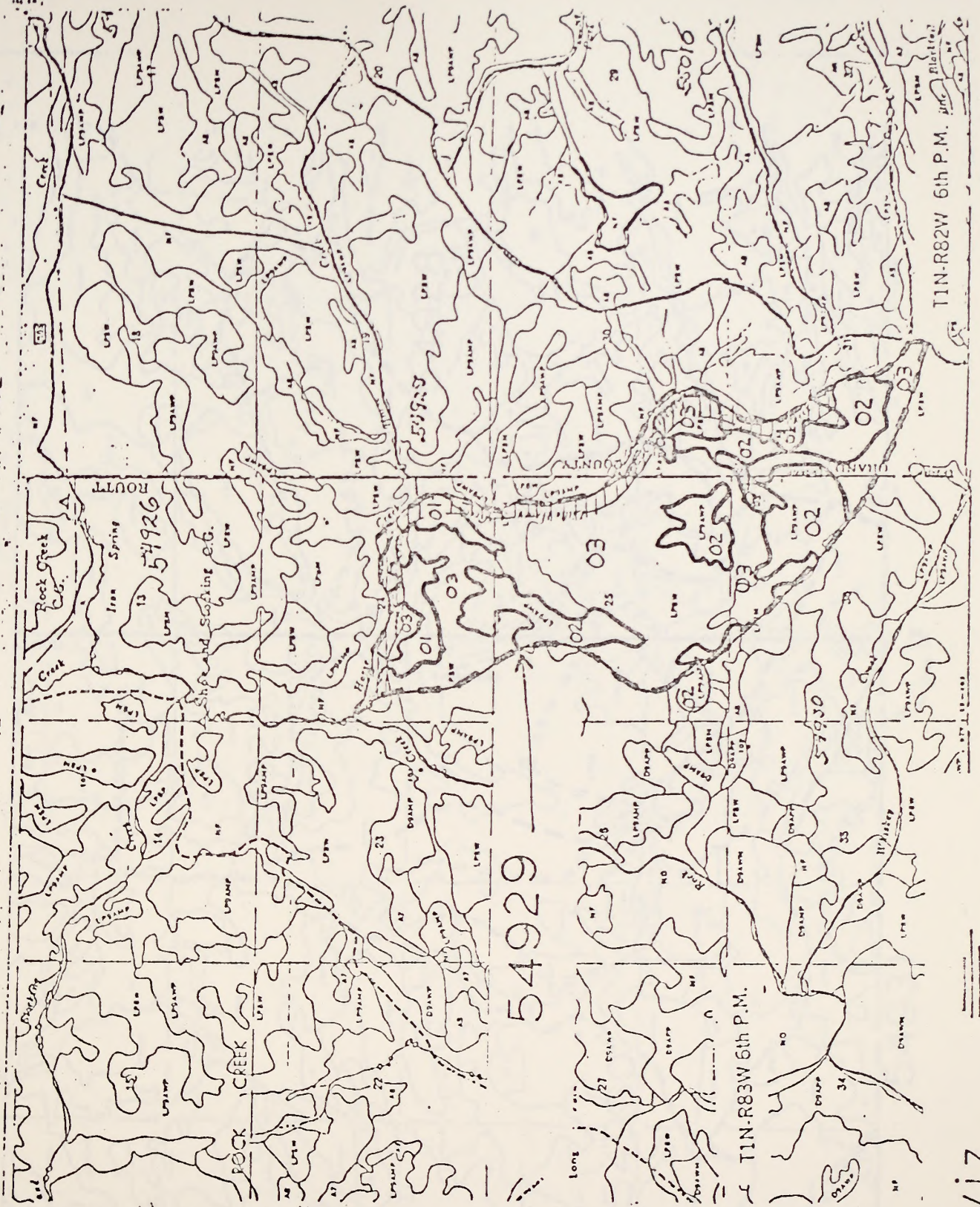
Treatment

	LEAVE	HARVEST	TOTAL
Acres	0	21	21
# Stems (Poles, ST)	1350	50	1400
Basal Area	25	40	125
MBF <u>(Continued from previous)</u>	6500	3500	10000
Cunits	-	-	-
Dead MBF	-	-	-

Total Cut Vol. 73500 BF (Softw.)

Cut Vol. \_\_\_\_\_ (HARDW.)





54929

TIN-R83W 6th P.M.

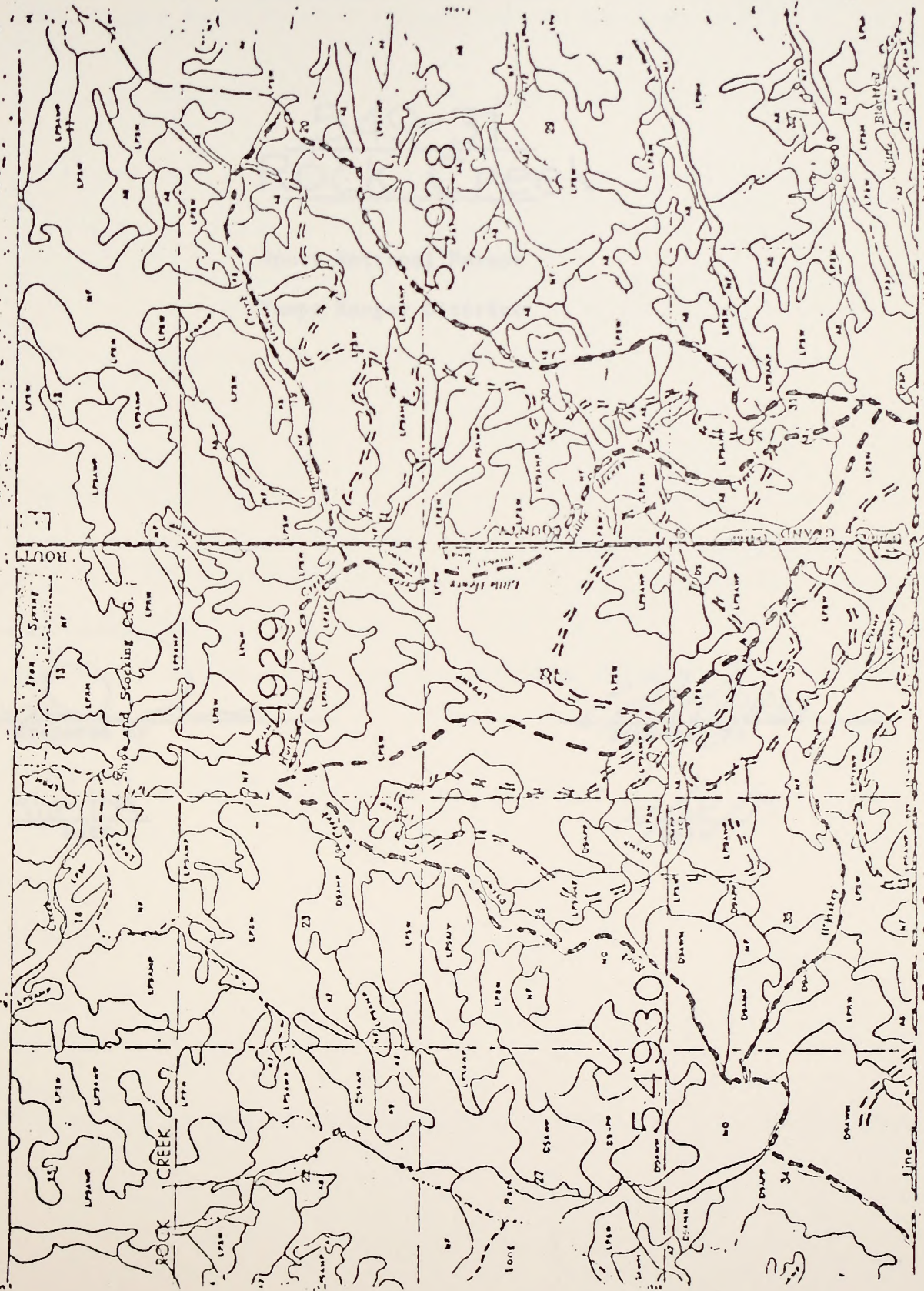
TIN-R82W 6th P.M.

WIZ



MS 13

LITTLE WHISKEY SALE  
PROPOSED ROADS



54931



UNIVERSITY OF CALIFORNIA  
LIBRARY



COMPARTMENT PRESCRIPTION

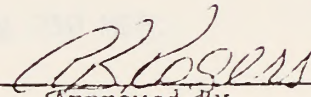
549-31  
Rock Creek

Routt National Forest

Yampa Ranger District

  
Prepared By

9/27/79  
Date

  
Approved By

11/21/79  
Date


EMPLOYMENT INFORMATION

549-31  
Rock Creek

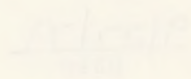
Home National Forest

Young Ranger District

  
Ranger

  
Ranger

  
Ranger

  
Ranger

## Compartment Description

Compartment 549-31 lies in T1N, R83W, of Routt County Colorado. It is bounded on the south by the Forest Boundary and the base line, on the north by Whiskey Creek and on the west by Rock Creek.

Currently, the only access into the area is by foot, horseback or jeep trail.

The compartment is primarily composed of young growth lodgepole pine that developed under aspen which followed after fire. Stands are large and variable, often containing pockets of old growth that were not destroyed in the fire and that are now falling apart, as well as large areas of small poletimber that has begun to thin. All stands are interspersed with small aspen sawtimber.

Windrisk throughout the area is low to moderate. Ground fuels are very light.

### Prescription Summary

Detailed prescriptions for each stand are attached. In general, they call for the following:

#### Timber Harvest

(Sanitation and patchcut) 212 ac. yielding 750 MBF.

#### Thinning

(Commercial) 234 acres.

#### Reforestation

NONE

#### Salvage

NONE

#### No Treatment

390 acres.

A stand map and map of proposed roads for the area are also attached.

Department Description

Government 68-21 Area in 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, 48th, 49th, 50th, 51st, 52nd, 53rd, 54th, 55th, 56th, 57th, 58th, 59th, 60th, 61st, 62nd, 63rd, 64th, 65th, 66th, 67th, 68th, 69th, 70th, 71st, 72nd, 73rd, 74th, 75th, 76th, 77th, 78th, 79th, 80th, 81st, 82nd, 83rd, 84th, 85th, 86th, 87th, 88th, 89th, 90th, 91st, 92nd, 93rd, 94th, 95th, 96th, 97th, 98th, 99th, 100th.

Outside, the only access into the area is by foot, horseback or jeep trail.

The environment is primarily composed of young growth habitats that have developed under dense shade since the late 19th century. The forest is largely unexplored, with numerous pockets of old growth that have not been destroyed in the fire and that are now falling. As well as being a source of natural resources, the forest has become an area of scientific interest with small-scale research.

Because throughout the area is low to moderate, ground this area very light.

Physical Description

Physical description for each stand are attached in general, they call for the following:

Stand 1000

(Location and elevation) 215-220, 215-220, 215-220

Stand 1001

(Location) 225-230, 225-230

Stand 1002

235-240

Stand 1003

245-250

Stand 1004

255-260

A stand map and map of proposed roads for the area are also attached.

Compartment # 240-31 Stand # 1

Stand Description & History

Type of Survey	Acres <u>36</u>
Stand Size	Stand Origin
Type of survey	Land Use Class
Component	
Slope Position	Elevation
Slope	Aspect
Distribution	Structure
Site Index	Survey Yield
Windthrow Hazard	Soil Erosion
Softwood/ Acre	
Volume	Basal Area
Growth(cub.net)	DBH = (Ave.)
S/ S Stems	
Pole Stems	
ST Stems	
Hardwood/ Acre	
Volume	Basal Area
Growth(cub.net)	DBH (Ave.)
S /S Stems	
Pole Stems	
ST Stems	

None of above

Detailed Prescription, T.S.I. Needs

TM Plan- RAM Class
RAM Prescription
RAM Yield
Activity (from TM Plan EIS)
Schedule- RAM Decade:
Prescription
MUM --Coordination
Constraints
Selected Activity- Method
Constraints

YIELDS / ACRE

Treatment LEAVE

	LEAVE	HARVEST	TOTAL
Acres			
# Stems (Poles, ST)			
Basal Area			
MBF			
Cunits			
Dead MBF			

Total Cut Vol. \_\_\_\_\_ (Softw.)

Cut Vol. \_\_\_\_\_ (HARDW.)



Compartment # 549-21 Stand # 67

Stand Description & History

Type <u>25711</u>	Acres <u>27</u>
Stand Size <u>1000</u>	Stand Origin
Type of survey <u>923</u>	Land Use Class
Component <u>UNCALCULATED</u>	
Slope Position	Elevation
Slope	Aspect
Distribution	Structure
Site Index	Survey Yield
Windthrow Hazard	Soil Erosion
Softwood/ Acre	
Volume	Basal Area
Growth(cub.net)	DBH = (Ave.)
S/ S Stems	
Pole Stems	
ST Stems	
Hardwood/ Acre	
Volume	Basal Area
Growth(cub.net)	DBH (Ave.)
S /S Stems	
Pole Stems	
ST Stems	

*[Handwritten notes in Stand Description & History section, including "Acres" and other illegible text.]*

Detailed Prescription, T.S.I. Needs

*No TREATMENT  
THIS DECADE.*

TM Plan- RAM Class
RAM Prescription
RAM Yield
Activity (from TM Plan EIS)
Schedule- RAM Decade: Prescription
<i>No Treatment</i>
MUM --Coordination
Constraints
Selected Activity- Method
Constraints

YIELDS / ACRE

Treatment

LEAVE

HARVEST

TOTAL

Acres			
# Stems (Poles, ST)			
Basal Area			
NBF			
Cunits			
Dead MBF			

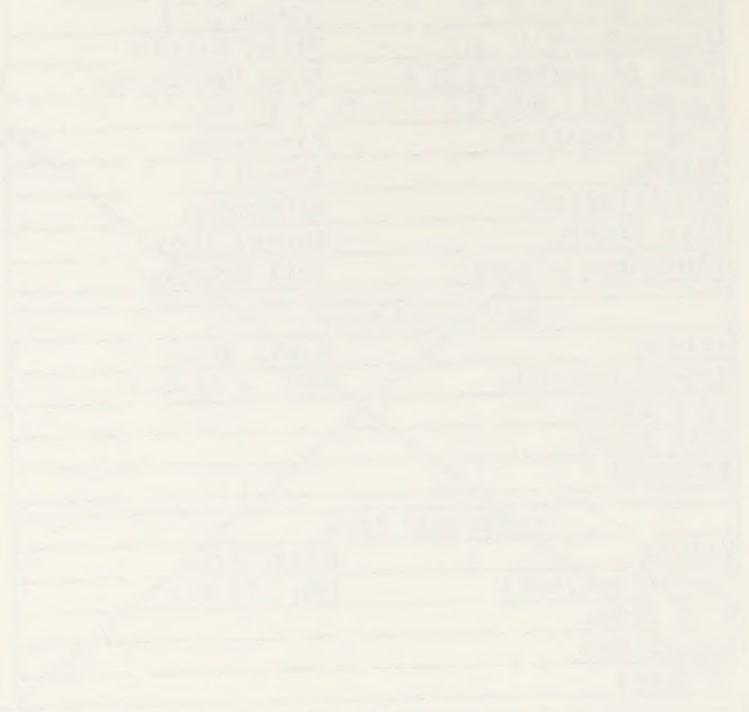
Total Cut Vol. \_\_\_\_\_ (Softw.)

Cut Vol. \_\_\_\_\_ (HARDW.)

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STANDARD DESCRIPTION SUMMARY

Department #	549-31	Stand #	03
Type	Edgepole	Acres	85
Survey	933	Stand Origin	
Location	Stand	Land Use Class	
Position	Ridge Top	Elevation	9800
Coordinates	16-25-20	Aspect	N
Structure	10	Structure	10
Survey Yield	41	Survey Yield	
Hazard	Moderate	Soil Index	01
Softwood/Acre			
Volume (Net)	9937	Basal Area	135
DBH (Ave.)	38	DBH (Ave.)	8.7
S Stems	370		
Poles	105		
Stems	181		
Hardwood/Acre			
Volume (Net)	-0-	Basal Area	-0-
DBH (Ave.)	-0-	DBH (Ave.)	1.5
S Stems	120		
Poles	-0-		
Stems	-0-		

Stand is composed primarily of under rotation LPP (80-100) with scattered old growth trees (>200 yr. old) dispersed throughout. In addition, pockets of small pole timber are common as are occasional pockets of decadent old growth concentrations. The stand has developed under aspect following fire, and scattered young growth aspen can still be seen.

Prescription, T.S.I. Needs

3 separate components of this stand will require separate silvicultural treatments.

- 1) Areas of primarily young growth will be thinned to remove old growth trees and risk young growth.
- 2) Old growth patches that survived the fire will be patch cut to stimulate growth in young understory and enhance natural regeneration.
- 3) Pole timber areas will be thinned commercially posts and poles following the timber harvest.

Slopes >40% will not be logged

Timber and Other Resource Coord. Sum.
RAM Prescription
ITM SHELTERWOOD
RAM Yield
RAM Class
RAM Decade
Other Resource Coord. and Constraints
No timber harvest adjacent to creek.
Protection Measures
WIZ along Whiskey Crk.

ELDS./ACRE	LEAVE	HARVEST	TOTAL
res	25	50	85
Stems (Poles, ST)	103	78	181
Basal Area	83	45	128
DBH	6.6	3.3	9.9
	=	=	=
Total Cut Vol.	165 MBF (Softw.)	Cut Vol.	(HARV.)



STAND PRESCRIPTION SUMMARY

Compartment #	549-31	Stand #	04
Type	Lodgepole	Acres	272
Stand Size	Pole timber	Stand Origin	01
Survey	933	Land Use Class	01
Management	Stand		
Topo Position	Ridgetop	Elevation	9500
Slope	16-25%	Aspect	N
Distribution	10	Structure	10
Site Index	38	Survey Yield	-
Windthrow Hazard	Moderate	Soil Erosion	01
Softwood/Acre			
Volume	5689	Basal Area	105
Growth (cub. Net)	33	DBH (Ave.)	7.8
/S Stems	195		
Pole Stems	1100		
T Stems	159		
Hardwood/Acre			
Volume	-	Basal Area	-
Growth (cub. Net)	-	DBH (Ave.)	-
/S Stems	30		
Pole Stems	-		
T Stems	-		

Stand Description & History

Stand developed under Aspen following fire and now consists of 4 main components.

- 1) Large areas of small poles and large saplings ( $\approx 170$  Ac)
- 2) Scattered pockets of interspersed young and old growth LPP ( $\approx 70$  ac)
- 3) Isolated pockets of old growth LPP that survived the fire and are rapidly deteriorating. Reproduction has begun to develop under north ( $\approx 22$  Ac)
- 4) Scattered residual of Aspen ( $\approx 10$  Ac.)

Tailored Prescription, T.S.I. Needs

1) component will be treated as follows -

- 1) Poles - commercially thinned following timber harvest
- 2) Mixed young and old growth - remove immature and high risk trees.
- 3) Old growth - Patch cuts and group selection to eliminate mistletoe and mulate reproduction.
- 4) Aspen - No treatment this decade

Timber and Other Resource Coord. Sum.
RAM Prescription
ITM - Intermediate Cut - Patch Cut
RAM Yield
RAM Class
RAM Decade
Other Resource Coord. and Constraints
No harvest along creeks
Protection Measures
WIZ along Whiskey Crk.

FIELDS/ACRE	LEAVE	HARVEST	TOTAL
Acres	180	92	272
Stems (Poles, ST)	248	48	296
Basal Area	75	30	10.5
MBF	1e8	3.9	5.7
S	-	-	-
BF	-	-	-
Total Cut Vol.	350 MBF (Softw.)	Cut Vol.	(HARDW.)

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Compartment #549-31 Stand #05

Stand Description & History

Type LTP/DF	Acres 182
Stand Size SAWYER	Stand Origin 01
Type of survey 923	Land Use Class 01
Component STANDBORN	
Slope Position SIDEHILL	Elevation 9,200
Slope 20-30%	Aspect N
Distribution 10	Structure 10
Site Index 40	Survey Yield —
Windthrow Hazard Mod.	Soil Erosion 01

STAND IS A MIXTURE OF LTP AND SCATTERED DF THAT DEVELOPED FOLLOWING A FIRE. APPROXIMATELY 1/3 OF THE STAND IS INOPERABLE DUE TO STEEP SLOPES (≈ 60 ACRES). THE REMAINDER CONSISTS OF -

1. INTERMIXED YOUNG AND OLD GROWTH LTP - (50 AC)
2. OLD-GROWTH LTP THAT IS DETRIMENTAL TO THE FOREST (≈ 20 AC)
3. ASPEN (≈ 20 AC)
4. AREAS OF BLIND PULPING/SAMPLING (≈ 32 AC)

Softwood/ Acre	
Volume 6.5	Basal Area 100
Growth (cub.net) —	DBH (Ave.) —
S/S Stems 250	
Pole Stems 120	
ST Stems 150	

<del>Hardwood/ Acre</del>	
<del>Volume</del>	<del>Basal Area</del>
<del>Growth (cub.net)</del>	<del>DBH (Ave.)</del>
<del>S/S Stems</del>	
<del>Pole Stems</del>	
<del>ST Stems</del>	

Detailed Prescription, T.S.I. Needs

THE COMPONENTS OF THIS STAND WILL BE TREATED AS FOLLOWS -

1. YOUNG/OLD GROWTH - OVERMATURE AND HIGH RISK TREES WILL BE REMOVED.
2. OLD GROWTH - PATCH CUT TO ELIMINATE BLIND AREAS AND IMMEDIATE REGENERATION.
3. POLE/TIMBER - COMMERCIAL HARVEST TO BE COMPLETED AFTER TIMBER HARVEST.
4. ASPEN - PATCH CUT THIS DECIDE.

TM Plan- RAM Class	
RAM Prescription	
RAM Yield	
Activity (from TM Plan EIS)	
Schedule- RAM Decade:	
Prescription	PATCH CUT
ITM - SHELTERWOOD	
MUM -- Coordination	
W12 - ALONG ROAD CUT	
Constraints	NO TIMBER HARVEST IN THIS DECIDE
Selected Activity- Method	
Constraints	

YIELDS / ACRE Treatment

	LEAVE	HARVEST	TOTAL
Acres	112	70	182
# Stems (Poles, ST)	200	70	270
Basal Area	70	30	100
MBF	3.0	3.5	6.5
Cunits	—	—	—
Dead MBF	—	—	—

Total Cut Vol. 245 MBF (Softw.) Cut Vol. \_\_\_\_\_ (HARDW.)

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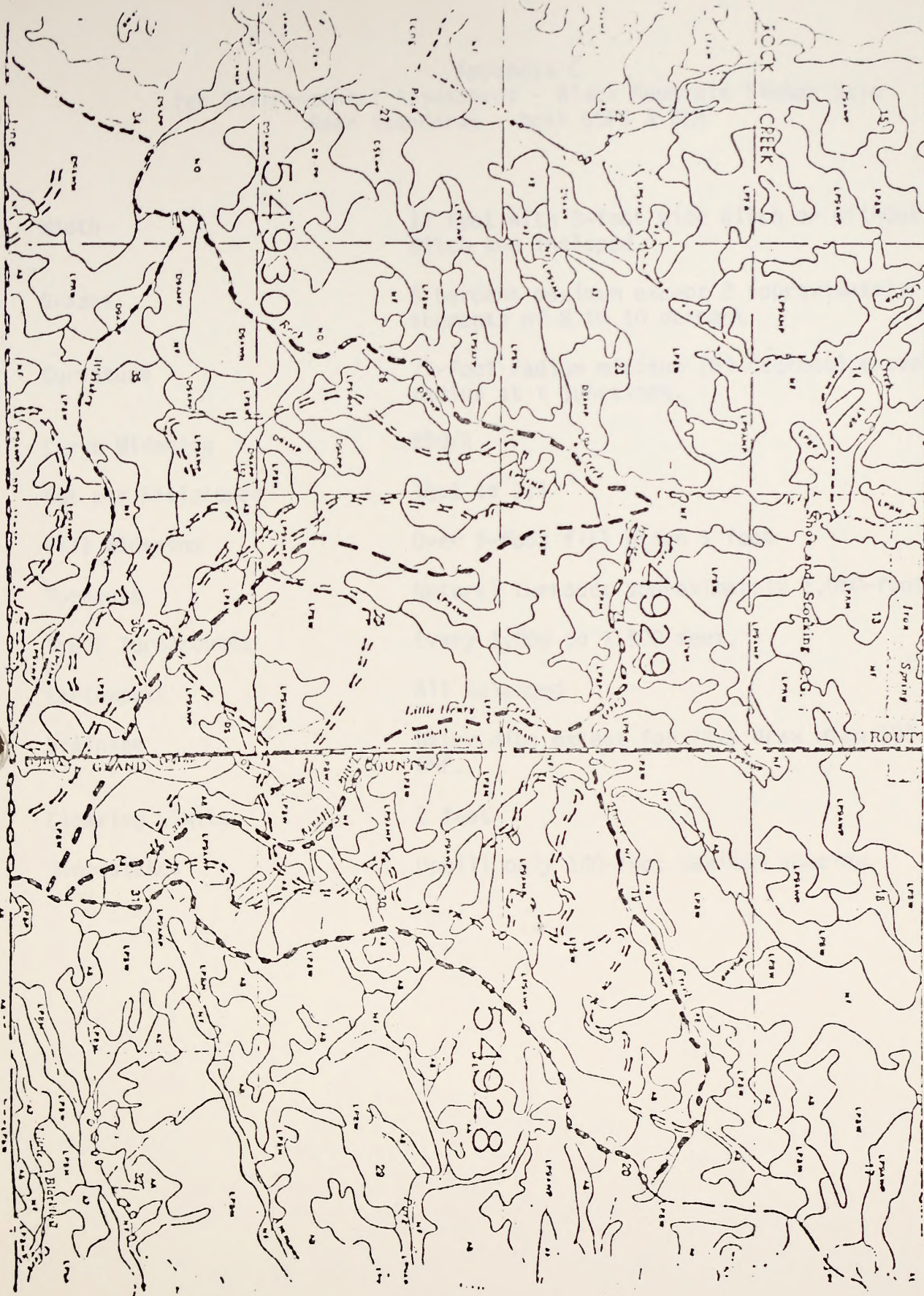
STANDARD MAP  
1895

Scale 1:50,000  
Published by the War Department  
Geographical Names Office  
Washington, D. C.



LITTLE WHISKEY SALE  
PROPOSED ROADS

54931



54930

54929

54928

ROUTE

GRAND COUNTY

Little Henry

Shoard Sapping Co.

Iron Spring

JACK CREEK

Billie

Long Park

111

112

113

114

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MILK WIPPER CASE



Appendix C  
For Environmental Assessment - Black Mountain Timber Sale  
Road Standards : both USFS & BLM

Width	14 feet with 3-foot wide ditch or without ditch and insloped.
Grades	8 percent maximum except 2 approximately 500-foot segments of 8 to 10 percent.
Curvature	75-foot radius minimum (80 degrees) except 50-foot radius at Y junctions.
Curve Widening	250/R
Cut and Fillslopes	1½:1 to 3:1
Fill Widening	Over 5-foot fill widen 1 foot
Turnouts	Natural turnouts approximately 1,000-foot spacing.
Truck Turnarounds	Every 1,000 to 1,500 feet.
Earthworks	All balanced
Drainage	Water dips except for live draw with 18" minimum CMP.
Clearing Limits	2 feet
Slopestakes	Uphill only 100-foot maximum spacing.

Appendix C  
 For Environmental Assessment - Black Mountain Timber Sale  
 Road Standards - Item 1022 A-B11

14 feet wide 2-foot wide ditch or without ditch and tapered.	Width
8 percent maximum except 5 approximately 50-foot segments of 5 to 10 percent.	Grades
15-foot maximum minimum (80 degrees) except 50-foot sections at Y junctions.	Curvature
20:1	Curve widening
15:1 to 3:1	Cut and Fill slopes
Over 5-foot fill within 1 foot	Fill widening
Horizontal turnouts are preferably 1,000-foot spacing.	Turnouts
Every 1,000 to 1,500 feet	Truck turnouts
All balanced	Earthworks
Water pipe covered for five feet with 18" minimum cover	Drainage
5 feet	Clearing limits
Only the only 300-foot maximum spacing	Stippling

JOINT BLM - USFS BLACK MOUNTAIN T.S.

8% GRADE JUSTIFICATION

T15 R83W



THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY



## Black Mountain Timber Sale Grade Justification

### Introduction

This road is for a combination Forest Service BLM timber sale; the access road is on the BLM portion of the sale. The road length above 8 percent grade is 2 segments approximately 500 feet long with probably 8 to 10 percent grades.

### Topography

The general topography in this area is rolling hills, shallow wide draws and swales, short spur ridges and in places, somewhat sustained slopes of approximately 40 percent.

The location of the over 8 percent road segments is in a wide, shallow dry swale. The swale bottom is rounded approximately 110-feet or inches wide, and slopes 5 to 10 percent downstream. There is no evidence of overland water flow.

The area is vegetated with lodgepole pine, brush, and grass.

### Proposed Route

The flagged line goes up the right hand side of the swale near the steeper sideslopes and stays approximately 2 to 5 feet above the swale bottom. When far enough up the swale, the road crosses the drainage (no overload flow evidence but 18" CMP necessary anyway) with little fill and climbs at 5 to 6 percent out of the drainage.

The flagged location at the two over 8 percent segments and the segment in between is on approximately 10 percent sideslopes and has relatively straight alignment.

### Alternative Routes

There is no practical major route change that will still serve the requirements of the timber sale. The only localized alternative would be to lengthen the segment in the swale by immediately crossing the drainage, switchback, recrossing the swale, etc. at 8 percent or less until getting high enough to tie back into the proposed route and climb out of the drainage.

### Justification for Proposed Route

The proposed route is the most direct route, has the fewest drainage crossing, least earthworks, and it is far enough out of the swale bottom to not cause any significant erosion problems.

Although over 8 percent in 2 segments, both segments are only approximately 500 feet long and will only have grades of 8 to 10 percent.

Since sideslopes are only approximately 10 percent no significant overland flow, sides, or slumps will threaten the road, and therefore the road drainage. Drainage control will be by ditching, insloping at 3 to 5 percent and water dips.

Section 1: Introduction

Introduction

This report is for a construction project. The project aims to build a new road through the area. The road will be 2.5 km long and 10 meters wide. It will connect the village to the main road.

Objectives

The main objective of this project is to improve the road network in the area. This will help the local people to travel more easily. It will also help the local businesses to grow.

The project will be completed in 12 months. The budget for the project is \$1,000,000. The project will be managed by the local government.

The project will be completed in 12 months. The budget for the project is \$1,000,000.

Scope

The project will include the construction of the road, the drainage system, and the road signs. It will also include the purchase of the land and the payment of the workers.

The project will not include the construction of the bridges and the tunnels. It will also not include the payment of the landowners.

Methodology

The project will be managed using the project management software. The project will be divided into several phases. The first phase is the planning phase. The second phase is the execution phase. The third phase is the monitoring phase. The fourth phase is the closing phase.

Conclusion

The project will be completed in 12 months. The budget for the project is \$1,000,000. The project will be managed by the local government.

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The project will be completed in 12 months. The budget for the project is \$1,000,000. The project will be managed by the local government.



Although over 8 percent, this road segment will only be approximately 1,300 feet overall, not long enough to build up large water velocities and massive erosion.

Approvals

Robert B. Moss 1-24-80  
Grand Junction District Engineer Date

[Signature] 1-25-80  
Grand Junction Chief of Operations Date

David A. Jones 1/28/80  
Grand Junction District Manager Date

[Signature] 2/21/80  
Colorado State Office Engineer Date

Charles W. Leaker 3/5/80  
ACTING Colorado State Director Date

Although over 5 percent, this road segment will only be approximately 1,300 feet overall, not long enough to build up large water velocities and massive erosion.

Approved:

1-27-80  
Date

[Signature]  
Grand Junction District Engineer

1-27-80  
Date

[Signature]  
Grand Junction District Engineer

1-27-80  
Date

[Signature]  
Grand Junction District Engineer

1-27-80  
Date

[Signature]  
Colorado State Engineer

1-27-80  
Date

[Signature]  
Colorado State Engineer

## Glossary

- Air dry herbage - The weight of vegetation after drying naturally.  
Air dry weight.
- Bole - The central stem of a tree.
- C.M.P. - Corrigated Metal Pipe, it provides cross drainage for roads.
- Compartment - Geographic area that lends itself to like management techniques or can be logically managed as a unit.
- Cruising - The measurement of standing trees to be harvested.  
Usually expressed in terms of board feet volume.
- DBH - In measuring trees it is the diameter of a tree at breast height or 4½ feet above ground level.
- Layout - Pertains to the on-the-ground preparations that identify timber stands for harvest.
- lopping - The cutting of leftover tree limbs and tops into smaller segments.
- MBF - One thousand board feet measure of tree volume.
- Silviculture - Pertaining to the culture or treatment of a forest.
- Stand - A group or community of plants that have homogenous characteristics.
- Station - In engineering, a distance of 100 feet.
- Swale - Broad bottom drainage that is a depression without a well defined water course or none at all.
- Trend - In range management the direction or the condition it is going i.e. improving or deteriorating.

Abstract

- The purpose of this study is to investigate the effect of... (10)
- The study was conducted in a... (15)
- The results of the study show that... (20)
- The study was conducted in a... (25)
- The results of the study show that... (30)
- The study was conducted in a... (35)
- The results of the study show that... (40)
- The study was conducted in a... (45)
- The results of the study show that... (50)
- The study was conducted in a... (55)
- The results of the study show that... (60)
- The study was conducted in a... (65)
- The results of the study show that... (70)
- The study was conducted in a... (75)
- The results of the study show that... (80)
- The study was conducted in a... (85)
- The results of the study show that... (90)
- The study was conducted in a... (95)
- The results of the study show that... (100)

## VIII. Management Evaluation and Revision

With the writing of this RMP, the proposed projects are realistic, practical and economically desirable. However, five to ten years into the future, they may be unnecessary or obsolete. Provisions to evaluate and modify the RMP content and objectives are addressed.

Through the examination of sale records, direct on-the-ground observation, and periodic inventories, modifications in the management plan can be made. Periodic examination of forest management activities by the various resource specialists will aid in coordination of future activity plans.

Upon completion of the RMP in 1983 and the subsequent 15, major revisions in the forest management plan may occur. To aid in analyzing the forest resource, a major re-adjustment of the extensive forest inventory is also scheduled for 1983.

The five and ten year plan should be readjusted annually to coincide with other forest activity program adjustments on RMP revisions.



## VIII. Management Evaluation and Revision

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With the writing of this FMP, the proposed projects are realistic, practical and economically desirable. However, five to ten years into the future, they may be unnecessary or obsolete. Provisions to evaluate and modify the FMP content and objectives are addressed.

through the examination of site records, direct on-the-ground observation, and periodic inventories, modifications in the management plan can be made. Periodic examination of forest management activities by the various resource specialists will aid in coordination of future activities.

Upon completion of the FMP in 1985 and one subsequent 10-year revision in the forest management plan may occur. In aid in analyzing the forest resource, a forest condition report the extensive forest inventory is also scheduled for 1985.

The five and ten year plans should be re-evaluated annually in contact with other forest activity program adjustments on the revision.



### 13. Public Affairs

This plan should be presented to the public, and other governmental agencies after House approval. A copy has been sent to the North Forest for information and coordination.

The Steamboat Springs Colorado State Forest Office should receive a copy for their information. Various county and state departments should receive copies for information and review. These could include the county commissioner, planner, highway department, and wildlife conservation officer.

Informal comments from these agencies can be incorporated into the plan. The plan should be presented to local area residents to include them in the process and to head off any misunderstandings that would retard cooperation between BLM and local residents. There would be information meetings aimed at giving the plan integrity with the public.



## IX. Public Affairs

This plan should be presented to the public, and other governmental agencies after inhouse approval. A copy has been sent to the Routt Forest for information and coordination.

The Steamboat Springs Colorado State Forest Office should receive a copy for their information. Various county and state departments should receive copies for information and review. These could include the county commissioners, planner, highway department, and wildlife conservation officer.

Informal comments from these agencies can be incorporated into the plan. The plan should be presented to local area residents to include them in the process and to head off any misunderstandings that would retard cooperation between BLM and local residents. These would be information meetings aimed at giving the plan integrity with the public.

This plan should be presented to the public, and other governmental agencies after various approvals. A copy has been sent to the public forest for information and coordination.

The standard design Colorado State Forest Office should receive a copy for their information. Various county and state departments should receive copies for information and review. These could include the county commissioners, planning, highway department, and wildlife conservation officer.

Informal comments from these agencies can be incorporated into the plan. The plan should be presented to local area residents to include them in the process and to head off any misunderstandings that would retard cooperation between BEM and local residents. These would be informal discussions about the plan intended to give the public

ALLOWABLE CUT PLAN

Grand Junction portion of the Glenwood Springs Inventory Unit.

This plan deals with the steps involved in evaluation of alternative levels of timber production and selection of a level of cut.

The figures for evaluation were extracted from the 1977 Forest Inventory data. The inventory unit includes 171,157 acres in the Craig and Grand Junction Districts. This area represents the Sustained Yield Unit (SYU). (See Manual 5240 for definition of Sustained Yield Unit - S.Y.U.)

The allowable cut for this unit has been allocated between the Craig and Grand Junction Districts to facilitate administrative requirements. The cut will be adjusted between the administrative units to reflect a S.Y.U. program for the total area.

The allowable cut reflects only those lands that have been identified as capable of continuously producing timber under economically, environmentally sound practices. Forested lands to be managed for aesthetics, recreation, watershed, and wildlife to the exclusion of timber cutting are also excluded from the allowable cut calculations.

The allowable cut figure reflects the effects of multiple use management on those lands available for timber production.

The following table shows acreages affected or deleted from the allowable cut due to multiple use considerations.



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The following table shows acreages affected or deleted from the allowable cut due to multiple use considerations.





IIC. FOREST LANDS CONSTRAINED BY NON-TIMBER USES

Multiple Use Factor:

<u>Types of Restrictions</u>	<u>PFL (Acres)</u>		<u>% Restriction</u>
	<u>S.Y.U.</u>	<u>G. Junction</u>	
Wildlife (Total Restriction)			
Wildlife (Partial Restriction) * Cutting practice restriction only			
Streamside (Total)	5,048	2,551	100
Streamside (Partial)			
Watershed (Total)	2,400	0	100
Watershed (Partial)			
Scenic Corridors (Total)			
Scenic Corridors (Partial)			
Recreation (Total)			
Recreation (Partial)			
Topographic (Total)	61,215	31,981	100
Topographic (Partial)			
Rights-of-ways (Total)			
Rights-of-ways (Partial)			
Research, Natural (Total)	5,039	1,288	100
Research, Natural (Partial)			
Other (Total) Aspen-Alpine fir Forest Type	18,175	20,538	100
Other (Partial) Silvicultural	5,019	0	100
Total (Total)	<u>112,014</u>	<u>56,358</u>	
Total (Partial)			

Wildlife, scenic corridors and recreation partial restrictions show up  
 silvicultural restriction that satisfies these multiple uses by  
 applying the cutting practices.

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Eighteen alternatives were considered in evaluating the allowable cut. The final alternative selected reflects a level of intensive management as well as the multiple use, economic, and environmental factors.

In discussing the intensive management practices, it is necessary to know how they were fit into the forest inventory data.

In order to computerize the forest inventory and also have a program giving output relative to the planning system, it was necessary to insert the intensive management assumptions into the program prior to any output.

Assumptions were made in regard to management decisions that would normally come out of the planning process, but since the planning was not completed subjective decisions were made. In addition to the multiple use restrictions already mentioned a level of intensive management was assumed using the inventory data and the plots were then classified and plugged into the computer program.

The preliminary steps for the plot classification of the productive forest plots in the Extensive Forest Inventory 1973 started with basic data accumulation. The plot sheets from the 1973 Glenwood Springs Extensive Forest Inventory were gathered along with the Location Observation Worksheets. Also included were the aerial photos used to locate the field plots and all of the maps that were used in the Denver Service Center showing all of the restrictions, planning units, ownership, and the photo points for the photo portion of the inventory. The Summary Tables 1 through 5 from the inventory field data were used. The tables



most used were Table 3, which lists the plot summary, stand density, and stocking by specie; Table 4, which lists volume per acre by diameter class; and Table 5, which lists stocking and volume per acre by age classes. An extensive review of the previous plot classification submissions was then performed. These were sent to the Denver Service Center for their preliminary allowable cut runs.

The attached K-2 alternative is the allowable cut run finally selected and reflects the intensive management level shown on the following page.

most used were Table 2, which lists the pilot numbers, stand hours, and

allocation by species; Table 3, which lists volume per acre by diameter

class; and Table 4, which lists diameter and volume per acre by age class.

An extensive review of the previous pilot classification studies was

then performed. Data were sent to the Forest Service Center for their

permanent, accessible data base.

The attached 3-2 alternative is the alternative that was finally selected

and reflects the extensive management level shown on the attached maps.

ALLOWABLE CUT - INTENSIVE MANAGEMENT PRACTICES

<u>INTENSIVE MANAGEMENT PRACTICE</u>	<u>ACRES TREATED</u>		
	<u>Grand Junction</u>	<u>Craig</u>	<u>S.Y.U.</u>
Pre-Commercial thin only @ age 20	20 ac. / decade	+ 42 ac.	= 62 ac.
Pre-Commercial thin @ age 20 followed by commercial thin at age 80	310 ac. / decade	+ 619 ac.	= 929 ac.
Commercial thin Clear Cut acres @ age 40	500 ac. / decade	+ 788 ac.	= 1288 ac.
Commercial thin Clear Cut acres @ age 80	450 ac. / decade	+ 795 ac.	= 1245 ac.
Commercial thin Partial Cut acres @ age 80	500 ac. / decade	+ 795 ac.	= 1295 ac.
Total	1,780 ac. / decade	+ 3,039 ac.	= 4,819 ac.

ANNUAL REPORT - INVESTMENT MANAGEMENT SERVICES

<u>AGRICULTURE</u>		<u>INTEREST</u>
<u>Acres</u>	<u>Value</u>	
10 ac. / decade + 43 ac. = 53 ac.	53 ac.	Pre-Commercial with only 8 ac. 10
115 ac. / decade + 610 ac. = 725 ac.	725 ac.	Pre-Commercial with 5 ac. 10 followed by commercial with at age 20
200 ac. / decade + 300 ac. = 500 ac.	500 ac.	Commercial with clear cut series 4 age 10
400 ac. / decade + 325 ac. = 725 ac.	725 ac.	Commercial with clear cut series 6 age 20
500 ac. / decade + 300 ac. = 800 ac.	800 ac.	Commercial with clear cut series age 30
<u>1,700 ac. / decade + 2,025 ac. = 3,725 ac.</u>		<u>Total</u>



DECADE VOLUME - SCRIPMER LOG RULE

ACRES

Grand Junction	19 MMb.f.	18,926
Craig	51 MMb.f.	40,217
Sustained Yield Unit	70 MMb.f.	59,143

	<u>Sustained Yield Unit</u>	<u>Grand Junction</u>
Acres excluded for multiple use considerations -	112,013	56,358
Total acres inventoried -	171,156	75,408
Base acres for Allowable Cut Plan -	59,143	19,050

DETAILED STATEMENT OF WORK

ACQUISITION

10,000	10,000.00	Grand Total
40,217	40,217.00	Cost
50,217	50,217.00	Estimated Value

Grand Total	10,000.00	Acres excluded for multiple use considerations - 11,000
50,217	50,217.00	Total acres inventoried -
10,000	10,000.00	Acres reserved for Alternative Cost Plan -

GLENWOOD SPRINGS  
Public Domain Forest Inventory  
Unit 06

Simulated Allowable Cut Model  
Alternative: K-2 - *Selected Alternative*

SIMIX Identification.

Batch 676 ; Master File 2 ; Columns 8, 9, 10  
Tape 7110

Area Included in Forest Simulation Model

The Glenwood Springs Inventory Unit consists of the former Glenwood Springs District, and the Craig and Grand Junction Districts. District boundaries have been changed since the inventory design was developed. Field plot locations have been reclassified.

This alternative includes the entire inventory unit.

Timber Management Regimes

	CC	PCO	PC1	PC2	Total
Acres	56,532	15,029	3,796	5,786	59,143
S.I.	42.58	44.33	35.00	35.33	42.08
# Plots	29	12	3	3	47

Sustained Yield Allowable Cut Results

	Million Bd. Ft.
International 1/3" Log Rule	<u>81.094 per decade</u>
Scribner Log Rule	<u>67.487      85.9</u>

Area Excluded from this Allowable Cut Alternative.

All multiple use restrictions are applied to forest lands. All slopes 40% and steeper are restricted from harvesting. These restrictions cause 65.4% of the commercial forest acreage to be taken out of the productive timber producing base acreage.

Administrative and Financial Statements for 1954

Report of the Board of Directors  
for the year ended December 31, 1954

The following is a summary of the financial statements for the year ended December 31, 1954. The balance sheet shows a total of \$1,000,000. The income statement shows a net income of \$100,000. The cash flow statement shows a net increase in cash of \$50,000.

This statement includes the following information:

Financial Statement Summary					
Item	1954	1953	1952	1951	1950
Assets	1,000,000	950,000	900,000	850,000	800,000
Liabilities	500,000	450,000	400,000	350,000	300,000
Equity	500,000	500,000	500,000	500,000	500,000
Income	100,000	90,000	80,000	70,000	60,000
Expenses	900,000	860,000	820,000	780,000	740,000
Net Change	50,000	40,000	30,000	20,000	10,000

Statement of Financial Position for January

Assets: Cash, Accounts Receivable, Inventory, Property, Plant, and Equipment, Other Assets.  
Liabilities: Accounts Payable, Notes Payable, Other Liabilities.  
Equity: Common Stock, Retained Earnings, Other Equity.

Income Statement for the Year Ended December 31, 1954

Revenue: Sales, Other Revenue.  
Expenses: Cost of Goods Sold, Selling Expenses, Administrative Expenses, Depreciation, Interest, Taxes, Other Expenses.  
Net Income: \$100,000

Timber Production i.e., harvest yields are reduced because of multiple use restrictions applied to acreages within the inventory unit.

Master File 2 Col. 8, 9, 10

<u>Code</u>	<u>Title</u>	<u>Plots</u>	<u>Acreage</u>	<u>Restriction %</u>
00	No Restrictions	47	59,143.165	None
610	Spruce Fir Forest Type	12	15,117.542	100%
620	(Streamside Protection Corridor)	4	5,048.216	100%
630	Watershed Protection	2	2,399.815	100%
660	Topographic 40% + Slopes	48	61,215.043	100%
670	Aspen Forest Type	14	18,174.650	100%
680	(Research Natural Areas)	4	5,039.235	100%
690	Silvicultural	4	5,019.193	100%
S. Totals		88	112,013.694	100%

Total for Inventory Unit

135 plots 171,156.859 acres

*Handwritten notes:*  
 75,40% = 66. ...  
 50,30% ...  
 14,20%

Table 1: Summary of the data for the different categories. The total number of items is 100.

Category	Item	Value	Percentage
Category 1	Item 1	10	10%
	Item 2	20	20%
Category 2	Item 3	30	30%
	Item 4	40	40%
Category 3	Item 5	50	50%
	Item 6	60	60%
Category 4	Item 7	70	70%
	Item 8	80	80%
Category 5	Item 9	90	90%
	Item 10	100	100%

Total for all categories: 100 items.

100 items in total.

Management Options - Volume Indicators:

Combine partial cut and clear cut harvest systems. Harvest mature PC stands with a three stage 10 year interval removal procedure.

Schedule all existing 10 and 20 year old stands and all future stands for either (1) non-treatment; (2) precommercial thinning only; (3) pre-commercial thinning followed by commercial thinnings - for the next 40 decades.

Yield Equations for Non-Treated Stands (Present).

Volume per acre of existing stands

$$\text{CC Vol/Acre} = -229.88 + 154.79478(\text{Age}) - 0.47431(\text{Age}^2)$$

$$\text{PCO} \quad " \quad = +1487.327 + 113.56318(\text{Age}) - 0.089974(\text{Age}^2)$$

$$\text{PC1} \quad " \quad = 55\% \text{ of revised PCO}$$

$$\text{PC2} \quad " \quad = 27\% \text{ of revised PCO}$$

Future Yield Equations for Non-Treated Stands

Present yield curves reach future yield curve at the end of 10 decades.

CC Stands (Vol/Acre)

$$0 - 100 \text{ years} = -3344.03251 + 161.44084(\text{Age}) - 0.35671(\text{Age}^2)$$

$$100+ \text{ years} = -5895.49109 + 198.53654(\text{Age}) - 0.47604(\text{Age}^2)$$

PCO Stands (Vol/Acre)

$$0 - 100 \text{ years} = -3265.12920 + 190.80668(\text{Age}) - 0.479148(\text{Age}^2)$$

$$100+ \text{ years} = -6213.09031 + 233.74873(\text{Age}) - 0.66016(\text{Age}^2)$$

Mr. J. Edgar Hoover - Director, Federal Bureau of Investigation  
Washington, D. C.

Dear Mr. Hoover:

I am writing to you regarding the information that was provided to me by your office on [illegible] regarding the activities of [illegible] in the [illegible] area.

The information that was provided to me by your office is being reviewed by the [illegible] and the [illegible] and the [illegible] will be [illegible] to you as soon as possible.

I am sure that you will find this information to be of interest and I am sure that you will be able to provide me with the information that I need.

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Intensive Management:

A summary of individual plot classification results showed the following:

<u>CC Regime</u>	<u>Present Stands</u>	<u>Future Int. Mgmt.</u>	<u>Future Harvest</u>	<u># Plots</u>	<u>% Acreage</u>
	No treatment	20-50-80	CC	21	72
	Thin @ 80	20-50-80	CC	4	14
	None	None	PC	3	10
	Thin @ 40 & 80	20-80	PC	1	4

PC Regime

No treatment	None	PC	4	22
"	20-80	PC	11	61
Thin @ 80	20-80	PC	3	17

The printout of existing immature stand data show the planned intensive management action.

First Decade

<u>Regime</u>	<u>Age Class</u>	<u>% Acres</u>	<u>Vol/Acres</u>	<u>Acres Thinned</u>	<u>MBF Vol. Removed</u>
CC	40	100	2740	1288	3,529
CC	80	14	2236	1245	2,784
PCO	80	50	2236	1295	2,896
				<u>3028</u>	<u>9,209</u>
<u>Second Decade</u>					
CC	80	100	2651	3825	10,140
PCO	None				
<u>Third Decade</u>					
CC	None				
PCO	70	100	1865	1283	2,402
<u>Fourth Decade</u>					
CC	70	100	2297	1288	2,950
PCO	50 (PCT & CT)		2078	929	1,950
					<u>2,899</u>

The purpose of this report is to analyze the current inventory levels and provide recommendations for improvement.

Item ID	Description	Current Stock	Reorder Point	Lead Time (Days)	Unit Price
001	Widget A	150	100	5	\$1.50
002	Widget B	200	150	3	\$2.00
003	Widget C	80	50	7	\$3.00
004	Widget D	300	200	2	\$1.00
005	Widget E	120	80	4	\$2.50

The current inventory levels are generally low, with several items reaching their reorder points. It is recommended to increase stock levels for items 001, 003, and 005 to prevent stockouts.

Item ID	Description	Current Stock	Reorder Point	Lead Time (Days)	Unit Price
006	Widget F	180	120	6	\$1.80
007	Widget G	250	180	4	\$2.20
008	Widget H	90	60	8	\$3.50
009	Widget I	350	250	1	\$1.20
010	Widget J	110	70	3	\$2.80

Stenwood Springs, Alternative: K-2

Precommercial Thin Only: PCT only 5% of the clearcut acreage and also 5% of the PC acreage as stands enter the 20 year age class. There are the stands that will not be thinned again. Harvest volumes are higher than non-treated stands but less than stands that have been both pre-commercially and commercially thinned.

First Decade

<u>Regime</u>	<u>Acres</u>	<u>Total</u>
CC	None	
PCO	62	62

Second Decade

CC	61	
PCO	62	123

Third Decade

CC	108	
PCO	58	166

Fourth Decade

CC	288	
PCO	151	439

Precommercial Thin Followed by Commercial Thinnings as Stands Reach Merchantable Size: Thin 85% of the CC acreage and 75% of the acreage of PC stands as they enter the 20 year age class. Manage these stands on a 20-50-80 year thinning prescription. Alternative K-2 gives the following projected job level.

First Decade

<u>Regime</u>	<u>Acres Thinned</u>	<u>Age Thinned</u>	<u>Volume per Acre</u>	<u>Total Vol. MBF</u>
CC	None			
PCO	929	20	0	0

Second Decade

CC	1032	20	0	0
PCO	929	20		

Third Decade

CC	1834	20		
PCO	863	20		

Fourth Decade

CC	4903	20		
PCO	2258	20		
PCO	929	50	2078	1,930.0

The following information is for your information only. It is not intended to be used as a substitute for professional advice. The information is based on the information provided to us and is subject to change without notice.

Item	Quantity	Unit Price	Total
Item 1	10	100	1000
Item 2	20	50	1000
Item 3	30	33.33	1000
Item 4	40	25	1000
Item 5	50	20	1000
Item 6	60	16.67	1000
Item 7	70	14.29	1000
Item 8	80	12.5	1000
Item 9	90	11.11	1000
Item 10	100	10	1000
Item 11	110	9.09	1000
Item 12	120	8.33	1000
Item 13	130	7.69	1000
Item 14	140	7.14	1000
Item 15	150	6.67	1000
Item 16	160	6.25	1000
Item 17	170	5.88	1000
Item 18	180	5.56	1000
Item 19	190	5.26	1000
Item 20	200	5	1000
Item 21	210	4.76	1000
Item 22	220	4.55	1000
Item 23	230	4.35	1000
Item 24	240	4.17	1000
Item 25	250	4	1000
Item 26	260	3.85	1000
Item 27	270	3.7	1000
Item 28	280	3.57	1000
Item 29	290	3.45	1000
Item 30	300	3.33	1000
Item 31	310	3.23	1000
Item 32	320	3.13	1000
Item 33	330	3.03	1000
Item 34	340	2.94	1000
Item 35	350	2.86	1000
Item 36	360	2.78	1000
Item 37	370	2.71	1000
Item 38	380	2.63	1000
Item 39	390	2.56	1000
Item 40	400	2.5	1000
Item 41	410	2.44	1000
Item 42	420	2.38	1000
Item 43	430	2.33	1000
Item 44	440	2.27	1000
Item 45	450	2.22	1000
Item 46	460	2.17	1000
Item 47	470	2.13	1000
Item 48	480	2.08	1000
Item 49	490	2.04	1000
Item 50	500	2	1000

Acreage Deletion - Accretion

Delete -37 acres per decade from the clearcut stands, and -25 acres per decade from the partial cut stands for the first 5 decades to account for timberlands taken out of production due to the construction of permanent roads, etc.

Reforestation Lag

Allow +8 years for CC stands and -3 years for partial cut stands (from data of final harvest) to obtain full stocking of acceptable tree species.

Minimum Cutting Age

Do not allow the program to select stands under the age of 90 for initial harvest cutting.

Initial Entry Period

During the first decade only, apply the principal cut to CC and PCO (virgin) stands. Note that some cutting may be programmed in PC1 and PC2 stands. Allow the final harvesting priority system to control future cuttings during subsequent decades.

Mortality Salvage

No mortality-salvage program is planned. If catastrophic timber losses, equivalent to one-half years annual cut, occur, the allowable cut may be recomputed.

Flow Type

Program this initial run to compute the cut on a fixed-even-flow, sustained yield level basis. Due to a general uneven distribution of acreages by age classes and conditions, a modulation cut may be more appropriate under some conditions.

As a result of the investigation, it was determined that the information provided by the informant was reliable and accurate. The informant has provided reliable information in the past and is being provided to you for your information.

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### Percent of Total Final Harvest

Program this model to begin harvesting the oldest age class first. Other simulated model runs may be run with provisions for harvesting a percentage of younger age classes along with harvesting the oldest age classes.

### Timber Utilization Standards:

#### A. Present Utilization Standards

Apply to First Decade Only; Use Scribner Log Rule

Species: 103 - Lodgepole Pine  
Min. 6.0" DBH to a 5.0" Fixed Top

Species: 019 - Subalpine Fir  
093 - Engelmann Spruce  
Min. 8.0" DBH to a 5.0" Fixed Top

Species: 202 - Douglas Fir  
Min. 10.0" DBH to a 5.0" Fixed Top

Species: 015 - White Fir  
122 - Ponderosa Pine  
746 - Aspen  
Min. 12.0" DBH to a 5.0" Fixed Top

#### Non-commercial Species:

060 - Juniper  
102 - Bristlecone Pine  
106 - Pinon Pine  
113 - Limber Pine  
747 - Cottonwood

#### B. Future Utilization Standards

Use Int. 1/8" Fixed Top Log Rule

Species: 093 & 103  
Min. 6.0" DBH to a 5.0" Fixed Top

Species: 015, 019, 122, 202, 746  
Min. 8.0" DBH to a 5.0" Fixed Top

Non-commercial species: 060, 102, 106, 113, 747





Testing

Test 5 trial runs. Print the 5th test. Run the model for 30 decades per test.

The initial bounds for trial cuts were set at 60 and 85 million board feet per decade.

The trial run results were as follows:

<u>Run #</u>	<u>Projected Cut</u> 60 to 85	<u>Analysis</u>
1	72.50	Too low
2	78.75	Too low
3	81.875	Too high
4	80.313	Too low
5	81.094	Print

First Decade Management Harvest Plan  
Final Harvest for Decade

<u>Regime</u>	<u>Age Class</u>	<u>Acres</u>	<u>Million Board Feet</u>		
			<u>Int. 1/8"</u>	<u>Scribner</u>	
CC	110	1383	15.770	13.425	.8543
	120	2547	30.179	23.737	.9315
	170	1259	15.528	13.014	.8722
	250	1239	10.409	8.188	.7231
		6428	71.885	60.475	.8412
PC0	None				
PC1	None				
PC2	None				
		6428	71.885		
P Comm only		62			
P Comm thinning		929			
Comm. thinning		3828	9.209		9.209
Total		11247	81.094		67.657
					.8573

Testing  
 Test 1 actual cost. Price the 7th year. Run the model for 20 the other  
 per test.  
 The initial bounds for trial cuts were set at 50 and 25 million dollars.  
 Look for details.

The trial run results were as follows:

Analysis	Projected Cost (\$ million)	Run #
Too low	22.50	1
Too low	28.75	2
Too high	61.875	3
Too low	80.312	4
Princ	81.004	5

Final Results Management Report Plan  
 Final Results for Results

Results	Age Class	Area	Million Dollars
CC	110	1500	15,750
	120	2575	26,175
	130	4,125	42,825
	140	5,550	57,225
	150	6,975	71,625
Y00	None	None	None
F01	None	None	None
F02	None	None	None
		6450	66,525
		82	850
		2822	29,031
Total		11047	113,951

Second Decade Management Harvest Plan  
Final Harvest For Decade

Regime	Age Class	Acres	Million Board Feet	
			Int. 1/8"	Scribner
CC	100	40	.448	
	120	2442	29.378	
		<u>2482</u>	<u>29.826</u>	
PCO	100	26	.130	
	110	3751	20.835	
PC1	90	1259	3.472	
	120	1288	4.902	
PC2	90	1249	3.321	
	100	1249	3.740	
	120	1288	4.727	
		<u>12592</u>	<u>70.953</u>	
P Comm only		61		
P Comm thinning		929		
Comm. thinning		3825	10.140	
Total		<u>17407</u>	<u>81.093</u>	

Third Decade Management Harvest Plan  
Final Harvest for Decade

Regime	Age Class	Acres	Million Board Feet	
			Int. 1/8"	Scribner
CC	110	3693	43.067	
PCO	110	2339	12.774	
PC1	110	26	0.088	
	120	3751	14.002	
PC2	100	1259	3.711	
	130	1288	5.048	
		<u>12356</u>	<u>78.690</u>	
PCO Comm thin		1288	2.402	
		<u>13644</u>	<u>81.092</u>	

Second Basic Management Report Form  
Final Report for Period

Region	Net Sales	Net Profit	Net Profit %
CC	400	40	10.0%
FC0	150	24.75	16.5%
FC1	100	19.80	19.8%
FC2	100	20	20.0%
FC3	100	20.85	20.85%
FC4	100	7.45	7.45%
FC5	100	4.00	4.00%
FC6	100	2.50	2.50%
FC7	100	2.70	2.70%
FC8	100	4.75	4.75%
FC9	100	20.93	20.93%
FC10	100	10.14	10.14%
FC11	100	21.07	21.07%

Third Basic Management Report Form  
Final Report for Period

Region	Net Sales	Net Profit	Net Profit %
CC	110	43.08	39.16%
FC0	110	17.74	16.12%
FC1	110	11.08	10.07%
FC2	110	18.00	16.36%
FC3	100	2.71	2.71%
FC4	100	2.00	2.00%
FC5	100	2.00	2.00%
FC6	100	2.00	2.00%
FC7	100	2.00	2.00%
FC8	100	2.00	2.00%
FC9	100	2.00	2.00%
FC10	100	2.00	2.00%
FC11	100	2.00	2.00%

Analysis: As noted in the third decade all stands over 100 years of age have been cleaned up. During the 10th decade, initial entries are being made in 100 and 110 year old stands. Growing stock is then being built up faster than harvesting is deleting volume so that by the 20th decade the 130 year age class timber remains uncut. This trend continues at a very slow rate, and by the 40th decade final harvesting is being done in the 150 to 180 year old stands.

Analysis: As noted in the third paragraph, trends over 100 years of age have been observed in the third paragraph, which notes that trends are being made in the 100 and 100 year old records. The trend shows a clear being built up faster than expected in the 100 year old records. This trend continues at a very slow rate and is the 100 year old records. The 100 year old records.

United States Department of Agriculture  
Forest Service  
Mount National Forest  
P.O. Box 1198  
Steamboat Springs, CO 80427

2430  
May 7, 1988



Mr. David A. Jones, District Manager  
Bureau of Land Management  
Grand Junction District  
104 Horizon Drive  
Grand Junction, CO 81501

Dear Mr. Jones:

Enclosed is a signed copy of the Interagency Agreement for the Little Whiskey Creek - Black Mountain Interagency Timber Sale Exhibit A, which describes the lands involved, and was attached to the signed draft you submitted to us. Please send us a copy of Exhibit A so we can complete our copy of the agreement.

The cooperation of your staff in completing this agreement is greatly appreciated. The pace of completing the Interagency Assessment should go smoothly as our April 7, 1988 letter to that document indicated that it would require further review.

If you have any questions or concerns regarding this matter, please contact Miller T. Bots of my staff.

Sincerely,

JACK WEISLING  
Forest Supervisor

Enclosure

RECEIVED  
MAY 9 1988  
BUREAU OF LAND MANAGEMENT  
GRAND JUNCTION





Appendix B

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
Routt National Forest  
P.O. Box 1198  
Steamboat Springs, CO 80477

2430  
May 2, 1980



Mr. David A. Jones, District Manager  
Bureau of Land Management  
Grand Junction District  
764 Horizon Drive  
Grand Junction, CO 81501

Dear Mr. Jones:

Enclosed is a signed copy of the Interagency Agreement for the Little Whiskey Creek - Black Mountain Integrated Timber Sale. Exhibit A, which describes the lands involved, was not attached to the signed draft you submitted to us. Please send us a copy of Exhibit A so we can complete our copy of the Agreement.

The cooperation of your staff in completing this Agreement is greatly appreciated. The phase of completing the Environmental Assessment should go smoothly as our April 4, 1980 review of that document indicated that it would require little change.

If you have any questions or care to discuss the E.A. further, please contact Miller T. Ross of my staff.

Sincerely,

Joe JACK WEISSLING  
Forest Supervisor

Enclosure

RECEIVED  
MAY - 5 1980  
BUREAU OF LAND MGMT.  
GRAND JUNCTION



Interagency Agreement  
Between  
Bureau of Land Management, U.S. Department of Interior  
and  
Forest Service, U.S. Department of Agriculture

This INTERAGENCY AGREEMENT made and entered into by and between the Bureau of Land Management, Grand Junction District Manager; herein referred to as the B.L.M., and the Forest Service, Routt National Forest Supervisor; herein referred to as the F.S., under the provisions of the Act of June 30, 1932 (31 U.S.C. 686).

WITNESSETH:

WHEREAS, the timber on the lands described on the exhibit A attached hereto and made a part hereof is administered either by the B.L.M. or the F.S.; and

WHEREAS, it is desirable to include timber administered by the B.L.M. and timber administered by the F.S. as a portion of a single timber sale to be offered for sale by the F.S. in the fiscal year 1981:

Now, THEREFORE, the two parties hereto agree as follows:

1. The F.S. and B.L.M. will assume individual responsibility for sale layout, road location and volume determination. The said timber shall be offered for sale on the basis of combining both agencies' field work. The F.S. will assume responsibility for all the engineering services for survey, design, estimating, and construction supervision of the system roads to be constructed under this timber sale. If appropriated funds are not adequate to finance construction supervision of B.L.M. roads, the B.L.M. will contribute to this cost, not to exceed \$2000.
2. The F.S. and the B.L.M. shall jointly participate in the development of a logging operations plan.
3. Each agency shall obtain rights-of-way from the other for system roads to be constructed under terms of this timber sale, where said roads are needed for efficient system development. Such rights-of-way and road use license shall be obtained under existing procedures currently in effect between the parties.
4. The purchaser shall be responsible for the maintenance of all roads constructed under the terms of the timber sale contract. The purchaser shall be responsible for construction of all temporary spur roads on B.L.M..

Ministry of Agriculture  
Forest Service, U.S. Department of Agriculture  
Forest of Land Management, U.S. Department of Agriculture

The Department of Agriculture has the honor to acknowledge the receipt of your letter of the 10th day of August, 1914, in relation to the proposed purchase of the land described in the attached plat, and to advise you that the same has been referred to the proper authorities for their consideration.

It is the policy of the Department to acquire lands for national forests and parks, and to dispose of the same in accordance with the public interest. The purchase of the land described in the attached plat is being considered in accordance with this policy.

The Department is authorized to acquire lands for national forests and parks, and to dispose of the same in accordance with the public interest. The purchase of the land described in the attached plat is being considered in accordance with this policy.

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The Department is authorized to acquire lands for national forests and parks, and to dispose of the same in accordance with the public interest. The purchase of the land described in the attached plat is being considered in accordance with this policy.

5. The F.S. shall appraise the entire sale volume and prepare the contract for the entire sale on standard F.S. timber sale contract forms. B.L.M. and the F.S. will jointly review both the appraisal and the contract prior to advertising the sale.

The timber shall be offered for sale on the basis of contract stumpage rate with escalation except for when the sale appraises deficit. A sale that is deficit (indicated stumpage lower than base rates) when appraised at normal profit will be offered on a flat rate basis. To satisfy individual agency accounting requirements, volumes and values of timber administered by F.S. and B.L.M. shall be separately identified by mill yard scaling as stated in paragraph #6. Separate volume identification shall be used for interagency purposes only and shall not appear in the timber sale contracts.

6. Upon completion of bidding the F.S. shall sample log scale the timber from the sale area as it is removed. The F.S. and B.L.M. volume shall be kept separate. The actual scaled volume and the current contract rates shall be used to calculate each agency's share of the total proceeds from the timber sale. The proceeds will be separated on a percentage by species basis, calculated from the sample cruise in the following manner:

EXAMPLE:

Species	LP	DEAD	Sale Total
F.S. Volume M.B.F. (cruise)	500	400	900
B.L.M. Volume M.B.F. (cruise)	500	600	1100
Bid Value per M (dollars)	12	6	
F.S. Share of Bid	6000	2400	8400
B.L.M. Share of Bid	6000	3600	<u>9600</u>
TOTAL			18000
F.S. Share	50%	40%	
B.L.M. Share	50%	60%	

The actual computed percentage will appear in the contract file and made a part of such file upon the sale of the timber.

The 2.5% shall determine the value of the shares and proceeds  
 and shall be subject to the provisions of the 2.5% clause and  
 shall be subject to the 2.5% clause and shall be subject to the  
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Year	Value	Percentage	Amount
1990	1000	2.5%	25
1991	1000	2.5%	25
1992	1000	2.5%	25
1993	1000	2.5%	25
1994	1000	2.5%	25
1995	1000	2.5%	25
1996	1000	2.5%	25
1997	1000	2.5%	25
1998	1000	2.5%	25
1999	1000	2.5%	25
2000	1000	2.5%	25
2001	1000	2.5%	25
2002	1000	2.5%	25
2003	1000	2.5%	25
2004	1000	2.5%	25
2005	1000	2.5%	25
2006	1000	2.5%	25
2007	1000	2.5%	25
2008	1000	2.5%	25
2009	1000	2.5%	25
2010	1000	2.5%	25
2011	1000	2.5%	25
2012	1000	2.5%	25
2013	1000	2.5%	25
2014	1000	2.5%	25
2015	1000	2.5%	25
2016	1000	2.5%	25
2017	1000	2.5%	25
2018	1000	2.5%	25
2019	1000	2.5%	25
2020	1000	2.5%	25
2021	1000	2.5%	25
2022	1000	2.5%	25
2023	1000	2.5%	25
2024	1000	2.5%	25
2025	1000	2.5%	25
2026	1000	2.5%	25
2027	1000	2.5%	25
2028	1000	2.5%	25
2029	1000	2.5%	25
2030	1000	2.5%	25

The 2.5% shall determine the value of the shares and proceeds  
 and shall be subject to the provisions of the 2.5% clause and  
 shall be subject to the 2.5% clause and shall be subject to the  
 provisions of the 2.5% clause and shall be subject to the

7. The F.S. shall advertise and conduct the proposed timber sale offering, and shall award the sale contract to the highest bidder.
8. The F.S. shall administer the timber sale contract, billing the purchaser as necessary and making all collections specified in the contract.
9. Annually the F.S. shall transfer to the B.L.M. its share of receipts, calculated by the scaled volume and current contract rate described in paragraph 6 (above). Quarterly the F.S. shall furnish the B.L.M. with a record of the volume and value of material removed during the quarterly period.
10. The F.S. and B.L.M. shall jointly prepare the slash disposal plan and estimated cost for inclusion in the appraisal. The F.S. and B.L.M. shall each be responsible for slash disposal on their area of responsibility.
11. The contract shall contain provisions for performing erosion control measures on the contract area.
12. Each agency shall plan and execute needed reforestation measures on lands under its administration.
13. B.L.M. will deposit with the F.S. \$13,900 as reimbursement for their share of costs for survey, design and engineering of B.L.M. roads, timber appraisal, timber sale contract preparation and administration and scaling. Not less than 50% of this amount to be paid in FY 1981 and the remainder in FY 1982.

In the event that the purchaser elects to turn the road construction back to the Forest Service, the F.S. will contract for the construction of all roads except roads on B.L.M. The timber sale prospectus will state that only the roads on National Forest land will be eligible for purchaser-elect construction.

Temporary roads which are needed by B.L.M. will be costed against B.L.M. timber. B.L.M. standard clauses for these roads will be inserted into the timber sale contract.

14. B.L.M. will prepare an environmental assessment report. F.S. will review and jointly approve the E.A..
15. This agreement shall remain in full force and effect until all work herein contemplated is completed and all obligations stated herein or in the timber sale contract are satisfied: that is, until the purchaser has been released, all sale proceeds have been distributed, slash plan has been fulfilled and road maintenance and erosion control measures have been completed. If no contract for the sale of timber is entered into, this agreement shall be terminated upon mutual agreement of the parties.

7. The E.S. staff will review the contract to determine whether other staff would be required to implement the contract.
8. The E.S. staff will determine the E.S. staff's role in the contract as necessary and meeting with the E.S. staff to discuss the contract.
9. Meeting with E.S. staff members to discuss the E.S. staff's role in the contract as necessary and meeting with the E.S. staff to discuss the contract.
10. The E.S. staff will determine the E.S. staff's role in the contract as necessary and meeting with the E.S. staff to discuss the contract.
11. The contract staff will determine the E.S. staff's role in the contract as necessary and meeting with the E.S. staff to discuss the contract.
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15. The contract staff will determine the E.S. staff's role in the contract as necessary and meeting with the E.S. staff to discuss the contract.



IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the last date written below.

April 25, 1980  
DATE

David A. Jones  
District Manager  
B.L.M.

May 1, 1980  
DATE

Jack Weiss  
Forest Supervisor  
Routt National Forest

IN WITNESS WHEREOF, the parties hereto have signed this Agreement  
as of the last date written below.

Richard C. Jones  
District Manager  
B.C.M.

April 22 1980  
Date

Jack Wilson  
Forest Supervisor  
Wolf National Forest

April 22 1980  
Date





LINE BENTE

120 L.P.

120 SW

— COMMERCIAL DISTRICT  
 — ROAD USE OF SW  
 — BOUNDARY OF TOWN OF

120 SW

*Appendix 3*

6512.2/5718

NECESSARY WILDLIFE CONSIDERATIONS  
FOR ST. HENRY LRT

INSTRUCTION MEMORANDUM NO. 65-76-254



Appendix "C"

United States Department of the Interior

BUREAU OF LAND MANAGEMENT  
WASHINGTON, D. C. 20250  
MOUNTAIN VIEW BUILDING  
1915 M STREET, N.W.

Instruction Memorandum No. CSO 76-254  
October 2, 1976

To: District Managers  
From: State Director, Bureau  
Subject: Terrestrial Wildlife Considerations

6512.2/5716

TERRESTRIAL WILDLIFE CONSIDERATIONS  
FOREST MANAGEMENT

INSTRUCTION MEMORANDUM NO. CSO 76-254

It is the policy of the Bureau to protect and enhance the quality of the Nation's public lands and resources. This includes the protection of the Nation's biological resources, including the fish and wildlife resources. The Bureau is committed to the protection of the Nation's biological resources, including the fish and wildlife resources. The Bureau is committed to the protection of the Nation's biological resources, including the fish and wildlife resources.

Bureau manual sections providing guidance for wildlife and fisheries management in forestry practices are:

- 1. 1602 and 1603 - Wildlife and Fisheries Management
- 2. 2001 - Environmental Quality and Resource Management
- 3. 4110 - Stream Protection
  - 4111 - Salt Marshes
  - 4112 - Stream Protection
  - 4113 - Stream Management
  - 4114 - Forest Land-Use Activities
- 4. 1700 - Environmental Studies
- 5. 1701 - Use of Air, Land, and Water Resources





Appendix "C"

United States Department of the Interior

Bureau of Land Management  
Washington, D.C. 20250

Instruction Memorandum No. CSO 76-254  
August 1976

To: District Managers  
From: State Director, Colorado

6512.2/5716

TERRESTRIAL WILDLIFE CONSIDERATIONS  
FOREST MANAGEMENT

INSTRUCTION MEMORANDUM NO. CSO 76-254

This instruction memorandum is intended to provide guidance to District Managers and State Foresters in the management of public lands. It is based on the National Forest Management Act (NFMA) and the National Forest Management Plan (NFMP). The purpose of this instruction is to ensure that the needs of terrestrial wildlife are considered in all forest management activities. This includes the selection of management alternatives, the design of management plans, and the implementation of those plans. The instruction covers a wide range of topics, including habitat management, timber harvest, and fire management. It is intended to be used as a guide for all forest management activities on public lands in Colorado.

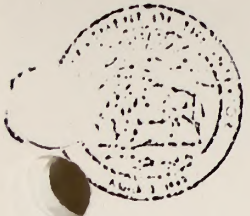
Some special sections provide guidance for wildlife considerations in forestry practices such as:

- 1. 1807 and 1807 - Basic and Supplemental Guidelines
- 2. 2031 - Environmental Quality and National Forest Management Act
- 3. 2140 - Stream Protection
  - 2141 - Self-Design
  - 2142 - Stream Protection
  - 2143 - Stream Management
  - 2144 - Stream Related Contract Management
- 4. 2145 - Environmental Quality
- 5. 2146 - Self-Design for Wildlife Management and Stream Management

Page 1 of 1

PERMIT TO OCCUPY  
FOOT WALL

INSPECTOR GENERAL, CO. 10-101



# United States Department of the Interior

IN REPLY REFER TO

CO-933  
6512.2  
5716

BUREAU OF LAND MANAGEMENT  
COLORADO STATE OFFICE  
ROOM 700, COLORADO STATE BANK BUILDING  
1600 BROADWAY  
DENVER, COLORADO 80202

DEC 3 1976

Instruction Memorandum No. CSO 76-254  
Expires 6/30/77

To: District Managers  
From: State Director, Colorado  
Subject: Terrestrial Wildlife Considerations - Forest Management

It is the purpose of this Instruction Memorandum in notebook form to summarize guidance information relating to terrestrial wildlife habitat considerations in the forest management program. Aquatic species/ fisheries considerations will be covered under separate guidance, to be issued in the near future. The thrust is informational in nature rather than an "only-way-to-do-it" approach. The attached notebook information can be a vital and time-saving data source for all aspects of forest management practices, including the URA/MFP, EAR, Forest Management Plan and individual timber sale contracts. It should be emphasized that wildlife considerations must be approached on an area-by-area basis with close coordination between the District and local Colorado Division of Wildlife field personnel.

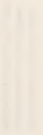
Bureau manual sections providing guidance for wildlife considerations in forestry practices are:

1. 1602 and 1603 - Basic and Supplemental Guidance;
2. 2031 - Environmental Quality and National Beauty;
3. 5110 - Stream Protection;  
5421 - Sale Layout;  
6512 - Stream Protection;  
6762 - Stream Management;  
7420 - Forest Watershed Contract Stipulations;
4. 1790 - Environmental Quality;
5. 1608 - Step 1, MFP, for wildlife recommendations related to forest management.

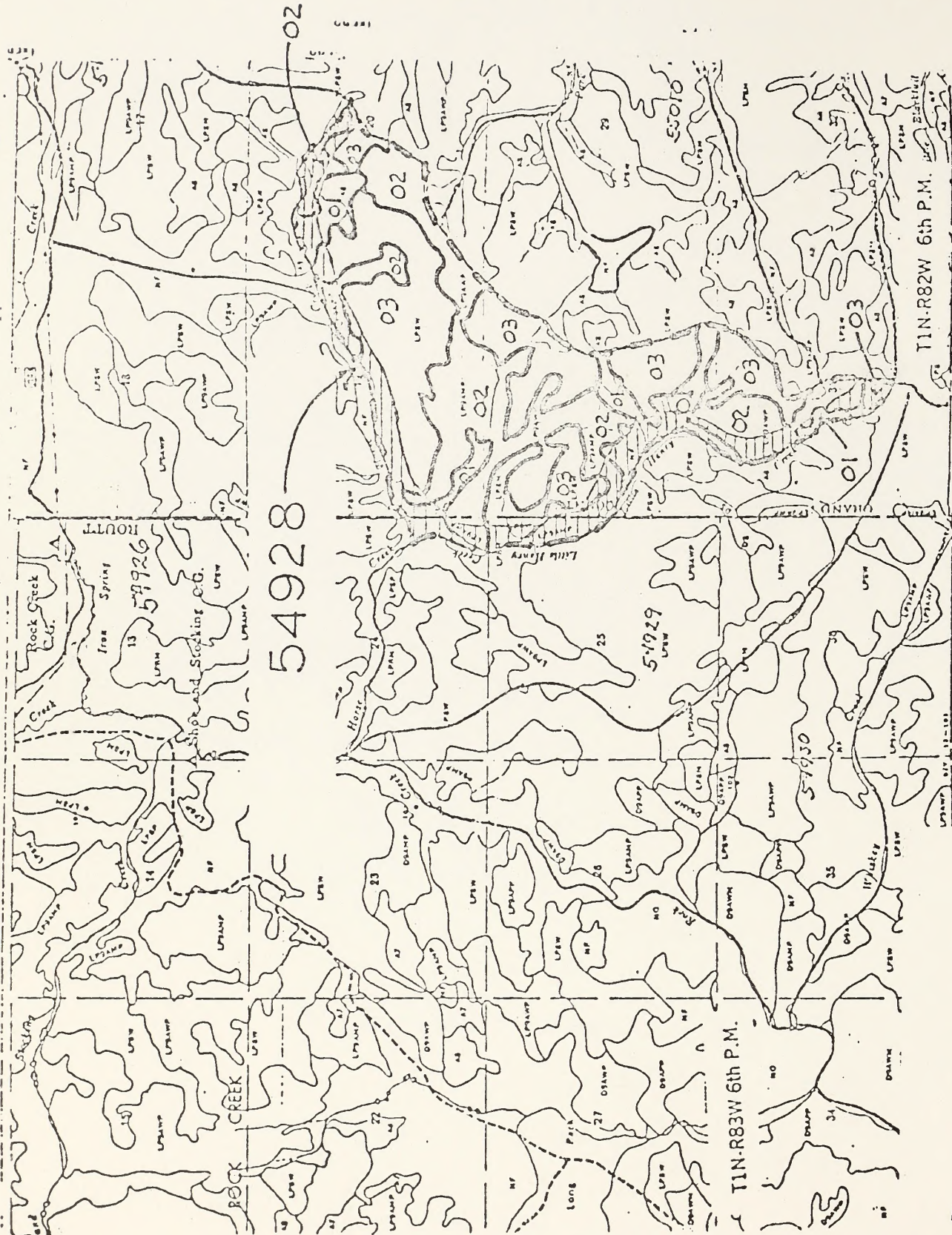




MS



24058



W.I.Z.



T1N-R83W 6th P.M.

T1N-R82W 6th P.M.

54928

5-1929

5-1930

1982

1930

1958

1960

PROPOSED BOARD  
TITLE WHISKEY SALE









Compartment # 5112 Stand # 02

Type	1444
Acres	485
Stand Size	Pole/for
Stand Origin	-
Type of Survey	-
Land Use Class	-
Component	Stand
Slope Position	Ridge Top
Elevation	-
Slope	20-35
Aspect	N
Distribution	-
Structure	-
Site Index	35
Windthrow Hazard	-
Softwood/Acre	7918
Volume	Basal Area 172
Growth(cub.net)	DBH = (Ave.) 7.7
S/5 Stems	285
Pole Stems	205
ST Stems	309
Hardwood/Acre	-
Volume	Basal Area
Growth(cub.net)	DBH (Ave.)
S/5 Stems	-
Pole Stems	-
ST Stems	-

Stand Description & History

Pine → Fire → Aspen → Pine  
 This area has generally smaller pine and fewer patches of old growth and is located mostly on or near ridge tops.  
 1) Widely separated patches of old growth ≈ 90 ac.  
 2) Extensive pole patches ≈ 290 ac.  
 3) Limited combined young and old growth ≈ 60 ac.  
 4) Small patches of fir in Nonforest 15 ac.

Detailed Prescription, T.S.I. Needs

TM Plan - RAM Class	
RAM Prescription	
RAM Yield	
Activity (from TM Plan EIS)	
Schedule - RAM Decade:	
Prescription	Open for ITM - Shallow
MUM -- Coordination	
Constraints	
Selected Activity - Method	
Constraints	

4) Separate Components:  
 Old Growth - patch cut to remove overmature trees - stimulate reproduction.  
 2) Poles - no treatment at this time, possible pole sales later.  
 3) Mixed Stands - remove overmature trees and younger trees of poor form and vigor.  
 4) Aspen - no treatment at this time.  
 Apr. 30 ac. of Non forest old growth.

Acres	355	130	485
# Stems (Poles, ST)	713	60	773
Basal Area / ac	112	60	172
MBF / ac	441.7	3500	7917
Cunits	-	-	-
Dead MBF (Sound)	-	-	-
LEAVE	355	130	485
HARVEST	-	-	-
TOTAL	355	130	485

Total Cut Vol. 455,000 AF (Softw.)

Cut Vol. (HARV.)

DATE	TIME	LOCATION	ACTIVITY
10/15	10:00	...	...
10/16	10:00	...	...
10/17	10:00	...	...
10/18	10:00	...	...
10/19	10:00	...	...

The following information was obtained from the field notes of the project. The data were collected during the period of October 15, 1972, to October 19, 1972. The data were collected from the following locations: ...

DATE	TIME	LOCATION	ACTIVITY
10/15	10:00	...	...
10/16	10:00	...	...
10/17	10:00	...	...
10/18	10:00	...	...
10/19	10:00	...	...

DATE	TIME	LOCATION	ACTIVITY
10/15	10:00	...	...
10/16	10:00	...	...
10/17	10:00	...	...
10/18	10:00	...	...
10/19	10:00	...	...

The following information was obtained from the field notes of the project. The data were collected during the period of October 15, 1972, to October 19, 1972. The data were collected from the following locations: ...

Compartment # 5119 28 Stand # 02

Type	Acres	384
Stand Size	Standard	
Stand Origin		
Type of Survey	Land Use Class	
Component	Elevation	
Slope Position	Aspect	W
Slope %	Structure	
Site Index	Survey Yield	33
Windthrow Hazard	Soil Erosion	
Volume	Softwood/Acre	10784
Growth (Cub. Net)	Basal Area	157
S/S Stems	DAH = (Ave.)	9.1
Pole Stems		
S/S Stems		216
Volume	Hardwood/Acre	
Growth (Cub. Net)	Basal Area	
S/S Stems	DAH (Ave.)	
Pole Stems		
S/S Stems		

Stand Description & History  
 Line → Fir → Aspen → Pine  
 Area now consist of large patches of poles (≈ 95 ac.), scattered pockets of old growth that survived the fire (≈ 60 ac.), extensive old and young growth combined (≈ 130 ac.), and various small areas of Aspen (≈ 60 ac), and approx. 40 acres now forest. ≈ Total 385 Ac.

TM Plan - RAM Class	RAM Prescription	RAM Yield	Activity (from TM Plan EIS)	Schedule - RAM Decade:	Prescription	PATCH CUT, ITM - SHELTERWOOD	MUM - Coordination	Constraints	Selected Activity - Method	Constraints
---------------------	------------------	-----------	-----------------------------	------------------------	--------------	------------------------------	--------------------	-------------	----------------------------	-------------

YIELDS / ACRE Treatment

Acres	245	140	385
# Stems (Poles, ST/AC)	484	66	550
Basal Area/AC	101	56	157
RAM/AC	2110	3750	5840
Cunits			
Dead HBF (Sound)			

Total Cut Vol. (Softw.) 527,000 (C/SOFTW.)  
 Total Cut Vol. (Hardw.) (HARDW.)

Detailed Prescription, T.S.I. Needs  
 Treat each component separately:  
 1) Old Growth - patch cut to eliminate mistletoe and stimulate reproduction  
 2) Young and Old Growth - remove high risk trees and overmature trees  
 3) Poles - no treatment at this time  
 4) Aspen - no treatment at this time  
 Apr. 50 Acres } non-iterable slope  
 Treatment



For Nonforest - Noncommercial Stands

COMPARTMENT DATA ELEMENTS SUMMARY

Form I

Compartment No. 549 28

Stand No.	Acres	Type	Stand Size	Type of Survey	Ground Land Use Class	Component	Slope Position	Elevation	Slope	Aspect	Soil Erosion	Productivity Class	Site Index	Structure	Distribution	Softwood/Acre	Volume	BA	Growth	DBH	S/S	No Stem Poles	
01	155	Nonforest and Aspen	155	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen	Aspen

No Treatment



Compartment Prescription

Compartment 549-28 is located in TIN, R32 and 83W of Routt and Grand counties. It is bordered on the west by Little Henry Creek, the north by Horse Creek, and the east by a ridge.

Access is by foot, horseback, or a jeep trail.

Young growth lodgepole pine which developed after fire makes up most of the compartment.

Extensive stands of lodgepole pine pole timber are found with small pockets of old growth pine and some small patches of aspen. Windrisk is moderate to high. Ground fuels are very light.

Prescription Summary

Detailed prescriptions attached.

Timber Harvest

Shelterwood and patchcut 270 acres yielding 980 MBF.

Thinning

385 acres of commercial posts and poles.

Reforestation

None

Salvage

None

No Treatment

For 455 acres of nonforest, aspen, and marginal (steep) areas. Timber harvest will be in conjunction with the Little Whiskey Timber Sale.

Attached: ~~See map~~ and proposed transportation system.



~~SECRET~~

~~SECRET~~

*[Handwritten signature]*

~~SECRET~~

~~SECRET~~

~~SECRET~~

~~BOCK CREEK  
85042~~

~~CONFIDENTIAL~~

COMPARTMENT PRESCRIPTION

54928  
ROCK CREEK

Rout National Forest

Yampa Ranger District

DIRECTOR OF LAND MANAGEMENT  
CENTRAL DIVISION

FEB 11 1980

RECEIVED

Approved By \_\_\_\_\_

Date \_\_\_\_\_

Prepared By \_\_\_\_\_  
Date 9/27/79

24831



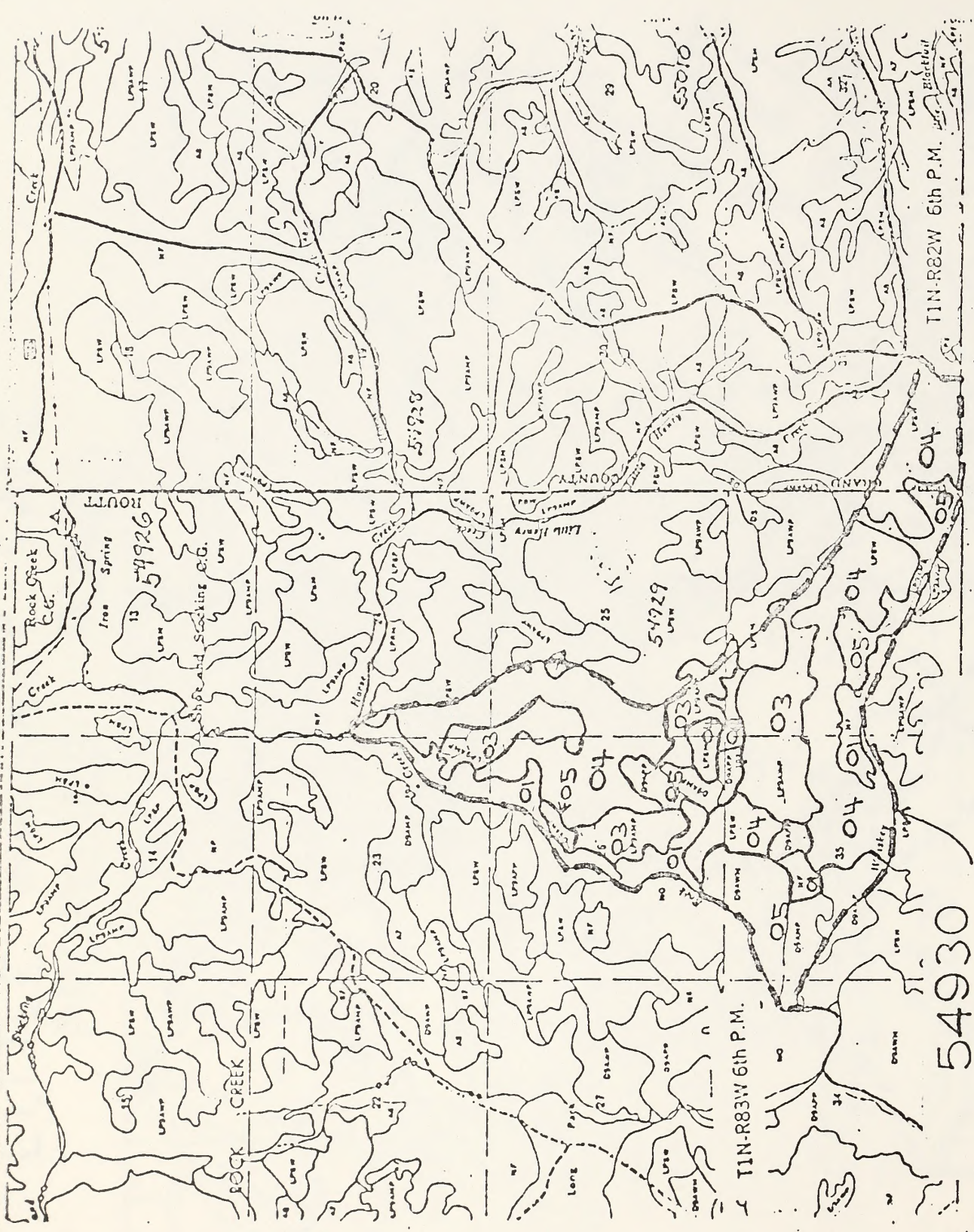
SHOULD BE 24850  
 24875  
 24900



QAM QMRTZ



OCQPC



TIN-R83W 6th P.M.

54930

TIN-R82W 6th P.M.

# STAND MAP







Item 1	100	100
Item 2	200	200
Item 3	300	300
Item 4	400	400
Item 5	500	500

Section 1: Introduction

This document is a report on the results of a study conducted over a period of six months. The study was designed to investigate the effects of various factors on the performance of a specific system. The data collected during the study is presented in the following tables and charts.

The first table shows the overall performance metrics for each of the five items tested. The second table provides a more detailed breakdown of the data for each item, including the specific conditions under which the data was collected and the resulting performance values.

Item	Condition	Value
Item 1	Condition A	100
	Condition B	100
Item 2	Condition A	200
	Condition B	200
Item 3	Condition A	300
	Condition B	300
Item 4	Condition A	400
	Condition B	400
Item 5	Condition A	500
	Condition B	500

Item	Value
Item 1	100
Item 2	200
Item 3	300
Item 4	400
Item 5	500

Section 2: Discussion

The results of the study indicate that the performance of the system is highly consistent across all items and conditions. This suggests that the system is robust and capable of maintaining a high level of performance under a variety of different conditions. The data also shows that the performance of the system is directly proportional to the item number, with higher item numbers resulting in higher performance values.

These findings are significant because they demonstrate that the system is able to maintain a high level of performance even when the conditions change. This is a key characteristic of a well-designed system and is essential for ensuring that the system can be used in a wide range of different environments.

STAND DESCRIPTION

Compartment 54930

Stand # 04

Stand Description & History

Stand developed under aspen following fire. It is made up of the following components.

1. LPP poletimber in dense stands. (243 ac.)

2. Mixed stands of young and old growth in scattered pockets. (76 ac.)

3. Scattered pockets of old growth LPP that survived the fire but is now rapidly deteriorating. (51 ac.)

4. Inoperable terrain. (155 ac.)

Acres	505
Stand Origin	01
Land Use Class	20
Open Standard	
Location	Ridge Top
Elevation	---
Aspect	W
Structure	10
Survey Yield	32
Indthrow Hazard Mod.	Soil Position
Softwood/Acre	7804
Volume	202
Basal Area	7.7
DBH (Ave.)	165
/S Stems	307
Old Stems	291
Hardwood/Acre	
Volume	
Basal Area	--
DBH (Ave.)	15
/S Stems	
Old Stems	
Stems	

Detailed Prescription, T.S.I. Needs

Each component will be treated as follows:

Old timber - Commercial thin following timber sale.

Mixed young/old growth - Remove overmature and high risk trees.

Old Growth - Patchcuts to eliminate mistletoe and stimulate reproduction.

Inoperable terrain - No treatment.

Timber and Other Resource Coord. Sum.

RAM Prescription Intermediate

patchcut.

RAM Yield

RAM Class

RAM Decade

Other Resource Coord. and Constraints

No harvest along creeks.

Protection Measures

WIZ - Along Whiskey Creek and Rock Creek.

TOTAL

HARVEST

LEAVE

YIELDS/ACRE

505

58

447

Stems (Poles, ST)

389

114

275

Basal Area

202

66

136

1.6

3.2

7.8

Total Cut Vol. 186 MBF (Softw.) (Cut Vol. (HWDC.))



STAND DESCRIPTION SHEET

Compartment # 51930

Stand # 05

Stand # 05

Type Lodgepole	Stand Site	Sawtimber
Survey	935	
Adjacent Stand		
Slope Position	Ridge Top	Elevation
Slope	0-15	Aspect
Distribution	-10	Structure
Site Index	28	Survey Yield
Fire Hazard	Moderate	Soil Erosion
Softwood/Acre		
Volume	14667	Basal Area
DBH (Ave.)	10.9	DBH (Ave.)
%S Stems	225	%S Stems
Pole Stems	-40	Pole Stems
T Stems	-200	T Stems
Hardwood/Acre		
Volume		Basal Area
Growth (Cub. Net)		DBH=(Ave.)
%S Stems	300	%S Stems
Pole Stems		Pole Stems
T Stems		T Stems

Approximately 75 acres of this stand are inoperable due to steep slopes. The remainder of the stand is composed of the following:

1. Extensive areas of young and old growth LPP that developed under aspen following fire (105ac.)
2. Pockets of small poles and large saplings (70 ac.)
3. Scattered pockets of old growth LPP that survived the fire. (30 ac.)
4. Scattered aspen patches with small sawtimber. (20 ac.)

Timber and Other Resource Coord. Sum.

RAM Prescription  
ITM - Shelterwood and Patch cut

Component will be treated as follows:

RAM Yield  
RAM Class  
RAM Decade

Young/old growth mix-Remove overmature and high risk trees.  
Old Growth- Remove through patch cuts and group selection, to stimulate reproduction and reduce mistletoe risk.

Other Resource Coord. and Constraints  
No harvest adjacent to either creek.

Poles-Commercially thin following sale.  
Aspen - No treatment this decade.

Protection Measures  
WIZ - Whiskey Creek & Rock Creek.

LEAVE

HARVEST

Fields/Acre	165	135	300
Stems (Poles, ST)	127	113	240
Basal Area	92	50	142
	8.9	5.8	11.7

Total Cut Vol. 780 MBF

(Softwood)

Cut Vol.

(Hardwood)



Compartment #            Stand #           

Stand Description & History

Type	Acres
Stand Size	Stand Origin
Type of survey	Land Use Class
Component	
Slope Position	Elevation
Slope	Aspect
Distribution	Structure
Site Index	Survey Yield
Windthrow Hazard	Soil Erosion
Softwood/ Acre	
Volume	Basal Area
Growth(cub.Net)	DBH = (Ave.)
S/ S Stems	
Pole Stems	
ST Stems	
Hardwood/ Acre	
Volume	Basal Area
Growth(cub.net)	DBH (Ave.)
S /S Stems	
Pole Stems	
ST Stems	

*[Faint handwritten notes and a large diagonal slash mark across the page]*

Detailed Prescription, T.S.I. Needs

*No treatment*

TM Plan- RAM Class
RAM Prescription
RAM Yield
Activity (from TM Plan EIS)
Schedule- RAM Decade: Prescription
MUM --Coordination
Constraints
Selected Activity- Method
Constraints

YIELDS / ACRE Treatment            LEAVE HARVEST TOTAL

Acres			
# Stems (Poles, ST)			
Basal Area			
MBF			
Cunits			
Dead MBF			

Total Cut Vol. \_\_\_\_\_ (Softw.) Cut Vol. \_\_\_\_\_ (HARDW.)







Compartment Description

Compartment 545-30 lies in T1N, R2E S2W of Grant County, Idaho. It is bounded on the south by Whiskey Creek and on the west by Rock Creek. The northeast boundary lies along the divide between Rock Creek and Little Henry Creek.

Currently, the only access to the compartment is by foot, horse back or jeep trail.

The compartment is primarily composed of young growth lodgepole pine which developed under aspen following a large fire.

Stands are large and variable. The young pine is widely dispersed with aspen, old growth pine and Douglas fir, as well as extensive stands of small lodgepole pine, ponderosa and aspens.

Windfall throughout the area ranges from moderate to high.

Ground fuels are light.

Prescription Summary

Detailed prescriptions for each stand are attached. They call for the following action:

Timber Harvest

Emulswood and patchcut - 202 acres yielding 1,4 100%

Thinning

Commercial grade and poles - 212 acres

Reforestation

None

Swaps

None

No Treatment

For 201 acres of nonforest, aspen and marginal areas.

All timber harvest is expected to be in conformance with the 1970 Whiskey Timber Sale.

A stand map and map of proposed transportation system are attached.

## Compartment Description

Compartment 549-30 lies in T1N, R82 & 83W of Routt County Colorado. It is bordered on the south by Whiskey Creek and on the west by Rock Creek. The northeast boundary lies along the divide between Rock Creek and Little Henry Creek.

Currently, the only access to the compartment is by foot, horse-back or jeep trail.

The compartment is primarily composed of young growth lodgepole pine which developed under aspen following a large fire.

Stands are large and variable. The young pine is widely dispersed with aspen, old growth pine and Douglas Fir, as well as extensive dense stands of small lodgepole pine, poletimber and saplings.

Windrisk throughout the area ranges from moderate to high.

Ground fuels are light.

## Prescription Summary

Detailed prescriptions for each stand are attached. They call for the following action.

### Timber Harvest

Shelterwood and patchcut - 365 acres yielding 1.4 MMBF

### Thinning

Commercial posts and poles - 313 acres

### Reforestation

None

### Salvage

None

### No Treatment

For 802 acres of nonforest, aspen and marginal areas.

All timber harvest is expected to be in conjunction with the Little Whiskey Timber Sale.

A stand map and map of proposed transportation system are attached.

DEPARTMENT PRESCRIPTION

549-30  
Rock Creek


Route National Forest

Yampa Range District

  
Approved by

  
Date

  
Prepared by


  
Date

COMPARTMENT PRESCRIPTION

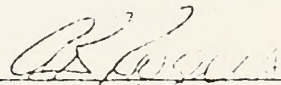
549-30  
Rock Creek

Routt National Forest

Yampa Ranger District

  
\_\_\_\_\_  
Prepared By

9/28/79  
Date

  
\_\_\_\_\_  
Approved By

11/20/75  
Date

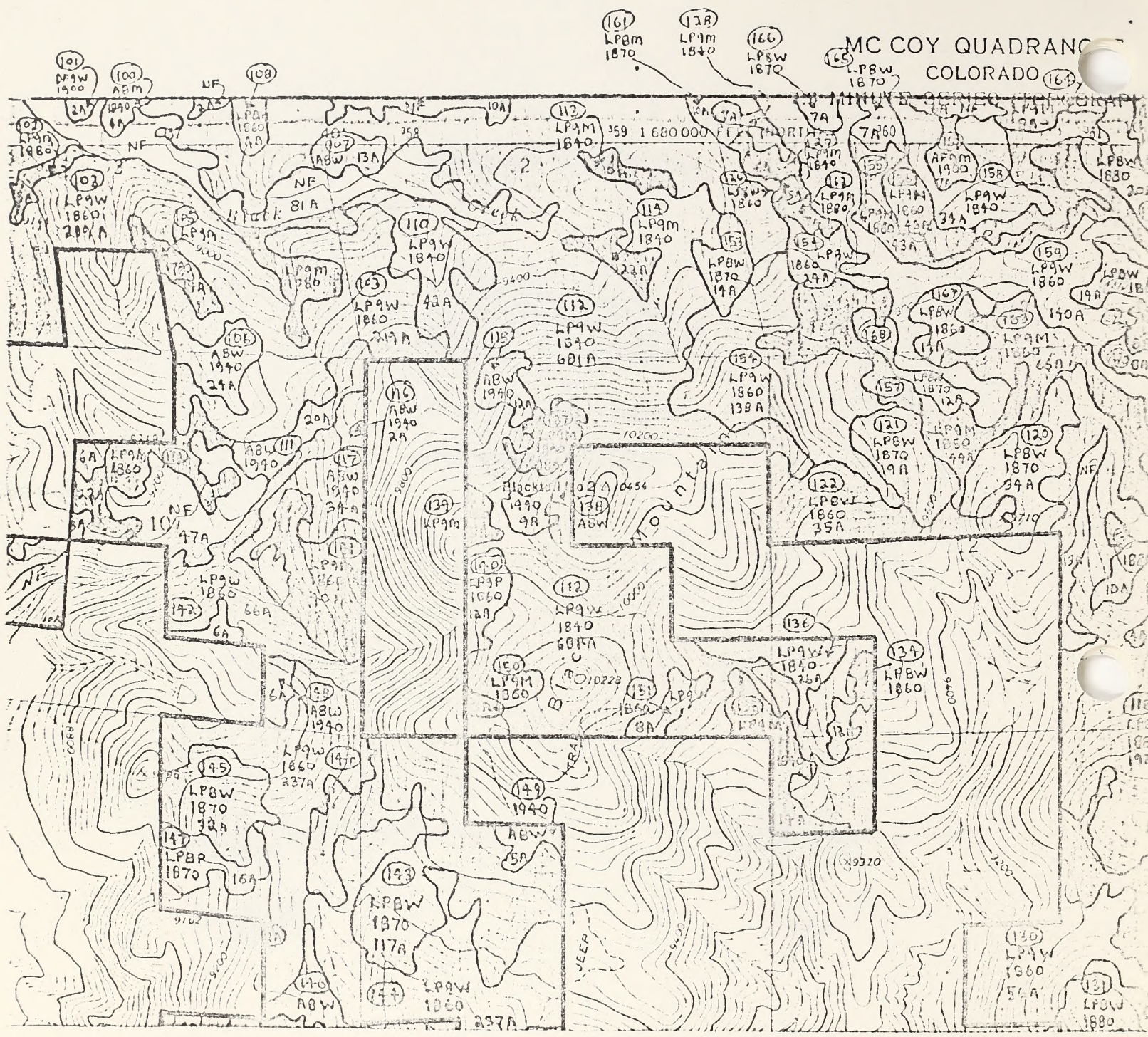


1st Lt. [Name] [Rank] [Branch] [Serial Number]

2nd Lt. [Name] [Rank] [Branch] [Serial Number]



MC COY QUADRANG  
COLORADO



... in the ... of the ...  
... will be ...  
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Treatment - In low windfall risk situations, 40 to 50 percent of the basal area will be removed, with emphasis on removal of intermediates. This cutting will be heavy enough to be considered a regeneration cut, but marking will follow the rules for individual tree selection. The cut will be distributed over the entire area. In moderate windfall risk stands 30 percent of the basal area will be removed on an individual tree basis. Codominant and intermediate trees will represent at least one half of the basal area removed.

Provisions will be made to salvage blowdowns. In high windfall risk stands, clearcut openings up to 5 acres will be interspersed with uncut areas.

Acreage and Volume -

280 acres will be treated.  
980 MBF will be removed.

BLM Stands numbered, 118, 119, 120, 121, 122, 124, 125, 126, 153, 161, 165, 166, 167, 168, 170, on the type map for the Black Mountain Forest Management Plan.

Stand description - These are pole size stands of lodgepole, with an average diameter breast high of 8.7 inches. They are to be commercially thinned using separate pole sales after this sale is terminated. The stands are 80 to 110 years old and generally disease and insect free.

Treatment - They will be entered with a partial cut where 8 and 9 inch diameter trees exist. Individual tree selection rules will apply. Usually not more than 20 percent of the basal area will be removed. Stands where the trees are 5" to 8" diameter breast high will not be treated by this sale.

<u>Area</u>	<u>Volume</u>
537 ac. will be treated.	250 MBF will be removed.

Stand location - BLM stands numbered 112 and all mistletoed stands in the BLM portion of the sale area.

Stand Description - This lodgepole is a heavily mistletoed, 160 acre portion of the stand. Trees are over mature, stocking is poor to medium. There is a high volume of mortality, a high percentage of defect and little advance reproduction.

Treatment - Clear cut long corridors on perimeter of infected stand to separate it from healthy stands and intersperse clearcuts up to 10 acres in size over one half the area. Remove the remaining stand within 10 years and sanitize reproduction at that time.

Other small infections in other stands will be clearcut considering cutting guides established for that stand.

Acreage and Volume -

160 acres will be treated. 200 MBF will be removed.





## Appendix B

### Silvicultural Prescriptions for Forest Service Stands and BLM Stands

#### Introduction

Stand maps and prescriptions for the various stands are presented here. The formats used fit the way each agency presented its data so they are different but the same kind of information is presented.

From a silvicultural point of view clearcutting is a sound and practical way to harvest lodgepole pine, however, in order to accommodate other important uses a form of partial cutting is most generally prescribed. The primary purposes of the prescriptions to be used are to maintain a continuous forest cover of lodgepole pine while minimizing the limitations of partial cutting because of sivilal requirements, stand conditions, wind, insects, and disease.

Stand location - BLM stands numbered 112, 123, 130, 154, 154A, 158 and 159 on the type map for the Black Mountain Forest Management Plan.

Stand Description - These are 120-140 year old stands of well stocked, mature and overmature lodgepole, saw timber, 9" to 15" diameter at breast height. They are characterized by single stories, even aged, varying in age from place to place but uniform within any given stand. Small patches or a scattering of aspen may be present. They are generally insect and disease free.

Treatment - Treatment will consist of removal of 30 percent of the basal area using individual tree selection and patch cuts 2-3 times the average tree height in size, where windfall risk is low.

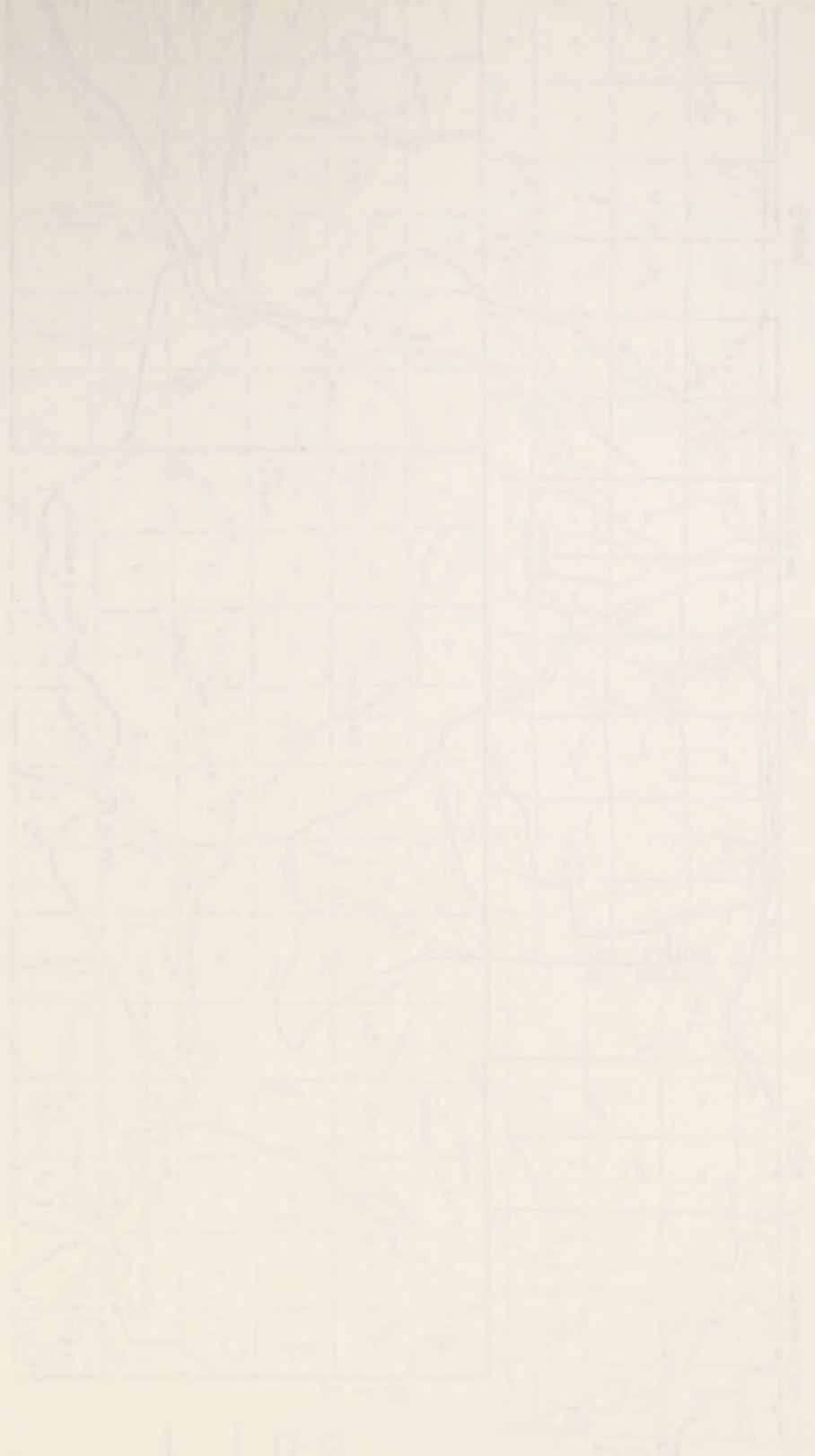
In moderate windfall risk situations 20 percent of the basal area will be removed and in high windfall hazard areas the stand will be clearcut in 5 acre blocks or less or left untreated. This is an intermediate cut.

Acreage and Volume - 450 acres will be treated in these stands. 1,575 MBF will be removed.

Stand Location - BLM stands numbered 113, 114, 127, 128, 129, 155, 156, 157, 162, 163, 164 and 169 on the type map for the Black Mountain Forest Management Plan.

Stand Description - These are 120-140 year old stands of medium stocked mature and overmature lodgepole saw timber, 9 to 15 inches diameter at breast height. The overstory in these stands resembles single story stands but are two stories. The stocking of the overstory may be irregular, but overall stocking is uniform. The second story may be poles, saplings or seedlings. Trees in the top story tend to be more wind firm than in single story stands. These stands contain pockets of dead material and very localized insect or disease problems.

EXHIBIT - A  
 WHEAT RIVER - BLACK MOUNTAIN  
 ENVIRONMENTAL ANALYSIS MAP

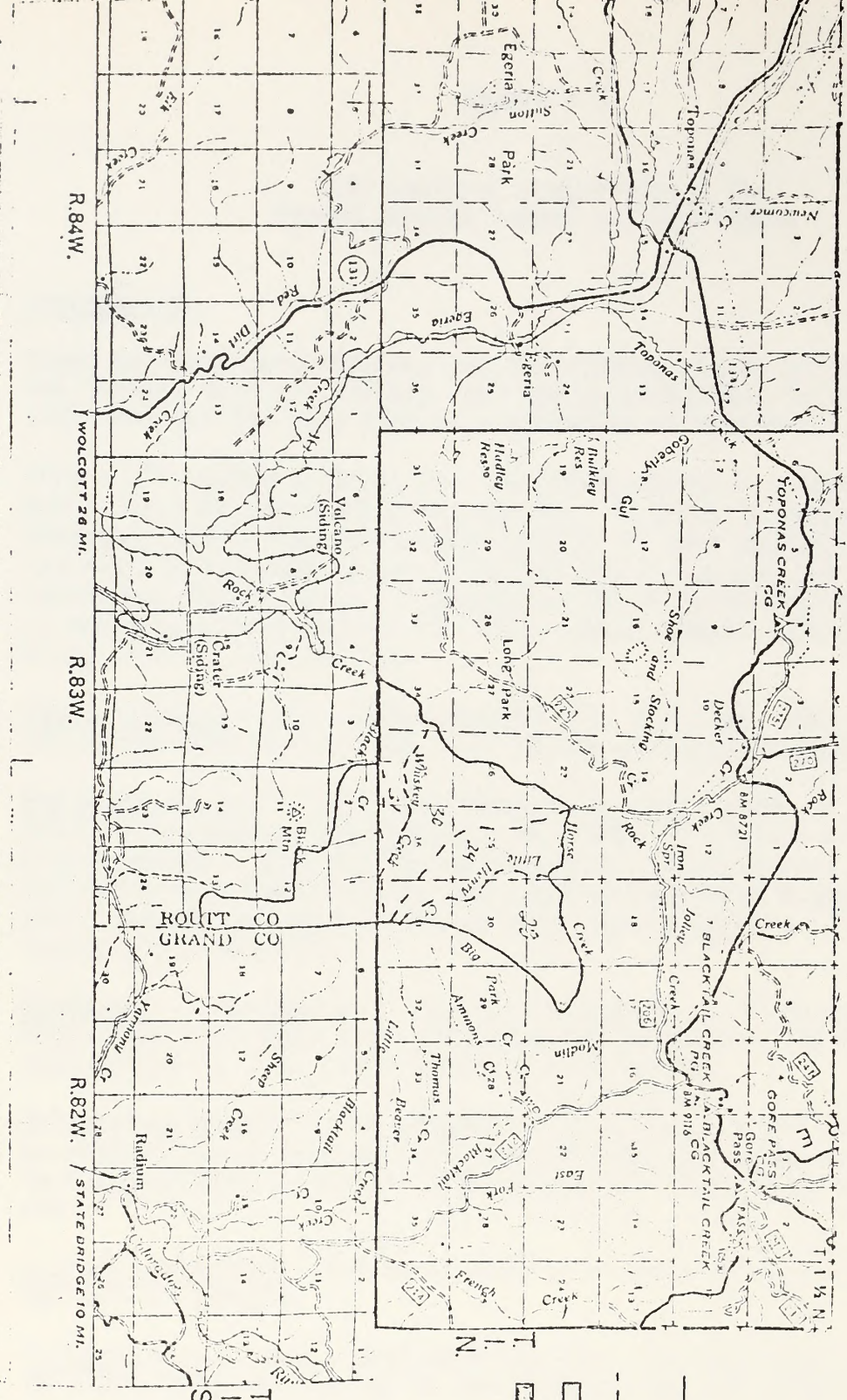


LEGEND

- 100' CONTOUR
- COMMERCIAL BOUNDARY
- BOUNDARY OF AREA IN WHICH
- 50' CONTOUR
- 20' CONTOUR
- 10' CONTOUR
- 5' CONTOUR
- 2' CONTOUR
- 1' CONTOUR



ENVIRONMENTAL ANALYSIS MAP  
 WHISKER CREEK - BLACK MOUNTAIN  
 EXHIBIT - A



R.84W. WOLCOTT 26 MI. R.83W. ROUTT CO GRAND CO R.82W. STATE BRIDGE 10 MI.

**LEGEND**

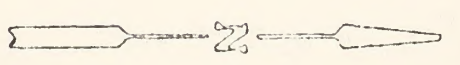
— BOUNDARY OF AREA IN WHICH TREES ARE TO BE CUT.

- - - COMPARTMENT BOUNDARY

□ BLM.

▣ F.S.

1" = 1 MI. SCALE



IN WITNESS WHEREOF, the parties hereto have executed this agreement  
as of the last date written below.

Richard A. Jones  
District Manager  
S.C.N.

April 22, 1980  
DATE

Jack Wilson  
Forest Supervisor  
South National Forest

April 1, 1980  
DATE

IN WITNESS WHEREOF, the parties hereto have executed this agreement  
as of the last date written below.

April 25, 1980  
DATE

David A. Jones  
District Manager  
B.L.M.

May 1, 1980  
DATE

Jack Weiss  
Forest Supervisor  
Routt National Forest

7. The F.S. shall advertise and conduct the proposed timber sale offering, and shall award the sale contract to the highest bidder.

8. The F.S. shall administer the timber sale contract, billing the purchaser as necessary and making all collections specified in the contract.

9. Annually the F.S. shall transfer to the B.L.M. 12% share of receipts calculated by the volume and current contract rate specified in paragraph 8 (above). Quarterly the F.S. shall transfer the B.L.M. with a record of the volume and value of receipts removed during the quarterly period.

10. The F.S. and B.L.M. shall jointly prepare the slash disposal plan and estimated cost for inclusion in the contract. The F.S. and B.L.M. shall each be responsible for slash disposal on their area of responsibility.

11. The contract shall contain provisions for suspending work or contract measures on the contract area.

12. Each agency shall give and execute needed reforestation measures in lands under its administration.

13. B.L.M. shall deposit with F.S. \$11,900 as reimbursement for their share of costs for survey, design and construction of B.L.M. roads, timber easements, timber sale contract preparation and administration and scaling. Not less than 5% of sale income to be paid to F.S. and the remainder to F.S.

In the event that the purchaser fails to pay the first installment back to the Forest Service, the F.S. will contract for the construction of all roads except roads on B.L.M. The timber sale purchaser will state that only the roads on National Forest land will be eligible for purchaser-constructed construction.

Temporary roads must be needed by B.L.M. will be covered against B.L.M. claims. B.L.M. standard clauses for those roads will be inserted into the timber sale contract.

14. B.L.M. will prepare an environmental assessment report. F.S. will review and jointly approve the E.A.

15. This agreement shall remain in full force and effect until all work has been completed as described and all obligations stated herein or in the timber sale contract are satisfied. Upon its entry into force, the purchaser has been released, all other promises have been distributed, slash plan has been fulfilled and road easements and easement property boundaries have been established. If in violation of the contract or terms of contract, this agreement shall be terminated upon mutual agreement of the parties.

7. The F.S. shall advertise and conduct the proposed timber sale offering, and shall award the sale contract to the highest bidder.
8. The F.S. shall administer the timber sale contract, billing the purchaser as necessary and making all collections specified in the contract.
9. Annually the F.S. shall transfer to the B.L.M. its share of receipts, calculated by the scaled volume and current contract rate described in paragraph 6 (above). Quarterly the F.S. shall furnish the B.L.M. with a record of the volume and value of material removed during the quarterly period.
10. The F.S. and B.L.M. shall jointly prepare the slash disposal plan and estimated cost for inclusion in the appraisal. The F.S. and B.L.M. shall each be responsible for slash disposal on their area of responsibility.
11. The contract shall contain provisions for performing erosion control measures on the contract area.
12. Each agency shall plan and execute needed reforestation measures on lands under its administration.
13. B.L.M. will deposit with the F.S. \$13,900 as reimbursement for their share of costs for survey, design and engineering of B.L.M. roads, timber appraisal, timber sale contract preparation and administration and scaling. Not less than 50% of this amount to be paid in FY 1981 and the remainder in FY 1982.

In the event that the purchaser elects to turn the road construction back to the Forest Service, the F.S. will contract for the construction of all roads except roads on B.L.M. The timber sale prospectus will state that only the roads on National Forest land will be eligible for purchaser-elect construction.

Temporary roads which are needed by B.L.M. will be costed against B.L.M. timber. B.L.M. standard clauses for these roads will be inserted into the timber sale contract.

14. B.L.M. will prepare an environmental assessment report. F.S. will review and jointly approve the E.A..
15. This agreement shall remain in full force and effect until all work herein contemplated is completed and all obligations stated herein or in the timber sale contract are satisfied: that is, until the purchaser has been released, all sale proceeds have been distributed, slash plan has been fulfilled and road maintenance and erosion control measures have been completed. If no contract for the sale of timber is entered into, this agreement shall be terminated upon mutual agreement of the parties.



3. The F-2 shall operate the entire sale volume and provide the contract for the entire sale on standard F-2. Under sale contract terms, B.L.M. and the F-2 will jointly receive both the proceeds and the contract price as determined by the sale.

The F-2 shall be allowed for sale on the basis of contract volume with production except for when the sale appears deficient. A sale that is deficient (includes agreement from the base rate) when reported as normal, will be allowed on a 10% rate basis. In certain instances, agency agreement re-differentiate volume and value of timber sales as follows: F-2 and B.L.M. shall be separately identified by unit and scaling as stated in paragraph 5. Separate volume identification shall be used for management purposes only and shall not appear in the final sale contract.

4. Upon completion of stating the F-2, shall begin for sale and volume from the sale area as it is removed. The F-2 and B.L.M. volume shall be kept separate. The actual scaled volume and the current contract rate shall be used to calculate each agency's share of the total proceeds from the timber sale. The proceeds will be reported on a percentage by product basis calculated from the same basis in the following manner:

Table:

Product	F-2	B.L.M.	Total
F-2 Share of 810	2000	2400	4400
B.L.M. Share of 810	2000	2000	4000
<b>TOTAL</b>			<b>8400</b>
F-2 Share	50%		4200
B.L.M. Share		50%	4200

The actual reported production will appear in the contract file and a part of such file upon the sale of the timber.

5. The F.S. shall appraise the entire sale volume and prepare the contract for the entire sale on standard F.S. timber sale contract forms. B.L.M. and the F.S. will jointly review both the appraisal and the contract prior to advertising the sale.

The timber shall be offered for sale on the basis of contract stumpage rate with escalation except for when the sale appraises deficit. A sale that is deficit (indicated stumpage lower than base rates) when appraised at normal profit will be offered on a flat rate basis. To satisfy individual agency accounting requirements, volumes and values of timber administered by F.S. and B.L.M. shall be separately identified by mill yard scaling as stated in paragraph #6. Separate volume identification shall be used for interagency purposes only and shall not appear in the timber sale contracts.

6. Upon completion of bidding the F.S. shall sample log scale the timber from the sale area as it is removed. The F.S. and B.L.M. volume shall be kept separate. The actual scaled volume and the current contract rates shall be used to calculate each agency's share of the total proceeds from the timber sale. The proceeds will be separated on a percentage by species basis, calculated from the sample cruise in the following manner:

EXAMPLE:

Species	LP	DEAD	Sale Total
F.S. Volume M.B.F. (cruise)	500	400	900
B.L.M. Volume M.B.F. (cruise)	500	600	1100
Bid Value per M (dollars)	12	6	
F.S. Share of Bid	6000	2400	8400
B.L.M. Share of Bid	6000	3600	<u>9600</u>
TOTAL			18000
F.S. Share	50%	40%	
B.L.M. Share	50%	60%	

The actual computed percentage will appear in the contract file and made a part of such file upon the sale of the timber.

Agreement Between  
Bureau of Land Management, U.S. Department of Interior  
and  
Forest Service, U.S. Department of Agriculture

This INTERAGENCY AGREEMENT was entered into by and between the  
Bureau of Land Management, Grand Junction District Manager, herein  
referred to as the B.L.M., and the Forest Service, South National Forest  
Manager, herein referred to as the F.S., under the authority of the  
Act of June 25, 1910 (31 U.S.C. 682).

WITNESSETH:

WHEREAS, the lands on the lands described on the exhibit A attached  
hereto and made a part hereof is situated within the B.L.M. in  
the F.S. and

WHEREAS, it is desirable to include timber administered by the F.S. in  
and timber administered by the F.S. as a portion of a single timber sale  
to be offered for sale by the F.S. in the fiscal year 1981;

Now, THEREFORE, the two parties hereto agree as follows:

1. The F.S. and B.L.M. will assume individual responsibility for sale  
layout, road location and volume determination. The sale timber  
shall be offered for sale on the basis of combining both agencies'  
road work. The F.S. will assume responsibility for all the sale  
related activities for survey, design, advertising, and construction  
operation of the system roads to be constructed under this timber  
sale. If anticipated funds are not adequate to finance construction  
operations of B.L.M. roads, the B.L.M. will contribute to this  
cost, not to exceed \$2000.
2. The F.S. and the B.L.M. shall jointly participate in the development  
of a logging operation plan.
3. Each agency shall retain title to the roads for the system  
roads to be constructed under terms of this timber sale, where said  
roads are needed for efficient system development. Such right-of-  
way and road use license shall be obtained under existing procedures  
currently in effect between the parties.
4. The purchaser shall be responsible for the maintenance of all roads  
constructed under the terms of the timber sale contract. The  
purchaser shall be responsible for construction of all temporary  
road work on B.L.M.

Interagency Agreement  
Between  
Bureau of Land Management, U.S. Department of Interior  
and  
Forest Service, U.S. Department of Agriculture

This INTERAGENCY AGREEMENT made and entered into by and between the Bureau of Land Management, Grand Junction District Manager; herein referred to as the B.L.M., and the Forest Service, Routt National Forest Supervisor; herein referred to as the F.S., under the provisions of the Act of June 30, 1932 (31 U.S.C. 686).

WITNESSETH:

WHEREAS, the timber on the lands described on the exhibit A attached hereto and made a part hereof is administered either by the B.L.M. or the F.S.; and

WHEREAS, it is desirable to include timber administered by the B.L.M. and timber administered by the F.S. as a portion of a single timber sale to be offered for sale by the F.S. in the fiscal year 1981:

Now, THEREFORE, the two parties hereto agree as follows:

1. The F.S. and B.L.M. will assume individual responsibility for sale layout, road location and volume determination. The said timber shall be offered for sale on the basis of combining both agencies' field work. The F.S. will assume responsibility for all the engineering services for survey, design, estimating, and construction supervision of the system roads to be constructed under this timber sale. If appropriated funds are not adequate to finance construction supervision of B.L.M. roads, the B.L.M. will contribute to this cost, not to exceed \$2000.
2. The F.S. and the B.L.M. shall jointly participate in the development of a logging operations plan.
3. Each agency shall obtain rights-of-way from the other for system roads to be constructed under terms of this timber sale, where said roads are needed for efficient system development. Such rights-of-way and road use license shall be obtained under existing procedures currently in effect between the parties.
4. The purchaser shall be responsible for the maintenance of all roads constructed under the terms of the timber sale contract. The purchaser shall be responsible for construction of all temporary spur roads on B.L.M..

3. The seeding of disturbed areas will be done as is necessary.
4. Practices provide for the regeneration of trees and for monitoring its progress.

Other

1. A plan for disposal of logging and road right-of-way slash is required.
2. Cultural resources are provided protection and will be inventoried.
3. Stipulations will address fire prevention and suppression.
4. Litter control is stipulated.
5. The protection of existing facilities is addressed.

3. The seeding of disturbed areas will be done as is necessary.
4. Practices provide for the regeneration of trees and for monitoring its progress.

Other

1. A plan for disposal of logging and road right-of-way slash is required.
2. Cultural resources are provided protection and will be inventoried.
3. Stipulations will address fire prevention and suppression.
4. Litter control is stipulated.
5. The protection of existing facilities is addressed.

All other aspects of the administrative work will be done as for the previous  
administrative work with the exception of reports and reports to clients  
which are being prepared by the staff. The reports to clients will be prepared  
by the staff and will be prepared by the staff.

### General List of Printing Methods for the Present Activities

#### Books

1. Printing of books will be continued on the present...
2. Book construction and maintenance and reports to clients will be continued on the present...
3. Book rates will be reported, where necessary.
4. Printing of books will be continued on the present...

#### Leaflets

1. There will be no change in printing of leaflets on the present...
2. There will be no change in printing of leaflets on the present...
3. Leaflet printing requirements will be reported.
4. Printing of leaflets and reports on activities will be reported.
5. A leaflet printing plan will be developed regarding printing and printing and printing requirements.

#### Writings

1. The printing of articles will be continued.
2. Printing of articles will be continued.
3. Printing of articles will be continued.
4. Printing of articles will be continued.
5. Printing of articles will be continued.
6. Printing of articles will be continued.
7. Printing of articles will be continued.
8. Printing of articles will be continued.

#### Materials

1. Printing of articles will be continued.
2. Printing of articles will be continued.

All other aspects of this alternative would be the same as for the preferred alternative except that certain segments of society are more opposed to clear-cutting and energy requirements would be slightly less because of the improved efficiency due to greater volumes per acre.

### Summary List of Mitigating Measures for the Preferred Alternative

#### Roads

1. Logging spurs will be designated on the ground.
2. Road construction and maintenance are specified in Appendix "C" and the contract standard provisions.
3. Erosion Bars will be required, where necessary.
4. Limitations are placed on road use.

#### Logging

1. There will be no planned harvesting on slopes greater than 40 percent.
2. Trees to be harvested will be designated individually.
3. Wood utilization requirements will be specified.
4. Timming of harvest and construction activities will be specified.
5. A joint logging plan will be developed regarding falling and skidding and landing requirements.

#### Wildlife

1. The protection of active nest trees is stipulated.
2. Buffer zones along streams have limited harvest requirements.
3. Snag and roost trees are provided protection from cutting.
4. Size of patchcuts are limited to maintain cover for wildlife.
5. Localization and timming of activities is defined to benefit big game.
6. Reserved timber is specifically protected from cutting.

#### Watershed

1. Road specifications already mentioned will benefit watershed.
2. Silvicultural requirements such as slope restrictions, selection harvest method and streamside buffer zone are provided for.



activity. (2) The amount of water circulating had been added in some  
/amount, including amounts when there were large flows. (3) Some of  
core cutting in some cases. Large amount of clear, unobstructed  
and a general... (4) Increased water...  
to the environment in the field.

Conducting this study...  
Statement, design and...  
went to court to try and stop clear-cutting. The public began to think of  
clear-cutting as a great threat to the timber industry. As a result the  
public is generally unresponsive and critical of clear-cutting practices. The  
Congress has not to the restrictive guidelines concerning clear-cutting. However,  
stated the guidelines are:

### 1. Harvesting Practices

- Clear-cutting should not be used as a cutting method on Federal land areas  
where:
  - a. Soil, site or other natural conditions are fragile and subject to  
erosion.
  - b. There is an assurance that the area can be adequately reforested within  
five years after harvest.
  - c. Activities related to other natural resources.
  - d. The method is preferred only because it will give the greatest dollar  
return on the greatest unit of land.

### 2. Clear-cutting should be used only where:

- a. It is determined to be economically essential to manage the  
related forest management objectives.
  - b. The size of clear-cut blocks, number or extent are based on the amount  
necessary to economically regenerate and other multiple-use forest  
management objectives (10 acres).
  - c. A multi-agency review has first been made of the potential impacts  
social, biological, aesthetic, engineering and economic losses on each  
side area.
  - d. Clear-cut blocks, whether or their size, do not exceed, sized and  
located as much as possible with the natural terrain.
- In view of these...  
will be...  
the latter...

### 3. Other... (10 acres)

These are the...  
and...  
not to...

activity. (3) The manner in which clearcutting had been applied in some instances, including examples when there were large blocks, 1,000 acres or more, cutting on steep slopes, large amounts of slash, accelerated erosion and a generally devastated appearance. (4) Increased National attention to the environment by the public.

Controversies that became highly emotional developed over the Monangahela, Bitterroot, Tongass and Bridger National Forests. In 1973 conservation groups went to court to try and stop clear-cutting. The public began to think of clear-cutting as a "great ripoff" by the timber industry. As a result the public is generally unreceptive and critical of clear-cutting practices, also Congress has set forth restrictive guidelines concerning clear-cutting. Generally stated the guidelines are:

1. Harvesting limitations

Clear-cutting should not be used as a cutting method on Federal land areas where:

- a. Soil, slope or other watershed conditions are fragile and subject to major injury.
- b. There is no assurance that the area can be adequately restocked within five years after harvest.
- c. Aesthetic values outweigh other considerations.
- d. The method is preferred only because it will give the greatest dollar return or the greatest unit output.

2. Clear-cutting should be used only where:

- a. It is determined to be silviculturally essential to accomplish the relevant forest management objectives.
- b. The size of clear-cut blocks, patches or strips are kept at the minimum necessary to accomplish silvicultural and other multiple-use forest management objectives. (40 acres)
- c. A multidisciplinary review has first been made of the potential environmental, biological, aesthetic, engineering and economic impacts on each sale area.
- d. Clear-cut blocks, patches or strips are, in all cases, shaped and blended as much as possible with the natural terrain.

In view of these considerations it is felt that clear-cutting as an alternative would be viewed unfavorably by the public as a method preferred only because of the dollar return.

Adverse Impacts Which Cannot Be Avoided

These are the same as for the preferred alternative except that soil movement and over land flows would increase proportionately. Visual requirements would not be met.

## Ecological Assessment

(Environmental Assessment)

The report of this project will be the same as those discussed in the previous chapters with the exception of vegetation, visual, soil, water, and noise.

### Vegetation

Vegetation

The vegetation would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation. The vegetation would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation. The vegetation would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation.

Vegetation

When vegetation is removed, it is necessary to consider the soil, water, and noise. The vegetation would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation. The vegetation would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation.

Other considerations would be similar to the previous chapters.

### Visual

The visual impact of the project would not be the removal of the vegetation of the area.

### Soil and Water

A major concern of soil movement would occur in proportion to the increase in soil disturbance, erosion, and sedimentation. Also, a major concern would be the impact of the project on the water table. The vegetation would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation.

### Ecological Considerations

The main difference here is that the project would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation. The vegetation would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation.

### Social Considerations

Environmentalists have said that the project is socially, aesthetically, and economically beneficial to the area. The project would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation.

The project would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation. The vegetation would be removed. This would be especially advantageous where there is a high density of vegetation and brush. Full analysis is necessary for the vegetation.

## Clearcutting Alternative

### Impacts (Environmental Consequences)

The impact of this proposal will be the same as those discussed in the preferred alternative with the exception of vegetation, visual, soil watershed and economics.

### Vegetation

#### Timber

The overstory would be removed. This would be especially advantageous where dwarf mistletoe infections are present. Full sunlight is necessary for lodgepole regeneration, therefore, adequate regeneration would be expected within 5 years. There would be no residual stand to damage from logging.

#### Range

When overstory vegetation is removed increases in understory shrubs, forbs and grasses follow. Clearcutting maximizes these increases which benefits livestock and wildlife in the form of increased forage.

Other consequences would be similar to the preferred alternative.

### Visual

The clearcutting technique would not meet the requirement of the visual classification of the area.

### Soil and Water

A greater degree of soil movement would occur in proportion to the increase in soil disturbance, however, approximately 2/3 less acreage would be involved than is with the preferred alternative. Also a larger increase in run-off from the affected areas would be expected.

### Economic Considerations

The main difference here is cost to the government to offer the sale, approximately 75 percent of the sale marking costs could be avoided by clearcutting. Also, logging costs would be reduced an undetermined but significant amount because the volume is more concentrated and efficiency goes up.

### Social Considerations

Environmentalists have said that clearcutting is unsightly, destructive to young trees, harmful to wildlife, and the cause of enormous erosion and siltation of forest streams.

The present concern with clearcutting developed since 1964 and focused on the National Forests. It was probably brought about by: (1) General application of clearcutting to Eastern hardwoods, (2) Increased allowable cuts on National Forests and the corresponding accelerated rate of timber sale and harvesting

The Relationship Between Energy Use, Environmental and  
the Efficiency and Effectiveness of Energy Production

Energy use would continue with some gradual decrease in future. The  
greater efficiency would be maintained but at the expense of increasing pro-  
duction of new energy and power. Productivity would most certainly be  
decreased. The economic gains do not seem fast enough to offset  
energy production losses.

Other data indicates that the regulatory resources would not be maintained or enhanced.

Implications for Regulatory Development of  
Energy Use and Environmental Protection

If the study is allowed to result in regulatory action, it will be  
to reduce production and the same thing results from a decision to take no  
action.

Policy Implications Between the Efficiency and the Effectiveness of Energy  
Production, State and Local Law Use, Policy, and Environmental Protection

The no action alternative continues with existing energy production  
of new capacity, the Black Land Use Plan and Environmental Protection and  
the Black-White Energy Production Plan.

Energy Requirements and Environmental Protection of the Future

The greatest energy use would require energy in the form of gasoline and diesel fuel  
for operating for power, fuel, power, chemical and nitrogen. This  
alternative is the most efficient use of energy because it is a relatively  
safe that minimizes man-in cost and complexity. The construction of new power  
production systems is required.

The action will be to make an undetermined amount of additional capacity to be  
required, with some equipment use of fossil fuels.

The construction of fuel by replacing the action would produce some energy  
from fuel in order to allow some production for power and will allow  
replacement of the fossil resources.

The no action alternative would conserve the energy that would be expended  
by the greatest alternative. Forest management opportunities and the  
possibility to make more fuelwood available would be foregone.

## The Relationship Between Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

Present uses would continue with some gradual decrease in forage. The present naturalness would be maintained but at the expense of long-term production of both forage and timber. Productivity would most certainly be decreased. Old decadent stands do not grow fast enough to offset normal mortality losses.

Under this alternative the vegetative resource would not be maintained or enhanced.

### Irreversible or Irrecoverable Commitments of Resources Should The Alternative Be Implemented

If the timber is allowed to reach pathological rotation volume and value becomes irretrievable and the same thing results from a decision to take no action.

### Possible Conflicts Between the Alternative and the Objectives of Federal, Regional, State and Local Land Use Plans, Policies and Controls for the Area

The no action alternative conflicts with multiple use policy guidelines of both agencies, the Black Tail Land Use Plan and Environmental Statement and the Black-Mountain Forest Management Plan.

### Energy Requirements and Conservation Potential of the Various Alternatives

The preferred action would require energy in the form of gasoline and diesel fuel for operating log trucks, bull dozers, chain-saws and passenger trucks. This alternative can make the most efficient use of energy because it is a combined sale that eliminates move-in cost and coordinates the construction of one common transportation route or system.

The action will also make an undetermined amount of fuelwood available to be marketed, which would supplement the use of fossil fuels.

The consumption of fuel by implementing this action would produce seven million board feet of lumber or other wood products for human benefit and will allow management of the forest resource.

The no action alternative, would conserve the energy that would be expended by the preferred alternative; however, forest management opportunities and the opportunity to make more fuelwood available would be foregone.

Analysis of the Experimental Results  
Which Shows the Effect of the Treatment

There are discussed several "effects" but are summarized below. Generally, the positive effects would not occur and negative effects would be avoided.

Effect

A slight amount of reaction presently occurring would continue.

Effect

Positive benefits in the form of increased work units and increased efficiency would not occur and reaction time would be avoided.

Reaction

The rate and extent of reaction would increase. In fact, the reaction would increase.

Large time effects directly would result in decreased efficiency. Large time would be expected to decrease overall productivity. Large time would decrease in these areas.

Positive benefits of the present situation would not be realized. Negative effects would be reduced and possibly even avoided. Large time would be produced in the absence of a reaction. Negative effects of the present situation would not occur.

Effect

When pressure and activity would not occur and effects would not be realized or have great effect.

Effect

General observation of the present situation would occur as mentioned above. The present situation in the present situation. Large time would be produced in the absence of a reaction. Negative effects of the present situation would not occur.

Reaction

There will be a slight increase in the reaction rate.

Effect

Analysis was received from the office to handle the present situation.

Effect

There are no significant effects from the present situation.

Effect

Analysis was received from the office to handle the present situation.

Adverse Environmental Effects Which Cannot Be Avoided  
Should the Alternative be Implemented

These are discussed previously under "impacts" but are summarized below. Generally, the positive benefits would not occur and negative impacts would be avoided.

Soils

A slight amount of erosion presently occurring would continue.

Water

Positive benefits in the form of increased snow packs and increased available soil moisture would not occur and erosion from water would be avoided.

Vegetation

Fire risk and slash would increase annually. Insect and disease incidence would increase.

Forage plant species diversity would remain static or deteriorate. Aspen stands would be expected to disappear through successional change. Forage production would decrease on these sites.

Positive benefits of the preferred alternative would not be realized. Wildlife habitat diversity would be reduced and gradually less wildlife forage would be produced in the absence of a national catastrophe. Negative impacts of the preferred alternative would not occur.

Animals

Human presence and activity would not occur and animals would not be displaced or have added stress.

Visual

Gradual degradation of visual resource would occur as overmature timber dies causing a loss in the green aspect of the landscape. Large amounts of dead timber can be visually undesirable.

Recreation

There will be limited potential for future recreation development.

Social Aspects

Agencies may receive criticism for failure to manage the timber resource.

Economics

There are no economic benefits from timber in this alternative.

Land Uses

Multiple uses would be limited to existing use under this alternative.



in addition, forest would be produced and species diversity would remain stable.

Forest would still continue to decompose and produce toward a similar climax.

This will be accompanied by a decrease in range production on these sites.

Intake

Output

An increase in carbon flux would occur. Last, if forest systems are forested and maintained for a long time, the carbon flux will be near zero.

There may be some species, range and abundance, and a decrease in forest as well as lower abundance with respect to forest.

Higher positive effects of the process which would not occur. The current wildlife population would remain stable, favoring birds and mammals associated with a mature landscape like forest. Increased herbivorous vegetation would not occur and open habitats would gradually become continuous forest with very little habitat diversity.

Cultural Resources

This alternative would not create an opportunity to inventory or manage the cultural resource.

Visual

Some degradation of the visual resource could occur should the project occur in the forest or just to wild fire, large insect or disease outbreaks or large acreages of land timber due to natural mortality.

Recreation

Recreation use would be limited to existing use.

Soil Conditions

Forests may receive criticism for failure to remove the timber through.

Esthetics

Esthetic benefits described under impacts of the proposed action would not be realized. This could also have social implications.

Last Item

There would be limited to present use. There would be no use of the timber resource.

The SE Act to be devoted to land would not be just to vegetation direction for the forest's future.

## Range

No additional forage would be produced and species diversity would remain static.

Aspen stands will continue to degenerate and proceed toward a conifer climax.

This will be accompanied by a decrease in forage production on these sites.

## Animals

### Domestic

No increase in cattle drift should occur. Less livestock pressure on fences may necessitate less maintenance. No additional forage will be made available.

Where poor access exists, range use supervision, care and supervision of livestock as well as fence maintenance would remain difficult.

Wildlife negative impacts of the proposed action would not occur. The current wildlife population would remain stable, favoring birds and mammals associated with a mature lodgepole pine forest. Increased herbaceous vegetation would not occur and aspen inclusions would gradually become coniferous forest with very little habitat diversity.

## Cultural Resources

This alternative would not create an opportunity to inventory or investigate the cultural resource.

## Visual

Some degradation of the visual resource could occur should the green aspect of the forest be lost to wild fire, large insect or disease outbreaks or large acreages of dead timber due to natural mortality.

## Recreation

Recreation use would be limited to existing use.

## Social Conditions

Agencies may receive criticism for failure to manage the timber resource.

## Economics

Economic benefits described under impacts of the proposed action would not be realized. This could also have social implications.

## Land Uses

Land would retain more natural aspects.

Uses would be limited to present uses. There would be no use made of the timber resource.

The 32 acres to be devoted to roads would not be lost to vegetation production for the foreseeable future.

Investigation of Agricultural Contaminants of Resources  
During the Winter as Indicated

A study was conducted during the winter of 1961-62 to determine the extent of agricultural contaminants in the water supply of the city of Denver. The study was conducted in cooperation with the Colorado State Department of Health and the Colorado State Department of Agriculture. The study was conducted in the following manner: 1. A survey of the water supply system was conducted to determine the extent of agricultural contaminants. 2. A survey of the agricultural practices in the area was conducted to determine the extent of agricultural contaminants. 3. A survey of the water quality in the area was conducted to determine the extent of agricultural contaminants. 4. A survey of the water quality in the area was conducted to determine the extent of agricultural contaminants.

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Public Health and Agricultural Contaminants of Resources  
During the Winter as Indicated

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Public Health and Agricultural Contaminants of Resources

Public Health

Public Health and Agricultural Contaminants of Resources

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Public Health

Public Health

Public Health and Agricultural Contaminants of Resources

Irreversible or Irretrievable Commitments of Resources  
Should the Alternative be Implemented

A minor, unmeasured amount of soil would be eroded and is irretrievable. Approximately 32 acres of land would be taken out of production by roads. By intention these roads would be permanent and thus this use of the land is irretrievable. Trees are a renewable resource and retrievable however they are not immediately retrievable and removal of old growth timber changes that type for a period of 80-140 years.

The visual character is most obviously affected. Two years elapse before grasses and forbs are reestablished. The roads remain a visual impact as long as they are maintained. The visual character of a forest returns in about 20 years.

The Forest resource is retrievable but is mentioned because it is not immediately retrievable it is irretrievable for a long period of time.

Possible Conflicts Between the Alternative and the Objectives of  
Federal, Regional, State and Local Land Use Plans, Policies and Controls

The preferred alternative has been designed to incorporate the local land use plans which were developed according to accepted and established policies. The Forest Service Plan has received public input and review, for these reasons conflicts should be minimal.

The one possible source of conflict that may remain is the proposed status of the road as proposed in the alternative. Closure to vehicle use of Forest Service roads by the public may be in conflict with multiple use philosophies of both agencies and precipitate questions from the public.

No Action Alternative

Impacts on:

Climate and Air Quality - none

Topography - none

Soils

A slight amount of erosion presently occurring would continue.

Water

Positive benefits in the form of increased snow packs and increased available soil moisture would not occur and erosion from water would be avoided.

Vegetation

Timber

As the timber reached pathological rotation, the resources would be wasted and slash would accumulate, increasing the risk of fire. Insects and disease are more prevalent in overmature and decadent stands. Economic benefits would not be realized from the sale of the timber.

The Relationship Between Short-Term Uses of Man's Environment  
and the Persistence and Enhancement of Long-Term Productivity

Short-term uses of this area provide wood products and cause insects associated with soil disturbance, visual change and a loss of natural solitude. These changes may persist from 5 to 20 years.

By changing the density of the trees the number and size of herbaceous plants would increase having an effect for approximately 15 years. When the age class of the timber is lowered by removing old growth and through thinning, long-term productivity can nearly be doubled due to the faster growth that occurs in younger stands.

Through the application of environmental protection measures most adverse impacts are short-term and slight or minor in their impact. Long-term productivity can be greatly enhanced and many short-term benefits are realized in the form of increased forage, less insects, disease, and fire risk and increased in water yield and snow packs.

The Relationship Between Short-Term Uses of Man's Environment  
and the Maintenance and Enhancement of Long-Term Productivity

Short-term use of this area provides wood products and causes impacts associated with soil disturbance, visual change and a loss of natural solitude. These changes may persist from 2 to 20 years.

By changing the density of the trees the number and size of herbaceous plants would increase having an effect for approximately 15 years. When the age class of the timber is lowered by removing old growth and through thinning, long-term productivity can nearly be doubled due to the faster growth that occurs in younger stands.

Through the application of environmental protection measures most adverse impacts are short-term and slight or minor in their impact. Long-term productivity can be greatly enhanced and many short-term benefits are realized in the form of increased forage, less insects, disease, and fire risk and increases in water yield and snow packs.

Vegetation

Moderate long-term change in stand age and composition.  
Slight amount of physical damage to residual stand from removal of crop trees.  
There would be a 5 to 7 year tree regeneration lag by waiting for natural regeneration.  
Long-term loss of vegetation on roads, approximately 33 acres.

Fisheries

Increased livestock mobility would require increased supervision, and fence maintenance.  
There would be a moderate, seasonal increase in stress to wildlife by human activity. There would not be any adverse impact on fisheries.  
There would be a decrease of overmature lodgepole pine habitat.

Cultural Resources

No impacts. Clearance is pending and potential impacts to a cultural resource would be mitigated.

Visual Resources

Change in naturalness of the area.  
Visual change by introduction of line that sometimes would not be subordinate to landscape.  
Temporary impact from color change not subordinate to existing color because of logging slash.

Recreation Resources

Loss of naturalness due to roads.  
Developed recreation opportunities would be limited due to forest service and BLM road closures to motor vehicles.

Social

None.

Economic

None.

## Vegetation

Moderate long-term change in stand age and composition.

Slight amount of physical damage to residual stand from removal of crop trees.

There would be a 2 to 7 year tree regeneration lag by waiting for natural regeneration.

Long-term loss of vegetation on roads, approximately 32 acres.

## Animals

Increased livestock mobility would require increased supervision, and fence maintenance.

There would be a moderate, seasonal increase in stress to wildlife by human activity. There would not be any adverse impact on fisheries. There would be a decrease of overmature lodgepole pine habitat.

## Cultural Resources

No impacts. Clearance is pending and potential impacts to a cultural resource would be mitigated.

## Visual Resource

Change in naturalness of the area.

Visual change by introduction of line that sometimes would not be subordinate to landscape.

Temporary impact from color change not subordinate to existing color because of logging slash.

## Recreation Resource

Loss of naturalness due to roads.

Developed recreation opportunities would be limited due to Forest Service and BLM road closures to motor vehicles.

## Social

None.

## Economic

None.





## Transportation System

Public travel in the area would be limited to foot, horseback or snowmobile. The number of hunters or visitors is not expected to change from past levels, however road restrictions would increase time spent walking, and as a result increase the number of animals seen and possibly increase the kill. The restrictions would generally be accepted as providing a higher quality hike or hunt. Where cover is good (at least 2/3 of total area) and well distributed, restrictions will probably have little effect on elk distribution. Where cover is poor (1/3 or less of the total area then restrictions would reduce harassment of elk. Montana cooperative Elk-Logging study, Progress Report, 1980.)

## Land Uses

Current land uses include livestock grazing, deer and elk hunting, and snowmobile touring.

A recent inventory has eliminated this area from wilderness designation. The impacts on these uses are discussed previously.

## Adverse Environmental Effects Which Cannot Be Avoided

### Climate and Air Quality

Minute, temporary adverse impact from dust particles in the air, and minor temporary local impact due to smoke from slash disposal.

### Geology and Minerals

None.

### Topography

Approximately 32 acres of land would be taken out of production because of roads.

### Soils

Slight, local short-term adverse impact on, onsite erosion, permeability, and infiltration.

Slight adverse impact on soil fertility from burning slash.

### Water

Minor short-term increase in overland flow in proportion to the amount of soil compaction.

Slight, short-term temporary decrease in downstream water quality due to sediment.

The primary objective of this study is to assess the impact of various factors on the growth and development of the forest sector. The study is based on a comprehensive review of the literature and data analysis. The findings indicate that the forest sector has shown significant growth over the past decade, driven by increasing demand for timber and non-timber forest products. However, the sector faces several challenges, including deforestation, land-use changes, and climate change. The study also highlights the need for sustainable forest management practices to ensure the long-term viability of the sector. Key recommendations include strengthening forest governance, promoting community-based forest management, and investing in forest research and development.

### Social Conditions

The study examines the social conditions of the forest sector, focusing on the impact of forest management on local communities. It finds that forest management can have both positive and negative social impacts. On the one hand, it can create employment opportunities and improve livelihoods. On the other hand, it can lead to land displacement and loss of traditional knowledge. The study emphasizes the importance of involving local communities in forest management decisions and ensuring that their interests are protected.

The study also discusses the environmental impact of forest management. It notes that deforestation and land-use changes can lead to soil erosion, water pollution, and loss of biodiversity. The study calls for the implementation of sustainable forest management practices that minimize environmental impacts. It also highlights the role of forest management in climate change mitigation and adaptation. The study concludes that forest management is a complex issue that requires a holistic approach that considers social, economic, and environmental factors. The study provides a framework for assessing the impact of forest management and offers practical recommendations for improving forest management practices.

### Environmental Conditions

The study discusses the environmental conditions of the forest sector, including the impact of forest management on the environment. It finds that forest management can have both positive and negative environmental impacts. On the one hand, it can help to conserve biodiversity and protect ecosystems. On the other hand, it can lead to deforestation and land-use changes. The study emphasizes the need for sustainable forest management practices that protect the environment. Key recommendations include strengthening forest governance, promoting community-based forest management, and investing in forest research and development.

The study also discusses the economic conditions of the forest sector, including the impact of forest management on the economy. It finds that forest management can have both positive and negative economic impacts. On the one hand, it can create employment opportunities and improve livelihoods. On the other hand, it can lead to land displacement and loss of traditional knowledge. The study emphasizes the importance of involving local communities in forest management decisions and ensuring that their interests are protected. The study concludes that forest management is a complex issue that requires a holistic approach that considers social, economic, and environmental factors. The study provides a framework for assessing the impact of forest management and offers practical recommendations for improving forest management practices.

## Recreation Resources

The primary recreation impact is a loss of naturalness due to road construction and tree removal. For a discussion of the visual impact, see the Visual section. Loss of naturalness may result in a loss of recreation opportunities because many primitive recreation activities such as backpacking are based on a natural environment. However, tree removal may increase browse species and open up the forest stand which could increase wildlife viewing and hunting opportunities. Off-road-vehicle opportunities may also be enhanced because of the increased number of roads. Again, vehicle access would have to be from the adjacent private lands. Overall, primitive recreation activities would tend to decrease while motorized activities would increase if the proposed action is implemented.

## Social Conditions

Any decision affecting the allocation of resources has social implications. The forest resource base is shrinking, demand for all resources is increasing; this causes conflicts in social attitudes, i.e. environmental concern versus resource development and special interest versus special interest.

The Wilderness Preservation Act of 1964, the National Forest Management Act of 1974 and the Federal Land Policy and Management Act of 1976 all lend direction to identifying and establishing land for wilderness use. In Colorado, in 1979 the U.S. Forest Service identified 1,959,523 acres that have been recommended to Congress for inclusion in the wilderness system. Presently the BLM is studying 815,048 acres of public lands that may be suitable for wilderness use. This represents a significant reduction in the timber resource base. This shrinking timber production base means that the remaining timber land would become even more important to society as our population and resource demands grow. For this reason management and harvest of all our forest lands, including Black Mountain-Little Whiskey Creek area is socially important. This sale should generate positive social reactions. Environmental protection has been thoroughly examined and public input has come through the Forest Service Blacktail Environmental Impact Statement and Land Use Plan (USDA 1974). Adjacent landowners have been initially receptive since it affords an opportunity for them to improve their roads and harvest their timber resource.

## Economic Considerations

This proposal would have significant short-term and long-term, positive, economic impacts. The more important ones include the sale of timber products, more efficient administration for grazing, fire and other land management functions.

The Forest Service (USDA-Forest Service Res. pap. RM-92 1975) estimated that \$122,000 and 9-man years of employment are generated in the local economy for every 1 million board feet of timber harvested. This sale of 7 million board feet represents 27 to 28 percent of the total combined annual production of the two largest lumber mills in the market area. Both mills produce far below capacity. This is partly due to available timber supply. The Kaibab mill at Eagle processes about 13 million feet annually but has a capacity of 20 million feet annually. Thirteen million feet is about what is offered by the White River National Forest. One to two million feet change in available timber can be important to small mills.

Initial work concentrated on road construction, timber harvest and containing forest fires. Wildlife would benefit in a large measure from human activity and noise in a portion of 2,500 acres of BLM, Forest Service and private lands. The exact portion affected would be quite variable depending on location of activity. The impact of human activity would significantly affect six species. During road building and timber harvest, road construction would affect six species. During road building and timber harvest, road construction would affect six species. During road building and timber harvest, road construction would affect six species.

Large production for deer, elk and sheep herds would increase as the forest canopy is opened to allow production of various plant species. Wildlife species associated with a dense forest canopy would decrease. The more common of these include the pine marten, weasels, woodrats, marten, fisher, and weasel. Construction would affect large species such as white-tailed ptarmigan, mountain quail, and mountain chickadee. Mountain chickadee and sharp-shinned hawk are some species likely to benefit from forest opening.

Fisheries

Impact on fisheries would not be measurable. The increase in sediment load to local streams is expected to be slight, and of short duration. Late season flows may increase, decreasing the ability to maintain low water temperatures during the critical period of the year.

Cultural Resources

No impacts would occur to cultural resources or archeological sites in the area.

Visual Resources

The proposed action for road construction, timber harvest, slash disposal, etc. would include the following potential effects on the scenic landscape from the national forest. The degree of impact would result from the cumulative effects of road construction, timber harvest, and slash disposal. Road construction would be particularly located in the areas and evaluated by the visual impact rating system to determine their relative impact on the various visual zones, especially the "partial retention" zone.

Visual impacts related to logging operations have short-term and long-term impacts. The former are normally more noticeable and related with vegetation is likely to be minimal. All of the affected visual classes and landscape elements that require attention should report the form, color and texture patterns of the existing landscape. The latter impacts are more subtle and occur over a longer period of time. These impacts are more subtle and occur over a longer period of time. These impacts are more subtle and occur over a longer period of time.

## Wildlife

Initial road construction, timber harvest and continuing contract administration would result in a large increase in human activity and noise on a portion of 9,500 acres of BLM, Forest Service and private lands. The exact portion affected would be quite variable depending on location of the activity in relation to topography, the wildlife species and type of activity. The impact of human activity would significantly affect elk populations using the area. During road building and timber harvest activities, studies have found that elk usually move until topography provides an effective visual and sound barrier. This can be a distance of several miles.

Forage production for deer, elk and small herbivores would increase as the forest canopy is opened to allow production of herbaceous plants. Wildlife species associated with a dense lodgepole pine forest would decrease. The more common of these include the pine squirrel, several woodpeckers, nuthatches, sapsuckers, and goshawk. Clearcutting would affect these species most, while partial cutting would only cause a minor impact. Conversely, chipmunks, deer mice, mountain bluebird, mountain chickadee, and sharpshinned hawk are some species likely to benefit from forest openings.

## Fisheries

Impacts on fisheries would not be measurable. The increase in sediment load to Rock Creek is estimated to be slight, and of short duration. Late season flows may increase, benefiting the fishery by helping to keep water temperature lower during the hottest times of the year.

## Cultural Resources

No impacts would occur to cultural resources or provisions will be made to mitigate impacts.

## Visual Resource

The proposed action for road construction, timber removal, slash disposal, etc. would initiate the first substantial alteration of the mountain landscape from its natural state. The degree of impact would result from the cumulative effects of road construction, thinning, patchcuts and clearcuts; each would have to be specifically located on the ground and evaluated by the Visual Contrast Rating System to determine their influence on the various visual zones, especially the "partial retention" zone.

Visual impacts related to logging operations have short-term and long-term impacts: the former are normally more noticeable and persist until revegetation is firmly reestablished. All of the affected visual classes and landscapes stipulate that proposed alterations should repeat the form, line, color and texture patterns of the existing landscape, so that the visual appearance of the change would be those of natural occurrence within the surrounding area. Once these general guidelines have been incorporated, the duration of the "short-term" period is reduced, and the long-term problems are essentially eliminated.



Buffer strips are to be maintained along stream channels. These would function as sediment filters minimizing the quantity of sediment introduced by overland flow.

## Vegetation

### Timber

Approximately 32 acres would be removed from the production of timber because of the construction of permanent roads. The harvest of timber would reduce the average size of the stands and the average age. The stands would be younger due to the removal of the oldest age classes. Younger stands have positive benefits in that they are faster growing and healthier.

Harvest methods would leave healthy and phenotypically superior trees. A minor amount of physical damage would occur to the residual stand during the falling and skidding operation.

### Range

Selective and patchcutting results in eliminating some of the competition between plants for space, nutrients and light. As a result there would be an increase in grasses, forbs and shrubs pending reestablishment of the tree canopy. This would create more species diversity and more available forage. Skidding results, in exposure of mineral soil making a better seed bed for grasses, forbs and shrubs. This may result in more short-term forage production. Increased livestock mobility resulting from new roads, and more open stands of timber, as well as, new forage production, may result in better patterns of utilization and indirectly some improvement in trend in some areas. Aspen regeneration may be enhanced.

Some insignificant amounts of vegetation would be temporarily lost due to skid trail, landing, and spur road construction and usage.

Approximately 32 acres would be lost to the production of vegetation for the foreseeable future due to the construction of 19 miles of new road.

## Animals

### Domestic

An unknown amount of additional forage would become and remain available to cattle pending closure of the tree canopy. Improved livestock mobility would result from new road construction and opening of the timber stands. This should result in additional forage being physically available to grazing. The additional roads and improved access would help to make range use super-vision, livestock supervision and care, as well as range improvement maintenance more effective and efficient.

The increased livestock mobility resulting from new road construction may create problems with cattle drift from areas of customary use. This may result in a need for more riding by the operators to keep the livestock where they belong. The increased livestock mobility may result in more livestock pressure against existing fencing. The fence on the forest boundary is in poor repair in places. If the pressure increases, fence maintenance requirements would also increase.



These factors would have the hydrologic response on the amount of the Black Hill Unit. The intensity and duration of impact would vary depending on the amount of vegetation cover (range), exposure and composition of the soil, and the position of the watershed affected (Barnes 1977, Snow 1971). These harvesting effects are water resources by harvesting various hydrologic processes.

Interaction is the process whereby vegetation intercepts the fall of precipitation into the soil surface. The precipitation that enters the tree canopy may either be leaves and branches. Some of the water can evaporate back into the atmosphere, some drains to the ground (through fall) and some flows down stem to the ground (stem flow). These harvest would decrease interception capacity resulting in increased infiltration. The interception loss can last 30 years or more.

Now accumulated and some will enter the canopy affected by timber harvesting. The accumulation and greatest in forest canopy and their retention in lodgepole pine type in Colorado. Harvested trees in winter stress and soil surface increased snow accumulation by at least 30 percent compared to the remainder of the forest. Forest cover delays runoff times by storing and then extends the time snow is held in surface storage. Barnes (1977) estimated forest storage capacity will be 40 percent. Although snow under the forest canopy falls faster and melts faster than snow in the open, it may melt more rapidly once it begins. Eventually causing greater peak flows. This can be contrasted to the higher daily precipitation rates in the season. Increased water yields can be expected from clearcut areas due to reduced transpiration losses, greater unit area contribution of runoff water, and greater year-to-year variation in runoff. The water yield response may last for decades, but until the forest vegetation and soil erosion approaches pre-treatment conditions.

Overland flow is essentially absent from before harvested forests. It's generally considered an undesirable condition, because overland flow and soil erosion. Forest practices that reduce infiltration rates usually result in increased overland flow. Harvesting trees does not affect infiltration capacity, however, compaction and exposure of mineral soil does. The results from road building and skidding and logging can be directly related to the amount of soil erosion and compaction.

In summary, increased water yields occur from logging the Black Mountain Unit primarily by reducing evapotranspiration and interception. Reducing overland flow, and increasing snow pack. Increases in stream discharge would occur especially during the spring and early summer as snowpack melts.

Runoff water yields would also occur. Logging roads and their construction cuts and fills the surface around at sediment from localized erosion. Amount of erosion depends on the way the logging road is built and on the vegetation and soil conditions on either side, and the distance to sediment transport (Barnes 1977). Logging stream channels and another significant sediment source. As a result of stream channel logging, the water yields increased from forested areas. The channel bank may become overtopped and erosion occur. This increase channel erosion would occur until the streambed stabilizes.

## Water

Timber harvesting would impact the hydrologic resources on and downstream of the Black Tail Unit. The intensity and duration of impact would vary depending on the treatment (severity of vegetal cover change), exposure and compaction of the mineral soil, and the proportion of the watershed affected (Megahan 1972, Stone 1973). Timber harvesting affects the water resource by influencing various hydrologic processes.

Interception is the process whereby vegetation interrupts the fall of precipitation onto the soil surface. The precipitation that enters the tree canopy may adhere to leaves and branches. Some of the moisture then evaporates back into the atmosphere, some drips to the ground (through fall) and some flows down stems to the ground (stemflow). Interception by conifers may amount to 30 percent of the annual precipitation. Timber harvest would decrease interception possibly resulting in increased streamflow. The interception loss can last 50 years or more.

Snow accumulation and snow melt rates are markedly affected by timber harvesting. Snow accumulations are greatest in forest openings and their margins. In lodgepole pine type in Colorado, harvesting timber in narrow strips and small patches increased snow accumulation by at least 30 percent compared to the remainder of the forest. Forest cover delays snowmelt times by shading and thus extends the time snow is held in surface storage. Anderson (1969) estimated forest shading reduced melt rates by 40 percent. Although snow under the forest canopy lasts longer and melts later than snow in the open, it may melt more rapidly once it begins, potentially causing greater peak flows. This can be contributed to the higher daily temperatures later in the season. Increased water yields can be expected from clearcut areas due to reduced transpiration losses, greater unit-area concentration of snowmelt water, and greater year-to-year carryover soil moisture. This water yield increase may last for decades, i.e., until the forest vegetation and condition approaches pre-treatment condition.

Overland flow is essentially absent from mature undisturbed forests. It's generally dependent on infiltration capacity, storage opportunity, and rain fall intensity. Forest practices that reduce infiltration rate usually results in increase overland flow. Merely cutting trees does not affect infiltration capacities, however compaction and exposure of mineral soil does. This results from road building, and skidding and hauling of logs. The amount of overland flow that occurs following logging seems to be directly related to the percent of soil exposed and compacted.

In summary, increased water yield would occur from logging the Black Mountain Unit primarily by reducing evapotranspiration and interception, increasing overland flow, and increasing snow pack. Increases in stream discharge would occur especially during the spring and early summer as snowpack melts.

Minimal water quality impacts would also occur. Logging roads and their unprotected cuts and fills are primary sources of sediment from forested watersheds. Movement of sediment downslope from a road is dependent on runoff volumes and velocities, availability of erodible soil, and the obstructions to sediment transport (Haupt 1959). Eroding stream channels are another significant sediment source. As stream discharges increase, i.e. water yields increased from treated areas, the channel banks may become overtaxed and erosion occurs. This increase channel erosion would occur until the streambanks stabilize.

Vegetation Alternatives

Climate and Air Quality

The quality would be affected temporarily because of dust particles that were stirred into the air during the road construction and from the movement of log trucks along the main roads. This is a local, temporary, slight impact. The air quality would also be affected by any steam burning that occurred. This would be a moderate, local, short-term impact.

Soil and Water

There are no environmental consequences.

Topography

Approximately 35 acres would be impacted by 18 miles of 14 foot haul roads. These roads intersect the topography causing visual impacts and a slight amount of erosion. These impacts are further discussed under soil and water impacts.

Soils

Disturbance from road construction, logging activities, and other activities would cause short-term adverse impacts to the soil resources.

Impacts due to road construction would be the most significant. The physical properties of soils would be altered, especially those of structure, infiltration, and permeability. Disturbance would initially increase, but would decrease after the cut and fill areas are re-vegetated. Existing subsurface drainage facilities are planned and properly constructed. Impacts of erosion would be minor. No problems with slope failures are anticipated because the soils are coarse-textured well drained, and surface disturbances are restricted on the steeper slopes.

Soil compaction would occur from logging operations, but this impact would be minor. Recovery is anticipated to be rapid.

Impacts arising from slash disposal would depend upon the method that was used. If the slash is piled and weathered, impacts would be moderate. This method would involve slash being placed in piles to protect the soil from rainwater impact and erosion runoff.

However, if burning is the prescribed method of slash disposal, the mineral soil would be exposed and erosion would increase.

In addition to a decrease in ground cover by burning, significant amounts of nitrogen, phosphorus, and sulfur could be lost from the soil and the water table. However, the variability of nutrients, carbon and nitrogen could increase through burning. The productivity of the land would probably not be lowered by burning.

## ENVIRONMENTAL CONSEQUENCES

### Preferred Alternative

#### Climate and Air Quality

Air quality would be affected temporarily because of dust particles that were stirred into the air during the road construction and from the movement of log trucks along the main haul roads. This is a local, temporary, slight impact. "The air quality would also be affected by any slash burning that may occur. This would be a moderate, local, short-term impact."

#### Geology and Minerals

There are no environmental consequences.

#### Topography

Approximately 32 acres would be impacted by 19 miles of 14 foot haul roads. These roads interrupt the topography causing visual impacts and a slight amount of erosion. These impacts are further discussed under soil and visual impacts.

#### Soils

Disturbances from road construction, logging activities and slash disposal would cause short-term, adverse impacts to the soil resource.

Impacts due to road construction would be the most significant. The physical properties of soils would be altered, especially those of structure, infiltration, and permeability. Onsite erosion would initially increase, but would decrease after the cut and fill slopes are revegetated. Assuming adequate drainage facilities are planned and properly constructed, impacts of erosion would be minor. No problems with slope failures are anticipated because the soils are coarse textured well drained, and surface disturbances are restricted on the steeper slopes.

Soil compaction would occur from logging operations, but this impact would be minor. Recovery is anticipated to be rapid.

Impacts arising from slash disposal would depend upon the method that was used. If the slash is lopped and scattered, impacts would be beneficial. This method would insure adequate ground cover to protect the soil from raindrop impact and surface runoff.

However, if burning is the prescribed method of slash disposal, the mineral soil would be exposed and erosion would increase.

In addition to a decrease in ground cover by burning, significant amounts of nitrogen, phosphorus, and sulfur could be lost through volatilization or increased erosion. However, the availability of potassium, calcium and magnesium could increase through burning. The productivity of the land would probably not be impaired by burning.

TABLE 3

Alignment	Number of Cattle	Season of Use	Animal Unit Months Authorized
Black Mountain	9	June 1 to Feb. 28	108
Copper Spur	18	Apr. 1 to Feb. 28	216
Horn	21	May 1 to Oct. 31	252
<b>Total</b>	<b>48</b>	<b>Total</b>	<b>576</b>

Forest Service land. Only one Forest Service alignment (Horn Creek) is located within the proposed sale area. Table 4 gives number of cattle and animal unit months authorized for this alignment.

TABLE 4

Alignment	Number of Cattle	Season of Use	Animal Unit Months Authorized
Horn Creek	68	July 16 to Oct. 15	192
Owned by 3 ranchers	52	July 01 to Sep. 30	156
	42	July 01 to Sep. 30	126
<b>Total</b>	<b>162</b>	<b>Total</b>	<b>474</b>

Witnesses

The above has been reviewed for witness's designation and does not qualify.

TABLE 3

Allotment	Number of Cattle	Season of Use	Animal Unit Months Authorized
Horn	21	May 1 to Oct. 31	249
Copper Spur	18	Apr. 1 to Feb. 28	211
Black Mountain	<u>9</u>	June 1 to Feb. 28	<u>109</u>
Total	48		Total 569

Forest Service Land. Only one Forest Service allotment (Horse Creek) is located within the proposed sale area. Table 4 gives number of cattle and animal unit months authorized for this allotment.

TABLE 4

Allotment	Number of Cattle	Season of Use	Animal Unit Months Authorized
Horse Creek	68	July 16 to Oct. 10	193
Used by 3 ranchers	55	July 01 to Sep. 25	158
	<u>42</u>	July 01 to Sep. 25	<u>121</u>
Total	165		Total 472

#### Wilderness

The area has been reviewed for wilderness designation and does not qualify.



## Social Conditions

The social setting is quite rural. Kremmling, Colorado is the largest nearby town with an estimated population of 1,400. Yampa, the nearest town has a population of about 327; population has decreased since 1960. Employment for the area is provided by agriculture, construction, wholesale and retail trade, services including about 1/3 in public administration, services, mining and manufacturing.

For additional details regarding social conditions see the Black Tail Environmental Impact Statement and Land Use Plan (USDA, Forest Service 1976).

## Economic Conditions

This proposal will influence the timber processing and sawmilling portion of the economy and the discussion will be limited to that. Sawmills at Kremmling and Eagle, Colorado are the major milling points for the saw timber from the proposed sale. Three small mills cut timber from Forest Service and Bureau of Land Management lands.

The demand for wood products will increase nationally and locally. Prices are also increasing. Current lumber selling prices, wholesale, in the central rocky mountain area are slightly over \$320.00 per thousand board feet. Seven million board feet has a realization value of approximately 2¼ million dollars.

## Transportation System

The proposed roads will provide access for the harvesting and management of the timber resource. Forest Service roads are closed to public motorized travel in order to minimize the stress to wildlife from human contact. This recommendation comes from the Forest Service Blacktail land use plan and E.I.S.. The BLM is recommending the same kind of road closure in order to lend consistency to the management of the area.

The roads will be open to snowmobile use and other permitted administrative uses.

If BLM were to leave their roads open in view of the Forest Service decision it wouldn't mean anything since public access to BLM is through the National Forest. It would possibly create administrative problems for the Forest Service.

These proposed roads will, from a recreation stand point change the area from a non-motorized area to a motorized area.

## Land Uses

### Range

Six ranchers (BLM and Forest Service) have season-long use on four allotments in the proposed sale area. Approximately 213 head of cattle graze the area; no sheep or other livestock are present.

BLM Land. Segments of three BLM allotments are located with the proposed sale area. Table 3 gives number of cattle and animal unit months authorized on these allotments.





## Visual Resources

The low rolling hill country of the proposed sale area remains in a natural state. Open parks are interspersed with predominantly conifer forests so that aspen, sage, and grasses break up the continuous green colors of the forest canopy.

Some dirt roads bisect the area but the character is natural.

The proposed timber sale has been assessed according to Forest Service and BLM visual resource management procedures. The northern, Forest Service portion of the sale is divided into three visual management classes, 3A -partial retention, MG-1B, partial retention and 3B, modification. The partial retention classification stipulates that changes remain visually subordinate to the landscape and that they repeat the form, characteristic, line, color, and texture common to that landscape.

The modification category allows that a proposed change can become a focal element and visually dominant but the alterations should borrow from existing form, line, color, and texture patterns.

The 3A and Mg-1B areas noted in the Black Tail Forest Service, Environmental Impact Statement are visually sensitive because of State Highway 134 which is rated as a secondary observation corridor.

The southern portion of the proposed sale area has been evaluated according to BLM procedures. The C-level scenic quality landscapes are background or seldom seen landscapes which qualify them for management Class IV. This class allows visual contrasts to attract attention and to be dominant in terms of scale relationships; but existing form, line, color, and texture patterns should be repeated. (BLM Manual 8411.6)

## Recreation Resources

Currently, the Black Mountain area is a forested, mountainous area that provides for nonmotorized, primitive recreation. The area is largely natural except for a 4-wheel drive trail. The area has potential to provide for many recreational activities, such as hiking, backpacking, cross-country skiing, scenic viewing and big game viewing and hunting. Existing visitor use data are not documented. Some big game hunting is known to occur but this has not been qualified. Occasional snowmobiling does occur in the area; and one snowmobile club has expressed interest in obtaining access to the unit for snowmobiling and 4-wheeling.

Legal vehicle access is prohibited into the area except for snowmobiles because it is surrounded by private land and Forest Service land which is designated "closed." The adjacent private land owners do allow some hunters to cross their lands to reach BLM lands. Fee hunting and guiding/outfitting are believed to occur in the area to be cut. Several hunter camps are located in the area.

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Aspen, Forb, and Grass. This occurs as small inclusions throughout the proposed sale area as well as one larger stand in the northeast portion of the area. It exists generally on south facing slopes that are nearly level to moderately steep. Eventually, the site will ecologically progress to coniferous vegetation. It covers 3 percent of the area. Elevation varies from 8,500 to 9,600 feet. Precipitation varies from 20 to 25 inches a year.

Young aspen dominate the site with a forb and grass understory that includes wildrye, mountain brome, junegrass, bluegrasses, wheatgrasses, sedges, loveroot, blue bells, polamonium, aster, larkspur, fleabane, yarrow, geranium, peavine, lupine, and groundsel. Other species occur but do not make up a significant portion of the vegetative composition. This unit produces an average of 2,400 pounds of air dry herbage per acre annually. It supplies an important part of the forage for big game and domestic livestock. Growth potential for aspen as a timber species is 20 to 30 cubic feet per acre per year.

Willow and Wet Meadow. This unit occurs along streams and flood plains in the shallow drainages of the north portion of the area. It covers 1 percent of the proposed sale area. Elevations range from 8,600 to 9,200 feet. Precipitation averages about 26 inches a year.

Water sedge and willows that line the stream banks dominate the site. Other vegetative species that occur include tufted hairgrass, meadow foxtail, clover, and rushes. During dry periods the site can produce an average of 4,000 pounds of air dry herbage per acre per year. The area is grazed by elk and deer during the late summer and fall.

### Wildlife

Elk and mule deer are the primary big game species utilizing the sale area. Use is primarily during the summer months with the animals migrating to lower elevations to the south and east during the winter. The number of animals utilizing the area is unknown at this time.

Smaller animals on the area include snowshoe hare, chipmunk, pine squirrel, porcupine, coyote, red-tail hawk, owls, blue grouse, and passerine birds typical of the lodgepole pine forest.

Trout populations and beaver are found in Black, Whiskey, Horse, and Little Henry Creeks.

There are no known or suspected state or federally listed threatened or endangered species occurring on the area. There are no wild horses and cattle are the only domestic animal using the area. See land use in this section for details on livestock.

### Cultural Resources

There are no recorded cultural resource sites within the proposed sale area; however, a cultural resource survey would be conducted prior to the sale of timber in conformance with applicable laws. See the preferred alternative for comments regarding mitigation. Comments will be solicited from the Advisory Council on Historic Preservation and the State Historic Preservation Officer.

No investigation or independent plants are known to occur in the proposed area. Range condition on the National Forest is rated as fair to excellent. There is a small, scattered population in the proposed area. No data is available on trend.

Lodgepole pine forests are common on mountains and the trend is leveling. Lodgepole pine stands have varying degrees of health and vigor. The following stands were sampled: Lodgepole pine, Douglas fir, western white pine, and western yellow pine. The following stands were sampled: Lodgepole pine, Douglas fir, western white pine, and western yellow pine.

The following forest types are listed in order of decreasing area: Lodgepole pine, Douglas fir, western white pine, and western yellow pine.

Ecological Land Units

Lodgepole Pine and Fir. This Ecological Land Unit covers 52 percent of the proposed area. Elevations range from 5,000 to 10,000 feet on nearly level to moderately steep slopes. Precipitation varies from 50 to 80 inches a year.

Young and mature lodgepole pine forests are the type. Some Douglas fir is also present. Sedges in the moist areas. In the mountainous and hilly areas, Douglas fir, western white pine, and Oregon-grass are common.

Soils are mostly lodgepole pine forest. The soil is mostly lodgepole pine forest. Production is less than 500 pounds of air dry forage per acre.

Douglas Fir and Sedge. This unit occurs in isolated tracts in the west. Central portion of the proposed area and on steep north facing slopes. It covers 3 percent of the area. Elevations range from 5,000 to 7,000 feet. Precipitation averages about 50 inches a year.

Douglas-fir trees dominate the site. Some subalpine fir is also present. Sedges in the moist areas. In the mountainous and hilly areas, Douglas fir, western white pine, and Oregon-grass are common.

Soils are mostly Douglas-fir forest. The soil is mostly Douglas-fir forest. Production is less than 500 pounds of air dry forage per acre.

Subalpine and Fir. This unit is scattered throughout the proposed area. It covers 2 percent of the area. Elevations range from 7,000 to 10,000 feet. Precipitation varies from 50 to 75 inches a year. Subalpine fir, Douglas fir, western white pine, and Oregon-grass are common. In the mountainous and hilly areas, Douglas fir, western white pine, and Oregon-grass are common.

Production is less than 500 pounds of air dry forage per acre. The soil is mostly subalpine forest. It is presently grazed by cattle, etc. and has a good cover of grass.

## Vegetation

No threatened or endangered plants are known to occur in the proposed sale area.

Range condition on the national forest is rated as fair to excellent. Trend is upward. On BLM land, ecological condition in the sagebrush grass is rated as fair while the timbered areas are rated as poor. No data is available on trend.

Lodgepole pine forests are mature or overmature and the trend is moving toward deterioration. Overmature stands have varying degrees of dwarf mistletoe infections. As lodgepole stands reach pathological rotation, subalpine fir reproduction occupies the site as a climax species replacing the lodgepole stands.

The following Forest Service Ecological land units (a combination of vegetation type and land form) are found in the sale area. (USDA, Forest Service 1976). They are given here in order of decreasing size.

### Ecological Land Units

Lodgepole Pine and Sedge. This Ecological Land Unit covers 82 percent of the proposed sale area. Elevations range from 8,400 to 10,400 feet on nearly level to moderately steep slopes. Precipitation varies from 20 to 28 inches a year.

Young and mature lodgepole pine dominate the site. Some subalpine fir is also present. Sedge is the most common species in the understory; but whortleberry, pinegrass, ground juniper, wildrose, and Oregon-grape are common.

Growth potential for lodgepole is 35 cubic feet per acre per year. Forage production is less than 400 pounds of air dry herbage per acre.

Douglas Fir and Sedge. This unit occurs in isolated tracts in the west-central percent portion of the proposed sale area on steep north facing slopes. It covers 9 percent of the area. Elevations range from 8,400 to 9,600 feet. Precipitation averages about 23 inches a year.

Douglas-fir trees dominate the site. Some subalpine fir is also present. Sedge is the most common species in the understory although whortleberry, pinegrass, ground juniper, and Oregon-grape occur.

Growth potential for Douglas-fir is 30 cubic feet per acre per year. Forage production is less than 400 pounds of air dry herbage per acre.

Sagebrush and Grass. This unit is scattered throughout the proposed timber sale area and occurs on moderately steep to level slopes and on shallow soils of ridge tops. It covers 5 percent of the area. Elevations range from 7,800 to 9,000 feet. Precipitation varies from 20 to 27 inches a year. Sagebrush dominates the site with an understory of numerous grasses including Idaho fescue, Thurber fescue, western wheatgrass, blue bunch wheatgrass, junegrass, Kentucky and Sandberg bluegrasses, mountain brome, onion grass and sedge. Numerous forbs occur but no single species dominates the site.

Potentially, the site can produce an average of 1,600 pounds of air dry herbage per acre annually. It is presently grazed by cattle, elk and deer during the summer months.

1954  
1955  
1956  
1957

52  
45  
38  
32

15'0  
10'3  
5'6

1958

(Inches)  
2000 Depth

(Inches)  
2000 Depth

DEPTH MEASUREMENTS FOR 1954 TO 1958

TABLE 1

1954 (3)  
2000 Depth

(19)  
2000 Depth

1955 (5)  
2000 Depth

1956 (1)  
2000 Depth

1957 (1)  
2000 Depth

1958 (1)  
2000 Depth

(24)  
2000 Depth

1959 (4)  
2000 Depth

1960 (1)  
2000 Depth

1961 (1)  
2000 Depth

1962 (1)  
2000 Depth

(10)  
2000 Depth

1963 (1)  
2000 Depth

1964 (1)  
2000 Depth

1965 (1)  
2000 Depth

DEPTH MEASUREMENTS

TABLE 1

TABLE 1

SOIL PROPERTIES TABLE

Soil Name	Depth to Bedrock (inches)	Soil Drainage	Surface Texture (thickness in inches)	Subsurface Texture (thickness in inches)	Subsoil Texture (thickness in inches)	Permeability	Available Water Capacity	Surface Runoff	Erosion Hazard
Bundo	60+	Well drained	Cobbly sandy loam (8)	Sandy loam (24)	Sandy clay loam (7)	Moderate	Moderate	Medium	Moderate
Unnamed	10 to 20	Well drained	Gravelly loam (2)	Gravelly sandy loam (13)	Very gravelly sandy clay loam (3)	Moderate	Low	Medium	Moderate

TABLE 2

MEAN MONTHLY SNOW DEPTH MOISTURE EQUIVALENT FOR 1963 TO 1977

Month	Snow Depth (Inches)	Water Equivalent (Inches)
February 1	33	7.5
March 1	39	10.3
April 1	42	12.6
May 1	25	8.7



Soils

The Soil Conservation Service completed soil mapping on public lands on Black Mountain during the 1979 field season. The Bureau-United mapping complex soil mapping unit encompasses the entire conifer area. Table 1 summarizes properties of the two soils. Similar soils are expected to occur on the national forest lands.

Water

The proposed sale area lies within the Rock Creek watershed a tributary to the Colorado River. Horse, Little Henry, Whiskey, and Black Creeks are the principal streams in the unit and generally flow north-westerly. No specific streamflow data are available, however, streams in the area typically exhibit seasonal discharge variation. Generally, 60 to 70 percent of the flow occurs in May and June in response to snowmelt. Average annual water yields are estimated at 1.5 acre-feet per surface acre of land (USDA, Forest Service 1975).

Snow depth and moisture equivalent data are available for the Lynx Pass Snow Course (No. 61002) located approximately 3 miles north of the northern unit boundary. Mean values for 12 years of record (1953 to 1977) are included in Table 2.

No water quality basins have been established for streams in the unit. Field observations indicate high water quality exceeding the Colorado State Water Quality Standards for Class B-1, cold water fisheries (USDA, Forest Service 1975).

Water rights have been granted for utilization of a portion of Rock Creek's streamflow for irrigation purposes. Water needs for fishery and aesthetic purposes have not been determined.

## Soils

The Soil Conservation Service completed soil mapping on public lands on Black Mountain during the 1979 field season. The Bundo-Unnamed mapping complex soil mapping unit encompasses the entire conifer area. Table 1 summarizes properties of the two soils. Similar soils are expected to occur on the national forest lands.

## Water

The proposed sale area lies within the Rock Creek watershed a tributary to the Colorado River. Horse, Little Henry, Whiskey, and Black Creeks are the principle streams in the unit and generally flow north-westerly. No specific streamflow data are available, however, streams in the area typically exhibit seasonal discharge variation. Generally, 60 to 70 percent of the flow occurs in May and June in response to snowmelt. Average annual water yields are estimated at 1.5 acre-feet per surface acre of land (USDA, Forest Service 1976).

Snow depth and moisture equivalent data are available for the Lynx Pass Snow Course (No. 6J06S) located approximately 3 miles north of the northern unit boundary. Mean values for 15 years of record (1963 to 1977) are included in table 2.

No water quality baseline has been established for streams in the unit. Field observations indicate high water quality exceeding the Colorado State Water Quality Standards for Class B-1, cold water fisheries (USDA, Forest Service 1976).

Water rights have been granted for utilization of a portion of Rock Creek's streamflow for irrigation purposes. Water needs for fishery and aesthetic purposes have not been determined.

# AFFECTED ENVIRONMENT

## Climate and Air Quality

The climate has wide seasonal variations in temperatures ranging from 20 to 50 degrees F. Summer temperatures average 50 degrees F. Annual precipitation varies between 20 and 30 inches and occurs mostly as snow with some summer thunder showers. Snow occurs between November and May, and can reach depths of 3 to 4 feet.

There are no population centers or industries in close proximity to this area and a high quality mountain stream.

## Geology, Seismicity, Landslides, and Alluvial Valleys

### Geology

The proposed road route lies within the metamorphic portion of the White River Plateau, an important geotectonic region of the Pacific Northwest.

The formation outcropping within the area include Middle Tertiary Intrusives (Duffwood), beds include granodiorite and quartz monzonite in granite, diorite, and gneiss. The Middle Tertiary (Pliocene/Pleistocene) consists of sandstone, silt, conglomerate, tuff, and volcanic beds of recent and volcanic rocks. The Pleistocene, Pliocene, and Holocene deposits include volcanic, lacustrine, alluvial, and glacial. The Pleistocene consists of gravels of approximately 1.5 million years of age.

### Seismicity

There are no seismic zones of record with 2.0, and no seismic zones are known to exist within the proposed route area. There are no seismic zones of record. There is seismic activity in the vicinity of the route, but the highest occurrence of seismicity is a magnitude 2.5.

### Topography

Topography is moderate to steep in places. The highest peak in the area is 10,000 feet with the majority of slopes being between 15 and 30 percent. The lowest elevation is 5,000 feet near the forest boundary. About 2,000 feet with the highest elevation of 10,000 feet occurring on Black Mountain. The average elevation is approximately 7,000 feet. Additional details on topography can be found in the Black Hill Multiple Use Environmental Impact Statement prepared by the Forest Service and the Black Mountain Forest Management Plan prepared by the BLM.

### Alluvial Valleys

Alluvial valleys exist in the proposed route area.

## AFFECTED ENVIRONMENT

### Climate and Air Quality

The climate has wide seasonal variations in temperatures ranging from 40 to 80 degrees F. Summertime temperatures average 60 degrees F. Annual precipitation varies between 20 and 30 inches and occurs mostly as snow, with some summer thunder showers. Snow occurs between November and May, and can reach depths of 3 to 4 feet.

There are no population centers or industries to cause air pollution. This area has a high quality mountain airshed.

### Geology, Topography, Minerals, and Alluvial Valleys

#### Geology

The proposed timber sale area lies within the northeastern portion of the White River Plateau, an apparent northwestward extension of the Sawatch Mountains.

The formations outcropping within the area include Middle Tertiary intrusives (Oligocene). These include granodiorite and quartz monzonite in stocks, dikes, and sills. The Minturn Formation (Pennsylvania) consists of sandstone, grit, conglomerate, shale, and scattered beds of reefs and carbonate rocks. The Mississippian, Devonian, Ordovician, and Cambrian rocks include sandstone, limestone, dolomite and quartzite. The Precambrian consists of granite of approximately 1.7 million years of age.

#### Minerals

There are no mining claims of record with BLM, and no mining claims are known to exist within the proposed sale area. There are no mineral leases on the area. There is mining activity on the volcanic cinders to the west, but the nearest occurrence of cinders is a mile from this area.

#### Topography

Topography is moderately steep to steep. Some slopes are in excess of 40 percent with the majority of slopes being between 15 and 40 percent. The lowest elevation is Rock Creek near the Forest boundary, about 8,000 feet with the highest elevation of 10,400 feet occurring on Black Mountain. The average elevation is approximately 9,400 feet. Additional details on topography can be found in the Black Tail Multiple Use Environmental Impact Statement prepared by the Forest Service and the Black Mountain Forest Management Plan, prepared by the BLM.

#### Alluvial Valleys

No alluvial valleys exist in the proposed sale area.

4. The greatest potential for growth in lodgepole pine can be realized through clearcutting.

5. Economically, it is less costly to clearcut because greater volume per acre is harvested so cost per acre goes down and less labor is expended as opposed to marking for partial cutting. (David Jacklin, District of Lodgepole Pine (Revised) U.S.D.A., F.S. 1967)

For these reasons clearcutting is discussed as a valid alternative.

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For these reasons clearcutting is discussed as a valid alternative.

10. Biological Control of Insect Pests. Logically this is the most  
desirable method of pest control. An understanding of its biological  
mechanisms will be fundamental in understanding the aspects of this alternative  
method of pest control.

11. Soil and Water. This section is devoted to the study of the  
soil and water resources of the area, including the physical and  
chemical characteristics of the soil and water, and the methods of  
soil and water conservation. The soil will be treated as a  
medium for the growth of plants, and the water as a source of  
irrigation for the crops.

12. Plant Nutrition. This section is devoted to the study of the  
nutritional requirements of the plants, and the methods of  
soil and water conservation.

13. Plant Breeding and Genetics. This section is devoted to the study of the  
genetic characteristics of the plants, and the methods of  
plant breeding and selection.

14. Plant Pathology and Entomology. This section is devoted to the study of the  
diseases and pests of the plants, and the methods of  
control and eradication.

15. Plant Physiology and Biochemistry. This section is devoted to the study of the  
physiological and biochemical processes of the plants, and the methods of  
control and eradication.

16. Plant Ecology and Environmental Botany. This section is devoted to the study of the  
ecological and environmental aspects of the plants, and the methods of  
control and eradication.

### Classical Alternative

This alternative will affect resources with the following alternatives  
except for the use of seeds, soil, water, and fertilizer. The  
use of seeds is the most important factor in the production of  
crops. The use of soil, water, and fertilizer is also important.  
The use of seeds is the most important factor in the production of  
crops. The use of soil, water, and fertilizer is also important.

1. Plant Breeding and Genetics. This section is devoted to the study of the  
genetic characteristics of the plants, and the methods of  
plant breeding and selection.

2. Plant Pathology and Entomology. This section is devoted to the study of the  
diseases and pests of the plants, and the methods of  
control and eradication.

3. Plant Physiology and Biochemistry. This section is devoted to the study of the  
physiological and biochemical processes of the plants, and the methods of  
control and eradication.

10. Biological Needs of Lodgepole Pine. Lodgepole Pine is the major species that would be harvested. An understanding of its biological requirements helps in understanding the aspects of this alternative (see BLM Manual 5611.1).

11. Cutting and Removal. This action is carried out by cutting of the designated trees from the stump with a chainsaw, removing the limbs and top, bucking the bole of the tree into log lengths and dragging the logs to a central point, called a landing, where they can be loaded onto trucks for transportation to a sawmill. The logs will be moved to the landing point by means of a track-type tractor or rubber-tired tractor.

12. Transportation System. Approximately 19 miles of 14-foot wide road with turnouts would be surveyed, designed, and constructed for the purpose of transporting logs.

Approximately 4 miles would be constructed on BLM and 15 miles on Forest Service lands. All road grades would be less than 8 percent except for two segments, four to five hundred feet long, on BLM. A justification is included in appendix C. Also, refer to appendix C for road construction and design specifications.

Forest Service and BLM roads would be closed to public motor vehicle use, except for snowmobiles, and administrative use.

13. Slash. Slash treatment would not be carried out until the cones have had time to dry out and open up. Where a residual stand remains, treatment would be limited to lopping and scattering. Where necessary, and if equipment is available, slash would be chipped along the roadway. In some instances hand piling and burning would be used to minimize damage. In cleared openings, concentrations may be machine piled for firewood or burning if not utilized for fuelwood. To the greatest extent possible slash and other dead material will be made available for fuelwood.

14. Cultural. Provisions would be made in the sale contract to note and protect cultural resource encountered during operations under the contract.

#### Clearcutting Alternative

This alternative will affect resources much like the preferred alternative except for size of area, visual, soil, watershed, and vegetative habitat. See table V-1, Residual Impacts of Major Timber Management Activities on selected Environmental Components, USDI, BLM, Timber Management E.I.S., 1976. The economic aspects would also be different. From a silvicultural point of view, clearcutting is a sound and practical way of bringing mature and overmature lodgepole pine forests under management. There are several reasons for clearcutting:

1. Lodgepole pine, is shade intolerant and reproduces best when overstory competition is removed.
2. Dwarf mistletoe, present to varying degrees, is best controlled by separating old and new stands.
3. Windfall, while variable, is always a threat to lodgepole pine forests.



3. Wildlife Consideration: The Black and Red Pine and Environment Impact Statement (BRIE) (Forest Service 1972) and the Black Mountain Timber Sale Final EIS (BRIE) (BLM) have identified management requirements and procedures to address impacts on wildlife habitat. These are summarized below as wildlife requirements for timber harvest activities on all lands covered in this analysis.

4. Snow Management: Snow, frost, and other weather events will be left in place during winter. This is necessary for stream flows.

Each year will be managed by a wildlife biologist and forester prior to harvest in order to identify specific wildlife values.

A buffer zone up to a quarter mile in radius will be established around all areas with active water.

When available, trees of more than 100 feet height and diameter will be left on site.

On the edge of clearcut and adjacent to water areas all trees will be left. Vegetation along and near streams and riparian areas will be left.

5. Wildlife Cover: Riparian areas will not be logged and will be managed to provide maximum cover.

Additional riparian cover surrounding all streams, rivers, and lakes will be maintained.

6. Aquatic and Riparian Habitat: Riparian vegetation will be managed to protect and enhance water quality. Riparian areas will be managed to provide maximum cover. Riparian vegetation will be left along all perennial streams. These will vary from 50 to 100 feet in width.

Drift, debris, and other material will be removed from streams to maintain riparian habitat, streamflow, and to be consistent with riparian habitat.

Drift material will be removed from streams to maintain riparian habitat and to be consistent with riparian habitat.

7. Vegetative Diversity: Riparian areas will be managed to provide maximum cover. Riparian areas will be managed to provide maximum cover.

Each year and the best effort to meet the riparian habitat and riparian habitat.

8. Road Management: Road construction and other management will be done to reduce disturbance to riparian habitat during logging in riparian areas.

9. Visual Consideration: This includes riparian areas and riparian areas. This includes riparian areas and riparian areas. This includes riparian areas and riparian areas.

8. Wildlife Considerations. The Black Tail Land Use Plan and Environmental Impact Statement (USDA, Forest Service 1976) and the Black Mountain Timber Sale Plan appendix "C" (BLM) have identified management requirements and procedures to minimize impacts on wildlife habitat. These are summarized below as suitable requirements for timber harvest activities on all land covered in this analysis.

- a. Snag Management. Snags, roost trees, and raptor nest trees will be left in partial cutting areas; this is optional for clearcut areas.

Each sale area will be examined by a wildlife biologist and forester prior to marking in order to identify specific valuable wildlife trees.

A buffer zone up to a quarter mile to restrict activity during the nesting season will be established around all snags with active raptor nests.

When available, three or more snags of varied height and diameter would be left per acre.

On the edge of clearcuts and adjacent to water areas all snags would be left. Vegetative edges and water sites are preferred sites for cavity nesters.

- b. Wildlife Cover. Patchcuts will not exceed 40 acres and would be irregular in shape to maximize edge effect.

Adequate escape cover surrounding elk wallows, natural water holes, and big game travel ways will be maintained.

- c. Aquatic and Riparian Habitat. Streamside vegetation would be managed to protect and maintain water quality. Managed strips of riparian vegetation would be left along all perennial streams. These will vary from 50 to 200 feet in width.

On Black, Whiskey, and Horse Creeks, buffer strips would be adequate to maintain water temperature, streambank stability, and act as sediment filters.

No equipment would be allowed in unmanaged buffer strips or streams except at approved crossings.

- d. Vegetative Diversity. Manage aspen inclusions in the coniferous forest to perpetuate aspen on the site to enhance habitat diversity.

Apply a grass and forb seed mixture to road cuts and fills, landings, and permanently closed roads, when necessary.

- e. Road Management. Road construction and timber management would be timed to reduce disturbance to elk, particularly during calving in June.

9. Visual Considerations. These include natural shaping of Patchcuts, reseeding, minimum road widths with minimum cuts and fills and partial cutting to maintain a green aspect.

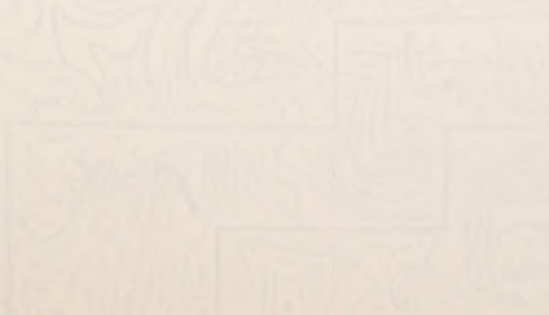
W. H. HITTLE & CO.  
WHISKEY-SALE  
Wholesale Food

Wholesale Food

Wholesale Food

Wholesale Food

Wholesale Food



Wholesale Food



-permanent logging roads

-Existing 4WD roads

Proposed BLM Temporary spur roads.

LITTLE WHISKEY-SALE  
proposed roads

Routt National Forest

Forest Boundary

Grand Junction BLM

R-83W

1. The Board of Directors shall have the authority to select and appoint all officers and directors of the Corporation, subject to the approval of the stockholders.

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12. The Board of Directors shall have the authority to select and appoint all officers and directors of the Corporation, subject to the approval of the stockholders.

- b. Old Growth. Patchcut and group tree selection to eliminate mistletoe and stimulate reproduction, applies to all compartments.
- c. Mixed Species Stands. Remove overmature trees and trees with poor form and vigor, applies to all compartments.
- d. 21 acres in Compartment 54929. Remove dead volume and near dead and sanitize remaining stems.
- e. 20 acres in Compartment 54930. Remove 15 to 20 percent of basal area in high wind risk-portion and 25 to 35 percent of basal area in moderate wind risk portion.

BLM Treatments. Stands numbered 112, 123, 130, 154, 154A, 158, and 159. Remove 30 percent of the basal area using individual tree selection and patch cuts for low windfall risk situations. This is an intermediate cut. In moderate windfall risk situations stands would be clearcut and not to exceed 5-acre blocks, or will be left untreated. See appendix B for stand locations.

Stand numbers 113, 114, 127, 128, 129, 155, 156, 157, 162, 163, 164, and 169. In low windfall risk situations remove 30 to 40 percent of the basal area with emphasis on removal of intermediates. This is a regeneration cut. Marking rules for individual tree selection will apply. In moderate windfall risk areas 30 percent of the basal area will be removed first. Low risk area marking rules apply. Provision will be made to salvage blowdowns. In high risk situations cleared openings (up to 5 acres) will be harvested. The remaining stand will be left uncut.

Stand 112 and pockets in stands already mentioned will have long clearcut perimeters along edge of mistletoe infections and interspersed clearcuts up to 10 acres in size on half the area. Remove the remaining stand within 10 years.

Stands numbered 118, 119, 120, 121, 122, 124, 125, 126, 153, 161, 165, 166, 167, 168, 170. These stands are pole stands and will be partially cut using an individual tree selection cut removing trees 8 and 9 inches diameter at breast height. Five to 8 inches diameter at breast height stands will not be treated now, but will be commercially thinned for poles later. See appendix B for more detail.

5. Road Locations. See map 2.

6. Regeneration and Revegetation. Reforestation will be by natural means. Silvicultural practices are designed to promote natural regeneration to an acceptable stocking level within 5 years. Cuts, fills and temporary spur roads and skid trails will be rehabilitated, as necessary, by broadcast seeding. The poundage per acre and species will be specified in the timber sale contract.

7. Streamside and Watershed Protection. Timber harvesting in buffer strips will generally be limited to that needed for public safety and control of insects and diseases. Occasional overmature trees may be selected for harvest to improve the stand. Carefully controlled, light selection cutting and thinning may be permitted where esthetics are kept in mind, but the area will not be clearcut. No tractor logging on slopes over 40 percent.

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## No Action Alternative

This alternative would represent the present status. No timber sales would be offered. No roads would be constructed and cooperation between agencies would not be needed. The timber resource would not be utilized and would not receive silvicultural management.

## Preferred Alternative for an Integrated Timber Sale

An integrated BLM/Forest Service timber sale would offer for sale through public auction and sealed bids 7 million board feet of lodgepole pine, aspen, douglas-fir, subalpine fir saw timber and poles, for harvest. The sale would be carried out cooperatively between the Routt National Forest, Yampa Forest Service District and the Glenwood Springs Resource Area, Grand Junction District BLM. See appendix A for the details of the interagency agreement.

## Sale Preparation and Layout

A management plan for the BLM and a land use plan for the Forest Service have analyzed layout criteria that considers silvical needs of the tree species and other resource values. Specific layout procedures and other resource considerations are identified in BLM Manual 5421 and in Forest Service Manual 2400. The layout will require the marking of trees with paint to designate the trees to be selectively harvested. In Patchcut areas the cutting area boundaries would be designated with posters and/or paint.

The layout also includes cruising, an estimate of the volume expressed in board feet of the standing trees to be harvested. This would be done on the ground using a statistical sampling method. The main layout considerations include the following:

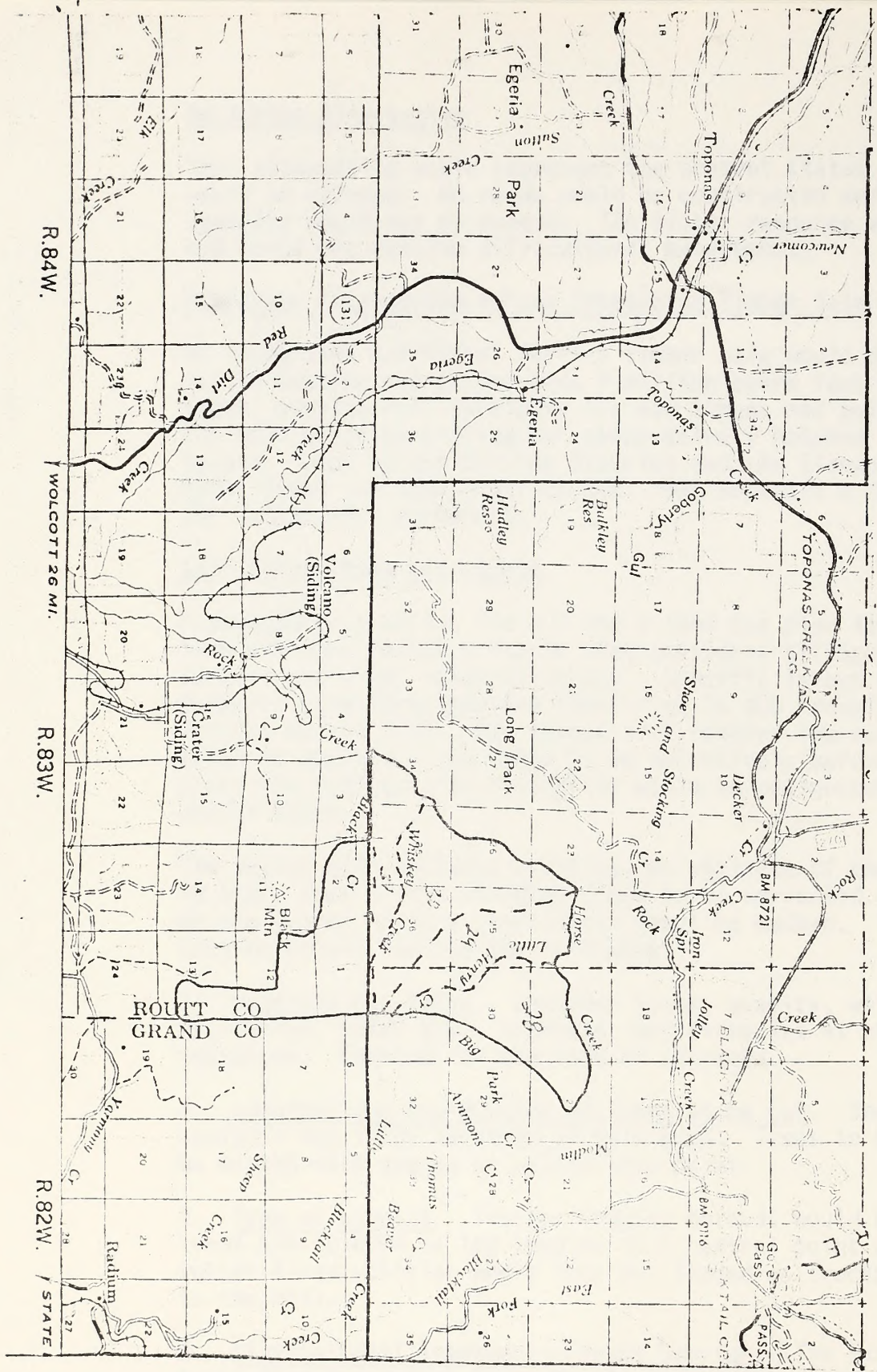
1. Multiple Use Goals. Consider scenic quality, wildlife habitat, recreation, water soil, minerals, and fisheries as other important resources. Provide for the sale of fuelwood.
2. Location and Designation of Trees to be Cut. See environmental analysis map 1 for location of sale area. Trees to be harvested would be marked with orange or yellow tree paint.
3. Type of Logging. Tractor logging methods would be used in which trees are skidded in log lengths to a central point using track or rubber tired vehicles where they are loaded on trucks for transportation to the mill.
4. Silvicultural Treatment--Forest Service. The Forest Service would treat four management compartments containing a total of 1,213 acres. The following is a general summary of the cutting practices. A detailed description of the stands and treatments along with a location map are contained in appendix B.
  - a. Young and Old Growth. Remove high risk and overmature trees, applies to all compartments.



EMERALD CREEK - BLACK MOUNTAIN  
WHISKEY CREEK - BLACK MOUNTAIN  
ENVIRONMENTAL ANALYSIS MAP, 1.



ENVIRONMENTAL ANALYSIS MAP /  
WHISKEY CREEK - BLACK MOUNTAIN



R.84W.

T.84N.

R.83W.

T.83N.

R.82W.

T.82N.

ROUTT CO  
GRAND CO

STATE

## PURPOSE OF AND NEED FOR THE ACTION

### Background

As a result of the 1973 extensive timber inventory, plot classification and analysis on the Black Mountain District Bureau of Land Management (BLM) and identified timber lands as potential forest lands planned for harvest. The timber District Forest Service action is designed to the Forest District within the plan and consistent with Forest Service and Policy Guide (FSM, Forest Service 1970) and the Black Mountain Use Plan and Environmental Impact Statement (EIS, Forest Service, 1975).

### Anticipated Action

The Forest Service Black Mountain Use Plan and Environmental Impact Statement, the Black Mountain timber analysis, Forest Service Forest 1970, and the Forest 1970 are used to analyze and establish timber lands for sale and timber actions. Alternative timber lands are identified and analyzed. Alternative timber lands are identified and analyzed.

The management of timber stands would produce wood products, cover older stands to younger stands that will grow with faster, and be more efficient and resistant to insect and disease attack.

The proposed action is intended to carry out management and harvest of timber lands on Black Mountain and to be consistent with the special interest, timber, and timber management. The proposed action is designed to carry out management and harvest of timber lands on Black Mountain and to be consistent with the special interest, timber, and timber management. The proposed action is designed to carry out management and harvest of timber lands on Black Mountain and to be consistent with the special interest, timber, and timber management.

## ACCOMPLISH

Three alternatives are considered for the Black Mountain-1111 timber lands. The proposed alternative is to carry out management and harvest of timber lands on Black Mountain and to be consistent with the special interest, timber, and timber management. The proposed action is designed to carry out management and harvest of timber lands on Black Mountain and to be consistent with the special interest, timber, and timber management.

The general objective of the Black Mountain-1111 timber lands is to carry out management and harvest of timber lands on Black Mountain and to be consistent with the special interest, timber, and timber management.

Black Mountain Little Whiskey Creek  
Environmental Assessment for Integrated Forest Service and  
Bureau of Land Management Timber Sale

PURPOSE OF AND NEED FOR THE ACTION

Background

As a result of the 1973 extensive forest inventory, plot classification and allowable cut plan, the Grand Junction District Bureau of Land Management (BLM) has identified certain timber lands as productive forest lands planned for harvest. The Yampa District, Forest Service action is developed in the Yampa District multiple use plan and consistent with Forest Objectives and Policy Guides (USDA, Forest Service 1970) and the Black Tail Land Use Plan and Environmental Impact Statement (USDA, Forest Service, 1976).

Authorizing Actions

The Forest Service Black Tail Land Use Plan and Environmental Impact Statement, the Black Mountain route analysis, Forest Service Manual 2400, and BLM Manual 5400 and 9113 were used to analyze and establish accepted criteria for this and similar actions. Alternatives considered fall within these accepted standards. Alternatives outside these standards were not considered.

The management of these stands would produce wood products, convert older stands to younger stands that will grow wood faster, and be more vigorous and resistant to insect and disease attack.

The proposed actions are intended to carry out management and harvest of forest resources on these lands and are to be consistent with each agencies' policies, plans, and directions mentioned. The preferred action was developed from information analyzed in the Black Tail Land Use Plan, Environmental Impact Statement and the Black Mountain Forest Management Plan (USDI, Bureau of Land Management 1980).

ALTERNATIVES

Three alternatives are considered for the Black Mountain-Little Whiskey Creek Timber Sale. The preferred alternative proposes an integrated BLM, Forest Service partial cut timber sale. The second alternative considers the same type of sale employing clear cutting methods as opposed to partial cutting techniques, and the third alternative is a no action alternative whereby timber resources would not be further utilized. Different cutting volumes were not considered alternatives since these are a function of sustained yields and technical and economic capabilities of the industry.

The general location of the Black Mountain-Little Whiskey Creek timber area is shown on map 1 and appendix A.

# EA FACE SHEET

DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
LAND ACQUISITION DISTRICT

CITY AND COUNTY  
SERIAL NO.

STATE	_____
COUNTY	_____
ACTIVITY	_____
APPROVAL	_____
APPROVED BY	_____
DATE	_____
NO. OF PAGES	_____
E.A. NUMBER	_____
PROJECT NAME	_____
MAKING WIT:	_____
WITNESS NAME:	_____
DISTRICT	_____

DATE	INITIALS	TYPE	SECURITY VALUE	REMARKS
_____	_____	_____	_____	_____
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DATE: \_\_\_\_\_  
DISTRICT: \_\_\_\_\_  
PROJECT NAME: \_\_\_\_\_

APPROVED BY	_____
DATE	_____
DISTRICT	_____
PROJECT NAME	_____

# EA FACE SHEET

STATE : \_\_\_\_\_ DISTRICT : \_\_\_\_\_  
COUNTY : \_\_\_\_\_ RESOURCE AREA: \_\_\_\_\_  
ACTION : \_\_\_\_\_ PLANNING UNIT: \_\_\_\_\_  
APPLICANT: \_\_\_\_\_ PROJECT NAME : \_\_\_\_\_  
ADDRESS : \_\_\_\_\_ E.A. NUMBER : \_\_\_\_\_  
No. of Pages : \_\_\_\_\_

<u>TEAM: NAME &amp; INITIALS</u>	<u>TITLE</u>	<u>RESOURCE VALUES</u>	<u>HOURS</u>
<i>Dave Smith</i> Dave Smith	Fisheries Biologist	Fisheries	8
<i>Joe Kaelin</i> Joe Kaelin	Engineer	Engineering	1
<i>Dave Vesterby</i> Dave Vesterby	Forester	Area Office Liaison and Review	

LEGAL DESCRIPTION

TOWNSHIP      RANGE      MERIDIAN      SECTION      SUBDIVISION      ACRES

\_\_\_\_\_  
ENVIRONMENTAL COORDINATOR

\_\_\_\_\_  
AREA MANAGER

\_\_\_\_\_  
DATE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
COMPLIANCE OFFICER

# E A F A C E SHEET

BUREAU OF LAND MANAGEMENT  
 GRAND DIVISION DISTRICT  
 DEPARTMENT OF THE INTERIOR

ACTIVITY # 10-912  
 SERIAL NO.

<u>STATE</u>	<u>Colorado</u>	<u>DISTRICT</u>	<u>Grand Division</u>
<u>COUNTY</u>	<u>FRUIT</u>	<u>RESOURCE AREA</u>	<u>Grand Division</u>
<u>ACTION</u>		<u>PLANNING UNIT</u>	<u>East</u>
<u>APPLICANT</u>		<u>PROJECT NAME</u>	<u>Little Valley Creek</u>
<u>ADDRESS</u>		<u>E.A. NUMBER</u>	<u>10-001-620-102</u>
		<u>No. of pages</u>	<u>80</u>

PAGE	RESOURCE VALUE	TITLE	TEAM: NAME & INITIALS
160		Team Leader	<i>[Signature]</i>
24		Soil Scientist	<i>[Signature]</i>
70		Hydrologist	<i>[Signature]</i>
16		Range Conservationist	<i>[Signature]</i>
2		Cultural	<i>[Signature]</i>
20		Biologist	<i>[Signature]</i>
10		Academic Planner	<i>[Signature]</i>
11		Language Specialist	<i>[Signature]</i>
20		Wildlife Planner	<i>[Signature]</i>

*[Signature]*  
 DATE: Aug 2 1980

*[Signature]*  
 DATE: 8/13/80

*[Signature]*  
 CAPTAIN OF POLICE

BUREAU OF LAND MANAGEMENT  
GRAND JUNCTION DISTRICT

# E A FACE SHEET

STATE :	<u>Colorado</u>	DISTRICT :	<u>Grand Junction</u>
COUNTY :	<u>Routt</u>	RESOURCE AREA:	<u>Glenwood Springs</u>
ACTION :	_____	PLANNING UNIT:	<u>Eagle</u>
APPLICANT:	_____	PROJECT NAME :	<u>Little Whiskey Creek Black Mountain Timbersale</u>
ADDRESS :	_____	E.A. NUMBER :	<u>60-070-650-147</u>
		No. of Pages :	<u>80</u>

<u>TEAM: NAME &amp; INITIALS</u>	<u>TITLE</u>	<u>RESOURCE VALUES</u>	<u>HOURS</u>
<i>L. Clifford Knapp</i> L. Clifford Knapp	Team Leader	Forestry--Team Leader	160
<i>John E. Kornfeld</i> John Kornfeld	Soil Scientist	Soils	24
<i>Jim Scheidt</i> Jim Scheidt	Hydrologist	Watershed	70
<i>Gene Kinch</i> Gene Kinch	Range Conservationist	Range	16
<i>John Crouch</i> John Crouch	Archaeologist	Cultural	2
<i>Jim Wilkinson</i> Jim Wilkinson	Geologist	Minerals	20
<i>Jim Keeton</i> Jim Keeton	Recreation Planner	Recreation	12
<i>Rob Cleary</i> Rob Cleary	Landscape Architect	Visual	32
<i>Doug McVean</i> Doug McVean	Wildlife Biologist	Wildlife	56

LEGAL DESCRIPTION

(continued)  
TOWNSHIP      RANGE      MERIDIAN      SECTION      SUBDIVISION      ACRES

*Robert Atkinson*  
 \_\_\_\_\_  
 ENVIRONMENTAL COORDINATOR

8/13/80  
 /DATE

*Robert Atkinson*  
 \_\_\_\_\_  
 AREA MANAGER

AUG 5 1980  
 DATE

*Area Manager*  
 \_\_\_\_\_  
 COMPLIANCE OFFICER



EA

Department of the Interior  
Bureau of Land Management  
Washington, D.C. 20250  
1980

STATE :  
COUNTY :  
ACTION :  
APPLICANT :  
ADDRESS :

THE BUREAU OF LAND MANAGEMENT HAS REVIEWED THE APPLICATION FOR A PERMIT TO CONDUCT RESEARCH AND MONITORING ACTIVITIES ON THE LANDS DESCRIBED IN THE ATTACHED ENVIRONMENTAL ASSESSMENT. IT IS OUR INTENTION TO APPROVE THE PERMIT ON THE CONDITION THAT YOU WILL COMPLY WITH ALL REQUIREMENTS OF THE PERMIT AND THE ENVIRONMENTAL ASSESSMENT. YOU WILL BE REQUIRED TO SUBMIT A MONITORING PLAN AND A REPORT ON THE RESULTS OF YOUR MONITORING ACTIVITIES. YOU WILL ALSO BE REQUIRED TO PROVIDE ACCESS TO THE LANDS DESCRIBED IN THE PERMIT TO THE BUREAU OF LAND MANAGEMENT AND THE NATIONAL SYSTEM OF PUBLIC LANDS FOR INSPECTION AND MONITORING PURPOSES. YOU WILL BE REQUIRED TO MAINTAIN THE LANDS DESCRIBED IN THE PERMIT IN A CONDITION THAT DOES NOT IMPAIR THE VALUES OF THE LANDS DESCRIBED IN THE PERMIT. YOU WILL BE REQUIRED TO MAINTAIN THE LANDS DESCRIBED IN THE PERMIT IN A CONDITION THAT DOES NOT IMPAIR THE VALUES OF THE LANDS DESCRIBED IN THE PERMIT. YOU WILL BE REQUIRED TO MAINTAIN THE LANDS DESCRIBED IN THE PERMIT IN A CONDITION THAT DOES NOT IMPAIR THE VALUES OF THE LANDS DESCRIBED IN THE PERMIT.

YOUR MONITORING PLAN SHOULD INCLUDE THE FOLLOWING INFORMATION: A DESCRIPTION OF THE MONITORING ACTIVITIES TO BE CONDUCTED; THE FREQUENCY AND DURATION OF THE MONITORING ACTIVITIES; THE METHODS TO BE USED TO CONDUCT THE MONITORING ACTIVITIES; THE PERSONNEL TO BE RESPONSIBLE FOR CONDUCTING THE MONITORING ACTIVITIES; AND THE EQUIPMENT TO BE USED TO CONDUCT THE MONITORING ACTIVITIES. YOU WILL BE REQUIRED TO SUBMIT A REPORT ON THE RESULTS OF YOUR MONITORING ACTIVITIES TO THE BUREAU OF LAND MANAGEMENT AND THE NATIONAL SYSTEM OF PUBLIC LANDS AT THE END OF EACH YEAR. THE REPORT SHOULD INCLUDE THE FOLLOWING INFORMATION: A SUMMARY OF THE MONITORING ACTIVITIES CONDUCTED; THE RESULTS OF THE MONITORING ACTIVITIES; AND YOUR CONCLUSIONS REGARDING THE EFFECTS OF YOUR MONITORING ACTIVITIES ON THE LANDS DESCRIBED IN THE PERMIT. YOU WILL BE REQUIRED TO MAINTAIN THE LANDS DESCRIBED IN THE PERMIT IN A CONDITION THAT DOES NOT IMPAIR THE VALUES OF THE LANDS DESCRIBED IN THE PERMIT.

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STEWART BROWN, JR.  
DIRECTOR  
BUREAU OF LAND MANAGEMENT  
1910 L STREET, N.W.  
WASHINGTON, D.C. 20250

[Signature]  
[Signature]  
[Signature]

Decision Notice  
and  
Finding of No Significant Impact

Black Mountain/Little Whiskey  
Timber Sale  
Routt and Grand Counties, Colorado

Routt National Forest  
and  
Glenwood Springs Area BLM

Based on the analysis and evaluation described in the attached Environmental Assessment, it is our decision to adopt the Partial Cut Alternative which will result in an integrated USDI Bureau of Land Management and USDA Forest Service timber sale in the Black Mountain/Little Whiskey Creek Area.

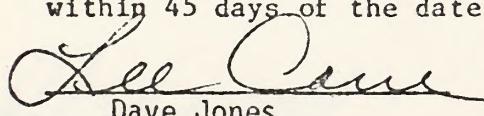
This alternative is preferred over the Clearcut and No Action alternatives because it provides the best compromise of effects on the various resources of the area. The Partial Cut Alternative will result in increased water yields, wood and forage productivity, social, and economic benefits.

Unavoidable adverse effects will be caused by dust and smoke particles in the air and by onsite erosion on roads and skid trails. In addition, an estimated 32 acres of land will be removed from production when roads are built.

The land area described in this Environmental Assessment has been previously analyzed in the Environmental Impact Statement and Blacktail Land Use Plan along with the Black Mountain Forest Management Plan. Both of these plans discuss the impacts and effects of timber harvest. Further analysis of the area for this Environmental Assessment has revealed no new information or data to indicate that these plans require revision. Our decision is consistent with these plans, and no new or amended Environmental Impact Statement will be prepared.

This proposal does not involve wetlands, flood plans, significant effects on the human environment, or unprecedented actions. Therefore, implementation of this proposal will begin immediately. The Environmental Assessment is available for review at the offices of the responsible officials listed below.

Our decision may be appealed administratively by contacting us within 45 days of the date of this notice.

 11/21/80  
DATE

Dave Jones  
District Manager  
BUREAU OF LAND MANAGEMENT  
50629 Highway 6 and 24  
P. O. BOX 1009  
GLENWOOD SPRINGS, CO

(303) 945-2341

 11/12/80  
DATE

JACK WEISSLING  
FOREST SUPERVISOR  
ROUTT NATIONAL FOREST  
137 10th Street  
STEAMBOAT SPRINGS, CO 80477

(303) 879-1722

VII. Environmental Reporting

An environmental assessment (EA) will be prepared for an approved Black Mountain Forest Management Plan in Fiscal Year 1980 and prior to any action on the ground. This EA will cover the forest service portion of the joint sale scheduled in Fiscal Year 1981 and will be included herein upon completion. In addition an EA will be written for each sale or planned management action. A resource management environmental impact statement (EIS) will be completed for the Steamboat Springs Resource Area in 1983 and additional forest management data will be considered at that time.

## VII. Environmental Reporting

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VII. Environmental Reporting

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The environmental impact of the  
Black Mountain project is  
to be assessed in a report  
to be submitted to the  
Department of the Environment  
in the next few weeks.  
The report will cover the  
proposed development and  
its potential effects on  
the surrounding area.  
It will also include  
recommendations for  
mitigating any adverse  
impacts.

12. The [illegible]

[The following text is extremely faint and illegible due to low contrast and blurring. It appears to be a list or a series of numbered items.]



Assumptions

1) Production and discount rate - A project life of 50 years is assumed. The Water Resources Council has declared that the discount rate to be used in this type of analysis during FY 80 is 7 1/8 percent.

2) Stumpage - For the major sales in 1981 and 1982, stumpage was \$22/MBF (1982 sale price minus 2.5% for road construction) for other sales a 1981 sale price of \$20/MBF (1981 sale price minus 2.5% for road construction).

3) Timberland - Estimated harvest of 200 cubic feet annually assumed for first 5 years, 10% more annually thereafter, all priced at \$2/MBF.

4) "Multiple use" benefits - The value of multiple use benefits is assumed to equal the value of timber production less the multiple use (environmental) benefits. Multiple use benefits are assumed to be 10% of the value of timber production.

5) Wildlife value - Over the first 30 years of the plan, a 10 percent increase in the total population density of deer and elk is assumed, resulting in an annual increment of 1 deer and 1 elk. Each deer is valued at \$240 and each elk at \$1800. There are 1000 deer and 1000 elk in the area. Wildlife value is estimated at 20 percent of timber value.

6) Plan costs - The major plan costs are water monitoring, administration, plan monitoring, and clerical work. Administration costs are assumed to be 10% of the water sales. Water monitoring and clerical work are assumed to be 10% of the water sales. Total plan costs are valued at \$5,000.

7) Other direct project benefits - Tangible, but unquantified benefits include:

- a) Increased access (and thus reduced costs) for the production, road construction, and other activities;
- b) Increased potential for recreation use, especially for snowmobilers and hunters;
- c) Improved livestock forage;
- d) Watershed improvement due to greater snowpack.

B. Assumptions

- 1) Duration and discount rate - A project life of 50 years is assumed. The Water Resources Council has declared that the discount rate to be used in this type of analysis during FY 80 is 7 1/8 percent.
- 2) Stumpage - For the major sales in 1981 and 1985, stumpage used is \$25/MBF (\$40 sale price minus \$15 for road construction); for other sales a \$35/MBF stumpage is used (\$40 minus \$5 for road maintenance).
- 3) Fuelwood - Fuelwood harvest of 500 cords annually assumed for first 8 years, 167 cords annually after that, all priced at \$5/cord.
- 4) "Multiple use" constraints - The value of "multiple use" benefits is assumed to equal the value of timber production lost due to multiple use (environmental) constraints, including partial cutting for visual benefit. This lost value is estimated at 68 MBF annually, priced at \$35/MBF.
- 5) Wildlife values - Over the first 10 years of the plan, a 20 percent increase in the local population density of deer and elk is assumed, resulting in an annual increment of 3 deer and 1 elk. Each deer is valued at \$240 and each elk at \$1900. These are 1975 Division of Wildlife values per animal in herd adjusted upward by 50 percent.
- 6) Plan costs - The major plan costs are work months attributed to development of the EA and the sale plan, cruising, sale administration, plan monitoring, and clerical work. Additional costs associated with the major sales include the employment of temporaries and payments for road survey and design. Work months are valued at \$2,000.
- 7) Other direct project benefits - Tangible, but unquantified, benefits include:
  - a) Improved access (and thus reduced costs) for fire protection, range supervision, and other BLM activities;
  - b) Increased potential for recreation use, especially by snowmobilers and hunters;
  - c) Improved livestock forage;
  - d) Watershed improvement due to greater snowpack.



	BENEFITS					COSTS									
	(1) TIMBER SALE	(2) TIMBER VALUE	(3) FUELWOOD VALUE	(4) "MULTIPLE USE" VALUE	(5) WILDLIFE VALUE	ANNUAL 2+3+4	SUMS 2+3+4+5	PRESENT VALUES 2+3+4	ALL VARIABLE COSTS 2+3+4+5	PRESENT VALUE ALL COSTS VAR. COSTS	PRESENT VALUE FACTORS				
1980															
1981	3,000	75,000	2,500	2,380	2,620	79,800	82,500	69,607	71,991	56,000	23,000	52,270	21,468	.9334	
1982	50	1,750	2,500			6,630	9,250	5,393	7,524	6,000	--	5,228	--	.8714	
1983	50	1,750	2,500			6,630	9,250	5,034	7,024	8,000	--	6,074	--	.7593	
1984	50	1,750	2,500			6,630	9,250	4,699	6,556	50,000	19,000	35,470	13,467	.7093	
1985	2,000	50,000	2,500			54,880	57,500	36,314	38,048	8,000	--	5,294	--	.6517	
1986	50	1,750	2,500			6,630	9,250	4,095	5,714	8,000	--	4,942	--	.6177	
1987	50	1,750	2,500			6,630	9,250	3,823	5,334	26,000	7,125	14,992	4,103	.5765	
1988	750	26,250	2,500			31,130	33,750	16,754	18,164	14,000	2,375	7,535	1,278	.5332	
1989	283	9,905	833			13,118	15,738	86,603	87,919	14,000	2,375	92,426	15,679	.5024	
1990							13,118							13,1406	
SUM OF PRESENT VALUES.....											232,322	248,174	230,708	56,000	

(:8F)-----dollars-----

BENEFIT - COST RATIOS

A)  $\frac{\text{DIRECT BENEFITS (minus Wildlife)}}{\text{ALL COSTS}} = \frac{232,322}{230,708} = 1.01$

B)  $\frac{\text{ALL DIRECT BENEFITS}}{\text{ALL COSTS}} = \frac{248,174}{230,708} = 1.08$

C)  $\frac{\text{DIRECT BENEFITS (minus Wildlife)}}{\text{VARIABLE COSTS}} = \frac{232,322}{56,000} = 4.15$

D)  $\frac{\text{ALL DIRECT BENEFITS}}{\text{VARIABLE COSTS}} = \frac{248,174}{56,000} = 4.43$

A. Analysis

Benefit-to-cost ratios and the figures used in their calculation are found on Table VI-1. These benefits are limited to those quantifiable results that are directly attributable to the management plan. Benefits to wildlife are left out of two of the ratio calculations (BAC) because they cease to increase after the first 10 years and because the wildlife values used are more subjective than the other values. Costs have been calculated to be negative for those items which will occur solely because of this plan. In other words, while the direct and indirect services of the permanent staff are charged against the plan, they are in fact costs that will incur regardless of the plan's implementation. The size of the benefit to wildlife cost ratios (BAC) indicates the relatively limited number of wildlife staff and materials required for implementation of the plan. In any event, excluding wildlife benefits and including all costs, ratio A indicates that the plan would still pay for itself.

In addition to the benefits listed in Table VI-1, implementation of this plan would involve some more extensive economic benefits. The harvest of timber from this area would help to pay that portion of the regional economy dependent on the wood products industry. An input-output model of the region recently developed for BLM (1974) indicates that for every million cords of timber harvested, 11 man-years of work would be generated in business activity and generated in the local economy. Under the Black Mountain Plan, 215,000 cords would be harvested annually for the first 8 years, 251,000 cords thereafter. These harvest levels would be associated with employment of 4 people and business activity of about \$200,000 annually for the first 8 years, and 3 employees and \$200,000 of business activity for the remaining years. 5)

5) An input-output study of the Upper Colorado Mountain Region of Western Colorado, by G.W. Nelson, Colorado State University, and J.C. Nelson, Colorado School of Mines.

6) These results assume a timber product price of \$300/cord which was derived from BLM Instruction Memorandum No. 80-305 (2/20/80). Indices, Adjusted Factors, and Other Values.

## VI. Economic Analysis of the Black Mountain Forest Management Plan

### A. Analysis

Benefit-to-cost ratios and the figures used in their calculation are found on Table VI-1. Listed benefits are limited to those quantifiable results that are directly attributable to the management plan. Benefits to wildlife are left out of two of the ratio calculations (A&C) because they cease to increase after the first 10 years and because the wildlife values used are more subjective than the other values. Variable costs have been isolated simply to demonstrate those cost items which will occur solely because of this plan. In other words, while the clerical and professional services of the permanent staff are charged against the plan, they are in fact costs that BLM will incur regardless of the plan's implementation. The size of the benefit-to-variable-cost ratios (C&D) indicates the relatively limited purchase of outside staff and materials required for implementation of the plan. In any event, excluding wildlife benefits and including all costs, ratio A indicates that the plan would still pay for itself.

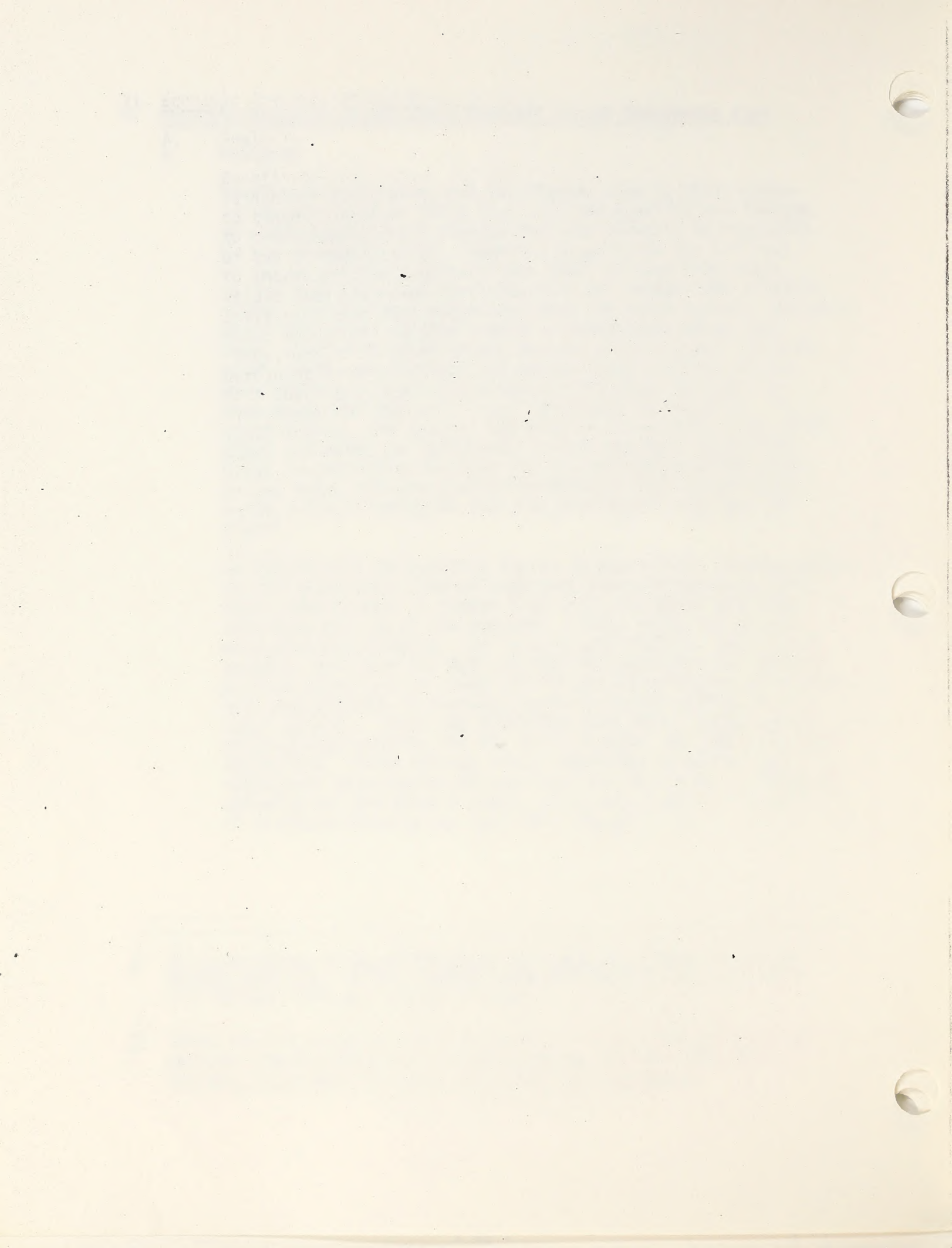
In addition to the benefits listed in Table VI-1, implementation of this plan would involve some more extended economic benefits. The harvest of timber from this area would help sustain that portion of the regional economy dependent on the wood products industry. An input-output model of the region, recently developed for BLM use 1/, indicates that for every million board feet of timber harvested, 11 man-years of employment and \$600,000 in business activity are generated in the local economy. Under the Black Mountain Plan, 375 MBF would be harvested annually for the first 8 years, 283 MBF each year thereafter. These harvest levels would be associated with employment of 4 people and business activity of about \$225,000 annually for the first 8 years, and 3 employees and \$170,000 of business activity for the remaining years. 2/

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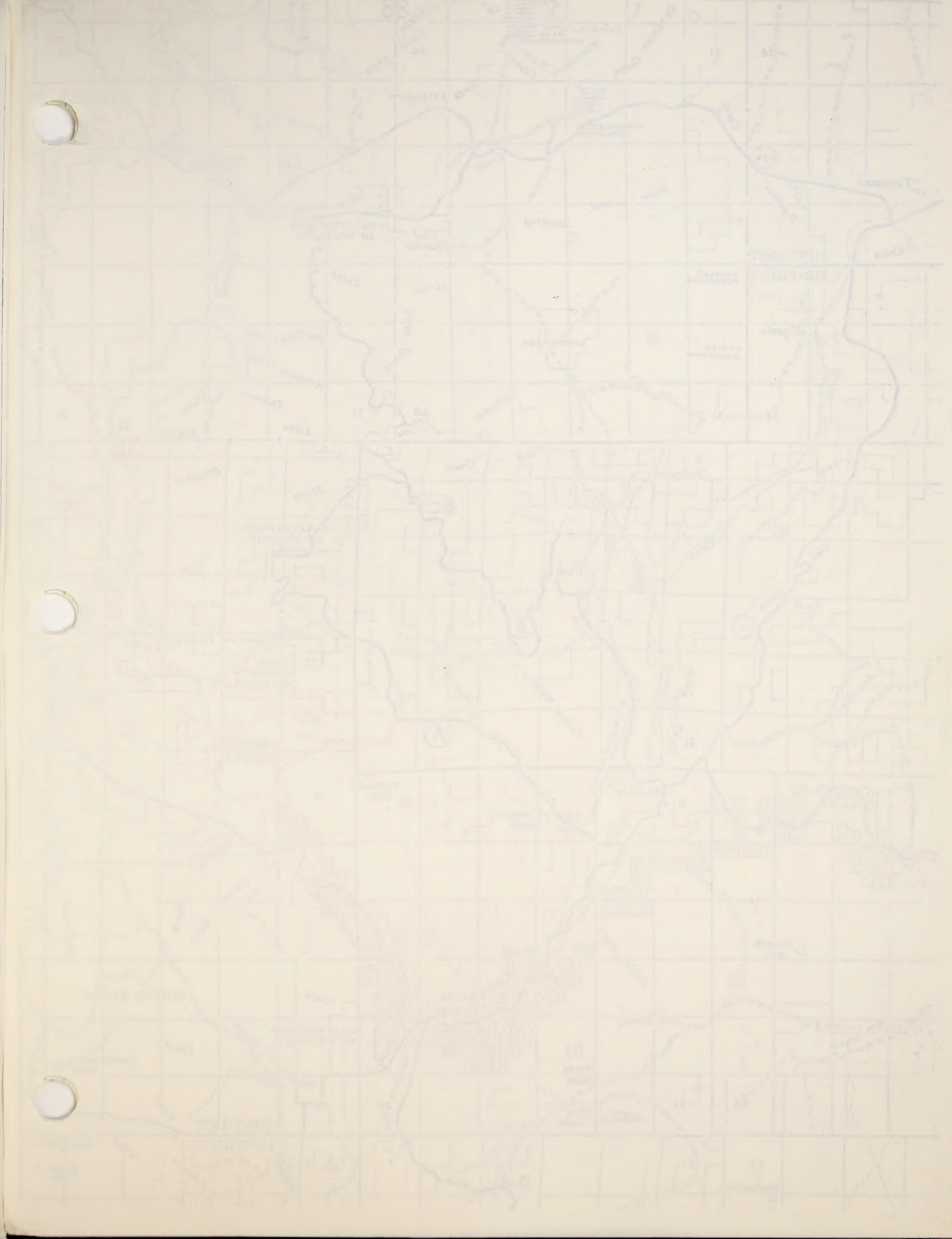
1/ An Input-Output Study of the Upper Colorado Mainstream Region of Western Colorado, by J.R. McKean, Colorado State University, and J.C. Welser, Colorado School of Mines.

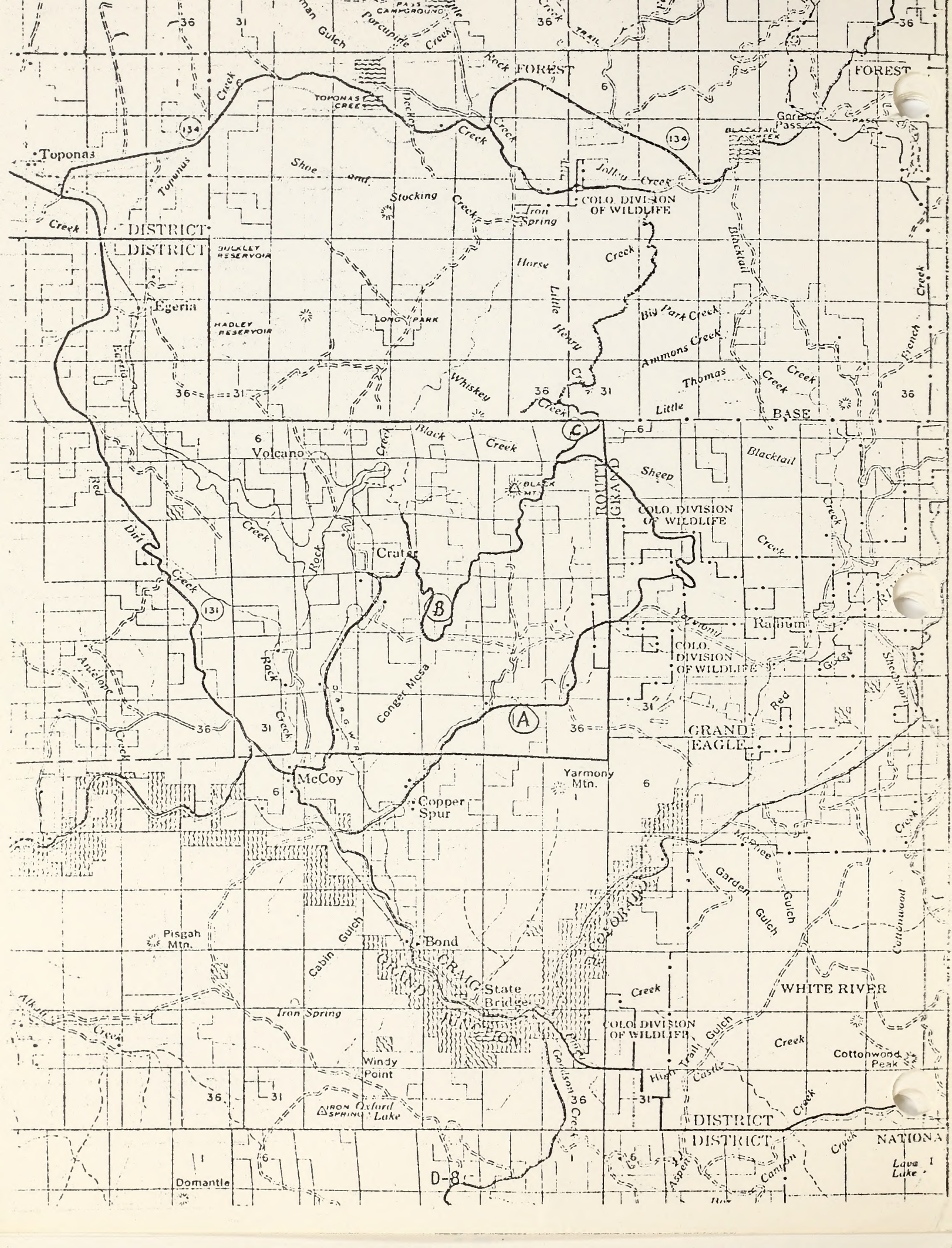
2/ These results assume a timber products price of \$300/MBF which was derived from BLM Instruction Memorandum No. 80-305 (2/20/80), Indices, Adjustment Factors, and Lumber Selling Values.











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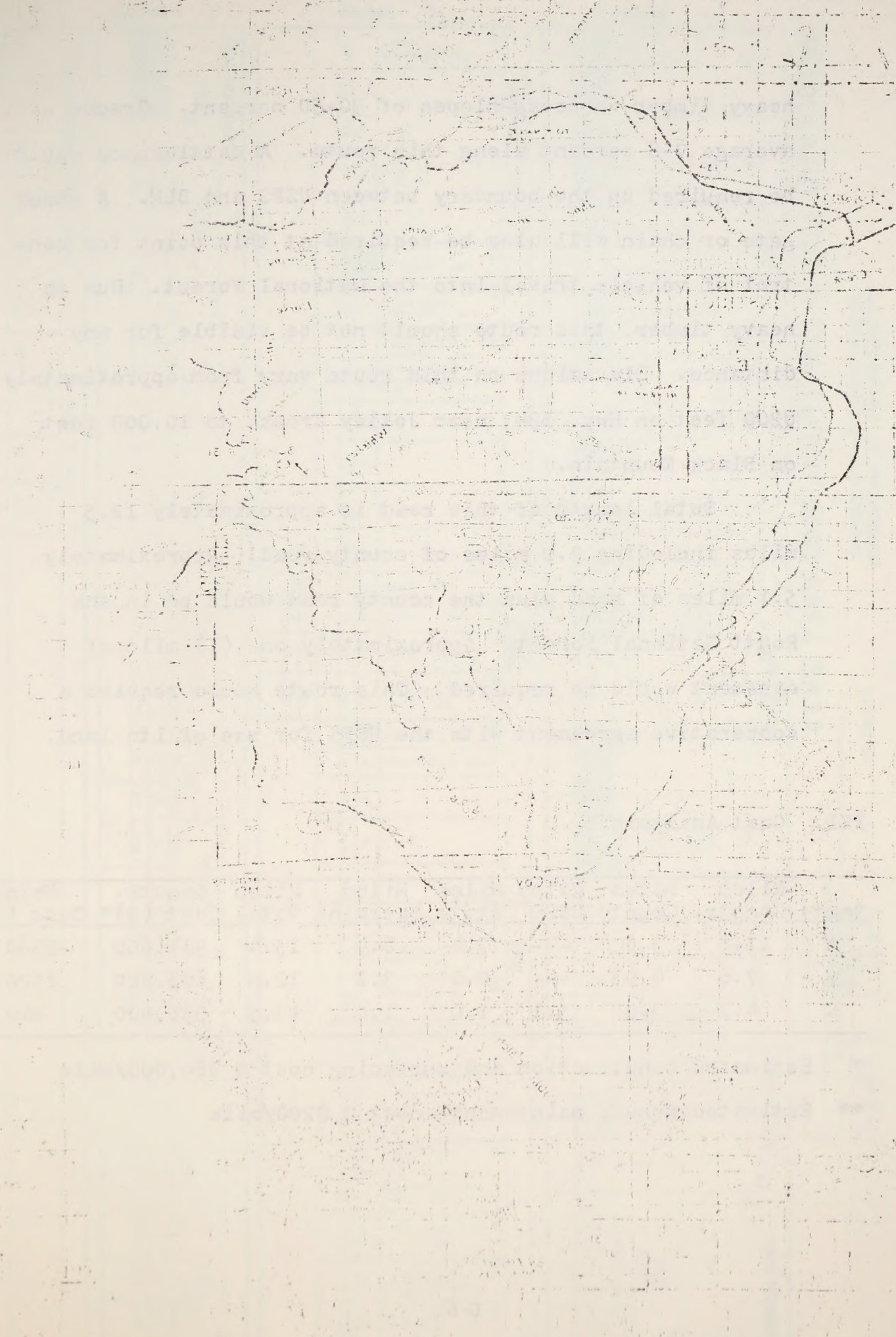
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heavy timber on cross-slopes of 30-50 percent. Grades will average 7-8 percent along this route. A cattleguard would be required on the boundary between USFS and BLM. A steel gate or chain will also be required at this point for control of vehicle travel into the National Forest. Due to heavy timber, this route should not be visible for any distance. Elevations on this route vary from approximately 8200 feet on Hwy. 134, near Jolley Creek, to 10,000 feet on Black Mountain.

Total length of this road is approximately 12.5 miles including 3.2 miles of county road. Approximately 5.1 miles of road plus the county road would be in the Routt National Forest. Approximately one (1) mile of easement would be required. This route would require a cooperative agreement with the USFS for use of its land.

### III. Cost Analysis

Route	Miles Constr.	Miles County	Miles USFS	Miles State	Miles Easement	Miles Total	Constr. Cost (\$)*	Maint. Cost (\$)**
A	11.8	3.6	---	3.4	8.4	15.4	944,000	2360
B	7.6	4.9	---	0.1	3.1	12.5	608,000	1520
C	4.2	3.2	5.1	1.0	1.0	13.5	336,000	840

\* Estimated construction and surfacing cost @ \$80,000/mile

\*\* Estimated annual maintenance cost @ \$200/mile





TR 120 T 4 S R 85 W ACRES- 30 DATE- 10/5/79 TYPE- RPW PLOT # 171 *Case*

See 24

G.D.	DIAMETERS		HEIGHT	CROWN FACTOR	# STEMS	OTHER POTENTIAL USES			REMARKS
	S.D.					X-MAS	STAY	LINE	
13	12		27	1.2	2				
8	9		12	1.2					
14	14		19	1	1				
6	11		26	1	1				
14	6		9	1					
14	14		31	1					
14	8		17	1					

TRESSPASS	UNDERSTORY COMP.	RESTRICTION	TIVTURE	PHYSIOGRAPHY	ACCESS TYPE	K1	VIBR
XX	XX	XX	XX	X	XXXX		XX
20		21	31	6	1001		10

STAND COMP.	TREND	SEVERITY	DAMAGE	% OF STAND	SPP.	TREE #	CORPUS PER ACRE				
							UNCORRECTED	PINYON	JUNIPER	TOTAL	
X	X	X	XX	XXX							
A											

PROBABLE CONDITION: (G014)-T3  
 ET USUO QUAT IE REND PROBABIA COAL. EXIST

40% slope

P-12" diam 168 yrs.

P-9.0  
J-2.7

SPP.	TREE #	UNCORRECTED	PINYON	JUNIPER	TOTAL

