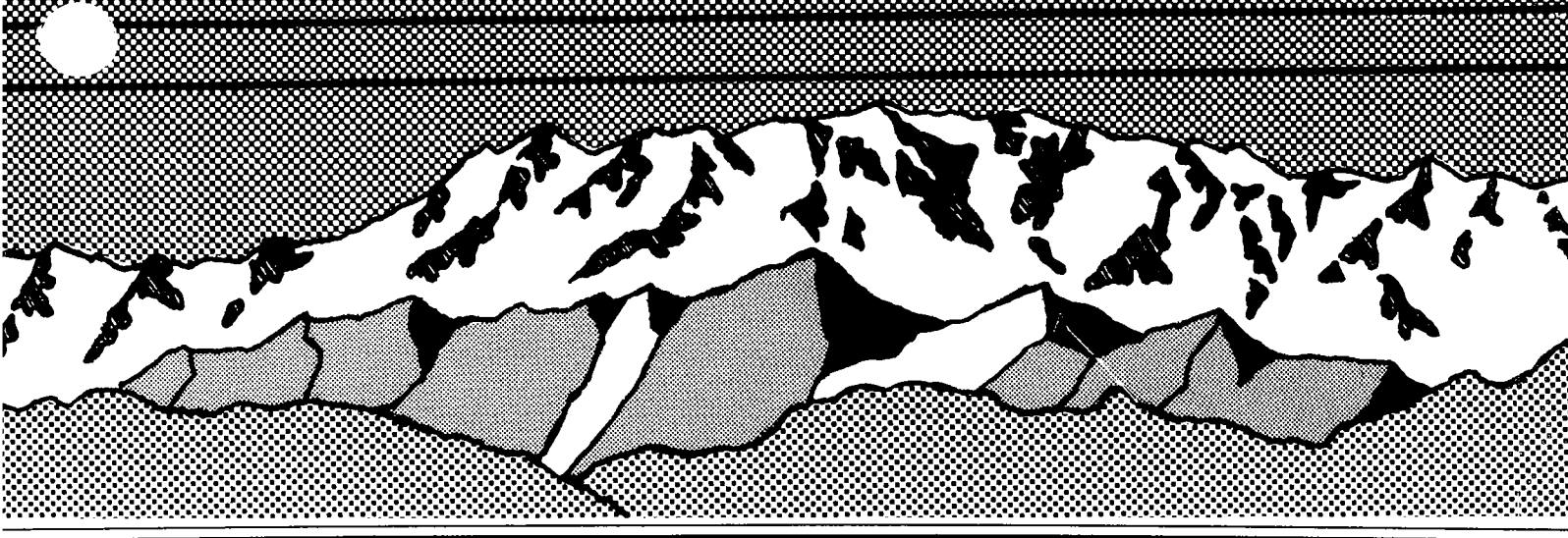


206

Forest Plan



United States
Department of
Agriculture
Forest Service



Gallatin National Forest
FOREST PLAN



PREFACE

The natural resources and the wildlands environment of the Gallatin National Forest is a national trust that is shared by all people of the United States. These resources are used and valued by many different people, sometimes at odds with each other.

The management philosophy of the Gallatin Forest is to respond to these various needs by providing goods and services to local, regional, and national levels. This goal is tempered with the realization that it is not possible to provide all things to all people. The Forest Plan recognizes that there is a limit to the uses to which the land and resources can be put. The importance of recognizing these limitations is to ensure that National Forests can continue to provide for future generations.

One of the major overall objectives of the Forest Plan is to recognize and manage for the high quality recreational, vegetative, and wildlife resources found on the Gallatin National Forest. Resources (such as the grizzly bear, migratory elk herds, a range of vegetative types, and the entire spectrum of recreation opportunities) are considered not only as they relate to the Gallatin Forest but also in the larger context. The Plan recognizes the significance of the Greater Yellowstone Area and has been designed to complement the management of the entire Greater Yellowstone Area and coordinate the use and management of the Forest's resources with the other National Forests, National Parks and agencies involved.

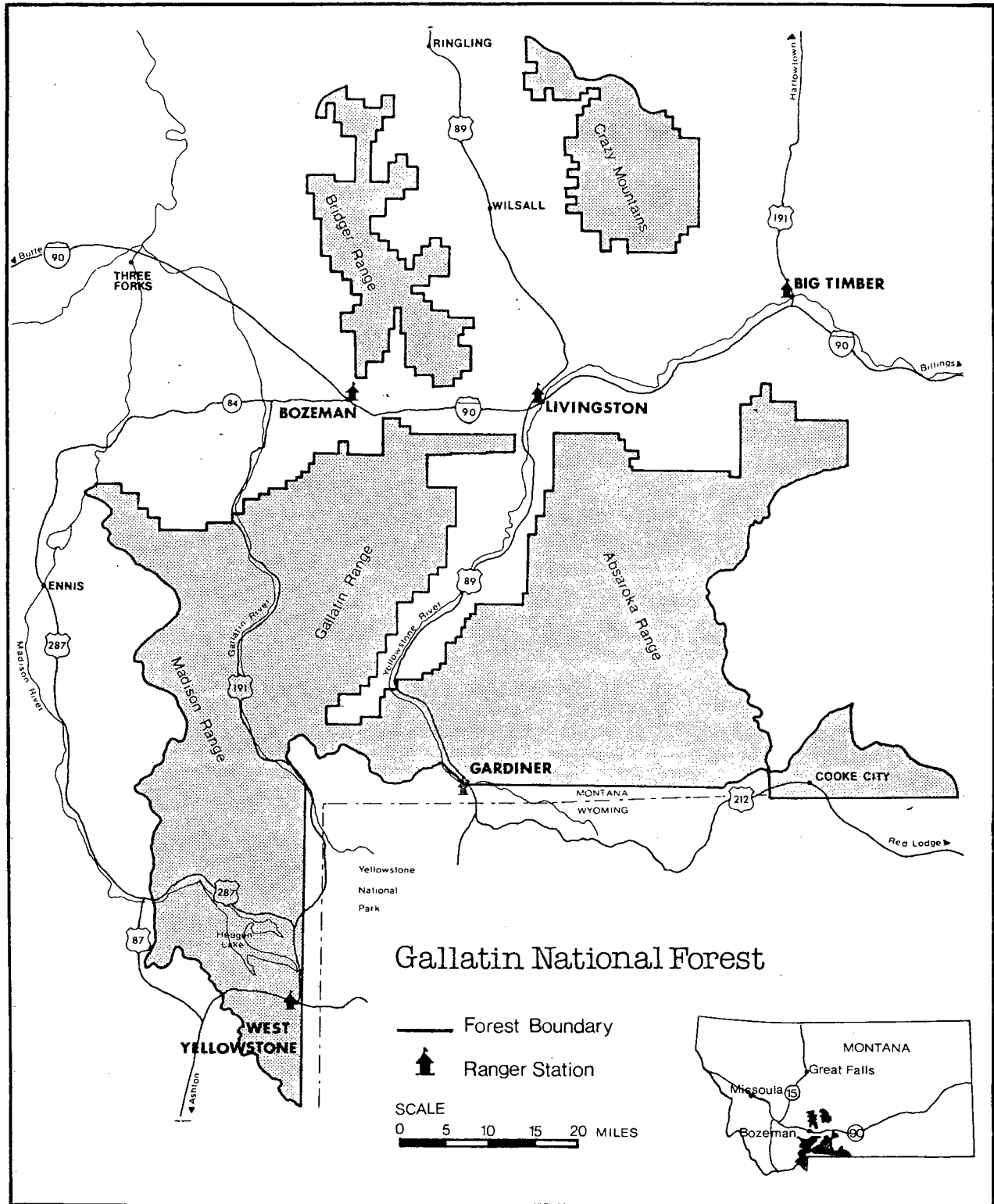
This Forest Plan is in compliance with the National Forest Management Act of 1976 (NFMA); the regulations for National Forest Land and Resource Management Planning (36 CFR Part 219); and the National Environmental Policy Act of 1969 (NEPA), including the Record of Decision for the Environmental Impact Statement covering the Forest Plan.

Further information can be obtained from: Gallatin National Forest
P.O. Box 130
Bozeman, Montana 59771.

ROBERT E. BREAZEALE
Forest Supervisor

Vicinity Map

Figure 1-1



CONTENTS

	<u>Page</u>
PREFACE.....	i
MAP.....	ii
CONTENTS.....	iii
CHAPTER I: INTRODUCTION	
A. Purpose.....	I-1
B. Management Direction.....	I-1
C. Relationship to Other Documents.....	I-1
D. Users Index.....	I-1
CHAPTER II: FORESTWIDE MANAGEMENT DIRECTION	
A. Goals	II-1
B. Objectives	
1. Resource/Activity Summaries.....	II-2
2. Projected Outputs and Activities.....	II-7
3. Research Natural Area Objectives.....	II-9
4. Additional Data Requirements and Accomplishment Schedule.....	II-11
C. Research Needs.....	II-11
D. Desired Future Condition of the Forest.....	II-11
E. Forest-wide Standards.....	II-14
CHAPTER III: MANAGEMENT AREA DIRECTION	
A. Management Area Prescriptions.....	III-1
Management Area 1	III-2
Management Area 2	III-4
Management Area 3	III-6
Management Area 3a.....	III-8
Management Area 4	III-10
Management Area 5	III-14
Management Area 6	III-17
Management Area 7	III-19
Management Area 8	III-24
Management Area 9	III-27
Management Area 10.....	III-30
Management Area 11.....	III-33
Management Area 12.....	III-37
Management Area 13.....	III-40
Management Area 14.....	III-44
Management Area 15.....	III-47
Management Area 16.....	III-50
Management Area 17.....	III-52
Management Area 18.....	III-54
Management Area 19.....	III-56
Management Area 20.....	III-59
Management Area 21.....	III-62
Management Area 23.....	III-65
Management Area 24.....	III-67
Management Area 25.....	III-69
Management Area 26.....	III-71
B. Schedule of Timber Sale Program by Harvest Method.....	III-73

CHAPTER IV: IMPLEMENTATION	
A. Introduction.....	IV-1
B. Influence of Past Management on Future Options.....	IV-1
C. Project Planning.....	IV-1
D. Monitoring and Evaluation.....	IV-3
E. Amendment and Revision.....	IV-8

CHAPTER V: SUMMARY OF ANALYSIS OF THE MANAGEMENT SITUATION	
A. Introduction.....	V-1
B. Resource Elements.....	V-3

VI. GLOSSARY.....	VI-1
-------------------	------

APPENDICES

Appendix A: Timber Management	
A-1: Silvicultural Systems.....	A-1
A-2: Land Classification Summary.....	A-15
A-3: Timber Productivity Classification.....	A-16
A-4: Allowable Sale Quantity and LTSY Capacity.....	A-17
A-5: Present and Future Forest Conditions.....	A-18
Appendix B: Limits-of-Acceptable Change.....	B-1
Appendix C: Watershed Management.....	C-1
Appendix D: Minerals Management.....	D-1
Appendix E: Fire Management Direction.....	E-1
Appendix F: Wilderness Management Plans	
F-1: Absaroka-Beartooth Management Plan.....	F-1
F-2: Draft Lee Metcalf Management Plan.....	F-19
Appendix G: Grizzly Bear Guidelines.....	G-1
Appendix H: U.S. Fish and Wildlife Service, Biological Opinion.....	H-1
Appendix I: Timber Sale Program.....	I-1
Appendix J: Wild And Scenic Rivers Evaluation.....	J-1
Appendix K: Projected Budget to Implement the Forest Plan.....	K-1

LIST OF TABLES

II-1	Projected Outputs and Activities.....	II-8
II-2	Research Natural Area Candidates.....	II-10
II-3	Additional Data Needs.....	II-11
III-1	Schedule of Planned Average Annual Timber Sale Program By Harvest Method.....	III-73
IV-1	Forest Plan Monitoring Requirements.....	IV-5
V-1	Employment Distribution.....	V-2
V-2	Employment Sectors and Outputs.....	V-3
V-3	Population.....	V-3
V-4	Developed Ski Area Potential.....	V-6
V-5	Developed Recreation Sites RPA Targets.....	V-6
V-6	Estimate of Demand for Developed Recreation.....	V-7
V-7	Major Activities Associated with Dispersed Recreation in 1981.....	V-7
V-8	Dispersed Recreation RPA Targets.....	V-8
V-9	Estimate of Demand for Dispersed Recreation.....	V-8
V-10	Wilderness Maximum Potential.....	V-9
V-11	Roadless Lands on the Gallatin National Forest....	V-10
V-12	Catchable Trout Population Targets.....	V-14
V-13	Range RPA Targets.....	V-15
V-14	Timber RPA Targets.....	V-17
V-15	Water Quality RPA Targets.....	V-19
V-16	Active Mineral Operations.....	V-20
V-17	Minerals RPA Targets.....	V-21
V-18	Fire Occurrence Between 1970-1979 on the Gallatin National Forest.....	V-25

LIST OF FIGURES

I-1	Vicinity Map.....	ii
IV-1	Decision Flow Diagram.....	IV-9



CHAPTER I: INTRODUCTION TO THE FOREST PLAN

A. Purpose of the Forest Plan

The Forest Plan guides all natural resource management activities and establishes management standards for the Gallatin National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management.

B. Management Direction

Goals, objectives, standards, schedule of management practices, and monitoring and evaluation requirements comprise the Plan's management direction. However, the projected outputs, services, and rates of implementation are dependent on the annual budgeting process.

C. Relationship to Other Documents

Environmental Impact Statement. The Forest Plan is based on the various considerations which have been addressed in the accompanying Environmental Impact Statement (EIS), and represents the preferred alternative in that EIS. The planning process and the analysis procedure used in developing the Plan, as well as the other alternatives that were considered, are described or referenced in the EIS. Project level activities will be planned to carry out the management direction in this Plan. National Environmental Protection Act (NEPA) requirements will be followed as the site-specific issues and impacts are addressed during project development.

Regional Guide. The Regional Guide displays the Northern Region's portion of the Forest and Rangeland Renewable Resource Planning Act (RPA) Program by National Forest, provides direction for National Forest plans, and develops standards and guidelines for addressing major issues and management concerns which need to be considered at the Regional level to facilitate Forest Planning. The Regional Guide process allows for discussion and analysis of National Forest program capabilities to determine opportunities to meet short and long-term natural resource demands.

D. User's Index

The following index will help the user locate specific management direction for a particular resource or activity. Chapter II contains the Forest-wide goals, objectives, and standards. Chapter III contains the goals of each Management Area (MA), along with the standards, and the management practices (activities) that will occur in that MA.

The resource, activity, or area has been arranged in alphabetical order with the page number following:

<u>Resource, Activity, or Area</u>	<u>Page</u>
Absaroka-Beartooth Wilderness	MA#4,p.III-10, V-8, Appendix F-1
Access	II-26
Amendment and revision	IV-8
Bald eagle	II-1,19, Appendix H
Best management practices	II-5,23 also see MA standards Appendix C
Budget	Appendix K
Cabin Creek Management Area	II-6 MA#20,p.III-59
Cultural resources	II-3 ,II-17
Duration of openings	II-22 Appendix A,p.A-12
Equivalent clearcut area	MA#8,9,10,11,13
Fire management	II-6,28 Appendix E
Fire suppression	see each MA for standards
Fish	II-4,19,21, MA#7
Forest-wide standards	II-14
Gallatin Petrified Forest	II-6
Goals	II-1 also see each MA
Grizzly bear	II-4,19 Appendix G also see MA#4,13,14,15,19,20
Habitat improvement	II-3,4,8,17-19 also see MAs,schedule of management practices
Hyalite Peaks Scenic Area	II-6 MA#18,p.III-54
Implementation	IV-1
Indicator species	II-18
Lee Metcalf Wilderness	II-3, MA#4,p.III-10 Appendix F-2
Limits-of-acceptable change	II-15 Appendix B
Livestock - see range	II-4, 20
Madison Earthquake Area	II-16
Management areas	Chapter III
Management situation	Chapter V
Minerals	II-5,24 Appendix D also see standards for each MA
Monitoring	IV-3 also see monitoring requirements for each MA
Nongame species	II-4,18
Noxious weeds	II-28
Old growth	II-19,20
Peregrine falcon	II-19
Porcupine-Buffalo Horn Area	II-6, MA#19,p.56
Prescribed fire	II-6,28 see also schedule of management practices for MAs
Project planning	IV-1
Range improvement	II-20 also see schedule of management practices for MAs
Range management	II-4,20 also see MA standards
Recreation	II-2-15 also see MA standards
Research Natural Areas	II-9,MA#21,p.III-62
Riparian management	MA#7,p.III-19

Resource, Activity, or Area (Cont'd)

Page

Road construction	II-2, 26	also see schedule of management practices for MAs
Road management	II-26	also see MA standards
Silvicultural systems	II-20	Appendix A-1
Site preparation	II-21	Appendix A-1
Size of opening	II-22	Appendix A-1
Small game species		II-4
Snag management	II-18	Appendix A, p.A-13
Standards		see Forest-wide standards, II-14 also MA standards
Threatened and endangered species		II-19
Timber management	II-5,20	Appendix A see also standards for MA#5,7,8,9,10,11,13,
Timber sale program		Appendix H
Trail construction		schedule of Management practices for MAs
Trail management	II-32,26	see also MA standards
Travel Map		II-27, IV-2
Vegetative diversity		II-19
Watershed management	II-5,23	Appendix C see also MA standards
Wild and Scenic Rivers		II-6,28 Appendix J
Wilderness	II-3	MA#4, p.III-10 Appendix F-1, F-2
Wildlife	II-3,17	see also MA standards
Withdrawals	II-25	Appendix D, p.D-6



CHAPTER II: FOREST MANAGEMENT DIRECTION

The management direction presented in this Chapter is in terms of Forest-wide goals, objectives, and standards. This direction has evolved throughout the planning process as a result of analysis of the Forest's capability to supply goods and services, from attempts to resolve public issues and meet public demands within the capability of the resources, and from the need to address internal Forest Service concerns.

A. GOALS

The goals for the Gallatin National Forest are:

1. Provide for a broad spectrum of recreation opportunities in a variety of Forest settings.
2. Provide directional and interpretive signing for visitor information, as appropriate for the recreation setting.
3. Manage the existing and recommended wilderness resource to maintain its wilderness character and to provide for its use and protection.
4. Provide Forest visitors with visually appealing scenery.
5. Meet or exceed State of Montana water quality standards.
6. Maintain and enhance fish habitat to provide for an increased fish population.
7. Provide habitat for viable populations of all indigenous wildlife species and for increasing populations of big game animals.
8. Provide sufficient habitat for recovered populations of threatened and endangered species (i.e., grizzly bear, bald eagle, and peregrine falcon).
9. Strive to prevent any human-caused grizzly bear losses.
10. Provide additional public access to National Forest lands.
11. Provide a road and trail management program that is responsive to resource management needs.
12. Provide a sustained yield of timber products and improve the productivity of timber growing lands.
13. Maintain or improve the forage resource.
14. Provide for a small increase of livestock grazing.
15. Provide for orderly and environmentally acceptable exploration and development of minerals, oil and gas, and geothermal resources.

16. Use prescribed fire to accomplish vegetative management objectives.
17. Provide a fire protection and use program which is responsive to land and resource management goals and objectives.
18. Manage National Forest resources to prevent or reduce serious long lasting hazards from pest organisms utilizing principles of integrated pest management.
19. Manage National Forest lands in their present ownership patterns except where opportunities arise to accomplish specific objectives.
20. Locate and protect cultural resources to maintain their scientific and historical values.
21. Coordinate with the land and resource management and planning efforts of other Federal, State, local agencies, and private landowners. Strengthen this coordination within the entire Greater Yellowstone Area.

B. OBJECTIVES

Following are brief summaries of how the various resources and activities will be managed under the Forest Plan. A complete understanding of the management direction can be attained by reading the Forest-wide goals and standards in this Chapter, and the management area goals and standards in Chapter III.

1. Resource/Activity Summaries

a. Recreation

Recreation settings will range from "primitive" to "urban" as classified by the Recreation Opportunity Spectrum (ROS). See the glossary in Chapter VI for an explanation of this system.

The Forest Travel Map will display recreational opportunities and restrictions for roads, trails, and areas. Activities will be managed to avoid displacement of threatened and endangered wildlife species and to provide for user safety, resolution of user conflict, and resource protection.

Existing opportunities for recreational hunting will be maintained. Road and vegetative management will be coordinated to provide varied types of recreational hunting experiences.

Provision of adequate public access to National Forest lands is of high priority. Approximately 55 miles of roads outside the Forest boundary will be constructed in the next ten years to gain access to the Forest. Trailhead or parking facilities will be built at the end of some roads. Recreation trails will be provided to allow safe public access and to increase opportunities for natural area interpretation and winter sports. Designated ski and snowmobile trails will provide winter recreation opportunities in areas with low avalanche hazard. Improved and expanded trails to increase opportunities for physically handicapped or elderly people will be provided.

Areas of possible overuse will be evaluated and measures (such as educating users, providing more facilities, or limiting use) will be taken to reduce the effects of overuse.

More emphasis will be placed on the maintenance of developed recreation sites in order to reverse the deterioration of campgrounds and picnic areas. New recreation facilities will be developed where there is increasing public need.

Cooperative efforts with interested clubs, organizations, and other public agencies will be continued to provide for a wide variety of dispersed recreation activities. Cooperators will be encouraged to assist with development, operation, and maintenance of both summer and winter trail systems.

The Forest's administrative cabin rental program will be continued.

The private sector will be encouraged to provide facilities and services on private land where needed to serve the public.

Recreation opportunity guides, in the form of booklets, displays, signs, or handouts, will be compiled for the Forest and made available to the public.

Signing will be provided to aid in visitor information and national interpretation as appropriate for each recreation setting.

b. Wilderness

Designated wilderness will be managed according to the Wilderness Act of 1964.

Emphasis will be placed on reducing use of over-crowded areas through measures such as visitor information, construction of new trails and access points, and relocation of existing trails.

Management of the wilderness resource will include the use of wilderness rangers and more emphasis on education to help reduce impacts on the wilderness resource. Educational efforts will continue to focus on no-trace camping techniques and the "pack-it-in pack-it-out" program.

c. Visual Quality

The Forest Plan emphasizes the visual resource by providing direction for activities that alter the natural landscape.

d. Cultural Resources

Cultural resources on the Gallatin Forest will be managed to maintain their scientific, social, and historical value in compliance with all applicable Federal and State laws.

e. Wildlife

Management of wildlife habitat will emphasize forage and cover needs on big game winter range.

Vegetative manipulation projects, such as prescribed fire and timber harvest, will be used to maintain or improve habitat conditions.

In areas of intermingled ownership the Forest Service will coordinate with private landowners and the Montana Department of Fish, Wildlife, and Parks.

Non-game and small game needs will be enhanced by providing for vegetative diversity and protecting special habitat components.

The Forest will apply the grizzly bear guidelines in Appendix G to provide for the recovery of the grizzly bear.

Management of the Forest will provide for the recovery of the bald eagle and peregrine falcon.

Adequate security for elk will be maintained over time by providing hiding cover and road management.

f. Fish

Fish habitat will be managed by application of "best management practices". Management standards have been set to mitigate impacts occurring to the fishery resource from land use activities.

Special consideration will be given to high quality water leaving the Forest to provide for the downstream "Blue Ribbon" trout streams.

Management of livestock will consider utilization levels in riparian zones (see Management Area 7 in Chapter III).

Management of timber within riparian zones will be designed to maintain or improve fish habitat.

The management needs of high mountain lakes will be identified. Management of lakes located within Wilderness will be in keeping with the Wilderness Act of 1964.

Projects to improve lake and stream habitat will be implemented.

g. Range

Improved forage management will be used to maintain or enhance the range environment and to provide for increased AUMs.

Development and use of available forage will depend upon the livestock industry's ability and desire to make the necessary investments.

The Plan calls for continuing to administer about 15,000 AUMs of grazing use on private lands that are intermingled with National Forest lands within grazing allotments.

h. Timber

Timber harvest will be used as a tool to carry out vegetative management activities.

An average annual volume of 21 MMBF of timber (approximately 2,100 acres) will be offered throughout the plan period. This volume includes approximately 16 MMBF of green sawtimber and a non-interchangeable component of planned salvage from suitable lands. The non-interchangeable component consists of approximately 4 MMBF dead and 1 MMBF other products such as posts and poles (see Appendices A and I).

During the first decade the Forest may offer an additional 4 MMBF each year of salvage dead sawtimber from the suitable timber land base if demand and opportunity is determined to be present. An ammendment of the Forest Plan will be required if this additional volume causes the harvest for the first decade to exceed 210 MMBF.

Emphasis will be placed on the harvest of lodgepole pine stands infested or with the potential of infestation by the mountain pine beetle.

Emphasis will be placed on distributing timber harvest over the entire suitable timber base.

Suitable timberland within the Goose and Levinski drainages will be managed for the primary purpose of developing and utilizing new timber harvest technologies.

i. Water and Soils

Municipal watersheds will be managed to meet State water quality standards.

Watersheds will be managed by application of "best management practices". Management standards have been set to mitigate impacts occurring to the watershed resource from land use activities.

In drainages with intermingled ownership, the Forest Service will work closely with the private landowners to develop watershed objectives and, where necessary, schedule management activities to ensure the desired condition of the watershed is maintained.

j. Minerals

Before recommendations are made on oil and gas lease applications, site-specific analysis of environmental effects will be made as delineated in the National Environmental Policy Act.

Leases for geothermal development in the Corwin Springs area will be deferred until it can be established that geothermal explorations and development will not significantly effect the geothermal system of Yellowstone National Park.

Existing and future rights to prospect, develop, and mine on National Forest lands open to mineral entry will be recognized in implementation of this Forest Plan. Management Area and Forest-wide standards will be considered in the

development of the Plan of Operations and/or in the approval of the Notice of Intent.

Areas withdrawn from mineral entry shall be reviewed in accordance with the Federal Land Policy and Management Act of 1976 and subsequent Bureau of Land Management and Forest Service requirements. A listing of all withdrawals, review dates, and review criteria is provided in Appendix D.

Common variety mineral extractions may only be authorized where compatible with the goals of the management areas.

k. Landownership

Land ownership adjustments will be made when analysis shows them to be advantageous to the public.

The necessary rights-of-way to manage Forest resources, including provision of reasonable public access, will be obtained.

l. Facilities

Forest roads and trails will be located, constructed, managed, and maintained to meet management objectives.

Area transportation analysis will be used to determine transportation needs.

m. Fire

Prescribed fire will be used as a tool to carry out vegetative management activities.

Fire in Wilderness will be allowed to play a more natural role to maintain wilderness character.

n. Special Areas

Unique characteristics of the Hyalite Peaks, Porcupine-Buffalo Horn, and Cabin Creek areas will be managed under special area designation (MA 18, 19, and 20).

In the Gallatin National Forest, the public will be offered a continued opportunity to collect petrified wood under permit. Periodic reviews will ensure that an adequate petrified wood resource is protected.

o. Wild and Scenic Rivers

River segments identified as eligible for potential classification and inclusion in the Wild and Scenic Rivers system will be managed to protect their "outstandingly remarkable" values until a future decision is made on possible wild and scenic river designation.

2. Projected Outputs and Activities

Projected outputs and activities that will be used for programming, budgeting, and attainment reporting are displayed in Table II-1. The projected budget required to implement the Forest Plan is shown in Appendix J.

Appendix I contains the three year timber sale schedule. Projects will be added to these activity schedules periodically as they are identified during the continuous project planning process. Projects may also be deferred or modified if problems are identified during project level environmental analysis (refer to Chapter IV, Section C, for a discussion of project planning).

Table II-1. Projected Outputs and Activities by Time Period

Target Item	Output or Activity	Unit of Measure	Average Annual Units				
			Planned 1986- 1995	1996- 2005	2006- 2015	2016- 2025	2026- 2035
Recreation							
T01	Developed Use	M RVD	803	959	1132	1244	1244
T02	Dispersed Use	M RVD	1300	1532	1764	1922	2080
Wildlife & Fish							
T03	Wildlife Habitat Imp.	Acres	600	800	800	800	800
T04	Fish Habitat Imp.	Acres	20	10	10	10	10
T05	T&E Habitat Imp.	Acres	160	200	200	200	200
T29	Wildlife Habitat Imp.	Structures	50	50	50	50	50
T30	Fish Habitat Imp.	Structures	20	30	30	30	30
T31	T & E Habitat Imp.	Structures	15	2	2	2	2
Range							
T06	Permitted Grazing Use	M AUM	45	45	45	45	45
T07	Range Improvement	Acres	350	350	250	250	250
		Structures	15	13	13	13	13
T09	Noxious Weed Control	Acres	400	525	525	525	525
Soil							
	Soil and Water Imp.	Acres	22	27	28	0	0
Minerals							
T12	Minerals Mgmt.	Cases	200	125	130	130	130
Timber							
T13	Total Volume Offered	MM BF	21	21	21	23	25
T16-19	Reforestation	Acres	2200	2200	2200	2460	2780
T20-21	Timber Stand Imp.	Acres	960	671	610	735	799
T22	Landline Location	Miles	50	50	50	50	
T44	Fuels Mgmt.-BD	Acres	800	800	800	800	800
Protection							
T23	Fuel Management- Activity/Natural	Acres	300	1000	1000	1000	1000
Facilities							
T83	Trail Reconstruction/Construction	Miles	$\frac{1}{16}$	16	16	16	16
T81	Road Construction/Reconstruction						
	Access to Forest	Miles	5.5	5.5	5.5	0	0
	Construct Within	Miles	21.5	23.8	25.7	16.1	18.1
	Reconstruct Within	Miles	8.6	9.9	9.9	1.1	1.2

$\frac{1}{16}$ Reconstruction and maintenance of existing trails will generally be accomplished before new trails are constructed.

3. Research Natural Area Objectives

There are no existing Research Natural Areas on the Forest. However, one candidate area, Wheeler Ridge, was identified prior to the Forest Planning Process. The Northern Regional Guide assigned the habitat types listed in Table II-2 as the Forest's objectives for Research Natural Area (RNA) candidate areas. The Forest has a candidate area for most of the habitat types (also listed in Table II-2). Establishment reports will be prepared for each area that is selected as an RNA.

Table II-2 also lists target habitat types that are not represented in a proposed RNA. The presence of these habitat types have been identified in the Forest Data Base, but have not been specifically located and field mapped.

To meet the targets not yet represented by a candidate RNA, the Forest will make field checks in areas where habitat types are tentatively identified. If these areas appear to have the potential of becoming RNAs, the Forest will consult with the Regional Natural Area Specialist for field verification. For habitat types that are poorly represented or nonexistent on the Gallatin Forest, efforts will be made to meet the targets through cooperation with adjacent Forests or other Federal land management agencies.

TABLE II-2. Candidate RNA's on the Gallatin National Forest

Habitat			
Type	Vegetative**		
Code	Habitat Type	Occurrence*	Candidate Research Natural Area
<u>FOREST</u>			
430	PICEA/PHMA	m	Sliding Mtn., E. Fork Mill Cr., Passage Cr.
440	PICEA/GATR	M	Sliding Mtn.
470	PICEA/LIBO	M	Passage Cr., Pioneer Lakes
480	PICEA/SMST	m	
630	ABLA/GATR	m	Mt. Ellis, Sliding Mtn., Palace Butte
650	ALBA/CACA	M	Pioneer Lakes, Wheeler Ridge
660	ABLA/LIBO	M	Black Butte, Sliding Mtn., E. Fork Mill Cr., Passage Ck., Pioneer Lakes
720	ABLA/VAGL	M	Mt. Ellis, Sliding Mtn., Passage Ck.
740	ABLA/ALSI	m	Sliding Mtn., Palace Butte
820	ABLA-PIAL/VASC	M	Black Butte, Sliding Mtn., Passage Cr., Palace Butte, Wheeler Ridge
910	PICO/PUTR	m	Obsidian Sands
	COTTONWOOD	M	
<u>NONFOREST</u>			
	AGSP/BOGR	M	Black Butte
	FEID/STRI	m	
	ARAR/AGSP	m	
<u>AQUATIC</u>			
	TYPE 1 STREAM		Pioneer Lakes, Mt. Ellis, Wheeler Ridge
	TYPE 3 STREAM		Pioneer Lakes, Palace Butte
	WATERFALL		Palace Butte
	SPECIAL FAUNAL POPULATION		Pioneer Lakes
	RIVER		
	LOW PRODUCTION LAKE		Palace Butte
	AVERAGE PRODUCTION LAKE		Pioneer Lakes
	HIGH PRODUCTION LAKE		
	LAKE WITH FISH		Pioneer Lakes
	LAKE WITHOUT FISH		Palace Butte
	LAKE WITH SPECIAL FAUNAL POPULATION		Pioneer Lakes
	WET MEADOW		Wheeler Ridge

*M = major occurrence satisfied by representation of 50 acres.
 m = minor occurrence satisfied by representation of 10 acres.
 ** = these vegetative descriptions are abbreviations of species names.

4. Additional Data Needs and Accomplishment Schedule

The following table shows the data needs for the Gallatin National Forest and the schedule for completing the requirements.

TABLE II-3. Additional Data Needs

<u>Data Requirement</u>	<u>Accomplishment Schedule</u>	<u>Data Level</u>
Grizzly Bear Habitat Component Mapping	1988	Greater Yellowstone Standard
Wildlife Habitat Component Mapping	1990	Regional Standard
Grazing Carrying Capacity in Wilderness	1990	Regional Standard
Timber Stratification	ongoing	Regional Standard
Timber Stand Examination	ongoing	Regional Standard
Timber Stand Permanent Growth Studies	ongoing	Regional Standard
Dispersed Recreation Use Data	1988	Regional Standard
Mineral Resource Survey	ongoing	Regional Standard

C. RESEARCH NEEDS

During the development of this plan only one research need was identified. It will be evaluated by the Regional Forester for inclusion in the Regional research program proposal. It is anticipated that more research needs will become apparent during monitoring and evaluation of the Forest Plan, as it is implemented.

The Gallatin needs additional knowledge to assure continued or increased production of whitebark pine nuts to be used by grizzly bear as an important source of food.

D. DESIRED FUTURE CONDITION OF THE FOREST

This section describes what the future Forest should be like if the management direction contained in the Forest Plan is implemented. It summarizes the anticipated physical changes which would result from carrying out planned management practices at the end of ten years and fifty years (RPA planning horizon).

1. End of First Decade (1997)

One of the most obvious changes will be the result of the current mountain pine beetle infestation. Significant numbers of insect-killed trees are falling in areas of the Forest which were attacked by the mountain pine beetle early in the current infestation (1969-1980). This is currently occurring in the lower Gallatin Canyon area and in portions of the Hebgen Lake District. This will increase as dead trees weaken and become less resistant to strong winds. As larger areas are affected, the quality of the recreation setting will decline. The downed timber will be an impediment to wildlife travel and will change habitat use patterns. The concentration of dead timber will create a high resistance to fire control actions. As brush species and seedlings and saplings

increase and grow under the open tree canopies, a fuel ladder will be established and rapid fire spread can be anticipated. These fires will cause short-term degradation of water quality and higher peak spring water yields. Higher spring runoffs will create an increase in flood potential and make less water available for downstream needs during summer and fall irrigation seasons. The magnitude of these changes is largely dependant on weather conditions.

At the end of the first decade the mountain pine beetle infestation, which has caused severe tree mortality on the western half of the Forest will, be evident on the eastern portion.

If Congress adopts the Forest Plan recommendation for additions to the wilderness system, the 21,461-acre Lionhead and 480-acre Republic Mountain Wilderness areas will be established. This would increase Wilderness on the Gallatin to 737,615 acres or about 43 percent of the National Forest land. Existing conditions will change very little, but motorized recreation activities will be curtailed. Wilderness areas will experience an increase in visitor use, but people will be dispersed more widely due to the establishment of additional access points and improvement to the trail system. Fire will be allowed to play a more natural role in the maintenance of these areas.

Most of the existing roadless lands outside of established Wilderness will not undergo significant change within the first decade. About 31,200 acres of existing roadless National Forest land will be developed. Approximately 95% of the roadless land outside of established Wilderness will remain roadless. Minor incursions of roading may occur if private inholders need access for management of their lands or if mineral resource development occurs.

There may be some additions of facilities to accommodate the growing need for developed recreation on the Forest. These sites will occupy a small portion of the Forest land base. The largest changes may be the development of Ski Yellowstone and possible expansion of Bridger Bowl ski areas. Construction of additional trailhead facilities will help disperse the growing use by hikers, horseback riders, snowmobilers, trailbikers, hunters, and crosscountry skiers.

The Forest will continue to manage cultural resources as provided by Executive Order 11593 (May 13, 1971).

Management practices provided in the Forest Plan are designed to favor the recovery of the threatened grizzly bear and endangered bald eagle. It may be necessary to restrict human activity within occupied grizzly bear habitat to reduce human/grizzly bear confrontations. Nesting sites of the bald eagle will continue to be protected.

Habitat conditions for game and nongame wildlife species will improve. Timber management practices are designed to provide for a greater diversity of tree age and size classes. Prescribed fire will be used to improve big game winter range. Improved range management practices will be initiated to improve wildlife habitat in livestock grazing allotments on wildlife winter ranges and riparian areas.

The possibility for additional locatable mineral production, particularly in the East Fork of the Boulder River, the Jardine, and the Cooke City areas, is high

during the first decade. Social economic benefits from these projects could be significant.

Oil and gas development may occur within the first decade on National Forest lands. The complex geology of the Forest tends to dictate a slow development program.

Livestock grazing is expected to increase slightly in the first decade. This increase will be accomplished through more intensive management on existing allotments and possible initiation of stocking on a few new allotments. This increase could be from 43,400 AUMs to 44,900 AUMs and will be accomplished to protect or enhance other resource values.

Timber harvest activities will be about the same level as the past 10 years. In order to obtain an improved distribution of age and size classes throughout the suitable timber base of the Forest, more timber harvest will be conducted on the relatively uncut eastern portion during the next decade and less on the western. This will require a more accelerated road construction program to access additional areas, help avoid the possibility of overcutting any particular drainage which could cause local soil erosion and water quality problems, and assure an adequate amount of "old growth" timber throughout the Forest for wildlife species dependent on mature and overmature timber.

The Forest Plan identifies the need to construct or reconstruct approximately 35 miles of additional road each year. This will be added to the existing 800 miles. An estimated 70 percent of these roads will be closed once their purpose is satisfied. This new mileage includes roads which will be built outside of the Forest boundary to provide additional public access to the Forest. People who prefer roaded recreation will find greater opportunities; while those who prefer more primitive types of recreation will either shift their use to another roadless area or experience a change in their recreation experience. Firewood gatherers will be provided new opportunities with the additional access.

2. End of the Fifth Decade (2035)

During the fifth decade some of the changes indicated above will be more noticeable. Based on the historic cycle of mountain pine beetle epidemics occurring at about 40 year intervals, we would expect to be emerging from another epidemic. That attack would probably have lighter impact on the west side of the Forest where younger stands were created through current beetle activity, fire or timber harvest. However, it will probably be much more intense in the Bridger, Crazy and Absaroka mountain ranges that were not as heavily impacted by the current attack. The large areas of wilderness will remain in a pristine condition. Approximately 517,000 acres of land outside of established wilderness will remain roadless. Some vegetative changes will have occurred due to natural processes such as wildfire. Recreation use of the wilderness is expected to double from current levels. This use will be better distributed due to more access points and trailhead facilities around the perimeters of the areas.

Recreation use in the nonwilderness portion of the Forest is also expected to increase dramatically over the next 50 years. A few new campgrounds will be constructed or existing sites expanded. Much of the growing demand for developed campgrounds will be satisfied by private facilities. An expanded

trail system in the large unroaded portion of the Forest will help distribute the increased number of hikers, horseback riders, snowmobilers, trail bikers, etc. However, the chance of encountering other recreationists will be greater and opportunities for solitude will be less.

Wildlife habitat will improve over the next 50 years. Special treatments to big game winter ranges will have provided the potential to produce more animals on the Forest. The growing demand for big game hunting will be more difficult to satisfy.

Threatened and endangered species will continue to be managed to provide for their recovery.

It is anticipated that the moderate growth in livestock grazing will level off at about 45,000 AUMs per year.

Timber harvest activities will provide about 25 MMBF per year in the fifth decade. This represents a moderate increase in production from 21 MMBF per year in the first decade.

The need for additional new road construction will have decreased from 35 miles per year during the first decade to 19 miles per year during the fifth decade.

E. FOREST-WIDE STANDARDS

The following Forest-wide Standards apply to National Forest land that is administered by the Gallatin National Forest. These standards are intended to supplement, not replace, the National and Regional policies, standards, and guidelines found in Forest Service manuals and handbooks and the Northern Regional Guide.

1. General

The standards are designed to meet the goals of this Forest Plan. The level of funding will influence the level of project implementation outlined in this Plan, but will not effect the standards.

If it is determined during project design that the best way to meet the management area goals of the Forest Plan conflicts with a Forest Plan standard, the Forest Supervisor may approve an exception to that standard for that project. Such exceptions, and the rationale therefore, must be described in the project's documentation.

As soon as practicable, and subject to valid existing rights, all outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of lands of the Gallatin National Forest will be made consistent with the Forest Plan.

Subsequent activities affecting the Forest, including budget proposals, shall be based on the Forest Plan. Proposed implementation schedules may be changed to reflect differences between proposed annual budgets and appropriated funds. Such scheduled changes shall be considered an amendment to the Forest Plan, but shall not be considered a significant amendment, or require the preparation of an environmental impact statement, unless the changes significantly alter the

long-term relationship between levels of multiple use goods and services projected under planned budget proposals and those projected under actual appropriations.

2. Recreation

1. Campgrounds and other developed recreation facilities will be constructed and managed to disperse recreation use across the Forest. Private investment on private land will be encouraged to help meet the demand for more developed recreation. Permitted special uses or concession arrangements on National Forest lands will also be relied on to meet demand. Forest Service investment will be necessary where there is no opportunity for private investment.
2. Some existing developed sites that have low use will be closed or consolidated with other sites.
3. Expansion of Bridger Bowl, Big Sky, and the potential development of Ski Yellowstone ski areas will be given priority before any new proposals for downhill ski areas are approved.
4. Facilities for the handicapped will be considered when recreation sites are being constructed or upgraded.
5. Dispersed recreation use will be managed to provide users with a wide range of opportunities to meet increasing demand while protecting forest resources.
6. The limits-of-acceptable change process will be used to guide management of dispersed recreation and wilderness areas. Limitation and distribution of visitor use in these areas will be based on application of the Limits of Acceptable Change (LAC) process described by Stankey, et. al., in the The Limits of Acceptable Change (LAC) System for Wilderness Planning, Intermountain Forest and Range Experiment Station, USDA-Forest Service, General Technical Report INT-176, January 1985. If the limits-of-acceptable change in specific areas are exceeded, any number of actions can be taken. These include visitor education, rehabilitation of areas, efforts to disperse use, partial restrictions on use, and, as a last resort, closures and restrictions on numbers of people (see Appendix B).
7. Authorized Hunting Outfitter and Guide activity levels will not exceed 10,758 total service days. This hunting use level contains the number of assigned priority use days (6423) calculated in 1984 including a 5 percent temporary use provision (322 service days), plus the 4013 service days of Day Use Outfitter and Guide hunting activity that was identified in 1981 from a Forest Service survey initiated in September, 1985.

Special use authorization for Day Use Outfitter and Guide hunting activity on the Forest will be implemented not to exceed the above level beginning with the 1988 hunting season.

Permit authorization of all other Outfitter and Guide activities on the Forest will be required and implemented in subsequent years consistent with National Forest Policy Direction.

Future adjustments or assignments in authorized levels of Outfitter and Guide activity on the Forest will be identified through the area analysis and/or environmental analysis processes.

8. Authorization of most existing recreation residences will continue into the foreseeable future. An assessment of the continuance of a recreation residence permit will be based upon the need for a higher public use.

9. Recreation residences will not exceed 1,500 square feet of roofed or enclosed floor space. Existing buildings in excess of 1,500 square feet will be allowed to remain. New construction in excess of 1,500 square feet will be permitted only if needed to correct health or safety problems.

10. The Madison River Canyon Earthquake Area, designated as a special geological area in 1960, will be managed to:

- a. allow the natural processes in this area to continue while providing for its use in conjunction with the safety and enjoyment of visitors.
- b. encourage multiple use of this area consistent with a. above.
- c. interpret the 1959 earthquake, related events, and National Forest resource management for visitors through operation of the Quake Lake Visitor Information Center.

11. The Gallatin Petrified Forest will be managed to:

- a. protect the petrified wood resource while allowing other uses to occur.
- b. offer an opportunity to collect specimens under a permit system.

3. Wilderness Study Area

Until Congress determines otherwise, the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area (PL 95-150) will be managed, subject to existing rights and uses, to maintain its existing wilderness character and potential for inclusion in the National Wilderness Preservation System.

4. Visual Quality

1. The Gallatin National Forest has developed visual quality objectives (VQOs), defined in the glossary (Chapter VI), which provide guidance for all landscape altering activities. Reference maps of VQO's are at the Supervisor's Office and each Ranger District for use in designing projects and for public inspection.

2. Environmental analysis and project designs will detail how the range of visual quality objectives identified for each Management Area in Chapter III will be utilized. If the VQO cannot be met the Forest Supervisor must approve the exemption in the decision notice.

5. Cultural Resources

1. A systematic program of cultural resource inventory, evaluation, and preservation will be conducted to provide for enhancement and protection of significant cultural resource values.
2. Inventories will be performed prior to all undertakings or when projects may impact a potentially historic structure.
3. Qualifying sites will be nominated to the National Register.
4. Sites evaluated as significant will be preserved in place, whenever possible.
5. Projects will be designed to avoid or minimize adverse impacts on significant cultural resources. When the Forest Supervisor determines avoidance to be imprudent, the values of the site will be conserved through scientific excavation, recording, analysis, and reporting.
6. When significant cultural resources are discovered during project implementation, operations affecting that discovery will be curtailed until an analysis and evaluation is completed.
7. Education to increase public understanding of the importance of identified cultural resources will be provided to reduce damage through vandalism and theft.
8. A comprehensive Gallatin National Forest Prehistoric and Historic Overview which summarizes known data, identifies gaps in information or areas requiring more intensive inventory, outlines research needs, and suggests broad cultural resource management goals will be developed.
9. Significant cultural resource issues and concerns will be coordinated with the public, Native American groups, Montana State Historic Preservation Officer, and the scientific community.
10. Provisions of the Antiquities Act, National Historic Preservation Act, American Indian Religious Freedom Act, the procedures outlined in 36 CFR 800 and Executive Order 11593 will be complied with.

6. Wildlife and Fish

a. General

1. The Gallatin National Forest will coordinate management of the wildlife and fish resources with the Montana Department of Fish, Wildlife, and Parks; the U.S. Fish and Wildlife Service; Yellowstone National Park; private landowners; and other agencies.
2. The recommendations and guidelines found in the publication: "Coordinating Elk and Timber Management, Final Report of the Montana Cooperative Elk-Logging Study, 1970-1985, January 1985" will be used in evaluating the quality of elk habitat and formulating prescriptions for timber sales and road development projects.

3. Big game winter range will be managed to meet the forage and cover needs of deer, elk, moose, and other big game species in coordination with other uses. Habitat for deer and elk will be managed to provide for slight increases in populations.

4. The 1982 Elk Logging Study Annual Report contains procedures for analyzing elk habitat security as it is affected by timber harvest and road construction activities. An "elk effective cover" analysis based on this report will be conducted for timber sales and effective cover ratings of at least 70 percent will be maintained during general hunting season (Planning Records).

5. Maintain at least two thirds of the hiding cover associated with key habitat components over time. Subsequent timber sale activity will be allowed after regeneration provides hiding cover. Key habitat components are important features for wildlife. They include moist areas (wallows, etc.); foraging areas (meadows and parks); critical hiding cover (see Glossary in Chapter VI for definition); thermal cover; migration routes and staging areas. These areas will be mapped on a site-by-site basis during project area analysis.

6. Allotment management plans will coordinate livestock grazing use with big game habitat needs.

7. Standards for snag management and for dead and down woody material will be utilized. These standards are detailed in Appendix A-1.

8. Emphasis will be given to the management of special and unique wildlife habitats such as wallows, licks, talus, cliffs, caves, and riparian areas.

9. Habitat for waterfowl, shorebirds, and wading birds will be maintained and improved through coordination of land use activities and direct habitat improvements.

10. Habitat component mapping and analysis will be applied to the management of important wildlife concentration areas such as the Bridger deer range, North Yellowstone elk range, Upper Gallatin elk range, Sheep-Mile big game range, and the Porcupine-Buffalo Horn and Cabin Creek areas.

11. Roads and forest cover will be managed to provide habitat security and diverse hunting opportunity.

12. Habitat that is essential for species identified in the Sensitive Species list developed for the Northern Region will be managed to maintain these species. These species include: Trumpeter Swan, Westslope and Yellowstone Cutthroat Trout, Western Big Eared Bat, Spotted Bat, Ferruginous Hawk, Marlequin Duck, Boreal Owl, and Common Loon.

13. "Indicator species," which have been identified as species groups whose habitat is most likely to be affected by Forest management activities, will be monitored to determine population change.

SPECIES

INDICATIVE OF

Grizzly bear	threatened species
Bald eagle	endangered species
Elk	big game species
Wild trout	coldwater fisheries
Goshawk	old growth dependent species, dry Douglas fir sites
Marten	old growth dependent species, moist spruce sites

14. The Forest will be managed to maintain and, where feasible, improve fish habitat capacity in order to achieve cooperative goals with the Montana Department of Fish, Wildlife, and Parks and to comply with State water quality standards.

15. Structures installed within streams supporting fisheries will be designed to allow for upstream fish passage.

b. Threatened and Endangered Species

1. A biological evaluation will be completed prior to implementation of activities that have potential to effect threatened and endangered species. Formal consultation with the U.S. Fish and Wildlife Service will be completed if a "may affect" is determined.

2. The grizzly bear standards and guidelines (Appendix G) will be followed in maintaining and improving habitat, minimizing human/grizzly bear conflict potential, and in guiding resource management activities.

3. General management direction for bald eagle habitat is provided in "A Bald Eagle Management Plan for the Greater Yellowstone Ecosystem".

4. Re-establishment programs for threatened and endangered species will be evaluated and coordinated with the Montana Department of Fish, Wildlife, and Parks, U. S. Fish and Wildlife Service, and where applicable, Yellowstone National Park.

5. When the Greater Yellowstone Area Grizzly Bear Cumulative Effects Analysis Process becomes operational, it will be used as one of many tools to quantify habitat effectiveness and mortality risk forecasting for current and future foreseeable land use activities in designated bear management units on the Forest. (See Planning Records)

6. The peregrine falcon reintroduction program will be continued with the cooperating agencies and private organizations.

c. Vegetative Diversity

1. Forest lands and other vegetative communities such as grassland, aspen, willow, sagebrush, and whitebark pine will be managed by prescribed fire and other methods to produce and maintain the desired vegetative conditions.

2. In order to achieve size and age diversity of vegetation, the Forest will strive to develop the following successional stages in timber compartments containing suitable timber:

<u>Successional Stage</u>	<u>Minimum % of Area</u>
Grass-forb	10
Seedings	10
Saplings	10
Pole	10
Mature	10
Old growth	10

7. Range

1. Allotment management plans will be completed on a scheduled priority basis. (See Planning Records)

2. The following vacant allotments will be closed:

<u>D-1</u>	<u>D-3</u>	<u>D-6</u>	<u>D-7</u>
Rainbow	Horseshoe	Eaglehead	Cabin Creek
	Wounded Man		Cub Creek
	Little Trail Cr.		Steamboat
			Kirkwood

3. Vacant livestock allotments will be evaluated and allotment plans prepared prior to livestock use.

4. Domestic sheep will not be reintroduced to vacant allotments in grizzly bear MS-1 areas.

5. Structural and nonstructural improvements to increase forage production will be planned and scheduled through the allotment management process.

6. Livestock grazing in riparian areas will be controlled at levels of utilization listed in Management Area 7.

7. Allotments with continuous grazing during the growing period will be evaluated and alternative grazing systems will be applied.

8. Timber

a. Silvicultural Systems

1. The appropriate even-aged or uneven-aged silvicultural system will be applied to best meet management area objectives. The silvicultural system that satisfies the criteria listed in Appendix A-1 will be chosen.

2. Silvicultural examination and prescriptions will be required before any timber manipulation or cultural treatment takes place. Exceptions include removal of trees that block vision along roads, hazard trees, clearing for

rights-of-way or mineral development, minor and incidental amounts of free use, etc.

b. Site Preparation and Activity Debris Disposal

1. Site preparation and debris disposal methods will be prescribed which:
 - a. are compatible with the chosen silvicultural system.
 - b. ensure sufficient preparation of the site to enable establishment of tree regeneration at stocking levels set for the management area.
 - c. maintain an adequate nutrient pool for long-term site productivity through the retention of topsoil and soil organisms.
2. Methods of site preparation will normally be machine scarification and piling or broadcast burning. Other methods may be prescribed which meet the objectives of the silvicultural system. These include underburning, trampling, handtool scarification, machine yarding, herbicides, and others. Appendix A-1, Table 6, provides additional guidelines for slash disposal treatments.
3. Standing snags will be provided for dependent wildlife species. (See Appendix A-1 for more specific direction.)
4. Suitable habitat will be provided for wildlife species dependent on dead and down woody debris. (See Appendix A-1 for more specific direction.)
5. Noxious weeds will be actively controlled on harvest sites.

c. Tree Improvement

1. Tree improvement will be an integral part of the Forest's natural and artificial regeneration programs.
2. Tree improvement will be conducted in accordance with the current Regional and Forest-level tree improvement plans (Planning Records).

d. Regeneration

1. Natural regeneration is the preferred method of achieving regeneration and will be emphasized in the silvicultural prescription process.
2. Artificial regeneration will normally be required to assure adequate restocking on Douglas-fir sites and on certain harsh sites.
3. Artificial regeneration will be scheduled if stocking requirements are not met after the third-year reforestation examination.
4. Damage control methods will be used to ensure protection of regenerated tree stands. Techniques may include livestock fencing, alternative grazing systems, pesticides, snowmobile control, and others. Region 1 and Gallatin National Forest "Guidelines for the Protection of Regeneration From Livestock Grazing" will be used.

e. Transportation and Logging Systems

Transportation and logging systems will be designed to provide for long-term stand management, with full consideration given to topography and slope, the overall economic efficiency of roading and yarding costs, and the needs of other resources.

f. Size of Opening

Size of tree openings created by even-aged silviculture will normally be less than 40 acres. Creation of larger openings will require 60-day public review and Regional Forester approval. Exceptions to this standard are identified in Appendix A-1.

g. Duration of Opening

A harvested area will no longer be considered an opening when tree regeneration meets the goals of the management area. Refer to Appendix A-1 for specific guidelines.

h. Insects and Disease

1. Long-term losses caused by insects and diseases will be reduced by integrating forest pest management into project plans.
2. Silvicultural systems will be the primary tool for pest management and will be used to improve the diversity of tree species and the size and age of trees in various stands.
3. Chemical and biological pest control measures will be utilized only when detailed environmental analysis shows justification.
4. A number of techniques will be employed to reduce long-term losses of lodgepole pine stands to insects, while protecting other resource values. This includes increasing resistance to attack by harvesting susceptible stands to gain diversity in age and size between stands, controlling the levels of planting and the ages of trees in even-aged stands to maintain the vigor of the stand, and changing the composition of the forest to favor species that are not susceptible to insects. In areas where timber harvest is not appropriate or where there is now no access, prescribed fire may be used.
5. Insect and disease detection surveys and evaluations will be accomplished routinely. Emphasis will be placed on evaluating risk potential and determining if efforts are needed to prevent or control losses.

i. Stand Management

1. Minimum acceptable stocking densities will be determined by site specific silvicultural prescriptions based on Regional stocking guides.
2. Stocking levels will be determined through the silvicultural prescription process. Important criteria are the goals for the management area, species of trees, and the productivity of the site.

3. Even-aged stands will be scheduled for final regeneration harvest at or beyond the culmination of mean annual increment (CMAI) of growth. Exceptions are defined in FSM 2412.54.

Average culmination of mean annual increment for primary species on the Gallatin National Forest is:

<u>Timber Type</u>	<u>Culmination Age</u>
Lodgepole pine	90
Douglas-fir	110
Spruce-subalpine fir	120

j. Harvesting of Forest Products Other than Sawlogs

1. Existing wild stands may be harvested or thinned for posts, poles, or other unregulated products in all management areas where timber product removal is allowed.
2. Gathering of forest products, such as firewood, will be allowed whenever it is consistent with management area goals. Permit systems may be implemented as necessary.

9. Air Quality

The Forest will cooperate with the Montana Air Quality Bureau in the State Implementation Plan (SIP). The requirements of the SIP and Montana Smoke Management Plan will be met.

10. Water and Soils

1. The Forest Soil Survey will be incorporated into resource area analysis.
2. Best management practices (BMPs) will be used on all Forest watersheds in the planning and implementation of project activities (see Appendix C and Planning Records - "Watershed Management Guidelines for the Gallatin National Forest").
3. Require a watershed cumulative effects feasibility analysis of projects involving significant vegetation removal, prior to including them on implementation schedules, to ensure that the project, considered with other activities, will not increase water yields or sediment beyond acceptable limits. Also require that such analysis identify opportunities, if any exist, for mitigating adverse effects on water related beneficial uses, including capital investments for fish habitat or watershed improvement.
4. Sufficient amounts of water necessary to carry out Forest operations will be claimed in accordance with State water rights law. Non-consumptive water uses (instream flows) necessary to maintain fish habitat, recreational uses, or other beneficial water uses will be claimed for appropriate waterbodies and streams.
5. Comply with Executive Order 11990 (Protection of Wetlands) and Forest Service policy in FSM 2500.

6. Water transmission or storage facilities and hydro-meteorological data sites will be maintained in safe and serviceable condition. Unsafe or unserviceable facilities will be repaired to approved engineering standards or removed from service. Activities affecting the validity of data collected at hydro-meteorological data sites will be coordinated with the permittee or cooperating agency before implementation of the project.

7. Applications for hydropower, water diversion, water storage, or other water-related facilities will be evaluated on a case-by-case basis and coordinated with other agencies when appropriate.

8. All management practices will be designed or modified as necessary to maintain land productivity and protect beneficial uses.

9. In watersheds with intermingled landownership, efforts will be made to develop mutually agreeable watershed management direction.

10. In municipal watersheds, such as Bozeman, Hyalite, and Lyman Creek drainages, all project activities will be implemented to ensure State water quality standards are met. Coordination with City of Bozeman officials and the State Water Quality Bureau will be done throughout the project planning process.

11. Minerals

a. Locatable Minerals

1. Existing and future rights to prospect, develop and mine on National Forest lands open to mineral entry will be recognized.

2. All claimants will be required to submit a Notice of Intent before conducting exploration activities. An operating plan which meets State and federal standards may be required.

3. The type of access approved in a plan of operations under 36 CFR 228 will be consistent with the stage of exploration or development and will be in accordance with management area goals.

4. Access and transportation systems for minerals development will be coordinated during the preparation of the resource area analysis for that area.

5. The Forest will monitor for compliance with approved operating plans and management area direction.

b. Common Variety Minerals

1. Extraction of common variety minerals, such as sand or gravel, may be permitted when it is compatible with management area goals.

c. Leasable Minerals

1. Oil and gas lease applications for lands available for leasing will be evaluated through additional site specific (NEPA) analysis before the leasing decision is made.

2. Stipulations for leases developed through the environmental analysis process and based on existing analysis where applicable (Oil and Gas Leasing on the Gallatin National Forest, 1981) will be recommended for lands in accord with Management Area direction in Chapter III.

3. If applications for geothermal leasing are received, an environmental analysis will be done. The Forest Service will consult with the National Bureau of Land Management. Consent for leasing in the Corwin Springs Geothermal Area will be withheld until effects of exploration and development on thermal systems in Yellowstone National Park can be determined.

d. Withdrawals

1. Recommendation for withdrawals to be revoked, revoked/noted in public record and continued will follow the requirements outlined in Section 294 of the Federal Land Policy and Management Act (PL 94-579) and 43 CFR 2310. See Appendix D for the current list of areas withdrawn from mineral entry and initial recommendations.

2. Future withdrawals from mineral entry will be evaluated based on the criteria contained in 43 CFR 2310 and section III of Appendix D.

12. Landownership

a. Ownership Adjustment

1. Landownership adjustments will be considered only where analysis indicates a change is needed to respond to major public issues, management concerns, or National Forest management objectives.

2. The current pattern of intermingled ownership will generally be continued. An exception to this is the proposed exchange of Gallatin National Forest lands for Burlington Northern Railroad lands located in the Porcupine and South Cottonwood drainages of the Gallatin Range.

3. Exchange, donation, purchase, and easement authority will be used to meet ownership adjustment needs.

4. The following general priorities will apply for the acquisition of private lands from willing owners in order to meet landownership objectives of the Forest Plan:

- a. Private lands within designated wilderness.
- b. Key wildlife habitat tracts (threatened and endangered and other)
- c. Tracts which improve National Forest access, resolve administrative concerns, and/or reduce administrative costs.
- d. Tracts in major recreation composites.
- e. Other Key recreation tracts.
- f. Other

5. In land-for-land exchanges, National Forest lands will be considered for disposal in the following categories:

- a. Isolated or detached parcels may be disposed of where further consolidation of National Forest lands is not anticipated and the exchange would provide a greater public value or purpose.
 - b. National Forest lands may be made available for community expansion providing:
 - 1) There is a demonstrated need for community expansion and there are no other suitable, nonfederal lands available.
 - 2) The lands are suitable for the intended use.
 - 3) Community needs outweigh National Forest needs for the land.
 - 4) Endangered species requirements are met.
 - c. Other National Forest lands may be disposed of when not needed for accomplishing Forest objectives.
6. Situations where disposal is not warranted are:
- a. National Forest system lands for which there is a specific public need.
 - b. Where disposal could result in a private monopoly of a resource.
 - c. Where disposal would adversely affect National Forest management objectives.
 - d. Where non-Federal ownership could limit access to National Forest system lands.
7. Needed landownership adjustments with other government agencies will be evaluated and made.

b. Access and Easements

- 1. Road and trail rights-of-way will be acquired across non-National Forest lands to assure adequate protection, administration, and utilization of National Forest resources. Areas where access is needed to meet the objectives of the Forest Plan including public access are identified on the Management Area Map.
- 2. The Forest will cooperate with other landowners in developing roads or road systems which serve mutual needs.
- 3. A satisfactory jurisdictional status for roads on National Forest and other public land will be sought in cooperation with appropriate authorities.
- 4. Define National Forest interest on all existing system roads and trails and acquire necessary additional interests, as needed, to meet management objectives.

5. Rights-of-way across National Forest lands will be granted in situations involving a statutory right of access, subject to compliance with applicable rules and regulations of the Secretary of Agriculture.

c. Special Use Authorizations

Special Use Applications will be evaluated on a case-by-case basis. The principle criteria used to evaluate special use applications will be:

1. Applications for uses that conform to the Forest Plan may be granted.
2. Applications for private use of National Forest land will not be granted if location and development of non-National Forest land is reasonably possible.
3. Special-use authorizations that primarily afford the applicant a lower cost or less restrictive location or merely accommodate the applicant's wishes will not be granted.
4. Preference will be given to special-use applications that offer service or benefit to the public over single-purpose or private uses.
5. Applications for utility corridors will be evaluated on a case-by-case basis. The FEIS, Chapter IV, discusses a process used to evaluate potential corridors.

13. Facilities

1. Analysis for transportation needs will be integrated into resource area analysis and will be completed prior to transportation project work.
2. Road and trail management will be determined as part of area transportation analysis and will be based on management area needs, such as recreation access, wildlife security, soil protection, economics, and protection of the investment. The Forest Travel Map will display road, trail, and area restrictions. See Executive Order 11644.
3. Road and trail use may be restricted to meet management needs.
4. Roads and trails will be designed to standards that meet resource management objectives.
5. The Hyalite road will be reconstructed and maintained to provide for recreation and timber management and public safety.
6. Areas now under cost-share agreement may be modified or new agreement areas created if analysis shows the action will be economically advantageous to the government, consistent with the management area goals, and in the public's interest.
7. Roads and trails that have been disrupted by management activities and are required for continued use will be restored to serviceable condition prior to completion of the project.
8. Noxious weeds along roads and trails will be treated.

9. Existing roads and trails will be maintained consistent with management area goals.

14. Fire

1. Fire management will be provided at a level commensurate with the Level II Fire Analysis. Refer to Appendix E for a summary of the Level II Fire Analysis.
2. The wildfire suppression response identified in the management area standards (i.e., control, contain, or confine) will be employed.
3. Activity created dead and down woody debris will be reduced to a level commensurate with risk analysis.
4. Treatment of natural fuel accumulations to support hazard reduction and management area goals will be continued.
5. Prescribed fire (planned or unplanned ignitions) may be utilized to support management area goals.
6. Prescribed fire objectives for smoke management will be met within the constraints established by the Montana State Airshed Group's Memorandum of Understanding.

15. Noxious Weeds

1. Implement an integrated weed control program in cooperation with the state of Montana and County Weed Boards to confine present infestations and prevent establishing new areas of noxious weeds. Noxious weeds are listed in the Montana Weed Law and designated by County Weed Boards.
2. Integrated Pest Management, which uses chemical, biological, and mechanical methods, will be the principal control method. Spot herbicide treatment of identified weeds will be emphasized. Biological control methods will be considered as they become available.
3. Funding for weed control on disturbed sites will be provided by the resource which causes the disturbance.

16. Wild and Scenic Rivers

Segments of four streams meet the eligibility criteria for potential classification as Recreational Rivers. These river segments are:

Boulder River from the National Forest boundary to Box Canyon

Yellowstone River from the National Forest boundary to Yellowstone National Park

Gallatin River from the National Forest boundary to Yellowstone National Park

Madison River from the National Forest boundary near the Madison Slide to Hebgen Dam

The following management standards will be applied to National Forest lands one fourth of a mile from each stream bank to provide protection of eligible river segment areas until future suitability studies are completed and decisions are made on possible designation.

a. Timber harvest may be allowed under standard restrictions to protect the immediate river environment, water quality, scenic, fish and wildlife and other values.

b. Existing low dams, diversion works, rip rap and other minor structures are allowed provided the waterway remains generally natural and riverine in appearance. New structures will not be permitted. No new development of hydroelectric power facilities will be allowed.

c. Existing flood control works may be maintained. New structures will not be permitted.

d. Subject to regulations (36 CFR 228) that the Secretaries of Agriculture and Interior may prescribe to protect values of the river segments, new mining claims and mineral leases are allowed and existing operations are allowed to continue. Mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation and pollution, and visual impairment.

e. Paralleling roads or railroads can be constructed and maintained on one or both river banks. Access roads leading to the river and bridges across the river may be constructed or maintained.

f. Campgrounds and picnic areas may be established and maintained in close proximity to the river.

g. New transmission lines, gas lines, etc. are discouraged. Where no new reasonable alternative exists, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are indicated, the scenic, recreational, and fish and wildlife values must be evaluated in the selection of the site.

h. Motorized travel on land or water may be permitted, prohibited or restricted. Controls will usually be similar to surrounding lands and waters.



CHAPTER III: MANAGEMENT AREA DIRECTION

The National Forest land has been divided into 26 management areas, each with different management goals, resource potentials, and limitations. The management areas are shown on the accompanying maps, which can be used for reference. The riparian management areas were not mapped at this scale. The management area maps of record consist of a set of larger scale (1 inch/mile) maps on file in the Forest Supervisor's office.

Except for Congressionally established or special administrative boundaries, the management area boundaries are not firm lines and do not always follow easily found topographic features such as major ridges. The boundaries represent a transition from one set of opportunities and constraints to another with management direction established for each. The boundaries are flexible to assure that the values identified are protected and to incorporate additional information gained from further on-the-ground reconnaissance and project level planning.

The Forest-wide management direction included in Chapter II of this Plan applies to all management areas.

This chapter describes each management area and lists the goals, management standards, schedule of management practices, and monitoring requirements for each area. The schedules of management practices are not intended to act as limits but will be monitored to test for long-term application.

A. Management Area Prescriptions

A list of the Forest's management area prescriptions follows:

<u>MA</u>		<u>Page</u>	<u>MA</u>		<u>Page</u>
1.	1,483 acres.....	III-2	13.	124,022 acres.....	III-40
2.	3,304 acres.....	III-4	14.	28,836 acres.....	III-45
3.	82,117 acres.....	III-6	15.	138,778 acres.....	III-48
3a.	2,240 acres.....	III-8	16.	20,509 acres.....	III-51
4.	737,615 acres.....	III-10	17.	56,772 acres.....	III-53
5.	29,913 acres.....	III-14	18.	23,100 acres.....	III-55
6.	77,676 acres.....	III-17	19.	25,639 acres.....	III-57
7.	8,816 acres.....	III-19	20.	36,752 acres.....	III-60
8.	83,942 acres.....	III-24	21.	3,301 acres.....	III-63
9.	19,481 acres.....	III-27	23.	0 acres.....	III-66
10.	33,491 acres.....	III-30	24.	1,439 acres.....	III-68
11.	57,491 acres.....	III-33	25.	201 acres.....	III-70
12.	138,164 acres.....	III-37	26.	330 acres.....	III-72

MANAGEMENT
AREA 1

(1,483 acres)

These areas include all developed campgrounds, picnic areas, boat ramps, and visitor information sites plus potential developed sites.

Management goals for MA 1 are:

1. Maintain these sites and facilities for the safety and enjoyment of users.
2. Provide additional facilities where analysis shows the need.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Maintain existing recreation opportunities consistent with the rural and urban recreation opportunity spectrum classes.</p> <p>Specific site plans will guide the modification or construction of developed sites.</p> <p>Recreation activity scheduling will identify where new construction, modification, or closure will take place.</p> <p>Maintain developed sites to prevent deterioration.</p> <p>Provide facilities for the handicapped at selected camping and picnicking areas.</p>
VISUAL QUALITY	<p>The visual quality objectives range from partial retention to modification.</p>
WILDLIFE AND FISH	<p>Habitat improvement projects that are compatible with developed recreation use may be scheduled.</p> <p>Manage developed sites in occupied grizzly bear habitat to minimize the potential for human/grizzly bear confrontation. Follow the standards set out in the grizzly bear guidelines (Appendix G).</p>
RANGE	<p>Restrict livestock grazing to meet management area goals.</p>
TIMBER	<p>Classified as unsuitable for timber production.</p>

Permit vegetative management to provide diverse vegetative patterns.

Inspect sites annually to identify and remove hazard trees.

WATER AND SOILS

Keep individual camping units away from shorelines.

Meet all State and Federal potable water and sanitation standards.

MINERALS

Common variety minerals permits will not be issued.

Evaluate withdrawal from mineral entry based on the criteria in Appendix D.

Surface occupancy for oil and gas exploration and development will not be permitted within this management area or within 500 feet of the management area boundary.

FACILITIES

Design, construct, reconstruct, and maintain roads and trail consistent with management area goals.

FIRE

The wildfire suppression response will be control.

Avoid use of heavy equipment.

Prescribed fire may be used to meet management area goals.

Emphasize fire prevention contacts.

Schedule of Management Practices		Average Annual	
		1st decade	2nd decade
FACILITIES	Site Construction/ Reconstruction	10 Family Units	10 Family Units
WILDLIFE	Habitat Improvement	10 Structures	10 Structures

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 9, 15

MANAGEMENT (3,304 Acres)
AREA 2

These areas consist of those portions of the Bridger Bowl and Big Sky ski areas under special use permit. The proposed Ski Yellowstone area is included in this management area. They include the ski runs, lift facilities, and lodges. These areas have potential for development or expansion of facilities to meet increasing demand for downhill skiing.

Management goals for MA 2 are:

1. Manage these winter sports areas in accord with approved master plans.
2. Ensure that permit holders providing service to the public have inspection, maintenance, and documentation processes that provide for applicable public health and safety standards.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

<u>Resource Elements</u>	<u>Standards</u>
RECREATION	<p>Recreation Opportunity Spectrum classes are rural and urban.</p> <p>Manage according to the stipulations of the special use permits.</p> <p>Evaluate proposed expansion in an environmental analysis.</p> <p>Ensure that permittees practice avalanche control as needed to provide for skier safety and to lessen the effects of uncontrolled avalanches.</p>
VISUAL QUALITY	<p>The visual quality objective is modification in developed base areas, and partial retention on ski slopes.</p> <p>Design facilities to be harmonious with the landscape.</p>
WILDLIFE AND FISH	<p>Habitat improvement projects consistent with management area goals may be scheduled.</p> <p>Manage developed sites in occupied grizzly bear habitat to minimize the potential for human/grizzly bear confrontation. Follow the standards set out in the grizzly bear guidelines (Appendix G).</p>
RANGE	<p>See Forest-wide Standards in Chapter II.</p>

TIMBER

Classified as unsuitable for timber production.

Allow tree removal for reduction of safety hazards, to maintain a healthy and diverse vegetative pattern, or to permit construction or expansion of facilities and ski runs.

WATER AND SOILS

Encourage avalanche forecasting and snow hydrology research studies.

Meet all State and Federal potable water and sanitation standards.

Apply erosion control measures to control surface erosion and mass failure hazards on disturbed areas.

MINERALS

Evaluate surface occupancy for oil and gas exploration and development on a case-by-case basis.

Evaluate withdrawal from mineral entry based on the criteria in Appendix D.

Removal of sand and gravel may be permitted when the operation does not interfere with management area goals.

FACILITIES

Design, construct, reconstruct, and maintain roads and trails consistent with management area goals.

FIRE

The wildfire suppression response will be control.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
None Scheduled		

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 9, 15

MANAGEMENT
AREA 3

(82,117 acres)

These areas consist of nonforest, noncommercial forest, and forested areas which are unsuitable for timber production. They generally do not have roads passing through them. Topographic constraints and poor accessibility characterize these areas.

The management goal for MA 3 is:

Managed essentially in their present condition to protect existing improvements and resources, with minimal investment for resource activities.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Recreation Opportunity Spectrum classes are semi-primitive motorized or semi-primitive non-motorized.</p> <p>A variety of recreation opportunities exist but no new developments will be made.</p>
VISUAL QUALITY	<p>The visual quality objectives range from retention to partial retention.</p>
WILDLIFE AND FISH	<p>Habitat improvement projects will generally not be scheduled.</p>
RANGE	<p>Livestock grazing can occur where this management area falls within a grazing allotment.</p>
TIMBER	<p>Classified as unsuitable for timber production.</p> <p>Timber salvage, firewood, and other product removal may occur where access exists.</p> <p>Permit salvage of dead, dying, or high-hazard trees to prevent disease and insect population build-up that will adversely effect regulated timber stands.</p> <p>Stand manipulation to prevent on-site losses will not be practiced.</p>
WATER AND SOILS	<p>See Forest-wide Standards in Chapter II.</p>

MINERALS

See Forest-wide Standards in Chapter II.

FACILITIES

Roads will not be constructed for surface management, except to provide public access. Allow roads for private land access, special use mineral activity, or to provide access to other management areas if the soil and water values can be protected.

The Forest Service investment in road and trail maintenance will be at a minimal level necessary to protect the investment and provide for soil and water protection and user safety.

Evaluate applications for utility lines or stations on a case-by-case basis.

FIRE

The wildfire suppression response will be control, contain or confine.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
None Scheduled		

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6

MANAGEMENT (2,240 acres)
AREA 3a

This area consists of undeveloped lands in the Taylor Fork drainage characterized by highly sensitive soils.

The management goal for MA 3a is:

Provide for the protection of the soil and water resources.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	Recreation Opportunity Spectrum classes are semi-primitive motorized and semi-primitive non-motorized. No investments will be made.
VISUAL QUALITY	The visual quality objective will be retention.
WILDLIFE AND FISH	No investments will be made.
RANGE	No livestock grazing will occur.
TIMBER	Classified as unsuitable for timber production.
WATER AND SOILS	See Forest-wide Standards in Chapter II. Avoid activities which cause increased soil displacement.
MINERALS	No surface occupancy will occur.
FACILITIES	No road or trail construction will occur. Existing trails may be closed and reseeded or relocated.

FIRE

The wildfire suppression response will be control, contain, or confine based in part on an assessment of soil erosion hazard.

Avoid use of heavy equipment.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
None Scheduled		

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6

MANAGEMENT
AREA 4

(737,615 acres)

These areas include the Gallatin National Forest portions of the Absaroka-Beartooth and the Lee Metcalf Wildernesses, plus the Lionhead and Republic Mountain recommended Wildernesses. Occupied grizzly bear habitat is present in much of the area.

The recommendation to classify the Lionhead and Republic Mountain areas as Wilderness is a preliminary administrative recommendation that will receive further review and possible modification by the Chief of the Forest Service, the Secretary of Agriculture, and the President of the United States. Final decisions on Wilderness designation have been reserved by the Congress to its self.

Management goals for MA 4 are:

1. Manage existing wilderness in accordance with the Wilderness Act of 1964, Forest Service Manual direction, and site specific direction.
2. Manage recommended wilderness to protect the wilderness characteristics and to allow existing uses pending congressional action on their classification.
3. Manage activities within grizzly bear habitat for recovery of the grizzly bear.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Manage classified Wilderness to provide a primitive and semi-primitive non-motorized setting.</p> <p>Limits-of-acceptable change, discussed in Appendix B, will be determined to identify problem areas and develop corrective action.</p>
WILDERNESS	<p>Detailed direction for the Absaroka-Beartooth Wilderness and the Lee Metcalf Wilderness is found in Appendix F-1 and F-2.</p> <p>When a recommended area becomes classified, more detailed management direction will be written and incorporated into the Forest Plan.</p> <p>Manage visitor use to prevent loss of solitude or unacceptable degradation of the wilderness qualities. An example of this management direction is the outfitter and guide policy for Wilderness found in Appendix F-1.</p>

Management will seek to preserve spontaneity of use and as much freedom from regulation as possible.

Emphasize visitor education as a management tool. Make personal contacts with visitors and provide information on "no trace" camping to users.

Portal signs and visitor contacts will emphasize "no trace" use.

Restore or close overused campsites.

Evaluate existing structures for historical value and long-term need prior to disposal.

VISUAL QUALITY

The visual quality objective is preservation.

WILDLIFE AND FISH

Wildlife habitat improvement projects will perpetuate the wilderness resource and be consistent with Forest Service wilderness policy.

Application of management standards in Appendix G within occupied grizzly bear habitat must be consistent with Forest Service Wilderness policy.

The stocking of fish in Wilderness lakes will be in compliance with management direction in Appendix F-1 and F-2.

RANGE

Manage all existing grazing allotments in accordance with wilderness values.

Applicable grazing direction is found in Appendix F-1 (H.R. Report No. 96-1126, dated June 24, 1981).

Grazing use within occupied grizzly bear habitat will be guided by the directions in the grizzly bear guidelines (Appendix G).

Existing livestock management improvements may be maintained.

Build structural improvements only when necessary to administer the wilderness resource.

TIMBER

Classified as unsuitable for timber production. Generally, no measures will be undertaken for insect and disease management unless epidemic populations exist and adjacent lands are severely threatened.

AIR QUALITY

The Absaroka-Beartooth Wilderness has been recommended for Class I Air Quality Standards under the Clean Air Act.

Upon receipt of a notice of Prevention of Significant Deterioration (PSD), identify actions which may impact wilderness air quality, air quality related values, and the standards for protecting them.

WATER AND SOILS

See Forest-wide Standards in Chapter II.

MINERALS

Wilderness classified under the Wilderness Act of 1964 was withdrawn from mineral entry and mineral leasing on December 31, 1983, subject to valid existing rights. All mineral related activities must comply with reasonable conditions for the protection of the wilderness character.

FACILITIES

Accomplish additional trail construction with minimal disturbance of the natural environment.

Upgrade existing trail systems as required to facilitate use and disperse users.

Maintain the trail system for the protection of wilderness resource.

Administrative cabins will be retained for management purposes but will not be rented to the public.

FIRE

The wildfire suppression response will be control, contain or confine.

The use of scheduled prescribed fire in Wilderness will be consistent with National Forest policy.

Detailed direction for allowing natural fires to play a role in wilderness management has been developed for the Absaroka-Beartooth Wilderness in the "Absaroka-Beartooth Prescribed Fire Management Plan" (see Planning Records).

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
FACILITIES Trail Construction/ Reconstruction	6 miles	6 miles

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3. 6. 7

MANAGEMENT (29,913 acres)
AREA 5

These areas are travel corridors that receive heavy recreation use. Areas included are portions of the Gallatin Canyon, Boulder River, Yankee Jim Canyon, highway U.S. 212 in the Cooke City vicinity, highways U.S. 191 and 287 in the West Yellowstone vicinity, and areas adjacent to Hebgen Lake and Hyalite Reservoir.

Management goals for MA 5 are:

1. Maintain and improve the wildlife habitat values and the natural attractiveness of these areas to provide opportunities for public enjoyment and safety.
2. Allow a level of timber harvest consistent with goal 1.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

<u>Resource Elements</u>	<u>Standards</u>
RECREATION	<p>Manage these areas to provide roaded recreation opportunities in a natural appearing forest setting. The Recreation Opportunity Spectrum classes are roaded natural appearing and roaded modified.</p> <p>Provide public access such as trails or boat landings to lakes and rivers.</p> <p>Provide interpretive signs and visitor information.</p>
VISUAL QUALITY	<p>The visual quality objectives will be retention or partial retention.</p>
WILDLIFE AND FISH	<p>Habitat improvement projects consisted with management area goals may be scheduled.</p> <p>Manage developed sites in occupied grizzly bear habitat to minimize the potential for human/grizzly bear confrontation. Follow the standards set out in the grizzly bear guidelines (Appendix G).</p> <p>Maintain and enhance osprey and bald eagle feeding, perching, and nesting trees (e.g., Quake/Hebgen Lake Complex).</p> <p>Inventory and manage suitable nesting territories for peregrine falcon.</p>

RANGE

Continue livestock grazing in existing allotments.

Manage grazing to minimize conflicts with recreation uses.

Grazing use within occupied grizzly bear habitat will be guided by the directions in the grizzly bear guidelines (Appendix G).

TIMBER

This area is classified as suitable for timber production.

Manage to provide a diverse vegetative pattern.

Include even-aged and uneven-aged harvest method systems. The standards for harvest methods are in Appendix A-1.

Shape and scale even-aged openings to replicate natural openings.

Permit commercial and precommercial thinning if it enhances the recreational values of the area.

A natural mix of species is desirable. Use species variety to improve visual quality.

Actively control tree damaging agents.

WATER AND SOILS

Continue to manage Hebgen reservoir in accordance with its Federal Power Commission license.

Meet all State and Federal potable water and sanitation standards.

MINERALS

Permits for the excavation of sand and gravel may be issued where compatible with management area goals.

Evaluate withdrawal from mineral entry based on the criteria in Appendix D.

Surface occupancy for oil and gas exploration and development will not be permitted in 100-year floodplains or within 500 feet of the high water mark.

Require plans of operation for mining activity.

LANDOWNERSHIP

Areas identified in recreation composite plans will be given high priority for acquisition.

Emphasize acquisition of access to rivers and lakes.

FACILITIES

Design, construct, reconstruct, and maintain roads and trails consistent with management area goals and traffic demands.

Coordinate with other agencies to improve roads under their jurisdiction to achieve the goals of this management area.

FIRE

The wildfire suppression response will be control or contain, utilizing procedures which minimize soil disturbance.

The confine response may be used early and late in the fire season.

Prescribed fire may be used to meet management area goals.

Emphasize fire prevention contact.

Schedule Of	Management Practices	Average Annual	
		1st decade	2nd decade
WILDLIFE	Habitat Improvement	30 structures	30 structures
	T & E Habitat Improvement	15 structures	15 structures
RANGE	Range Improvement	50 acres 2 structures	50 acres 2 structures

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 8, 9, 12, 15, 16

**MANAGEMENT
AREA 6**

(77,676 acres)

These areas are generally large blocks of undeveloped land with a trail system and a few roads passing through. They provide a wide variety of opportunity for dispersed recreation uses in a variety of terrain and vegetative types.

Management goals for MA 6 are:

1. Provide for a wide variety of dispersed recreational opportunities.
2. Provide additional public access to these areas.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Recreation Opportunity Spectrum classes are semi-primitive motorized or semi-primitive non-motorized.</p> <p>Develop trails and end-of-road facilities to provide access and disperse use throughout the area.</p> <p>Conflicting recreational uses such as hiking, trail biking, horse riding, snowmobiling, and skiing may be separated or restricted in some areas.</p> <p>Identify opportunities and restrictions on the Forest Travel Map.</p> <p>Use limits-of-acceptable change discussed in Appendix B to identify problem areas and develop corrective action.</p>
VISUAL QUALITY	<p>The visual quality objectives range from retention to partial retention.</p>
WILDLIFE AND FISH	<p>Fish and wildlife habitat improvement projects consistent with management area goals may be scheduled.</p> <p>Inventory and manage suitable nesting territories for peregrine falcon.</p>
RANGE	<p>Range management systems, such as deferred rotation, may be implemented to develop the range resource and distribute use.</p>

Schedule new range improvements through the allotment management plan.

Forage improvement projects may be initiated.

TIMBER

Classified as unsuitable for timber production.

Harvesting of firewood, posts and poles, or other products can take place adjacent to existing roads.

WATER AND SOILS

See Forest-wide Standards in Chapter II.

MINERALS

See Forest-wide Standards in Chapter II.

FACILITIES

Roads will not be constructed for surface management purposes, except to provide public access. Allow roads for private land access, special use mineral activity, or to provide access to other management areas.

Construct trailhead facilities to enhance recreation opportunities.

Evaluate applications for utility lines or stations on a case-by-case basis.

FIRE

The wildfire suppression response will be control, contain or confine.

Prescribed fire may be used to meet management area goals.

Schedule Of	Management Practices	Average Annual	
		1st decade	2nd decade
FACILITIES	Trail Construction/ Reconstruction	4 Miles	4 Miles

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 9

MANAGEMENT
AREA 7

(8,816 Acres Mapped)
(Approximately 59,000 Acres Unmapped)

These are the riparian management areas. Riparian pertains to the banks and other adjacent terrestrial environs of freshwater bodies, water courses, and surface-emergent aquifers. The transported waters provide soil moisture sufficiently in excess of that otherwise available locally to support a mesic (moist) vegetation differentiated from that of the contiguous, more xeric (arid) uplands.

Much of this area is not mapped because it is often a narrow zone and, therefore, not practical to map. About 59,000 acres of unmapped riparian land exists in other management areas. When the environs described above are found within any management area, the riparian standards will be applied.

The management goal for MA 7 is:

Manage the riparian resource to protect the soil, water, vegetation, fish, and wildlife dependent upon it.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	All recreation opportunity spectrum classes are included in this management area. Sanitation facilities constructed within riparian areas will comply with Montana State sanitation regulations. Restrict off-road vehicle use, except snowmobiles, to roads and trails. Developed sites will be designed to reduce impact on soil and water.
VISUAL QUALITY	The visual quality objectives range from retention to modification.
WILDLIFE AND FISH	Fish habitat improvement projects consistent with management area goals will be scheduled. Provide for optimum water temperatures for cold-water fish species. Maintain minimum instream flows. Maintain suitable habitats for those species of birds, mammals, and fish that are totally or partially dependent upon riparian areas for their existence.

In occupied grizzly bear habitat, utilize the guidelines (Appendix G) for maintenance and enhancement of natural food sources and security cover.

Maintain and enhance traditional bald eagle feeding areas.

RANGE

Range improvements such as fences and water structures may be constructed to help meet the forage utilization standards listed below.

Salting for livestock distribution will be outside of riparian areas.

Concentration of livestock will be kept at a level compatible with riparian zone-dependent resource needs through development of pasture systems and associated improvements.

Livestock utilization in riparian areas will follow these guidelines:

Vegetative Type	Grazing System	Vegetative Condition Class	Forage Utilization by Weight	Browse Utilization by % of Leader Use
Grass/Grasslike/ Forb	Continuous	Good	40%	N.A.
		Fair	30%	N.A.
		Poor	20%	N.A.
	Rest- Rotation	Heavy Use ¹ Pasture	55%	N.A.
		Light Use Pasture	40%	N.A.
		Defer- Rotation	Heavy Use ¹ Pasture	50%
Willow/Grass/ Grasslike and Willow/Forest	Continuous	Light Use Pasture	35%	N.A.
		Good	55%	50%
		Fair	40%	50%
	Rest- Rotation	Heavy Use ² Pasture	60%	50%
		Light Use Pasture	50%	50%
		Defer- Rotation	Heavy Use Pasture	50%
		Light Use Pasture	40%	50%

^{1/} Trampled areas and streambank damage caused during heavy use year should be healed or stabilized within the following rest year.

^{2/} Disturbance on heavy use pasture should be stabilized or healed prior to use the following year.

TIMBER

Classified as suitable for timber production if adjacent management areas contain suitable timber.

Manage to provide a diverse vegetative pattern.

Design timber harvest to meet needs of riparian zone-dependent species.

Maintain sufficient trees within 30 feet of the stream to provide snag recruitment to create pools and enhance spawning gravels for fish habitat.

Emphasize special logging practices which minimize soil disturbance.

Perform directional felling of timber where needed to protect the stream or associated riparian vegetation.

Yarding across perennial streams will require special mitigation measures. Trees or products shall not be hauled or yarded across stream courses unless fully suspended or when designated crossings are used.

Machine piling will not be allowed.

Commercial thinning may be used to meet management area goals.

A natural mix of species is desirable.

Where cover is sufficient and forage is limited, natural regeneration may be used to extend the effective life of openings to provide wildlife forage.

Precommercial thinning may be used to provide rapid growth of trees for wildlife thermal cover.

Shade tolerant tree species which occur as an understory in sapling stands will be left during precommercial thinning to promote multi-storied stands.

Prescribe stocking densities to maintain wildlife hiding cover and to provide rapid growth of trees for wildlife thermal cover.

WATER AND SOILS

Manage riparian vegetation, including overstory tree cover, to maintain streambank stability and promote filtering of overland flows.

Avoid using equipment which causes excessive soil compaction and displacement.

MINERALS

Common variety mineral permits will not be issued.

Evaluate withdrawal from mineral entry based on the criteria in Appendix D.

Surface occupancy for oil and gas exploration and development will not be permitted in 100-year floodplains or within 500 feet of the high water mark.

Require plans of operation for suction dredging and placer mining.

FACILITIES

Locate roads and trails outside of riparian areas where possible. Minimize amount of material from road and trail construction wasted into riparian areas. Follow best management practices that apply to road construction.

Design road drainage to minimize the entry of sediment into streams. Road design will also provide for low risk of drainage failure and mass failure.

Minimize the number of stream crossings. Locate and design approaches to stream crossings to minimize damage to the riparian area. Design all crossings located in fishery streams to allow for upstream fish passage.

Avoid channel realignment where possible.

Minimize short-term sedimentation during bridge or culvert installation.

Applications for hydro-electric developments will be accompanied by an operating plan and will be reviewed on a case-by-case basis.

FIRE

The wildfire suppression response will be the same as for the management areas surrounding riparian areas.

Prescribed fire may be used to meet management area goals.

Schedule of	Management Practices	Average Annual	
		1st decade	2nd decade
FISH	Habitat Improvement	20 acres	20 acres
		20 structures	20 structures
TIMBER	Timber Harvest	70 acres	70 acres
	Reforestation	70 acres	70 acres
RANGE	Structural Improvement	7 structures	7 structures
WATER	Rehabilitation	22 acres	27 acres

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities.

1, 2, 3, 5, 6, 8, 9, 10, 12, 15

MANAGEMENT
AREA 8

(83,942 acres)

This area consists of lands which are suitable for timber management. Although this area consists primarily of capable forest land, there are inclusions of nonforest and nonproductive forest lands.

Management goals for MA 8 are:

1. Provide for productive timber stands and optimize timber growing potential.
2. Develop equal distribution of age classes to optimize sustained timber production and improve vegetative diversity.
3. Allow for other resource uses if compatible with the first two goals.
4. Meet State water quality standards and maintain channel stability.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

<u>Resource</u>	<u>Elements</u>	<u>Standards</u>
RECREATION	See Forest-wide Standards in Chapter II. Recreation Opportunity Spectrum classes are roaded natural appearing and roaded modified. Dispersed recreation opportunities will be provided at a low level of investment that focuses primarily on travel planning and trail maintenance and, in the event of disruption from timber harvest activities, trail relocation. Management activities will be oriented toward reducing the impacts associated with recreation activities on other resource values, including protection of soil and water quality.	
VISUAL QUALITY	The visual quality objectives range from partial retention to maximum modification.	
WILDLIFE & FISH	Provide for fish and wildlife habitat improvement when consistent with management area goals. Project plans will incorporate considerations for wildlife and fish. See Forest-wide Standards in Chapter II.	

RANGE

Use the Northern Region and Gallatin National Forest "Guidelines for the Protection of Regeneration from Livestock Grazing" to ensure protection of tree regeneration.

TIMBER

Classified as suitable for timber production.

Include both even-aged and uneven-aged harvest method systems. The standards for harvest methods are in Appendix A-1.

Encourage harvest of posts and poles and other products in existing stands to promote volume increase and meet the demand for these products.

Favor Douglas-fir and lodgepole pine in management. However, retain other species for species diversity.

Stocking control will occur when tree dominance is expressed.

Actively control tree damaging agents, particularly dwarf mistletoe.

WATER AND SOILS

Use the Equivalent Clearcut Area (ECA) procedure as a means of evaluating hydrologic conditions.

MINERALS

See Forest-wide Standards in Chapter II.

FACILITIES

Local roads and some collector roads will be closed as needed to protect the road surface, reduce maintenance costs, and protect other resources.

FIRE

The wildfire suppression response will be control.

Contain or confine responses may be used before and after the fire season.

Prescribed fire may be used to meet management area goals.

Schedule Of	Management Practices	Average Annual	
		1st decade	2nd decade
TIMBER	Timber Harvest	500 acres	500 acres
	Reforestation	500 acres	500 acres
	Timber Stand Improvement	500 acres	500 acres
RANGE	Noxious Weeds	100 acres	100 acres
FACILITIES	Road Construction/ Reconstruction	9 miles	9 miles

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 9, 12, 14, 15



**MANAGEMENT
AREA 9**

(19,481 Acres)

These areas consists of suitable timber lands which have high dispersed recreation value and are visually sensitive. Portions of these areas are presently roaded. These areas include portions of the Bozeman municipal watershed.

Management goals for MA 9 are:

1. Provide for a variety of dispersed recreation activities in a roaded setting.
2. Harvest timber consistent with goals 1 and 2.
3. Meet State water quality standards and maintain channel stability.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Management Practices	Standards
RECREATION	<p>Recreation Opportunity Spectrum class is roaded natural appearing.</p> <p>Manage roads for dispersed recreation and to protect other resources.</p> <p>Dispersed recreation opportunities will be provided with moderate levels of investment in trail and recreational road maintenance, trailhead facilities, and in the event of disruption from timber harvest activities, trail relocation.</p> <p>Trailhead facilities will be installed as necessary to disperse use throughout the area.</p> <p>Identify opportunities and restrictions on the Forest Travel Map.</p>
VISUAL QUALITY	The visual quality objectives range from retention to partial retention.
WILDLIFE & FISH	Fish and wildlife habitat improvement consistent with management goals may be scheduled.
RANGE	Forage can be utilized by livestock.

TIMBER

Classified as suitable for timber production.

Include even-aged and uneven-aged harvest method systems. The standards for harvest methods are in Appendix A-1.

Shape and scale even-aged openings to replicate natural openings.

Permit commercial and precommercial thinning consistent with management goals.

A natural mix of species is desirable. Use management for species variety to improve visual quality.

Stocking density standards may be varied to add variety to the visual resource.

Actively control tree damaging agents.

WATER AND SOILS

Use the Equivalent Clearcut Area (ECA) procedure to evaluate hydrologic conditions.

Emphasize protection of the municipal watersheds through the use of best management practices in Appendix C.

MINERALS

See Forest-wide Standards in Chapter II.

FACILITIES

Design, construct, reconstruct, and maintain roads and trails consistent with management area goals.

Maintain the trail system to enhance dispersed recreation.

Provide trailhead facilities.

FIRE

The wildfire suppression response will be control.

Contain or confine responses may be used before and after the fire season.

Prescribed fire may be used to meet management area goals.

Schedule of	Management Practices	Average Annual	
		1st decade	2nd decade
TIMBER	Timber Harvest	150 acres	150 acres
	Reforestation	150 acres	150 acres
FACILITIES	Road Construction/ Reconstruction	3 miles	3 miles

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 8, 9, 10, 12, 15, 17

**MANAGEMENT
AREA 10**

(33,491 acres)

These areas contain open grasslands which provide forage for livestock interspersed with suitable timber lands.

Management goals for MA 10 are:

1. Maintain healthy stands of timber and promote a level of timber growth consistent with the other goals.
2. Improve range management to optimize livestock grazing.
3. Use timber harvest to create transitory livestock range.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

<u>Resource Elements</u>	<u>Standards</u>
RECREATION	<p>Recreation Opportunity Spectrum classes are roaded natural appearing and roaded modified.</p> <p>Dispersed recreation opportunities will be provided at a low level of investment that focuses primarily on travel planning and trail maintenance and, in the event of disruption from timber harvest activities, trail relocation. Management activities will be oriented toward reducing the impacts associated with recreation activities on other resource values, including protection of soil and water quality.</p>
VISUAL QUALITY	<p>The visual quality objectives range from partial retention to modification.</p>
WILDLIFE AND FISH	<p>Fish and wildlife habitat improvements consistent with management area goals may be scheduled.</p>
RANGE	<p>Coordinate grazing and timber management to ensure tree regeneration after harvest.</p> <p>Structural improvements may be used to distribute grazing.</p>
TIMBER	<p>Portions of this management area are classified as suitable for timber management.</p>

Include even-aged and uneven-aged harvest method systems.

Allow harvest of post and poles and other wood products on areas adjacent to existing roads.

Favor Douglas-fir and lodgepole in management. However, retain other species for species diversity.

Stocking control will occur when tree dominance is expressed.

Actively control tree damaging agents.

WATER AND SOILS

Use the Equivalent Clearcut Area (ECA) procedure to evaluate hydrologic conditions.

Meet State water quality standards and maintain channel stability.

MINERALS

See Forest-wide Standards in Chapter II.

FACILITIES

Design, construct, reconstruct, and maintain roads and trails consistent with management area goals.

FIRE

The wildfire suppression response will be control.

Contain or confine responses may be used before and after the fire season.

Prescribed fire may be used to meet management area goals.

Schedule	Management Practices	Average Annual	
		1st decade	2nd decade
RANGE	Range Improvement	50 acres 1 structure	50 acres 1 structure
	Noxious Weed Control	100 acres	100 acres
TIMBER	Timber Harvest	350 acres	350 acres
	Reforestation	350 acres	350 acres
	Timber Stand Improvement	110 acres	110 acres
FACILITIES	Road Construction/ Reconstruction	4 miles	4 miles

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 9, 12, 15

**MANAGEMENT
AREA 11**

(57,491 acres)

These areas consist of forested big game habitat. They include productive forest lands that are available for timber harvest, provided that big game habitat objectives are met.

Management goals for MA 11 are:

1. Maintain elk habitat effectiveness following timber harvest.
2. Base vegetative management on vegetative characteristics needed for featured wildlife species.
3. Allow a level of timber harvest consistent with goals 1 and 2.
4. Meet State water quality standards and maintain stream stability.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Recreation Opportunity Spectrum classes are roaded natural appearing and roaded modified.</p> <p>A variety of dispersed recreation activities are compatible with the management area goals. Winter recreation activities will not be allowed on important winter range when they disrupt big game use.</p> <p>Dispersed recreation opportunities will be provided with moderate levels of investment in trail and recreational road maintenance, trailhead facilities, and, in the event of disruption from timber harvest activities, trail relocation.</p> <p>Trailhead facilities will be installed as necessary to disperse use throughout the area.</p>
VISUAL QUALITY	<p>The visual quality objectives range from partial retention to modification.</p>
WILDLIFE AND FISH	<p>Resource area analysis will identify vegetative characteristics and habitat effectiveness for featured species.</p>

RANGE

On big game winter range, meet big game forage needs before making forage allocations to livestock.

Base allocation of big game summer range forage on range allotment analysis.

TIMBER

Classified as suitable for timber production.

Design timber harvest on big game winter ranges to enhance winter range capability.

Include even-aged and uneven-aged harvest method systems.

Design even-aged openings so no point is more than 600 feet from cover.

Use the following guidelines for scheduling timber sales, unless the vegetative characteristics established for elk indicate otherwise.

1. Duration of Activity

Restrict sale activities to no longer than five (5) consecutive years.

2. Re-entry

- a. A minimum of two (2) years inactivity following 1-3 years of consecutive activity - or - a minimum of five (5) years following 4-5 years of consecutive activity.
- b. Re-entry should not occur unless 40 percent or more of the drainage can be maintained in cover (20% hiding, 10% thermal, +10% in either hiding or thermal cover) distributed throughout the drainage. Refer to the glossary in the final Forest Plan for the definition of thermal and hiding cover.

3. Security Areas

- a. Provide security areas immediately adjacent to the influence zone of the project area on a site-by-site basis. Security areas typically should be 5,000 acres or larger, contain a similar complement of vegetative habitat components that existed in the influence zone, and be in areas that are roadless or where open road density is one mile

per square mile or less. Roaded areas may be managed to meet this objective by imposing road use restrictions needed to meet elk hunter opportunity objectives.

No commercial thinning is planned.

A natural mix of species is desirable.

Where cover is sufficient and forage is limited, natural regeneration may be used to extend the effective life of openings to provide wildlife forage.

See Appendix A-1 for standards on "Duration of Opening" for wildlife management areas.

Precommercial thinning may be used to provide rapid growth of trees for wildlife thermal cover.

Leave tolerant tree species, which occur as an understory in sapling stands, during precommercial thinning to promote multi-storied stands.

Prescribe stocking densities to maintain hiding cover characteristics.

Actively control tree damaging agents.

WATER AND SOILS

Evaluate the Equivalent Clearcut Area (ECA) procedure to evaluate hydrologic conditions.

MINERALS

See Forest-wide Standards in Chapter II.

FACILITIES

Locate roads and trails to avoid important wildlife areas such as wallows, licks, calving, and fawning areas.

Implement road use restrictions to achieve an elk habitat effectiveness level of at least 60% or a specified elk hunter opportunity objective.

FIRE

The wildfire suppression response will be control.

Contain or confine responses may be used before and after the fire season.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
WILDLIFE Habitat Improvement	175 acres	175 acres
TIMBER Timber Harvest	470 acres	470 acres
Reforestation	470 acres	470 acres
Timber Stand Improvement	350 acres	350 acres
RANGE Noxious Weeds	100 acres	100 acres
FACILITIES Road Construction/ Reconstruction	10 miles	10 miles

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 9, 12, 14, 15, 16

**MANAGEMENT
AREA 12**

(138,164 acres)

These management areas provide important habitat for summer or winter wildlife use in a variety of terrain and vegetative types. These areas also offer dispersed recreation opportunities.

Management goals for MA 12 are:

1. Maintain and improve the vegetative condition to provide habitat for a diversity of wildlife species.
2. Provide for a variety of dispersed recreation opportunities.
3. Provide forage for livestock consistent with goal 1.

In addition to the Forest-side Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Recreation Opportunity Spectrum classes are semi-primitive motorized and semi-primitive non-motorized.</p> <p>A variety of dispersed recreation activities are compatible with the management area goals.</p> <p>Use limits-of-acceptable change discussed in Appendix B to identify problem areas and develop corrective action.</p> <p>Recreation activities may be restricted on important wildlife habitat.</p>
VISUAL QUALITY	<p>The visual quality objectives range from retention to partial retention.</p>
WILDLIFE AND FISH	<p>Schedule vegetation management practices, such as prescribed fire, to maintain or improve the quality and quantity of wildlife habitat.</p> <p>Inventory and manage suitable nesting territories for peregrine falcon.</p>
RANGE	<p>On big game winter range, meet big game forage needs before making forage allocations to livestock.</p>

Base allocation of big game summer range forage on range allotment analysis.

Range improvements may be scheduled when identified in the allotment management plan.

TIMBER

Classified as unsuitable for timber production.

Harvest of post and pole and other wood products can take place adjacent to existing roads.

WATER AND SOILS

See Forest-wide Standards in Chapter II.

MINERALS

Use stipulations regarding timing of oil and gas exploration activities in calving, fawning, wintering, and concentration areas.

FACILITIES

Roads will not be constructed for surface management, except to provide public access. Allow roads for private land access, special use mineral activity, or to provide access to other management areas.

Locate roads and trails to avoid important wildlife areas such as wallows, licks, calving, and fawning areas.

Manage roads and trails to provide for dispersed recreation activities consistent with wildlife goals.

Construct trailhead facilities to enhance recreation opportunities.

Evaluate applications for utility lines or stations on a case-by-case basis.

FIRE

The wildfire suppression response will be control, contain or confine.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices		Average Annual	
		1st decade	2nd decade
WILDLIFE	Habitat Improvement	200 acres	200 acres
FACILITIES	Trail Construction/ Reconstruction	4 Miles	4 Miles

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 9

MANAGEMENT
AREA 13

(124,022 acres)

This management area consists of forested, occupied grizzly bear habitat. The productive Forest lands are available for timber harvest provided grizzly bear habitat objectives are met.

Management goals for MA 13 are:

1. Manage vegetation to provide habitat necessary to recover the grizzly bear.
2. Meet grizzly bear mortality reduction goals as established by the Interagency Grizzly Bear Committee.
3. Allow a level of timber harvest compatible with goal 1.
4. Meet State water quality standards and maintain stream channel stability.

In addition to the Forest-side Standards in Chapter II, the following standards apply to this management area:

<u>Resource Elements</u>	<u>Standards</u>
RECREATION	<p>Recreation Opportunity Spectrum classes are roaded natural appearing or roaded modified.</p> <p>Developed recreational capacity will not be increased above the existing level, except to accommodate increase in winter sports activity.</p> <p>Recreational activities may be restricted to reduce human/bear confrontations and to improve habitat effectiveness.</p> <p>Dispersed recreation opportunities will be provided with moderate levels of investment in trail and recreational road maintenance, trailhead facilities, and, in the event of disruption from timber harvest activities, trail relocation.</p> <p>Trailhead facilities will be installed as necessary to disperse use throughout and beyond the area.</p>
VISUAL QUALITY	<p>The visual quality objective will range from partial retention to modification.</p>
WILDLIFE AND FISH	<p>Resource area analysis will identify vegetative characteristic and habitat effectiveness for the grizzly bear.</p>

The cumulative effects analysis process and grizzly bear guidelines (Appendix G) will provide the basis for managing other resource uses.

Use vegetative management practices to maintain and improve the quality and quantity of big game forage and provide for a diversity of habitat for other wildlife species.

All vegetative management activities will consider:

1. Maintaining or enhancing security for the grizzly bear.
2. Vegetative treatment (i.e., fire or timber harvest) to enhance forest habitat components for the grizzly bear where security will not be jeopardized and where there is a demonstrated need to:
 - a. Provide openings in Forest cover to increase production of browse species for ungulate prey species.
 - b. Improve white bark pine nut availability.
3. Enhancing cover where regeneration timber harvest would provide the quickest results for the grizzly bear and its prey.

RANGE

No new sheep allotments will be permitted within this management area.

Assess existing allotments, if vacated, through the biological evaluation process.

TIMBER

As site specific timber sales are scheduled and designed, the criteria developed in consultation with the U.S. Fish and Wildlife Service and found in Appendix H: U.S. Fish and Wildlife Service, Biological Opinion, will be used. Informal consultation with the U.S. Fish and Wildlife Service on these criteria will occur before any site specific project is implemented.

Maintain a minimum of 30% of each timber compartment in old growth emphasizing by priority Douglas-fir, whitebark pine, and wet subalpine fir community types.

Include even-aged and uneven-aged harvest method systems.

No commercial thinning is planned.

A natural mix of species is desirable.

Select site preparation methods that will increase food production for the grizzly bear.

Precommercial thinning may be used to provide rapid growth of trees for wildlife thermal cover.

Leave tolerant tree species, which occur as an understory in sapling stands, during precommercial thinning to promote multi-storied stands.

Stocking densities will be prescribed to maintain wildlife hiding cover characteristics.

Actively control tree damaging agents.

WATER AND SOILS

Use the Equivalent Clearcut Area (ECA) procedures to evaluate hydrologic conditions.

MINERALS

Limit mineral activities to specific area or periods to reduce mortality risk and reduction in habitat effectiveness.

FACILITIES

Locate roads and trails to avoid important wildlife areas.

Strive for habitat effectiveness levels of at least 80% for MS-1 and at least 60% for MS-2.

Manage roads and trails to control public use in areas where a high potential for human/grizzly bear conflict is identified.

FIRE

The wildfire suppression response will be control.

Contain or confine may be used before and after the fire season.

Prescribed fires may be used to meet management area goals.

Schedule of Management Practices		Average Annual	
		1st decade	2nd decade
WILDLIFE	T & E Habitat Improvement	100 acres	100 acres
TIMBER	Timber Harvest	590 acres	590 acres
	Reforestation	590 acres	590 acres
FACILITIES	Road Construction/ Reconstruction	5 miles	5 miles

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 7, 9, 12, 14, 15, 16

**MANAGEMENT
AREA 14**

(28,836 Acres)

These areas consist of big game winter ranges located in either open grasslands or a mosaic of grasslands and forested habitats. They are located within occupied grizzly bear habitat.

Management goals for MA 14 are:

1. Maintain and/or enhance big game habitat.
2. Meet grizzly bear mortality reduction goals as established by the Interagency Grizzly Bear Committee.
3. Provide forage for livestock consistent with goal 1.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

<u>Resource Elements</u>	<u>Standards</u>
RECREATION	<p>Recreation Opportunity Spectrum classes are semi-primitive motorized, semi-primitive non-motorized, and primitive.</p> <p>Recreation activities may be restricted to reduce stress on big game and to reduce human/grizzly bear conflicts.</p> <p>Developed recreational capacity will not be increased above existing levels.</p> <p>Dispersed recreation opportunities will be provided with moderate levels of investment in trail and recreational road maintenance and trailhead facilities.</p> <p>Trailhead facilities will be installed as necessary to disperse use throughout this area.</p>
VISUAL QUALITY	<p>The visual quality objective is partial retention.</p>
WILDLIFE AND FISH	<p>Grizzly bear habitat improvement, such as prescribed fire, may be scheduled where the need is identified.</p> <p>Motorized vehicle use will not be permitted during the period December 1 through May 1, except on designated routes.</p>

Establish vegetative objectives in terms of species quantity and quality for the area to direct vegetative management practices.

Use vegetative management practices to maintain and improve the quality and quantity of big game forage and provide for a diversity of habitat for other wildlife species.

Maintain and increase acreage of aspen.

Big game habitat improvement such as prescribed fire, planting, and fertilization may be scheduled where the need is identified.

The cumulative effects analysis process and grizzly bear guidelines (Appendix G) will provide the basis for managing other resource uses.

RANGE

Allotment management plans will specify measures to protect food production areas important to grizzly bears and big game.

Sheep will not be reintroduced onto vacant allotments in Management Situation 1 areas.

No new sheep allotments will be permitted within this management area.

Phase out existing special use pasture permits.

On existing livestock allotments, meet big game forage needs before making allocations to livestock.

TIMBER

Classified as unsuitable for timber production.

Allow harvest of post and poles and other wood products on areas adjacent to existing roads.

WATER AND SOILS

See Forest-wide Standards in Chapter II.

MINERALS

Limit mineral activities to specific areas or periods to reduce grizzly bear mortality risk and maintain elk habitat effectiveness.

FACILITIES

Roads will not be constructed for surface management, except to provide public access. Allow roads for private access, special use mineral activity, and access to other management areas.

Manage roads and trails to control public use in areas where a high potential for human/grizzly bear conflict is identified.

Strive for elk habitat effectiveness levels of at least 80% during the winter period.

Strive for elk habitat effectiveness levels of at least 80% for MS-1 grizzly bear habitat and 60% for MS-2 grizzly bear habitat.

FIRE

The wildfire suppression response will be control, contain, or confine.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
WILDLIFE Habitat Improvement	50 Acres	50 Acres

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - See Chapter IV, Table IV-1 for monitoring activities

3, 6, 7, 9, 16

MANAGEMENT
AREA 15

(138,778 acres)

These areas consist of open grasslands or a mosaic of grasslands or steep rocky slopes interspersed with timber which are located in occupied grizzly bear habitat (Management Situation 1 and 2) and provide for dispersed recreation and livestock use.

Management goals for MA at are:

1. Meet grizzly bear mortality reduction goals as established by the Interagency Grizzly Bear Committee.
2. Manage vegetation to provide habitat necessary to recover the grizzly bear.
3. Provide forage for livestock consistent with goal 1.
4. Provide dispersed recreation opportunities consistent with goal 1.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Recreation Opportunity Spectrum classes are semi-primitive motorized, semi-primitive non-motorized, and primitive.</p> <p>Recreation activities may be restricted to reduce stress on big game and to reduce human/grizzly bear conflicts.</p> <p>Developed recreational capacity will not be increased above existing levels.</p> <p>Provide dispersed recreation opportunities with moderate levels of investment in trail and recreational road maintenance and trailhead facilities.</p> <p>Install trailhead facilities as necessary to disperse use throughout this area.</p>
VISUAL QUALITY	<p>The visual quality objective ranges from retention to partial retention.</p>
WILDLIFE AND FISH	<p>Grizzly bear habitat improvement, such as prescribed fire, may be scheduled where the need is identified.</p>

Big game habitat improvement such as prescribed fire, planting, and fertilization may be scheduled where the need is identified.

The cumulative effects analysis process and grizzly bear guidelines (Appendix G) will provide the basis for managing other resource uses.

RANGE

Allotment management plans will specify measures to protect food production areas important to grizzly bears.

Sheep will not be reintroduced onto vacant allotments in Management Situation 1 areas.

No new sheep allotments will be permitted.

Intensive range management systems will be used consistent with goals 1 and 2.

Phase out existing special use pasture permits within area covered by Public Law 295 dated 5/26/22 (Planning Records).

TIMBER

Classified as unsuitable for timber production.

Allow harvest of post and poles and other wood products in areas adjacent to existing roads.

WATER AND SOILS

See Forest-wide Standards in Chapter II.

MINERALS

Limit mineral activities to specific areas or periods to reduce grizzly bear mortality risk and maintain habitat effectiveness.

FACILITIES

Roads will not be constructed for surface management, except to provide public access. Allow roads for private access, special use mineral activity, and access to other management areas.

Manage roads and trails to control public use in areas where a high potential for human/grizzly bear conflict is identified.

Strive for elk habitat effectiveness levels of at least 80% for MS-1 grizzly bear habitat and 60% for MS-2 grizzly bear habitat.

Maintain livestock driveways.

FIRE

The wildfire suppression response will be control, contain, or confine.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
WILDLIFE T & E Habitat Improvement	10 acres	10 acres

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities

3, 6, 7, 9, 16

**MANAGEMENT
AREA 16**

(20,509 acres)

These areas have open grasslands interspersed with nonproductive timber lands, generally on slopes less than 40 percent. They contain the most productive and heavily used portions of range allotments.

The Management Goal for MA 16 is:

Maintain or improve vegetative conditions and forage production for livestock use.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Recreation Opportunity Spectrum classes are roaded natural appearing, semi-primitive motorized, and semi-primitive non-motorized.</p> <p>Provide dispersed recreation opportunities at a low level of investment, primarily travel planning and maintenance of recreation travel routes that pass through this area.</p>
VISUAL QUALITY	<p>The visual quality objective is partial retention.</p>
WILDLIFE AND FISH	<p>Habitat improvement projects may be scheduled when consistent with the management area goal.</p>
RANGE	<p>Implement intensive management systems to utilize the range resource.</p> <p>Schedule forage improvement projects, such as sagebrush burning and poisonous plant control.</p> <p>Schedule structural improvements when identified in approved allotment management plan.</p>
TIMBER	<p>Classified as unsuitable for timber production.</p> <p>Allow harvest of post and pole and other wood products in areas adjacent to existing roads.</p>

WATER AND SOILS

See Forest-wide Standards in Chapter II.

MINERALS

See Forest-wide Standards in Chapter II.

FACILITIES

Roads will not be constructed for surface management, except to provide public access. Allow roads for private land access, special use mineral activity, or to provide access to other management areas.

Maintain livestock driveways.

FIRE

The wildfire suppression response will be control, contain, or confine.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices		Average Annual	
		1st decade	2nd decade
RANGE	Range Improvement	50 acres 1 structure	50 acres 1 structure

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities

3, 6, 9

**MANAGEMENT
AREA 17**

(56,772 acres)

These areas are grasslands or nonproductive forestlands on slopes of less than 40 percent that are suitable for livestock grazing and contain important big game habitat. They contain some of the most productive and heavily used portions of range allotments.

The Management goal for MA 17 is:

Maintain or improve vegetative conditions and forage production for livestock and wildlife use.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Recreation Opportunity Spectrum classes include semi-primitive motorized and semi-primitive non-motorized.</p> <p>Provide dispersed recreation opportunities at a low level of investment, primarily travel planning and maintenance of recreation travel routes. Winter recreation activities may be controlled or restricted when they disrupt big game use.</p> <p>Provide a variety of hunting opportunities.</p>
VISUAL QUALITY	<p>The visual quality objective is partial retention.</p>
WILDLIFE AND FISH	<p>Schedule habitat improvement projects. Coordinate projects within allotments between livestock and big game needs.</p> <p>Inventory and manage suitable nesting territories for peregrine falcon.</p>
RANGE	<p>On big game winter range, meet big game forage needs before making forage allocations to livestock.</p> <p>Base allocation of big game summer range forage on range allotment analysis.</p> <p>Schedule structural improvements when identified in an approved allotment management plan.</p>

Schedule forage improvement projects, such as sage brush burning and poisonous plant control.

TIMBER

Classified as unsuitable for timber production.

Allow harvest of post and poles and other wood products in areas adjacent to existing roads.

WATER AND SOILS

See Forest-wide Standards in Chapter II.

MINERALS

Stipulations regarding timing of oil and gas exploration activities will be used in calving, fawning, wintering, and concentration areas.

FACILITIES

Roads will not be constructed for surface management, except to provide public access. Allow roads for private land access, special use mineral activity, or to provide access to other management areas.

Locate roads and trails to avoid important wildlife areas.

Road use restrictions may be used to minimize disturbance to big game.

Maintain livestock driveways.

FIRE

The suppression response will be control, contain, or confine.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices		Average Annual	
		1st decade	2nd decade
WILDLIFE	Habitat Improvement	50 acres	50 acres
RANGE	Range Improvement	200 acres 4 structures	200 acres 4 structures

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities.

MANAGEMENT
AREA 18

(23,100 acres)

This area is comprised of the high mountain peaks and valleys in the Northern portion of the Hyalite-Porcupine-Buffalo Horn Study Area. It is steep and rugged terrain with good trails, several waterfalls, and other scenic attractions. There are six mountains over ten thousand feet in elevation within a twelve square mile area. This area contains an important Rocky Mountain Bighorn Sheep population.

Management goals for MA 18 are:

1. Emphasize dispersed recreation use and protect scenic qualities.
2. Maintain and enhance bighorn sheep habitat.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Management Practices	Standards
RECREATION	<p>Recreation Opportunity Spectrum classes include semi-primitive motorized and semi-primitive non-motorized. Restrict summer motorized use to trails designated on the Forest Travel Map.</p> <p>Use limits-of-acceptable change discussed in Appendix B to identify problem areas and develop corrective action.</p> <p>Construct campsites and sanitary facilities if need is identified.</p> <p>Install informational signs according to standards described in the Forest Service Sign Handbook 7109.11.</p> <p>Portal signs and visitor contacts will emphasize "low impact" use and convey a "pack-it-in pack-it-out" message.</p>
VISUAL QUALITY	<p>The visual quality objective is retention.</p>
WILDLIFE AND FISH	<p>Manage the bighorn sheep lambing area.</p> <p>Conduct a lake survey to inventory the existing and potential lake fishery.</p> <p>Maintain habitat conditions in Emerald Lake for the benefit of the grayling population.</p>

Emphasize maintenance of lakeshore vegetation.

RANGE Classified as unsuitable for livestock grazing.

TIMBER Classified as unsuitable for timber production.

WATER AND SOILS Recreational livestock grazing will not be permitted within 200 feet of lake shores.

MINERALS Evaluate withdrawal from mineral entry based on the criteria in Appendix D.

Surface occupancy will not be permitted for mineral leases.

FACILITIES Construct, reconstruct, and maintain trails to accomodate recreation needs.

Evaluate the need for a trail connecting the East and Main Fork Hyalite Creek trails.

Develop a trailhead on Dry Creek.

FIRE The wildfire suppression response will be control, contain, or confine.

Prescribed fire may be used to meet management goals.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
FACILITIES Trail Construction/ Reconstruction	2 mile	2 mile

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities.

3, 6, 9

MANAGEMENT
AREA 19

(25,639 acres)

This area is a portion of the Hyalite-Porcupine-Buffalo Horn Montana Wilderness Study Area. It is presently undeveloped except for a trail system and a few primitive roads. The area encompasses portions of the Porcupine, Elkhorn, Buffalo Horn, and Tepee Creek drainages and is almost entirely within grizzly bear occupied habitat.

Management goals for MA 19 are:

1. Maintain or improve vegetative diversity to provide suitable cover and forage production for big game populations.
2. Provide for recreation opportunities in a way that is compatible with wildlife.
3. Manage vegetation to provide habitat necessary to recover the grizzly bear.
4. Coordinate National Forest management with private land management.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	Recreation Opportunity Spectrum classes are semi-primitive motorized and semi-primitive non-motorized.

Dispersed recreation uses are compatible. Use in Management Situation 1 may be controlled or restricted if necessary to reduce grizzly bear mortality. Winter recreation activities must be consistent with management area goals.

The Porcupine drainage will be closed to motorized off-route travel. Motorized trail vehicles can use designated routes. The Elkhorn trail will be managed for non-motorized use (see Forest Travel Map).

In the Buffalo Horn drainage, off-route vehicle travel is open to snowmobile travel only; other vehicles are restricted to designated routes. There will be no snowmobile use before December 1 (see Forest Travel Map).

VISUAL QUALITY

The visual quality objective is retention.



WILDLIFE AND FISH

Provide for the natural elk migration patterns.

Habitat improvement projects will aim to increase big game forage and maintain diverse vegetative patterns.

Manage for grizzly bear habitat improvement.

Conduct habitat component mapping and analysis for featured species.

Conduct management activities in accordance with the grizzly bear guidelines (Appendix G).

The cumulative effects analysis process and grizzly bear guidelines (Appendix G) will provide the basis for managing other resource uses.

RANGE

There are no grazing allotments within this management area.

TIMBER

Classified as unsuitable for timber production.

No measures will generally be undertaken for insect and disease management unless epidemic populations exist and adjacent lands are severely threatened.

WATER AND SOILS

Meet State water quality standards and maintain stream channel stability.

MINERALS

Limit mineral activities to specific area or periods to reduce mortality risk and reduction in habitat effectiveness.

LANDOWNERSHIP

Actively work to acquire the Plum Creek Timber Company lands in Porcupine Creek.

FACILITIES

Roads will not be constructed for surface management, except to provide public access. Allow roads for private land access, special use mineral activity, or to access adjacent management areas.

FIRE

The wildfire suppression response will be control, contain, and confine.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
WILDLIFE Habitat Improvement	50 acres	50 acres
T & E Habitat Improvement	20 acres	20 acres

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities

3, 6, 7, 9, 16

**MANAGEMENT
AREA 20**

(36,752 acres)

The Cabin Creek Recreation and Wildlife Management Area was designated by the Lee Metcalf Wilderness Act. It encompasses Upper Wapiti Creek, Carrot Basin, and Cabin Creek. It is entirely within occupied grizzly bear habitat and contains important big game habitat.

Management Goals for MA 20 are:

1. Meet grizzly bear mortality reduction goals as established by the Interagency Grizzly Bear Committee.
2. Maintain and/or enhance grizzly bear and big game habitat.
3. Manage recreation use consistent with legislation and goals 1 and 2.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	<p>Recreation Opportunity Spectrum classes are semi-primitive motorized and non-motorized.</p> <p>Recreational activities may be restricted to reduce human/grizzly bear confrontation and improve habitat effectiveness.</p> <p>Allow use of motorized vehicles for recreational purposes where such use is compatible with the protection and propagation of wildlife.</p> <p>Allow snowmobile use during periods when there is no conflict with grizzly bear or big game.</p> <p>Allow motorized trail vehicles less than 40 inches wide on designated routes from July 15 through October 30 (see Forest Travel Map).</p> <p>Continue use of the Big Sky snowmobile trail.</p>
VISUAL QUALITY	<p>The visual management objective is retention.</p>
WILDLIFE AND FISH	<p>Schedule habitat improvement projects consistent with management area goals.</p>

Use habitat component mapping and analysis to help identify most logical areas for habitat work.

The cumulative effects analysis process and grizzly bear guidelines (Appendix G) will provide the basis for managing other resource uses.

RANGE

Livestock grazing will be consistent with big game and grizzly bear management goals.

Livestock forage improvement programs may be initiated to reduce conflicts between livestock and big game.

TIMBER

Classified as unsuitable for timber production. No timber harvest will occur.

WATER AND SOILS

See Forest-wide Standards in Chapter II.

MINERALS

This area has been withdrawn from mineral entry.

FACILITIES

No new road construction will be allowed.

Manage the trail system consistent with management area goals.

Chainsaws may be used for maintenance work.

No new trailheads or trails will be constructed until the grizzly bear cumulative effects analysis is complete.

FIRE

The wildfire suppression response will be control, contain, or confine.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
WILDLIFE Habitat Improvement	75 acres	75 acres
T & E Habitat Improvement	30 acres	30 acres

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities.

3, 6, 9

MANAGEMENT
AREA 21

(3,301 acres)

This management area consists of proposed Research Natural Areas (RNA) identified on the Gallatin National Forest to meet Regional targets of various ecosystems in southwestern Montana. The Forest has identified 11 areas as potential Research Natural Areas. Currently, there are no Research Natural Areas on the Gallatin National Forest.

Habitat Type Code	Vegetative Habitat Type	Occurrence**	Candidate RNA
FOREST TARGETS			
430	PICEA/PHMA	m	Sliding Mtn., E. Fork Mill Cr., Passage Cr.
440	PICEA/GATR	M	Sliding Mtn.
470	PICEA/LIBO	M	Passage Cr., Pioneer Lakes
480	PICEA/SMST	m	
630	ABLA/GATR	m	Mt. Ellis, Sliding Mtn., Palace Butte
650	ALBA/CACA	M	Pioneer Lakes, Wheeler Ridge
660	ABLA/LIBO	M	Black Butte, Sliding Mtn., E. Fork Mill Cr., Passage Cr., Pioneer Lakes
720	ABLA/VAGL	M	Mt. Ellis, Sliding Mtn., Passage Cr.
740	ABLA/ALSI	m	Sliding Mtn., Palace Butte
820	ABLA-PIAL/VASC	M	Black Butte, Sliding Mtn., Passage Cr., Palace Butte, Wheeler Ridge
910	PICO/PUTR	m	Obsidian Sands
	COTTONWOOD	M	
NONFOREST			
	AGSP/BOGR	M	Black Butte
	FEID/STRI	m	
	ARAR/AGSP	m	
AQUATIC			
	TYPE 1 STREAM		Pioneer Lakes, Mt. Ellis, Wheeler Ridge
	TYPE 3 STREAM		Pioneer Lakes, Palace Butte
	WATERFALL		Palace Butte
	SPECIAL FAUNAL POP. RIVER		Pioneer Lakes
	LOW PRODUCTION LAKE		Palace Butte
	AVERAGE PRODUCTION LAKE		Pioneer Lakes
	HIGH PRODUCTION LAKE		
	LAKE WITH FISH		Pioneer Lakes
	LAKE WITHOUT FISH		Palace Butte
	LAKE W/SPECIAL FAUNAL POP.		Pioneer Lakes
	WET-MEADOW		Wheeler Ridge

M = major occurrence satisfied by representation of 50 acres.
m = minor occurrence satisfied by representation of 10 acres.

The management goal for MA 21 is:

Provide areas for non-manipulative research, observation, and study of undisturbed ecosystems which typify important forest, shrubland, grassland, alpine, aquatic communities, and geologic types on the Gallatin National Forest.

Establishment reports will be prepared for each area.

Specific management direction will be incorporated as Forest Plan amendments upon establishment of areas.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	Recreation Opportunity Spectrum classes include primitive, semi-primitive motorized, and semi-primitive non-motorized. See Forest-wide Standards in Chapter II.
WILDERNESS	Management of Research Natural Areas (RNAs) in wilderness will be consistent with wilderness goals.
VISUAL QUALITY	See Forest-wide Standards in Chapter II.
WILDLIFE AND FISH	Wildlife habitat improvements are not permitted.
RANGE	Livestock grazing is not allowed unless permitted prior to RNA establishment.
TIMBER	Classified as unsuitable for timber production. No measures will generally be undertaken for insect and disease management unless epidemic populations exist and adjacent lands are severely threatened.
WATER AND SOILS	See Forest-wide Standards in Chapter II.
MINERALS	This management area will be recommended for withdrawal from mineral entry. No surface occupancy will occur until a decision is made on withdrawal.

LANDOWNERSHIP

Evaluate applications for special use permits on a case-by-case basis.

FACILITIES

Evaluate road construction necessary to meet RNA objectives on a case-by-case basis.

FIRE

Select the wildfire suppression response to minimize disturbance of Research Natural Areas, control, contain, or confine.

Prescribed fire may be used to perpetuate the natural diversity of plant communities.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade

None Scheduled

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities.

**MANAGEMENT
AREA 23**

This management area includes the existing and proposed National Recreation and Scenic Trails on the Gallatin National Forest.

<u>Trail Name</u>	<u>Mileage</u>	<u>Recreation Opportunity Spectrum Cla</u>
Palisade Falls Trail	0.66	Roaded Natural Appearing
Bridger Mountain Trail	24.00	Semi-Primitive Motorized
Two Top Snowmobile Trail	28.00	Semi-Primitive Motorized
Garnet Mountain Trail	4.00	Semi-Primitive Motorized
Gallatin Riverside Trail	3.25	Roaded Natural Appearing
Boulder River Natural Bridge & Falls Trail	0.28	Roaded Natural Appearing
Refuge Point Crosscountry Ski Trail	2.90	Semi-Primitive Non-Motorized

Proposed additions to the National Trail System are the Nez Perce (Ne-Mee-Poo) Trail, the Gallatin Crest Trail, and the Continental Divide National Scenic Trail. The Continental Divide National Scenic Trail was established by Congress by P.L. 95-625. Final route location will be done under the direction of the Continental Divide National Scenic Trail Comprehensive Management Plan.

The Management Goal for MA 23 is:

Protect the integrity of the trail and provide the traveler with a wide variety of visual experiences.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

<u>Resource Elements</u>	<u>Standards</u>
RECREATION	Inventory and evaluate potential trails for their suitability and management as part of the National Recreation Trail system. Manage trails for either motorized or non-motorized use, depending on the objective of the individual trail.
VISUAL QUALITY	The visual quality objective along the trail will be the same as standards assigned to the management area through which the trail passes.
WILDLIFE AND FISH	See Forest-wide Standards in Chapter II.
RANGE	See Forest-wide Standards in Chapter II.

TIMBER

Timber harvest will be consistent with protection of the trail system.

WATER AND SOILS

See Forest-wide Standards in Chapter II.

MINERALS

See Forest-wide Standards in Chapter II.

FACILITIES

Trail location, construction, and maintenance will meet the management area goal.

FIRE

The wildfire suppression response of control, contain, or confine will depend on adjacent management areas.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
FACILITIES Trail Construction/ Reconstruction	these have been scheduled through other management areas.	

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities.

**MANAGEMENT
AREA 24**

(1439 Acres)

This management area consists of active or recently active mineral extraction, processing and exploratory operations. As other exploration and development takes place, total acreage in this management area will increase.

Active Mineral Operations

Property Name	Operator	Location	Commodity
Jardine	Homestake Mining Company	Jardine, MT	Gold
Gardiner Travertine	Livingston Marble and Granite	Gardiner, MT	Travertine
Stillwater Complex	Stillwater PGM Resources	So. of Big Timber, MT	Platinum, Paladium
Christmas Tree Mine	Morgan	North Bridgers	Lead
Langhor	McHenry	Section 32, T3S, R6E	Lead
Emigrant	Multiple	Emigrant Creek	Gold
Arastra	Multiple	Arastra/Mill Cr	Gold
Daisy, Lulu Pass	Multiple	Cooke City, MT	Gold

The Management Goal for MA 24 is:

Manage for orderly exploration and development of mineral resources while mitigating effects on renewable resources.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	Recreation Opportunity Spectrum classes include semi-primitive motorized, semi-primitive non-motorized, roaded natural appearing, and roaded modified. See Forest-wide Standards in Chapter II.
VISUAL QUALITY	The visual quality objective is maximum modification.

Follow, to the extent possible, management practices of adjacent areas.

WILDLIFE AND FISH

See Forest-wide Standards in Chapter II.

RANGE

Grazing may be permitted if consistent with the management goals for the adjacent area.

TIMBER

A portion of this management area is classified as suitable for timber production.

Timber may be salvaged where mining operations will disturb vegetation.

WATER AND SOILS

State of Montana mine reclamation laws apply to rehabilitation of mine sites.

Meet State water quality and sanitation standards.

MINERALS

Monitor exploration and development activities for compliance with plans.

Provide for orderly development of mineral resources. Coordinate with mine operators and State and federal agencies.

FACILITIES

Coordinate roads necessary for the development of minerals with goals of adjacent management areas.

FIRE

The wildfire suppression response will be control.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade
None scheduled		

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities

3, 6, 9

MANAGEMENT (201 acres)
AREA 25

This management area consists of electrical transmission lines and pipelines, climatic and snow measuring sites, and electronic sites.

The Management Goal for MA 25 is:

Establish and manage facilities consistent with adjacent management area goals.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

Resource Elements	Standards
RECREATION	All Recreation Opportunity Spectrum classes are included in this management area. See Forest-wide Standards in Chapter II.
VISUAL QUALITY	The visual quality objective of the adjacent management area will be considered. Carefully evaluate application for corridors and electronic sites for their effects on visual quality. Take appropriate measures to mitigate adverse affects.
WILDLIFE AND FISH	Design facilities to mitigate adverse impacts on raptors and other wildlife.
RANGE	Livestock grazing is allowed if compatible with management area goals.
TIMBER	Classified as unsuitable for timber production. Timber may be removed for construction and maintenance of the areas.
WATER AND SOILS	Coordinate with SCS Snow Survey personnel, including an on-site visit, early in project planning where climatic or snow measuring sites are nearby or could be affected by the project.
MINERALS	See Forest-wide Standards in Chapter II.

FACILITIES

See Forest-wide Standards in Chapter II.

FIRE

The wildfire suppression response will be control.

Prescribed fire may be used to meet the management area goal.

Schedule of Management Practices	Average Annual	
	1st decade	2nd decade

None Scheduled

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities.

3, 6, 9

MANAGEMENT (330 acres)
AREA 26

This management area includes Ranger Stations, work centers, and other administrative sites.

The Management Goal for MA 26 is:

Provide and maintain sites and facilities necessary for the administration of Gallatin National Forest lands.

In addition to the Forest-wide Standards in Chapter II, the following standards apply to this management area:

<u>Resource Elements</u>	<u>Standards</u>
RECREATION	<p>These sites are not managed specifically for recreation, but sites not seasonally needed for administration may be made available for rentals to the public. These are generally in winter semi-primitive motorized or semi-primitive non-motorized settings.</p> <p>Administrative cabins in Wilderness (MA 4) will not be rented to the public.</p>
VISUAL QUALITY	<p>The visual quality objective is partial retention.</p>
WILDLIFE & AND FISH	<p>See Forest-wide Standards in Chapter II.</p>
RANGE	<p>Livestock grazing may be allowed where compatible with the management area goal.</p> <p>Emphasize control of noxious weeds.</p>
TIMBER	<p>Classified as unsuitable for timber production.</p> <p>Annually inspect these sites to identify and remove hazard trees.</p>
WATER AND SOILS	<p>See Forest-wide Standards in Chapter II.</p>
MINERALS	<p>Evaluate withdrawal from mineral entry based on the criteria in Appendix D.</p>

Surface occupancy will not be permitted for mineral leases.

FACILITIES

Roads may be constructed and maintained to provide access to and within the areas as necessary for administrative purposes.

FIRE

The wildfire suppression response will be control.

Prescribed fire may be used to meet management area goals.

Schedule of Management Practices		Average Annual	
		1st decade	2nd decade
WILDLIFE	Habitat Improvement	10 structures	10 structures
RANGE	Noxious Weed Control	100 acres	100 acres

The monitoring requirements from Chapter IV that are applicable to the management area are as follows. The procedures outlined in Chapter IV will be followed to evaluate the data gathered during monitoring.

Monitoring Requirements - see Chapter IV, Table IV-1 for monitoring activities

B. Schedule of Timber Sale Program by Probable Harvest Method Within Management Areas

The following 10 year timber sale program is a plan based on current conditions and information available at the time of forest plan development and that if these conditions change or new information becomes available, the timber sale program may be modified during the implementation of the forest plan. The degree of the modification will determine whether or not the forest plan needs amendment, in accordance with the required process.

Table III-1:
SCHEDULE OF PLANNED AVERAGE ANNUAL TIMBER SALE PROGRAM BY HARVEST METHOD 1/
 (Fiscal Years 1988 - 1997)

<u>Probable Method of Harvest</u>			
Management Area	Even-Aged Mgmt System MMBF/Acres	Uneven-Aged Mgmt System MMBF/Acres	Total MMBF/Acres

7	.5/40	.1/30	.6/70
8	6.0/500	0	6.0/500
9	1.5/150	0	1.5/150
10	2.8/350	0	2.8/350
11	4.4/440	.1/30	4.5/470
13	5.5/560	.1/30	5.6/590

1/ includes non-interchangeable component volumes



CHAPTER IV: IMPLEMENTATION

A. Introduction

Implementation of the Gallatin National Forest Plan requires moving from an existing management program (with its budget and targets for accomplishment) to a new management program with a budget, goals, and objectives that provide a different way of addressing the issues and concerns. This Forest Plan establishes the direction for the Forest for the next 10 to 15 years, when used in conjunction with Forest Service Manuals and Handbooks and the Northern Regional Guide.

The remainder of this Chapter explains how management of the Gallatin National Forest will move from the Current Direction and Existing Situation to the Preferred Alternative (both described in the EIS). The following sections describe aspects of implementation that are influenced by previous management activities and objectives; the relationship between project planning and this Forest Plan; the goals of and requirements for monitoring and evaluation; and the circumstances which could require the Plan to be amended or revised.

B. Influence of Past Management on Future Options

Chapter III defines management direction for specific areas of the Forest (called Management Areas). In some instances, this direction represents a change from current management direction. Where no previous management activities have occurred, the proposed land uses of the Forest Plan can be put into effect from a neutral beginning. However, in areas where management activities have occurred to meet previous objectives, a transition period may be required to bring management fully into line with this Plan.

In addition to specifying management direction for areas of the Forest, this Plan schedules management activities. In some situations, previous management activities influence the scheduling of future activities.

For example, timber harvest has occurred in some of the visually sensitive portions of the Forest, modifying the landscape. If Forest Plan Management Area Standards require a visual quality objective ranging from retention to partial retention, it will require time for the landscape to recover from its previous VQO of modification.

C. Project Planning

The Forest Plan serves as the only land management plan for the Gallatin National Forest. The Absaroka-Beartooth Wilderness Plan, the Lee Metcalf Wilderness Plan, and the Grizzly Bear Management Guidelines are incorporated into the Forest Plan as appendices. All other land management plans are replaced by the direction in this Forest Plan.

Similarly, the Forest Plan directs the management of all resources on the Gallatin National Forest. All previous resource management plans are replaced by or adopted into the Plan. Resource management objectives are displayed in Chapter II and schedules of resource management practices for each management area are displayed in Chapter III.

Several documents designed to give further guidance to management activities have been or will be developed under the umbrella of the Forest Plan. They are:

- Forest Travel Map
- Allotment Management Plans
- Area Transportation Plans
- Ten-Year Timber Sale Schedule
- Fire Management Direction
- Watershed Management Guidelines

The Forest Plan provides the management direction which makes up the sideboards within which project planning and activities take place. It defines management area goals and standards that guide project activities toward achieving a desired future condition for the management area and, collectively, for the Forest. It specifies a schedule for project activities (management practices). It provides guidance concerning potential landtype and habitat type constraints, including assumptions about the appropriate vegetation management practices for timber sale projects. On-the-ground project analysis will validate or invalidate the appropriateness of those assumptions.

By following this guidance, projects will be developed that most efficiently and effectively accomplish management goals and objectives. All NEPA requirements will be complied with in all projects.

The environmental analyses conducted for project activities, such as timber sales, will normally be documented in a project file rather than a formal environmental assessment (EA). If the analysis for a project determines that:

the project will be consistent with the goals and objectives of the Forest Plan,

will be in keeping with the environmental effects identified and documented in the Forest Plan FEIS,

and is not controversial

the analysis will be documented in the project file and a Decision will be prepared. The project file will be available for public review.

Project environmental analyses will provide an essential source of information for Forest Plan monitoring. First, as project analyses are completed, new or emerging public issues or management concerns may be identified. Second, the management direction designed to facilitate achievement of the management area goals will be validated by the project analyses. Third, the site specific data collected for project environmental analyses will serve as a check on the correctness of the land allocation. All of the information included in the

project file or EA will be used in the monitoring process to determine if changes should be made in the Forest Plan.

As part of the project planning, site specific water quality effects will be evaluated and control measures designed to ensure that the project will meet Forest water quality goals; projects that will not meet State water quality standards will be redesigned, rescheduled, or cancelled.

If, during Forest Plan implementation, it is determined that the best way to achieve the prescription for a management area does not totally conform to a management prescription standard, the Forest Supervisor may amend that standard for a specific project. Such site specific amendments (CFR 219.10(f)) and the rationale for the changes must conform to NEPA requirements.

There will be no deviation from standards established for threatened and endangered species conservation and protection unless a biological evaluation concludes that such deviation would have no adverse effect on the recovery of the species and there has been consultation with the Fish and Wildlife Service.

D. Monitoring and Evaluation

Monitoring and evaluation comprises the management control system for the Forest Plan. They will provide information to the decisionmaker and the public on the progress and results of implementation of the Forest Plan.

Monitoring and evaluation compare the actual results to those projected in the Plan. Costs, outputs, and environmental effects (experienced and projected) will be considered. This comparison will be made on a sample basis on the progress of implementation and the overall relationships on which the Plan is based. When changes occur, their significance will be evaluated and appropriate amendments or revisions made.

The goals for monitoring and evaluating the Forest Plan are to determine:

how well the Forest is meeting its planned goals and objectives;

if existing and emerging public issues and management concerns are being adequately addressed;

how closely the Forest Plan's management standards are being followed;

If outputs and services are being provided as projected;

if the effects of implementing the Forest Plan are occurring as predicted, including significant changes in the productivity of the land;

if the dollar and manpower costs of implementing the Forest Plan are as predicted;

if implementing the Forest Plan is affecting the land, resources, and communities adjacent to or near the Forest;

if activities on nearby lands managed by other Federal or other governmental agencies, or under the jurisdiction of local governments, is affecting management of the Forest;

if research is needed to support the management of the Forest, beyond that identified in Chapter II of the Forest Plan; and

if there is a need to amend or revise the Forest Plan.

The monitoring requirements for the Forest Plan are outlined in Table IV-1, Forest Plan Monitoring Requirements. These requirements address the items to be monitored, expected precision and reliability, and reporting period. Most of the monitoring items are applicable to specific management areas; a listing of applicable monitoring items is included in the direction for each Management Area (Chapter III).

Table IV-1: Forest Plan Monitoring Requirements

Monitoring Item	NFMA Requirements 36 CFR 219	Actions, effects, or Resources to Be Measured .12(k)(4a)	Expected Precision .12(k)(4b)	Expected Reliability .12(k)(4b)	Reporting Time .12(k)(4c)
1	.12(k)(1)	Quantitative estimate of performance outputs and services	High	High	Annually
2	.12(k)(1)	Best Management Practices not implemented as planned	High	High	Annually
3	.12(k)(1)	Management Area standards not followed as directed	High	High	Annually
4	.12(k)(2)	Reduction of more than 20,000 Acres of roadless by 1992	High	High	5 years
5	.12(k)(2)	More than 25% loss in effective streambank cover or 20 point increase in stream channel stability score within 5 years due to management practices	Moderate	Moderate	5 years
6	.12(k)(2)	Monitor effects of O.R.V. use	Moderate	Moderate	Annually
7	.12(k)(2)	One or more preventable grizzly bear mortalities	High	High	Annually
8	.12(k)(2)	Monitor effectiveness of BMPs controlling effects of management induced sediment on beneficial uses of water	Moderate	Moderate	5 years
9	.12(k)(2)	Significant soil stability mass failure or probability of failure due to management practices (measure 10 sites per year)	Moderate	High	5 years

Table IV-1: Forest Plan Monitoring Requirements, Cont'd

Monitoring Item	NFMA Requirements 36 CFR 219	Actions, effects, or Resources to Be Measured .12(k)(4a)	Expected Precision .12(k)(4b)	Expected Reliability .12(k)(4b)	Reporting Time .12(k)(4c)
10	.12(k)(2)	More than 10% continuous change from 10 year average water yield due to management practices (measure 12 sites per year)	Moderate	Moderate	5 years
11	.12(k)(3)	15% deviation from planned costs to implement Plan	High	High	Annually
12	.12(k)(5a)	Timber harvest areas restocked as planned	Moderate	Moderate	Annually
13	.12(k)(5b)	10% change in suitable timber base	High	High	10 years
14	.12(k)(5c)	Determine whether 40 acre maximum size limit for timber harvest areas should be continued	High	High	10 years
15	.12(k)(5d)	Destructive insects and disease organisms do not increase to potentially damaging levels following management activities	Moderate	Moderate	Annually
16	.19(6)	Determine population trends of indicator species and relationships to habitat changes	Moderate	Moderate	5 years
17	.7(f)	Determine effects of Forest management on land, resources, and communities adjacent or near the Forest and effects of other Government agencies activities on the Forest	Moderate	Moderate	10 years
18	.28	Identify research needs through monitoring program	High	High	10 years

Other monitoring items are more applicable to broad areas or are Forest-wide in nature and will be evaluated from such sources as the data base, Forest accomplishment reports, public involvement processes, and non-Forest Service sources (e.g., recreation use, tree grizzly bear mortality and population trends, and emerging social issues or concerns).

Evaluation of data gathered during monitoring will be guided by the Decision Flow Diagram detailed in Figure IV-1. As indicated in the diagram, the results of this evaluation lead to decisions on possible further action, such as:

- continuing the management practice;
- referring the problem to the appropriate line officer for improvement in applying the management practice;
- modifying the land management prescription as a Plan amendment;
- modifying the management practice as a Plan amendment;
- revising the schedule of outputs;
- revising the cost/unit output; or
- initiating revision of the Plan.

The document resulting from the use of the Decision Flow Diagram constitutes the evaluation report. As applicable, the following will be included in each evaluation report:

- A quantitative estimate of performance, comparing outputs and services with those projected by the Forest Plan.
- Documentation of measured effects, including any change in productivity of the land.
- Unit costs associated with carrying out the planned activities as compared with unit costs estimated during Forest Plan development.
- Recommendation for changes.
- A list of needs for continuing evaluation of management systems and for alternative methods of management.
- A list of additional research needed to support the management of the Forest.
- Identification of additional monitoring needs to facilitate achievement of the monitoring goals.

E. Amendment and Revision

The Forest Supervisor may amend the Forest Plan. The Forest Supervisor will determine (based on an analysis of the objectives, standards, and other contents of the Plan) whether a proposed amendment will result in a significant change in the Forest Plan.

If found significant, the Forest Supervisor will follow the same procedure as that required for development and approval of a Forest Plan.

If found not significant, the Forest Supervisor may implement the amendment following appropriate public notification and satisfactory completion of NEPA procedures.

Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of a Forest Plan.

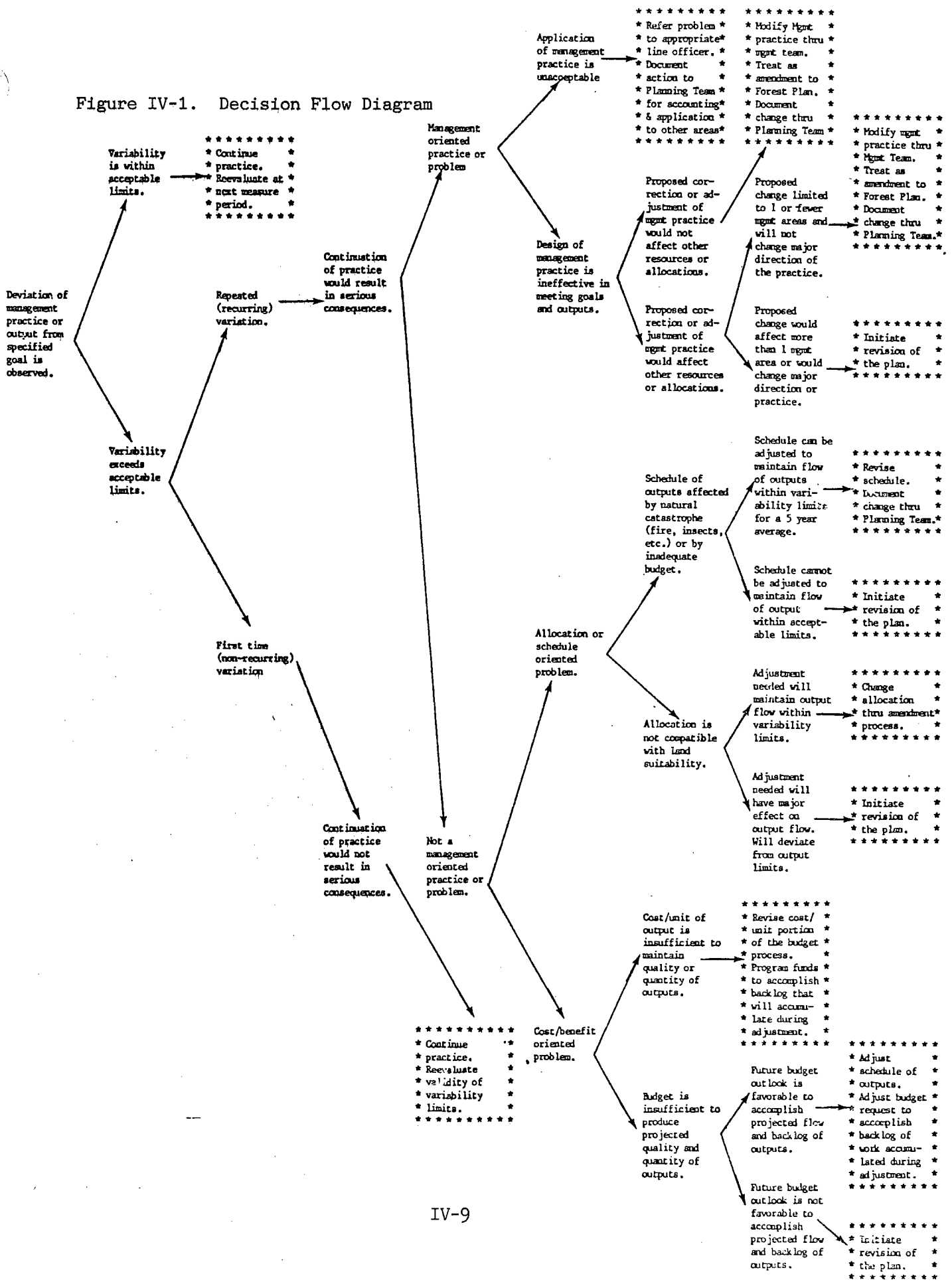
A Forest Plan will ordinarily be revised on a 10-year cycle or at least every 15 years. It may also be revised:

Whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly. The Forest Supervisor shall review these conditions and demands at least every 5 years.

When changes in RPA policies, goals, or objectives would have a significant effect on Forest level programs.

The interdisciplinary team may recommend a revision of the Forest Plan at any time during the monitoring and evaluation process.

Figure IV-1. Decision Flow Diagram





CHAPTER V: MANAGEMENT SITUATION

A. Introduction

This chapter discusses the ability of the Forest to supply present and future goods, services, and uses within the planning area. The demand anticipated for specific uses of the Forest and the need or opportunity for any beneficial changes in the current management direction are included. Information needed to evaluate current management was developed from an analysis that determined supply and demand conditions.

1. Forest Location

The Gallatin National Forest is located within the Rocky Mountains of southern Montana. The major mountain ranges on the Forest are the Madison, Spanish Peaks, Gallatin, Absaroka, Beartooth, Bridger, Henry's Lake, and Crazy ranges.

The Forest covers parts of Gallatin, Madison, Park, Meagher, Sweet Grass, and Carbon counties and includes headwaters of the Madison, Gallatin, Yellowstone, Clark's fork of the Yellowstone, Boulder, and Shields Rivers. The Forest lies adjacent to the north and west boundaries of Yellowstone Park.

The Gallatin Forest is a significant part of the Greater Yellowstone Area and coordinated management of the entire area is essential.

Bozeman is the location of the Supervisor's Office. District Ranger offices are located in Big Timber, Livingston, Gardiner, Bozeman, and West Yellowstone.

2. Social/Economic Background

The area most directly affected by management of the Gallatin National Forest lies within Gallatin, Madison, Park, and Sweet Grass counties. Within this four-county area, an estimated 2,576 person-years of employment result from activities on the Forest. This includes direct, indirect, and induced employment activities.

Gallatin and Park Counties, plus parts of Madison County, have experienced significant economic growth in recent years. The basic industries which influence the growth of this area are Montana State University, agriculture, manufacturing, tourism, and government. Manufacturing earnings in this area increased 100 percent from 1970 to 1978, with the wood products industry earnings 50 percent higher. Tourism and associated trade industries experienced a 78 percent growth in the same period. At present, one in every six dollars spent in Montana on tourism is spent in Gallatin, Park, or eastern Madison Counties.

Sweet Grass County is a stable county with little economic change since 1950. Its workforce of 1,500 people is primarily dependent upon agriculture. Sweet

Grass County stands to change considerably with the possibility of the opening of a platinum mine on the National Forest.

Park County has recently lost a significant number of jobs through changes made by Burlington Northern Railroad operations in Livingston. This will partially be offset by the opening of a gold mine near Jardine.

Many people see the Forest as being very important in their lives. At public workshops people have said that activities such as hiking, camping, picnicking, hunting and fishing, snowmobiling, trailbiking, skiing, and firewood gathering are significant to them. Watersheds, big game, livestock, minerals, oil, gas, and timber are resources which people have identified as important to them.

a. Employment

Forest resource outputs are important to the economy of the area, providing about 14 percent of the jobs. This means that approximately 2,576 direct, indirect, or induced jobs are attributable to Gallatin National Forest activities. Additionally, about 17 percent of the total jobs are related to Forest activities through direct, indirect, and induced impacts. See Table VI-1 for an employment distribution by user/employee groups.

TABLE V-1. Employment Distribution

Employers	4-County Employment Total	1980 Forest Outputs Contribution	Forest Contribution (% of Total)	Sector Rank Order
1. Misc. Agriculture	545	47	8.6	9
2. Livestock	252	21	8.1	10
3. New Construction	879	20	2.2	15
4. Mtc. & Repair	279	18	6.6	12
5. Misc. Manufacturing	1001	32	3.2	14
6. Food and Kindred	205	34	16.4	7
7. Logging and Mills	345	76	22.1	4
8. Other Wood Prod.	685	18	26.6	2
9. Trans., Comm. & Util	1629	105	6.4	13
10 W-Sale & Ret. Trade	3536	703	19.9	6
11 Fin., Insur. & R.E.	720	52	7.2	11
12 Hotels and Motels	928	444	47.8	1
13 Misc. Services	2850	591	20.8	5
14 Eating and Drinking	1549	393	25.4	3
15 State & Fed. Govt.	162	22	13.6	8
TOTAL	15,565	2,576		

b. Income

The total amount of income attributable to the outputs (1980) of the Forest in 1978 dollars was \$36,850,100. The major sectors in terms of income produced are displayed in Table V-2. Not included in this table are the potential impacts associated with accelerated mineral development on and adjacent to Forest lands.

Table V-2. Employment Sectors and Outputs

Sector	Outputs (\$)
Hotels - Motels	2,338,500
Eating - Drinking	2,581,900
Wood Products Industry	2,477,400
Trade	8,741,400
Government	324,200

Table V-3 shows changing population of the principal counties containing Forest lands from 1960 to 1980. The only dramatic population change is seen in Gallatin County.

Table V-3. Population

County	Population		
	1960	1970	1980
Gallatin	26,000	32,505	42,865
Madison	5,200	5,014	5,448
Park	13,200	11,197	12,660
Sweet Grass	3,000	2,980	3,216

B. Resource Elements

The following discussion is intended to portray the management situation as it relates to specific resource elements and services. However, discussing these elements individually does not fully convey the interactions between them. For example, roads that transport sawlogs to the mill are also designed to provide access for hunting, firewood gathering, and other recreation. For another example, timber harvest in an area can benefit livestock grazing by providing transitory range and can also improve wildlife habitat by enhancing habitat diversity. In short, resources discussed individually are part of a very complex series of interactions. The resources and services are described

individually only to emphasize important aspects of the current situation in some type of organized framework.

1. Developed Recreation

a. Management Situation

The Gallatin has a capacity for developed recreation use of 884,400 RVDs (recreation visitor days), including use on downhill ski areas built on National Forest land. This capacity is 23 percent greater than current use. Over the past 10 years, an average of 683,000 RVDs of developed recreation has been utilized each year.

Existing developed recreation facilities on the Forest include campgrounds (37), picnic areas (14), developed downhill ski areas (2), boat launches (5), and a visitor center at Earthquake Lake. The Forest also provides visitors with snowmobile and cross-country ski trails and end-of-road or trailhead facilities for people seeking dispersed recreation opportunities.

The Forest's campgrounds presently provide facilities for 902 families. Private campgrounds and lodges located on the Forest presently provide 28,400 RVDs of developed recreation per year. Additionally, off the Forest but in the vicinity, there are about 10 private developments that provide camping space for an additional 40,000 RVDs.

Two major ski areas operate under permit on the Forest--Big Sky and Bridger Bowl. These two areas provide 56,400 RVDs on National Forest lands. Each has considerably higher existing capacities that could be developed. Bridger Bowl expansion has been limited to some degree pending the outcome of the Forest Plan. Any expansion of the Big Sky area would be on private land.

Recreation residences are another form of developed recreation on National Forest lands. There are presently 206 special use permits for recreation residences on the Gallatin. While designation of new tracts is not planned, authorization of most existing recreation residences will continue. It is the Forest Service's objective to maintain in-place recreation residences unless they are located on land that has a higher public value, are a hazard to National Forest resources, or endanger the health, safety or well-being of the permittee or the public.

Other private developments using National Forest lands include guest ranches, resorts, and outfitter-guide services.

b. Need/Opportunity for Change

The Gallatin is faced with a steady deterioration in campgrounds and other developed sites. To prevent further deterioration and retain current capacity, increased maintenance funds are necessary.

There is a problem with distribution and efficiency of existing developed sites. Servicing small campgrounds at remote locations can incur high expenses and be very inefficient. Small campgrounds or campgrounds receiving little use may be closed or consolidated to increase efficiency and new campgrounds may be constructed where use indicates a need.

If there are no new investments to increase developed recreation capacity, the RPA targets for developed recreation can only be met through the second decade.

Some opportunities do exist for meeting the increasing demand for developed recreation. A limiting factor is the available capital investment funds for facilities (such as campgrounds, trails, trailheads, or access points, which would help continue the present quality of recreation experience).

Private development of camping facilities is expected to increase on private land.

There is a significant opportunity for increasing skiing capacity. Expansion of Bridger Bowl and development of Ski Yellowstone ski areas are good examples.

In recent years, fees for recreational residence lots have been made fully competitive with private land that might be available. As a result of this and increasing land prices, fees for these lots have risen dramatically. This may lead to a decline in the number of special use permits for recreational residences.

c. Supply Potential

There are two basic opportunities for increasing capacity on National Forest land:

- Forest Service investment for the construction of campgrounds, picnic areas, visual information facilities, etc.
- private investment

There is a large potential for the private sector to supply developed recreation adjacent to or inside the National Forest boundary. Most of this would come from expansion of the Big Sky and Bridger Bowl ski areas and the construction of Ski Yellowstone.

Ski Yellowstone is proposed to be developed during the next decade. Approval has been given to Ski Yellowstone to develop the Mount Hebgen area subject to certain conditions. Mount Hebgen is considered in the Forest Plan as suitable and planned for development as a major downhill ski area. Two other sites--Blackmore (in Hyalite drainage) and Woody Ridge (near Cooke City)--have been identified as potential ski areas. No proposals or feasibility studies have been made.

Table V-4. Developed Ski Area Potential

Site	Current Use		Current Capacity		Potential Expansion Capacity	
	N.F.	Private	N.F.	Private	N.F.	Private
Bridger Bowl	46,000	28,000	100,500	62,500	127,500	100,500
Big Sky	10,400	69,000	15,000	225,000	25,800	385,500
Mount Hebgen	0	0	0	0	135,500	50,000
Blackmore	0	0	0	0	100,000	0
Woody Ridge	0	0	0	0	70,000	0
Total RVDs	56,400	97,000	115,500	287,500	458,800	536,000
Total N.F./Private	153,400		403,000		994,800	

These figures indicate that with current facilities, use could increase from 153,400 to 403,000 RVDs, a 162 percent increase. If the potential of all the areas were developed, use could increase to 994,800 RVDs. This includes potential on National Forest and adjacent land.

Other developed recreation sites, not related to downhill skiing, currently provide 534,600 RVDs but have a potential capacity of 743,000 RVDs. The budget increase as shown in RPA targets assigned in the Regional Plan will allow maintenance of existing facilities, but will not provide for construction of new sites.

Private developments on and near the National Forest provide about 68,000 RVDs and by the year 2030 this could increase to 200,000 RVDs.

d. RPA Targets

RVD targets for developed sites, in thousands, are:

Table V-5. Developed Recreation RPA Targets (Thousands)

1982	1983	1984	1985	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
686	708	730	752	851	916	945	1,039	1,153

e. Demand

Developed recreation sites on the Forest experienced 534,000 RVDs of use in 1970. Use reached a high of 740,000 RVDs in 1977, dropped to 591,000 RVDs in 1980, and went up to 693,800 in 1981.

Projecting current consumption trends into the future, by 1995 developed recreation use could increase to 922,000 RVDs. Given this assumed increase, the current capacity of 884,400 RVDs would be surpassed before 1990.

Estimates of demand for developed recreation for the Gallatin National Forest supplied by the Regional Office are:

Table V-6. Estimate of Demand for Developed Recreation

5 Year	1985	1995	2005	2015	2025
M RVDs	802.9	922.0	1,132.0	1,242.6	1,244.0

Using these figures, demand is projected to increase 17.5 percent per decade.

2. Dispersed Recreation

a. Management Situation

The Gallatin National Forest has the highest level of dispersed recreation use of any Forest in Region 1. In 1981, the Gallatin provided 1,532,400 RVDs of dispersed recreation, up from 1,339,100 in 1980.

Table V-7. Major Activities Associated with Dispersed Recreation in 1981

Automobile Travel	297 M RVDs
Hiking-Horseback-Bicycle	266 M RVDs
Fishing	214 M RVDs
Camping	183 M RVDs
Hunting	166 M RVDs

At present, there are problems on some parts of the Forest due to too much concentrated recreational use. There are also problems due to conflicts between various user groups.

b. Need/Opportunity for Change

Parking and access points need to be provided along roads and highways to allow for more dispersed recreation, especially winter activities.

In some areas, roads may be closed to motorized traffic to maintain the nonmotorized recreation opportunities as well as to protect wildlife and soils and maintain full land productivity. This is already being done to some extent.

In order to aid the recovery of the grizzly bear, dispersed recreation may be limited in some areas of the Forest.

Conflicts may increase between different groups of users and some type of zoning may be necessary to solve the problem.

c. Supply Potential

Types of dispersed use tend to change over time. Even so, the Gallatin could supply the consumptive trends for most recreational opportunities through 2030 if sufficient funding is appropriated. The supply generally exceeds the demand for dispersed recreation on the Gallatin. The only exception is big game hunting, where supply falls short of demand.

d. RPA Targets

Table V-8. Dispersed Recreation RPA Targets

5 Year	1980	2000	2010	2020	2030
M RVDs	1,224	1,268	1,322	1,359	1,384

e. Demand

The following estimates of use were developed for the Gallatin National Forest by the Regional Office:

Table V-9. Estimate of Demand for Dispersed Recreation

Year	1985	1995	2005	2015	2020
MRVDs Wilderness	140	161	183	268	236
MRVDs Other Dispersed	1,388	1,702	2,053	2,433	2,846
TOTAL	1,528	1,863	2,236	2,701	3,082

3. Wilderness Management

a. Management Situation

Classified wilderness located on the Gallatin National Forest includes a total of 715,674 acres. This is 41.2 percent of the Forest's area and is broken out as follows:

Absaroka-Beartooth Wilderness	580,562
Lee Metcalf Wilderness	135,112

In addition, the Forest Plan recommends for wilderness designation portions of two roadless areas: Lionhead (21,461 acres) and Republic (480 acres). If Congress designates these by law, the total wilderness administered under the Forest Plan would be 737,615 acres.

b. Need/Opportunity for Change

Existing trails in some wilderness areas need to be upgraded to accommodate heavy use. Use can be dispersed to other areas by providing new access and trailhead facilities. There is also a need to establish the carrying capacity of heavily used areas.

Heavy recreational use in grizzly bear habitat within the Wilderness puts heavy stress on the bear during certain times of the year. Various measures to control public use need to be assessed.

c. Supply Potential

A maximum level of Wilderness on the Gallatin, in net National Forest acres, is:

Table V-10. Wilderness Maximum Potential

AREA	ACRES
--Presently classified	715,674
--All 13 currently inventoried roadless areas (listed in next section)	<u>488,400</u>
TOTAL	1,204,074

A minimum level of Wilderness is the presently classified 715,674 acres.

d. RPA Targets

RPA targets will result from development of the Forest Plan.

e. Demand

RVDs in Wilderness are expected to grow by 14 percent per decade, based on Regional Office estimates. This projected growth may need to be adjusted in the future. Recent use indicates a decreased use.

4. Roadless Resource

a. Management Situation

The Gallatin National Forest presently has about 488,400 acres of roadless lands included in the Forest's roadless inventory. This includes the 105,700 acres of the Hyalite-Porcupine-Buffalo Horn Study Area being considered for possible wilderness designation under the Montana Wilderness Study Act (PL 95-150), as well as 382,700 additional acres in nine other roadless areas.

b. Need/Opportunity for Change

A decision must be made whether to keep these lands roadless through some sort of management decision or to allow development that would tend over time to eliminate portions of the roadless character.

c. Supply Potential

The maximum level of roadless area can be retained on the Gallatin by administering all presently unroaded lands in the roadless inventory as either wilderness or roadless. The present disposition of roadless lands on the Gallatin National Forest is:

Table V-11. Roadless Lands on the Gallatin National Forest

<u>Roadless Area</u>	<u>N.F. Acres</u>
1550 Dry Canyon	2,160
1963 Lionhead	32,780
H1548 Hyalite	22,224
G1548 Gallatin Divide	91,403
J1548 Gallatin Fringe	44,482
1543 Bridger	45,402
1541 Crazy	70,498
1742 Box Canyon	1,747
1547 Chico	10,855
1912 Beartooth	4,720
1545 Republic	700
1914 Reef	2,170
1371 North Absaroka	<u>159,259</u>
TOTAL	488,400

The minimum level of roadless other than existing wilderness will be about 292,000 acres of unroaded lands that remain even if no lands in the roadless inventory receive Wilderness or roadless management designation. These acres will remain roadless because the topography does not allow roadbuilding, or because resource values do not warrant roading into some areas. With the existing 715,674 acres of Wilderness, the minimum area which will remain roadless represents 58 percent of the Forest.

Several special areas on the Forest will be administered as roadless under the Forest Plan. These areas include the Congressionally designated Cabin Creek Wildlife and Recreation Management Area, the Porcupine-Buffalo Horn Wildlife Management Area, and the Hyalite Peaks Scenic Area.

d. Demand

The public has expressed considerable interest in retaining the roadless character of certain roadless areas, while showing little or no concern toward other areas remaining roadless. The following areas have been recommended for Wilderness in the "Alternative W" proposal of the Montana Wilderness Association: 1541 Crazy, 1548 Republic, 1914 Reef, 1963 Lionhead' and parts of 1371 North Absaroka.

The eventual disposition of roadless areas as either wilderness, nonroaded, or developed areas will relate to the demand for primitive, semi-primitive/non-motorized, or semi-primitive/motorized recreation, respectively.

5. Wildlife

a. Management Situation

Native elk herds, two migratory elk herds, and a large native population of mule deer are the most abundant big game concentrations on the Gallatin. Stable populations of moose, bighorn sheep, mountain goats, black bear, and white-tailed deer are also found. The habitat for these big game species can be changed by management activities.

Numerous separate populations of elk are found on distinct summering and wintering areas across the Gallatin Forest and on adjacent and intermingled private land. Currently, the total wintering elk population is approximately 9,800. Summer range on the Forest is estimated to be capable of supporting as many as 32,000 elk, while the estimate for winter range maximum capacity is 12,600 (8,400 on National Forest land). Although summer range is important, winter range is the limiting factor for the Forest's population.

About 5,600 of the total wintering elk population (9,800) winter on National Forest and about 4,200 winter on private and State lands in and adjacent to the Forest boundary. These population estimates refer to elk resident on the Forest, plus average numbers from three large migratory herds that summer in the Yellowstone National Park but winter in the Forest. Exact numbers of elk from Yellowstone National Park coming onto the Forest during any one year depend upon the severity of the winter, but generally range from 2,500 to 5,000 animals.

A large percentage of elk winter range is not on National Forest land, due to the large amount of intermingled private lands at lower elevations. In fact, 47 percent (164,000 acres) of winter range is on private lands in or adjacent to the Forest while 53 percent (187,000 acres) is on National Forest land.

b. Need/Opportunity for Change

This ownership situation poses real problems for elk management because most private owners will not change their management to accommodate more elk. In fact, elk capacity on private winter range will mostly decrease. Where winter range and private livestock winter pastures coincide, there is definite competition for forage. If elk populations increase, there will be more pressure on private lands.

Another significant consideration is that management activities on both National Forest and private lands can change big game habitat. This includes the removal of security cover by timber harvest, grazing competition with domestic livestock, or road construction in security areas and winter ranges. Changing habitats will precipitate changes in big game species population size and composition.

The Forest has identified potential for additional capacity on big game winter and summer range. This additional capacity could provide an opportunity for an increase in the size of the Forest elk population. However, as described above, increasing elk numbers on the Forest will put additional pressure on private lands and costs may outweigh benefits.

Increased emphasis on management of non-game species is needed. Non-game species will benefit most by assuring a good diversity of habitat on the Forest.

c. Supply Potential

Maximum biological potential could provide for about 8,400 elk on National Forest winter range, an increase of about 33 percent over present levels. However, an elk herd of this size on the Forest would cause problems for adjacent and intermingled landowners and may not be desirable.

The degree to which State and private lands could be managed to provide additional elk winter range is not known. Cooperative management programs with the State, Plum Creek Timber Company, and other private owners may offer more potential for elk.

d. Demand

The 1980 RPA Program Update estimates that demand for big game hunting in the United States should increase 20 percent over 1980 levels by 1995. The 1978 Montana Statewide Comprehensive Outdoor Recreation Plan (SCORP) estimated an approximate 23 percent increase in demand for elk hunting in south central Montana during the decade 1980-1990.

6. Threatened/Endangered Species

a. Management Situation

One endangered species (bald eagle) and one threatened species (grizzly bear) are resident on the Gallatin National Forest. In addition, the peregrine falcon has successfully been reintroduced on the Forest. Although none exist today, in the past the Gallatin supported a gray wolf population.

The status of the grizzly bear on the Gallatin National Forest must be considered in the context of the entire Yellowstone Ecosystem, which consists of Yellowstone National Park, Grand Teton National Park, plus five National Forests. There are about 5.7 million acres of occupied grizzly bear habitat in the Yellowstone Ecosystem, and about 818,000 acres of that (about 15 percent) occurs on the Gallatin National Forest. In cooperation with other Federal entities administering public land in the Yellowstone Ecosystem, the Gallatin uses the "Guidelines for Management Involving Grizzly Bears in the Greater Yellowstone Area (USDI, 1980)." In the Guidelines, grizzly bear habitat found on the Gallatin is classified into several so-called "management situations".

Management Situation 1 - "Contains grizzly bear population centers and components needed for survival and recovery of the species." The Gallatin has 493,357 acres in MS-1.

Management Situation 2 - "Lacks distinct grizzly bear population centers. May contain some bears and suitable habitat but is not an area considered necessary for survival and recovery of species." The Gallatin has 324,010 acres in MS-2.

Management Situation 3 - "Grizzly bear possible but infrequent. Human occupancy and use result in conditions which make grizzly presence untenable." The Gallatin has 1,100 acres in MS-3.

In 1982, the Fish and Wildlife Service completed a draft "Grizzly Bear Recovery Plan" (currently being updated and scheduled for completion in 1987). This draft plan indicates, in part, that recovery of Yellowstone Ecosystem grizzly bears may be judged as accomplished when there is a sustained production of offspring the equivalent of 15 females with a reproduction rate of 2.2 cubs per female. This goal is not being met at present, and there is indication that the number of females with cubs (and thereby the population) is declining. This is largely caused by an unacceptable mortality of female grizzlies of breeding age. Human-caused mortality is currently the factor limiting the grizzly bear population.

Bald eagle activity on the Forest appears to be increasing in recent years. Three bald eagle nests on the Forest are used some years. Bald eagles fish the Yellowstone and Gallatin Rivers near or inside the Forest boundaries during the winter months.

The effort to establish a peregrine falcon population on the Forest has been successful.

Although the Forest could support five gray wolves, there are no plans for its reestablishment.

b. Need/Opportunity for Change

Forest Service management in Regions 1, 2 and 4 has identified a need to recover the grizzly bear population in the Greater Yellowstone Ecosystem to a point where the species could be removed from the threatened and endangered list. The Gallatin National Forest has an opportunity to help the grizzly bear population recover by providing necessary habitat and reducing human-caused mortality. This objective can only be accomplished with increased management costs and some negative effect on the other resources, such as recreation, timber, minerals, and perhaps livestock grazing.

7. Fisheries

a. Management Situation

The Gallatin's fishery is of national interest. Three major rivers that cross the Forest (the Gallatin, Madison, and Yellowstone) are classified as "Blue Ribbon" streams of national significance. Many small tributaries located within the Forest and influenced by Forest management activities provide spawning and rearing habitat to the downstream fisheries. These tributaries influence both the quantity and quality of water in the fisheries.

e. Demand

Demand for additional livestock grazing on the Gallatin is shown by the high interest in available grazing permits, number of applications received when there is forage available for use, and applications by existing permittees to increase permitted numbers. Demand for additional National Forest range will increase with the need of producers to increase their herd size to establish an economical level of production. This demand will thus fluctuate to some extent with livestock market conditions. Likewise, producers' ability to invest in range improvement programs on grazing allotments is strongly affected by livestock market conditions.

9. Timber

a. Management Situation

About 1.3 million acres of the Gallatin's total 1.7 million acres are forested. Of these forested acres, about 440,000 are classified as potentially suitable for timber production. The primary commercial tree species, stated as percentages of the Forest's timber, are lodgepole pine (50 percent), Douglas-fir (30 percent), alpine fir (10 percent), and spruce (10 percent). This productive forestland is most commonly located below 8,000 feet in elevation.

Timber sites on the Gallatin are moderately productive and usually regenerate naturally after timber harvest and slash disposal. Douglas-fir is the exception because cone losses to spruce budworm have made natural regeneration difficult.

Multi-storied and all-aged stands characterize large areas of all forest types on the Forest. This condition is attributed in part to past fire suppression activities. The multi-storied structure, primarily in Douglas-fir, is highly susceptible to severe defoliation by western spruce budworm. Cyclic defoliation by this pest has been and continues to be a problem on the Forest.

A majority of the Gallatin timber stands are over 100 years old. Common insects and disease pests in these stands include the following: (1) mountain pine beetle (MPB) in lodgepole pine and white bark pine; (2) western spruce budworm in Douglas-fir, subalpine fir, and Engelmann spruce; and (3) dwarf mistletoe in lodgepole pine.

A serious problem exists within the lodgepole pine type--there is very little age class diversity. Vast expanses of mature and overmature lodgepole pine are highly vulnerable to mountain pine beetle attack and this pest is decimating lodgepole pine stands across the Forest.

b. Need/Opportunity for Change

Past harvest has been concentrated on a relatively small part of the total capable base. This is because access was limited and roads were expensive to build in relation to the value of the timber. Once a part of the road system was established, it was easier to return to the same drainage for more volume until concerns of watershed damage limited more harvest. There is opportunity to increase timber harvest over historical levels by entering new drainages.

Whether timber harvest levels remain constant or increase, areas that have been heavily harvested will not be able to sustain continued harvest. More access to other areas of capable timberland will have to be developed if the Gallatin is to continue to provide a share of volume to the local market. This access will require funding by Congress to build new roads. There can be more assurance that watershed conditions will not be adversely affected if timber harvest is spread over a larger land base. Also, spreading more of the harvest to the east side of the Forest will mean that more volume is captured there before the mountain pine beetle reaches epidemic proportions, which is expected to happen within the next 10 years. Meanwhile, there is an opportunity for the next 10 years to capture some of the dead timber on the west side of the Forest as part of proposed timber sales.

Much of the area that has been harvested in the past has been on the less steep slopes. Consequently, much of the volume available now will need to be harvested with special systems. An opportunity exists to provide a program of timber sales in these areas so operators can have some assurance they will be able to amortize the investment in special equipment necessary.

Much of the available and capable forest land is now made up of large stands of mature and over-mature timber. This uneven distribution of age classes causes a high susceptibility to insect infestation and wildfire. There is a need to achieve a better distribution of age classes by timber harvest or prescribed fire.

When harvesting on gentle slopes (45 percent or less), tractor and skidder yarding will typically meet resource management objectives and be the prescribed logging system. Harvesting on steep slopes (greater than 45 percent) and, in special cases, on some gentle slopes will require the use of cable yarding systems.

c. Supply Potential

The annual long term sustained yield, using the maximum constrained timber analysis, is 56.5 MMBF. Under the minimum level of management, there would be no timber harvest.

d. RPA Targets

Table V-14. Timber RPA Targets

Year	1990	2000	2010	2020	2030
MMBF	16	19	21	23	26

Regionwide, timber harvest from National Forests is expected to increase about 21 percent by-2025, assuming an extension of the current situation. Demand is expected to increase faster than supply, causing upward pressure on lumber prices ("Proposed Northern Region Plan", pp.45-46).

e. Demand

The demand for timber from the Gallatin National Forest has varied in the past. The program sell has been from a decade average high of 26.7 MMBF per year to an average low of 13.7 MMBF. The mill capacity in the Gallatin sale area is approximately 95 MMBF per year (2-shift capacity) and the timber harvest from private land is estimated to be about 34 MMBF per year on a sustained yield basis (Montana Department of Natural Resources and Conservation, 1979). This harvest level varies drastically from year to year, however. In the last ten years, while the level of harvest from the National Forest has been averaging about 22 MMBF per year, the harvest from private lands has been about 39 MMBF. (See Appendix B, FEIS).

10. Water and Soils

a. Management Situation

The quality of water being produced on the Forest at present is very high, as evidenced by the presence of three major blue ribbon trout streams on the Gallatin (the Madison, Gallatin, and Yellowstone Rivers). Generally, the lakes and streams of the Forest sustain a prime coldwater fishery.

1) Water Quality

Disturbances associated with road construction, timber harvest, and site preparation can impact both water quality and soil productivity on the Forest. All soils are susceptible to some increases in erosion if they are disturbed by management activities. The sensitive soils are susceptible to mass failures and soil movement and this can increase with surface disturbance. The landtype survey on the Gallatin National Forest indicates there are approximately 151,200 acres of highly sensitive soils outside of the Absaroka-Beartooth Wilderness. This is 12 percent of the total nonwilderness acreage.

At present, Forest Service monitoring of watercourses indicates that forest-wide natural sedimentation rates are about 117,500 tons of sediment per year. Sediment load is highest during the period of spring runoff. Current management practices are estimated to produce an increase of 4.7 percent per decade over this natural production on a forestwide basis.

2) Water Yield

Under natural conditions, the 1.7 million acres of Gallatin National Forest land produce an average of 2,208,000 acre-feet of water annually. Normally, water yield will be within the 1,521,000 to 2,535,000 acre-foot range.

Major storage reservoirs on the Forest include Hyalite and Hebgen lakes. There are three municipal watersheds on the Gallatin Forest. Bozeman is the largest municipality served from waters originating on the Forest.

The quantity of water reaching the streams can also change if the vegetation is removed by timber harvest, wildfire, or grazing. Major increases in water quantity flowing from a watershed have the potential to degrade or destroy a stream channel and its fisheries habitat and cause downstream flooding. Most of

the heavy runoff occurs during the late spring-early summer months when snow is melting and heavy rains occur.

The ability of a watershed to moderate this runoff is important to maintain good stream channel stability, to reduce the possibility of flooding, and to deliver sufficient quantities of water later in the summer months for downstream users.

b. Need/Opportunity for Change

In some parts of the Forest, especially municipal watersheds, it may be desirable to plan timber harvest activities to purposely increase water yields to meet public needs without causing accelerated erosion of stream channels or other adverse effects.

The lack of reservoirs downstream from the timber harvest areas greatly limits the utility of increased water production for the City of Bozeman. About 80 percent of the increased water yield would occur in the April to June period. Any increased yield during this time may increase the chances of flooding. About 5 percent of the increase would occur during the summer months when demands are the greatest.

c. RPA Targets

Table V-15. Water Quality RPA Targets

Unit of Measure	1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Thousand Acre-Feet	1919	1961	2003	2045	2045	2046	2048	2048	2048

d. Demand

At present, water use on or near the Gallatin does not exceed 90 percent of supply even in a dry year. Demand, however, is enough to reduce the flow of some rivers during the irrigating season.

The Yellowstone water resource subregion has been identified as one of two subregions in the Northern Region expected to have a water supply problem by the end of this century. This is of concern because the headwaters of some rivers crossing the Yellowstone subregion lie on the Gallatin National Forest.

11. Minerals

a. Management Situation

In general, National Forest lands are open to development for recovery of valuable mineral resources. Metaliferous and some nonmetaliferous minerals are open to appropriation under the U.S. Mining Laws Act of May 10, 1872. Oil and gas, phosphate, coal and other nonmetaliferous minerals are available for development under the Minerals Leasing Act of 1920. Mineral development has long been recognized as a legitimate use of the National Forest lands. However,

the mineral potential of much of the Gallatin National Forest is not well understood because resources were not provided to timely complete mineral resource surveys for input to the planning process.

While National Forest lands are available for mineral development, various restrictions and mitigation measures may be necessary to protect other resource values while permitting exploration and recovery of the mineral resource.

Estimates of demonstrated and inferred mineral potential have been made by Gallatin Forest geologists. This estimate indicates that 107,400 acres of the Forest may have a moderate to high potential for discovery of commercial deposits of metaliferous minerals. Some 700,000 acres of the Forest is inferred to have a moderate to high potential for discovery of commercial quantities of oil and gas.

Leasing for oil and gas is discretionary and based on environmental analysis considering effects to all resources. Leasing is withheld or mitigating stipulations may be applied where necessary to safeguard other important resource values while permitting recovery of the minerals. To date no commercial quantities of oil and gas have been discovered but interest remains high due to success in other parts of the Overthrust Belt.

There are seven areas on the Forest that have active or recently active mining or quarrying operations. These areas would be managed under all alternatives as minerals operation areas. The goal of this management is the orderly exploration and development of mineral resources while mitigating effects on renewable resources. Active mining areas are shown on the Management Area Map of the Forest Plan.

Table V-16. Active Mineral Operations

<u>Property Name</u>	<u>Operator</u>	<u>Location</u>	<u>Commodity</u>
Jardine	Homestake Mining Company - American Copper and Nickel Co.	Jardine	Gold
Gardiner Travertine	Livingston Marble and Granite	Gardiner	Travertine
Stillwater Complex	Stillwater PGM Resources	South of Big Timber	Platinum, Paladium
Christmas Tree Mine	Morgan	North Bridgers	Lead
Daisy, Lulu Pass	Plexus Resources	Cooke City	Gold
Emigrant	Multiple	Emigrant Creek	Gold
Arrastra	Multiple	Arrastra/Mill Creek	Gold

Other areas of the Forest have potential for mineral discovery but the presence of valuable deposits has not been demonstrated. These areas will be managed in accordance with the surface resource goals of each management area.

Two areas of the Forest--one near West Yellowstone and one near Gardiner--have been rated as "known geothermal resource areas" (KGRAs), meaning that they are likely to possess commercial geothermal steam reserves. However, there is concern that geothermal developments could adversely affect the geothermal features of Yellowstone National Park.

b. Need/Opportunity for Change

Management expects that the Gallatin National Forest will experience increased exploration and development of hard rock and oil and gas resources.

c. Supply Potential

The development of minerals is dependent on the demand for and discovery of the resource. By the nature of minerals resources, it is difficult to forecast the scope of mineral development in the future. However, based on current activities and increasing knowledge of the mineral resource, exploration and development of all mineral resources is expected to increase.

d. RPA Targets

Mineral leases and permits on the Forest, measured in numbers of cases, are targeted as follows:

Table V-17. Minerals RPA Targets

1982	1983	1984	1985	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021 2030
320	380	450	500	520	530	620	690	700

The current number of cases is about 120. One case filed by a national or international corporation may be more involved than several hundred prospector plans of operation. The number of cases in the RPA assignments suggests that mineral activity could double over the next 50 years.

e. Demand

Oil and gas is not being produced on the Forest and hardrock mining is not currently of national significance. However, current exploratory and pilot efforts could pay off in significant production in the future.

12. Lands

a. Management Situation

The category of Lands includes special uses, rights-of-way, withdrawals, land adjustments, and ownership planning. These are major activities due to the 416,000 acres of private land within the National Forest boundary (19.3 percent)

There are about 762 special use permits authorizing use of about 27,282 acres of Forest land and 273 miles of right-of-way. An additional 209 miles of road are managed in a cost-sharing agreement with Burlington Northern Railroad Company.

Because of the complex ownership situation and poor or no access to some areas, there is an ongoing effort to provide better access to private and public lands on many parts of the Forest. The Gallatin has secured about two new public accesses each year for the last five years. Depending on the particular need, either road or trail rights-of-way are obtained. In addition, access has been granted for owners to reach their private lands.

Purchases, exchanges, and donations of land are an ongoing practice in order to fulfill land adjustment needs of the Forest. In the last 10 years, about 9,000 acres of private land have been purchased or donated. Exchanges have resulted in beneficial consolidations.

b. Need/Opportunity for Change

The Forest needs to acquire and develop more access to the National Forest to improve management of resources and increase opportunity for recreational uses. Access across private land is often resisted by landowners and, in some cases, might adversely affect landowners.

Specific land acquisition and exchange will be analyzed through the environmental analysis process on a case-by-case basis. This process will be used when cases arise which are outside of the scope of day-to-day policy and are advantageous to the Government, facilitate management, requested by the landowners, or necessary to protect significant features.

c. Demand

With increasing numbers of people moving to areas in and near the Forest, demands on the Lands function will increase substantially. Demand for access is particularly acute and will get worse as access to traditionally used areas is cut off due to increased restrictions on private lands. The workload is expected to double within 10 to 15 years.

13. Facilities

a. Management Situation

Facility activities provide and maintain capital improvements such as buildings, roads, and bridges. Road construction and reconstruction are the major activities discussed here.

The Forest currently has 807 miles of Forest development roads on its inventoried system. Approximately 250 miles are maintained annually by the Forest Service. An additional 10 to 15 miles are maintained under cost-share agreement by Burlington Northern Railroad Company. Another 250 miles are intermittent use roads and are generally closed. The remaining mileage is generally maintained at a primitive standard and experiences very low traffic volumes. All of the system roads are additionally maintained by timber purchasers, miners, and other permittees when used for ongoing commercial operations.

There are an estimated 1,000 miles of uninventoried roads within the Forest boundary. These vary from wheel tracks to old jammer roads. They are of limited value to most Forest Service activities, although some are very important to intermingled private owners and off-road vehicle users.

The Forest is currently constructing and reconstructing 5 to 10 miles of major access roads each year. An additional 15 to 20 miles of single use roads are constructed each year in connection with the timber sale program.

The Gallatin has 1,853 miles of inventoried trails. Of this total, 614 miles are in Wilderness and 1,239 miles are in nonwilderness areas. Approximately 28 percent of this total (523 miles) has been identified as needing repair or relocation. Most trails needing repair are located outside existing Wildernesses. The remaining 1,330 miles of trail are in adequate condition. An average of 2 miles of trail per year are constructed or reconstructed under the current program.

b. Need/Opportunity for Change

The construction and maintenance of Forest roads improves opportunities for timber management and firewood gathering.

Roading on the Forest reduces opportunities for primitive recreation. However, most of the existing roadless area will remain roadless.

Access to portions of the Forest without adequate public access will be obtained through the acquisition and construction of connection roads from the Forest boundary to public roads and highways.

Elk security cover is directly affected by the amount of open roads. Reduced effectiveness of grizzly bear habitat may result from increased human/grizzly bear contact along open roads. Road use restrictions, however, can mitigate these impacts.

c. Supply Potential

If current management direction is extended through the next decade, road construction is estimated to average about 20 miles per year. A timber maximization program, subject to current legal constraints for environmental protection, would require the construction of about 49 miles of road per year.

Trail construction could range from 0 to 25 miles of trail built per year, depending on the level of investment in dispersed recreation.

d. Demand

Roads are needed primarily to access timber harvest areas and to get people to the National Forest. Thus, the demand will increase as the demand for timber and recreation access increases.

More trails will be required as the need to disperse people from crowded areas into areas of little use becomes more intense. The need for trails will be high because more than half the Gallatin will continue to be unroaded.

The proposed Continental Divide Trail, if approved and funded by Congress, will be constructed along approximately 35 miles of the boundary between the Gallatin and Targhee National Forests.

14. Fire

a. Management Situation

Fire has played an integral role in shaping and perpetuating forest and range ecosystems on the Gallatin National Forest. Historically, fire has maintained species and age diversity of forests, created habitat for many species of wildlife, played a major role in cleaning up generations of forest residues produced by tree mortality, maintained genetic traits that allow vegetative species to respond favorably to fire, and contributed to the accelerated breakdown of rock in the soil forming process.

Table V-18 illustrates an analysis of modern fire occurrence for the period 1970-1979. The analysis shows the ratio of person-caused to lightning-caused fires to be about 50:50. Another interesting factor is that 96 percent of all fires in the past ten years have burned less than 10 acres. However, vegetative conditions during this period represent the more fire resistant growth stages. Only now, with the mountain pine beetle, are fuel conditions again becoming ripe for increased fire sizes.

The impact of past fire protection is most pronounced in the build-up of forest fuels. Fire protection has allowed forest stands to become more even-aged and susceptible to natural disease and insect epidemics. The subsequent epidemics allow fuels to build up and create conditions where fire control is more difficult.

Table V-18. Fire Occurrence Between 1970-1979 on the Gallatin National Forest

Size Class	Person-Caused	Lightning Caused	Total Caused	Average Per Year
0 - .25 acre	167 (56.6%)	128 (43.3%)	295 (86.5%)	29.5
.26 - 9.9 acres	16 (50%)	16 (50%)	32 (9.4%)	3.2
10 - 99 acres	10 (90.9%)	1 (9.1%)	11 (3.2%)	1.1
100 - 299 acres	1 (50%)	1 (50%)	2 (0.5%)	0.2
300 - 999 acres	1 (100%)	0 (0%)	1 (0.5%)	0.1
TOTALS	195 (57.2%)	146 (42.8%)	341	34.1/year
<u>Cover Type</u>				
Douglas-fir	42 (38.5%)	67 (61.5%)	109 (31.9%)	
Lodgepole pine	107 (73.7%)	38 (26.2%)	145 (42.5%)	
Spruce	19 (67.8%)	9 (32.2%)	28 (8.2%)	
Subalpine	7 (24.1%)	22 (75.9%)	29 (8.5%)	
Grass/brush	20 (66.6%)	10 (33.3%)	30 (8.9%)	
TOTAL	195	146	341	
<u>Cost Class</u>				
\$0-100	135 (79.8%)	34 (20.2%)	169 (49.5%)	
\$101-500	31 (33.3%)	62 (66.6%)	93 (27.3%)	
\$501-1500	9 (19.6%)	37 (80.4%)	46 (13.5%)	
\$1501-5000	9 (52.9%)	8 (47.1%)	17 (5%)	
\$5001-25000	5 (62.5%)	3 (37.5%)	8 (2.3%)	
\$25000+	6 (75%)	2 (25%)	8 (2.3%)	
TOTAL	195	146	341	

Greater resistance to fire control and severe fire behavior are most likely to occur at fuel loadings greater than 8 tons per acre. At this point, the mixture of fuels and a climax understory create fire conditions that are almost impossible to control using handtools during severe burning conditions.

Activities in the Forest have had some effect on fuels and fire management, primarily through fuel reduction by prescribed burning, grazing, and timber harvest. Of course, many of these activities have also contributed to the fire incidence by carelessness, escaped fires, and increased use.

Prescribed fire has been used extensively on the Gallatin National Forest the past few years. In 1981 the Forest used prescribe fire on over 3,000 acres for timber site preparation, vegetative type conversion for range, wildlife habitat improvement, and fuels reduction. The cover types that prescribed fire were used on include foothill Douglas-fir, sagebrush, willow, aspen, general forest, and grassland.

b. Need/Opportunity for Change

The Absaroka-Beartooth Wilderness has had a prescribed fire plan implemented since 1982. This plan allows some lightning caused fires to burn under predetermined criteria of location, weather, fire danger, elevation, season, and fuels. The objective is to allow fire to play a more natural role in wilderness areas for the preservation and enhancement of the wilderness resource.

15. The Greater Yellowstone Area

a. Management Situation

The Gallatin Forest is one of seven National Forests and two National Parks that comprise the Greater Yellowstone Area. The Yellowstone Area is rich in natural, cultural, and recreational resources. Geothermal and geological attractions within the National Parks and Forests are internationally recognized. Wildlife resources, including big game (such as elk) and threatened and endangered species (such as the grizzly bear) are considered especially important. Outdoor recreation opportunities are high in quality and spectacular scenery is a major attraction. Over four million acres within the area has been designated Wilderness. In addition, large amounts of productive forest and range lands provide the opportunity for forest products and livestock forage production. Oil and gas exploration is occurring on some public lands in the area and reserves of these important resources may be substantial.

Land ownership within the Yellowstone Area is largely Federal and the need for close interagency cooperation is clear. Local economies are heavily dependent on uses and resources from the Federal lands. Local residents use Federal lands, as well as State lands, for outdoor recreation. The livestock industry utilizes forage from National Forests to support viable year-around operations. Local lumber mills are dependent upon National Forests as a source of timber. Commercial outfitters and guides use federally managed land and water for a large portion of their operations.

b. Need/Opportunity for Change

The value and importance of non-commodity and commodity resources in this area is high. A long history of public attention being focused on the area adds to the complexity of its management. Because of the differing management missions between National Parks and National Forests, some of the resources and activities are complementary and some are conflicting. Conflicting activities are being singled out at times by some groups as harmful to other values. Increased understanding of the issues and the resource itself is needed.

Extensive coordination efforts have been and are underway in conjunction with the development of Forest Plans for the seven National Forests in the Yellowstone Area. This involves frequent and ongoing contacts with the National Park Service, U.S. Fish and Wildlife Service, Bureau of Land Management, State agencies such as the Fish and Game Departments, and a wide range of interested organizations and private citizens. These processes will continue and will be strengthened to assure coordinated management for the Yellowstone Area.

CHAPTER VI: GLOSSARY

A

ACCESS	See Public Access.
ACRE-EQUIVALENT	A unit of habitat output related to fish or wildlife habitat improvement projects. Acre equivalents are based on the number of acres of habitat that are influenced by one habitat acre actually modified by the habitat improvement project.
ACRE-FOOT	A measure of water or sediment volume equal to the amount which would cover an area of 1 acre to a depth of 1 foot (325,851 gallons or 43,560 cubic feet).
ACTIVITY	A measure, course of action, or treatment that is undertaken to directly or indirectly produce, enhance, or maintain forest and range land outputs or achieve administrative or environmental quality objectives.
ACTIVITY FUELS	Debris generated by a Forest activity such as firewood gathering, precommercial thinning, timber harvesting, and road construction.
ACTIVITY TYPE	The further description of the actions, measures, or treatments within an activity.
ADFLUVIAL	Freshwater fish that migrate from freshwater lakes to freshwater streams to spawn.
ADMINISTRATIVE FACILITIES	Those facilities, such as Ranger Stations, work centers and cabins, which are used by the Forest Service in the management of the National Forest.
AIRSHED	Basic geographic units in which air quality is managed.
AFFECTED ENVIRONMENT	The biological and physical environment that will or may be changed by actions proposed and the relationship of people to that environment.
ALLOTMENT	See Range Allotment.
ALLOWABLE SALE QUANTITY	The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan for a time period specified by the plan. This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity".

ALTERNATIVE	A combination of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis as expressed in goals and objectives. One of several policies, plans, or projects proposed for decisionmaking. An alternative need not substitute for another in all respects.
ALTERNATIVE, NO ACTION	An alternative that maintains established trends or management direction.
AMENITY VALUES	Resource use for which market values (or proxy values) are not or cannot be established.
ANADROMOUS FISH	Fish which spend much of their adult life in the ocean, returning to inland waters to spawn; e.g., salmon, steelhead.
ANALYSIS AREA	One or more capability areas combined for the purpose of analysis in formulating alternatives and estimating various impacts and effects.
ANALYSIS OF THE MANAGEMENT SITUATION	A determination of the ability of the planning area to supply goods and services in response to society's demand for those goods and services.
ANALYSIS PERIOD, LONG TERM	A time horizon of expenditures in an analysis that is two or more 5-Year RPA planning periods in duration. RPA, program, Regional Guide, and Forest plan analyses have long-term periods.
ANALYSIS PERIOD, SHORT TERM	A time horizon of expenditures in an analysis that is only several years in duration. A budget analysis is short-term.
ANIMAL UNIT MONTH (AUM)	The quantity of forage required by the equivalent of a 1000 lb. mature cow for one month.
ANNUAL FOREST PROGRAM	The summary or aggregation of all projects for a given year that, for a given level of funding, make up an integrated (multi-functional) course of action on a Forest planning area.
AQUATIC ECOSYSTEM	A stream channel, lake or estuary bed, the water itself, and the biotic communities that occur therein.
ARTERIAL ROADS	Roads comprising the basic access network for National Forest System administrative and management activities. These roads serve all resources to a substantial extent, and maintenance is not normally determined by the activities of any one resource. They provide service to large land areas and usually connect with public highways or other Forest arterial roads to form an integrated network of primary travel routes. The location and standards are often determined by a demand for maximum mobility and travel efficiency rather than by a specific resource management service. Usually they are developed and operated fo

long term land and resource management purposes and constant service.

ASSESSMENT	The Renewable Resource Assessment required by the Resource Planning Act.
ASSET, CAPITAL	A natural resource, manmade structure, facility, or improvement in natural resources used as an input in production processes.
ASSET, RESIDUAL	The remaining value of a capital asset at the end of the time horizon of the planning or analytical process.
AVAILABLE FOREST LAND	Land that has not been legislatively or administratively withdrawn from timber production by the Secretary of Agriculture or Forest Service Chief.
AUM	See Animal Unit Month.
AVERAGE ANNUAL CUT	The volume of timber harvested in a decade, divided by 10.

B

BASE SALE SCHEDULE	A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade and this planned sale and harvest is not greater than the long-term sustained yield capacity.
BENCHMARK	Reference points that define the bounds within which feasible management alternatives can be developed. Benchmarks may be defined by resource output or economic measures.
BENEFIT-COST RATIO	Measure of economic efficiency, computed by dividing total discounted primary benefits by total discounted economic costs.
BENEFIT, DIRECT	A primary benefit that fulfills specified objectives of the policy, program, or project.
BENEFIT, INDUCED	A primary benefit from an output that is incidental to the objectives of the policy, program, or project.
BENEFIT, PRIMARY	A benefit accruing to resource owners from a primary output, which may be direct or induced, or a residual asset. Primary benefits are components of net public benefits.
BENEFIT, SECONDARY	A benefit accruing to parties other than the resource owners, including effects on local, Regional, and national economies and on consumers of outputs. Secondary benefits are not necessarily included in net public benefits.

BENEFIT (VALUE) Inclusive terms to quantify the results of a proposed activity, project or program expressed in monetary or nonmonetary terms.

BEST MANAGEMENT PRACTICES (BMPs) The set of practices in the Forest Plan which, when applied during implementation of a project, ensures that water related beneficial uses are protected and that State water quality standards are met. BMP's can take several forms. Some are defined by State regulation or memoranda of understanding between the Forest Service and the States. Others are defined by the Forest interdisciplinary planning team for application Forest-wide. Both of these kinds of BMP's are included in the Forest Plan as Forest-wide Standards. A third kind are identified by the interdisciplinary team for application to specific management areas; these are included as Management Area Standards in the appropriate management areas. A fourth kind, project level BMP's, are based on site specific evaluation and represent the most effective and practicable means of accomplishing the water quality and other goals of the specific area involved in the project. These project level BMP's can either supplement or replace the Forest Plan standards for specific projects.

BIG GAME Those species of large mammals normally managed as a sport hunting resource.

BIG GAME SUMMER RANGE Land used by big game during the summer months.

BIG GAME WINTER RANGE The area available to and used by big game through the winter season.

BIOLOGICAL POTENTIAL The maximum possible output of a given resource limited only by its inherent physical and biological characteristics.

BIOLOGICAL GROWTH POTENTIAL The average net growth attainable in a fully stocked natural forest stand.

BOARD FOOT A unit of measurement represented by a board one foot square and one inch thick.

BROADCAST BURN Allowing a controlled fire to burn over a designated area within well-defined boundaries, for reduction of fuel hazard, as a silvicultural treatment, or both.

BOARD FOOT/ CUBIC FOOT CONVERSION -- The mathematical ratio of the board feet contained in one cubic foot of timber. This ratio varies with tree species, diameter, height, and form factors.

BROWSE Twigs, leaves, and young shoots of trees and shrubs on which animals feed; in particular, those shrubs which are utilized by big game animals for food.

C

CANOPY	The more or less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth.
CAPABILITY	The potential of an area of land and or water to produce resources, supply goods and services, and allow resource uses under a specified set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silviculture or protection from fires, insects, and disease.
CAPABILITY AREA	A geographic delineation used to describe characteristics of the land and resources in integrated Forest planning. Capability areas may be synonymous with ecological land units, ecosystems or land response units.
CAPITAL INVESTMENT	Investment in facilities such as roads and structures with specially-appropriated funds.
CARRYING CAPACITY	1 (Recreation): the amount of recreation use an area can sustain without deterioration of site quality; 2 (Wildlife): the maximum number of animals an area can support during a given period of the year; 3 (Range): the maximum stocking rate possible without damaging the vegetation or related resources. Carrying capacity may vary from year to year on the same area due to fluctuating forage production.
CAVITY	A hollow in a tree that is used by birds or mammals for roosting and reproduction.
CEQ	See Council of Environmental Quality.
CFR	Code of Federal Regulations.
CHARGEABLE VOLUME	Chargeable volume is all volume that is included in the growth and yield projections for the selected management prescriptions used to arrive at the "allowable sale quantity," based on Regional utilization standards.
CLEARCUTTING	Harvesting of all trees in one cut. It prepares the area for a new, even-aged stand. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as separate age class in planning. Regeneration is obtained through natural seeding, or through planting or direct seeding.
CLIMAX PLANT COMMUNITY	The final or stable biotic community in a developmental series.

CLOSURE The administrative order that does not allow specified uses in designated areas or on Forest development roads or trails.

CMAI See Culmination of Mean Annual Increment.

COEFFICIENT (COST, VALUE, YIELD) The numeric units used to include costs, values, and outputs in the analysis model used in the formulation of the Forest Plan.

COLLECTOR ROADS Roads constructed to serve two or more elements but which do not fit into the other two road categories (arterial or local). Construction costs of these facilities are prorated to the respective element served. These roads serve smaller land areas and are usually connected to a Forest arterial or public highway. They collect traffic from local Forest roads or terminal facilities. The location and standard are influenced by both long term multi-resource service needs and travel efficiency. Forest collector roads are operated for constant or intermittent service, depending on land use and resource management objectives for the area served by the facility.

COMMERICAL FOREST LAND (SUITABLE TIMBER LAND) Land that is producing, or is capable of producing, crops of industrial wood and (1) has not been withdrawn by Congress, the Secretary of Agriculture or the Chief of the Forest Service; where existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity or watershed conditions; and (3) where existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be obtained within years after final harvesting.

COMMERCIAL TIMBER SALES The selling of timber from National Forest lands for the economic gain of the party removing and marketing the trees.

COMMODITIES Resources with commercial value; all resource products which are articles of commerce, such as timber, range forage and minerals.

COMMON MATERIALS See Minerals, Common Variety

COMMUNITY COHESION The degree of unity and cooperation within a community in working toward shared goals and solutions to problems.

COMMUNITY STABILITY The capacity of a community to absorb and cope with change without major hardship to institutions or groups within the community.

CONCERN See Management Concern.

CONDITION CLASS A descriptive category of the existing tree vegetation as it relates to size, stocking and age.

CONGRESSIONALLY DESIGNATED AREAS Areas established by Congressional legislation, such as National Wildernesses, National Wild and Scenic Rivers, and National Recreation Areas.

CONSTRAINT A confinement or restriction on the range of permissible choices.

CONSUMPTIVE USES Uses of a resource that reduce the supply. Examples of some consumptive uses of water are irrigation, domestic and industrial water use, grazing, and timber harvest.

CONTINENTAL DIVIDE The drainage divide between waters flowing to the Atlantic Ocean and the Pacific Ocean.

CORD A unit of gross volume measurement for stacked roundwood based on external dimensions, generally implies a stack of four feet by four feet vertical cross section and eight feet long, contains 128 stacked cubic feet.

CORDUROY A method of subgrade reinforcement often used on trails and for some roads whereby logs are placed perpendicular to the traveled way to support a surfacing material.

CORRIDOR (UTILITY CORRIDOR) A linear strip of land which has ecological, technical, economic, social, or similar advantages over other areas for the present or future location of transportation or utility routes.

COST The negative or adverse effects or expenditures resulting from an action. Costs may be monetary, social, physical or environmental in nature.

COST EFFICIENCY The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs, including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specific levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates of return may be appropriate.

COST-SHARE Refers to the process of cooperating in the joint development of a road system. The document executed through this process, called "Road Right-of-Way Construction and Use Agreement," specifies the terms of developing the transportation system for a specified land area.

COUNCIL ON ENVIRONMENTAL QUALITY -- An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

COVER/FORAGE RATIO The ratio of tree cover (usually conifer types) to foraging areas (natural openings, clearcuts, etc.)

CRITICAL HABITAT Specific areas within the geographical area occupied by the species on which are found those physical and biological features (1) essential to the conservation of the species and (2) which may require special management considerations or protection. Critical habitat shall not include the entire geographic area which can be occupied by the threatened and endangered species.

CUBIC FOOT The amount of wood volume equivalent to a cube 1 foot by 1 foot by 1 foot.

CULMINATION OF MEAN ANNUAL INCREMENT (CMAI) The point at which the volume increment for a tree or stand of trees has achieved it's highest mean value. Mean annual increment is based on expected growth according to the management intensities and utilization standards assumed in the Forest Plan. The CMAI is calculated by dividing the attained growth (volume) by it's corresponding age.

CULTURAL RESOURCES The physical remains of human activity (artifacts, ruins, burial mounds, petroglyphs, etc.) and conceptual content or context (as a setting for legendary, historic, or prehistoric events, as a sacred area of native peoples, etc.) of an area of prehistoric or historic occupation.

CUTTING CYCLE For a crop or stand, the planned interval of time between the beginning of one cutting period and the beginning of the succeeding cutting period.

D

DEMAND The amount of output that users are willing to take at a specific price, time period, and conditions of sale.

DEMAND ANALYSIS A study of the factors affecting the schedule of demand for a good or service, including the price-quantity relationship, if applicable.

DEPARTURE A schedule which deviates from the principle of nondeclining flow by exhibiting a planned decrease in the timber sale and harvest schedule at any time in the future.

DEPENDENT COMMUNITIES -- Communities whose social, economic, or political life would become discernably different in important respects if market or non-market outputs from the National Forests were cut off.

DEVELOPED RECREATION	Recreation that occurs where improvements enhance recreation opportunities and accommodate intensive recreation activities in a defined area.
DEVELOPED RECREATION SITES	Relatively small, distinctly defined area where facilities are provided for concentrated public use, i.e., campgrounds, picnic areas and swimming areas.
DIAMETER BREAST HEIGHT (DBH)	The diameter of a tree measured 4 1/2 feet above the ground.
DISCOUNT RATE	An interest rate that reflects the cost or time value of money. It is used in discounting future costs and benefits.
DISCOUNTING	An economic adjustment for the time value of money; mathematical reduction of costs and/or benefits which occur in the future to the present time for purposes of comparison.
DISPERSED RECREATION	That portion of outdoor recreation use which occurs outside of developed sites in the unroaded and roaded Forest environment i.e., hunting, backpacking and berry picking.
DISTRICT RANGER	The official responsible for administering the National Forest System Lands on a Ranger District.
DIVERSITY	The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan.

E

ECONOMICS	The study of how limited resources, goods, and services are allocated among competing uses.
ECOSYSTEM	A complete, interacting system of organisms considered together with their environment (for example; a marsh, a watershed, or a lake.)
ECOTONE	A transition or junction zone between two or more diverse communities (ecosystems).
EDAPHIC	The influence of soils on living organisms, particularly plants, including man's use of the land for plant growth.
EFFECTS	Physical, biological, social and economic results (expected or experienced) resulting from achievement of outputs. Effects can be direct, indirect and cumulative.
EFFICIENCY, ECONOMIC	The usefulness of inputs (costs) to produce outputs (benefits) and effects when all costs and benefits that can be

identified and valued are included in the computations. Economic efficiency is usually measured using present net value, though use of benefit-cost ratios and rates-of-return may sometimes be appropriate.

ELK HIDING COVER	Vegetation, primarily trees, capable of hiding 90 percent of an elk seen from a distance of 200 feet or less.
ELK SECURITY COVER (EFFECTIVE ELK SECURITY COVER)	Elk hiding cover modified by open roads. The greater the density of open roads within an area, the less effective is the hiding cover in providing security for elk.
ENDANGERED SPECIES	Any species, plant or animal, which is in danger of extinction throughout all or a significant portion of its' range. Endangered species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act.
ENDING INVENTORY CONSTRAINT (EIC)	Constraint to ensure that the total timber volume left at the end of the planning horizon will equal or exceed the volume that would occur in a managed Forest.
ENVIRONMENTAL ANALYSIS	An analysis of alternative actions and their predictable short and long-term environmental effects which include physical, biological, economic, social, and environmental design factors and their interactions.
ENVIRONMENTAL ASSESSMENT	A concise public document for which a Federal agency is responsible that serves to: (1) Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact. (2) Aid an agency's compliance with the National Environmental Policy Act when no environmental impact statement is necessary. (3) Facilitate preparation of an environmental impact statement when one is necessary.
ENVIRONMENTAL IMPACT STATEMENT, DRAFT (DEIS)	A detailed written statement as required by Sec. 102(2)(C) of the National Environmental Policy Act.
ENVIRONMENTAL IMPACT STATEMENT FINAL (FEIS)	The final version of the public document required by NEPA. (see above)
EPHEMERAL STREAMS	Streams that flow only as a direct response to rainfall or snowmelt events. They have no baseflow.

EROSION	The group of processes whereby earthy or rocky material is worn away by natural sources such as wind, water or ice and removed from any part of the earth's surface.
ESCAPEMENT	The number of adult anadromous fish escaping past commercial and recreational harvest fisheries and other sources of mortality, to upstream spawning areas.
EVEN-AGED MANAGEMENT	The application of a combination of actions that result in the creation of stands in which trees of essentially the same age grow together. Managed even-aged Forests are characterized by a distribution of the stands of varying ages (and, therefore, tree sizes) throughout the Forest area. The difference in ages between trees forming the main canopy level of the stand does not usually exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Cutting methods include clearcutting, shelterwood cutting, and seed tree cutting.
EXTRACTIVE USE	Use of natural resources that removes them from their natural setting.

F

FAMILY UNIT	A camp or picnic spot with table, fireplace, tent pad, and parking spot.
FEE SITE	A Forest Service recreation area in which users must pay a fee. Fee sites must meet certain standards and provide certain facilities as specified in the Forest Service Manual.
FINAL CUT	Removal of the last seed bearers or shelter trees after regeneration is considered to be established under a shelterwood system.
FLOOD PLAIN	The lowland and relatively flat area adjoining inland waters, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.
FORAGE	All browse and nonwoody plants available to livestock or wildlife for feed.
FORB	Any herbaceous plant other than true grasses, sedges or rushes.

FOREST AND
RANGELAND
RENEWABLE
RESOURCES
PLANNING
ACT OF 1974

An act of Congress which requires the assessment of the Nation's renewable resources and the periodic development of a national renewable resources program. It also requires the development, maintenance and, as appropriate, revision of land and resource management plans for units of the National Forest System (e.g. National Forest).

FOREST LAND

Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest use. Lands developed for non-forest use include areas for crops, improved pasture, residential, or administrative areas, improved constructed roads of any width, and adjoining road clearing and powerline clearing of any width.

The term "occupied" when used to define forest land, will be measured by canopy cover of live forest trees at maturity. The minimum area for classification of forest land will be 1 acre or greater. Unimproved roads, trails, stream and clearings in forest areas are classified as forest if they are less than 120 feet in width.

FOREST LOCAL
ROADS

Roads constructed and maintained for, and frequented by, the activities of a given resource element. Some uses may be made by other element activities, but normally maintenance is not affected by such use. These roads connect terminal facilities with Forest collector or Forest arterial roads or public highways. The location and standard, usually are determined by the requirement of a specific resource activity rather than by travel efficiency. Forest local roads may be developed and operated for constant or intermittent service, depending on land use and resource management objectives for the area served by the facility.

FOREST
SUPERVISOR

The official responsible for administering the National Forest System lands in a Forest Service Administrative unit, which may consist of one or more National Forests or all the Forests within a State.

FOREST SYSTEM
ROAD

A road wholly or partly within or adjacent to and serving the National Forest System and which is necessary for the protection, administration and utilization of the National Forest System and the use and developments of its resources.

FORPLAN

A linear programming system used for developing and analyzing Forest planning alternatives.

FOREST-WIDE
MANAGEMENT
GUIDELINES --

An indication or outline of policy or conduct dealing with the basic management of the Forest. Forest-wide management guidelines apply to all areas of the Forest regardless of the other management prescriptions applied.

FSH

Forest Service Handbook.

FSM Forest Service Manual.

FUEL BREAK A zone in which fuel quantity has been reduced or altered to provide a position for suppression forces to make a stand against wildfire. Fuel breaks are designated or constructed before the outbreak of a fire. Fuel breaks may consist of one or a combination of the following: Natural barriers, constructed fuelbreaks, manmade barriers.

FUELS Include both living plants; dead, woody vegetative materials; and other vegetative materials which are capable of burning.

FUELS MANAGMENT Manipulation or reduction of fuels to meet Forest protection and management objectives while preserving and enhancing environmental quality.

FUELS TREATMENT The rearrangement or disposal of natural or activity fuels.

FULL-SERVICE MANAGMENT The administration, operation and maintenance of developed recreation sites to established standards with the objective to provide a pleasant recreation experience for the visitor and exceed the minimum health and safety needs of the visitors.

G

GAME SPECIES Any species of wildlife or fish for which seasons and bag limits have been prescribed, and which are normally harvested by hunters, trappers, and fisherman under State or Federal laws, codes, and regulations.

GOAL A concise statement that describes a desired condition to be achieved. It is normally expressed in broad, general terms and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed.

GOODS AND SERVICES The various outputs, including onsite uses, produced by forest and rangeland renewable resources.

GRAZING ALLOTMENT See Range Allotment.

GROUP SELECTION CUTTING A cutting method to develop and maintain uneven-aged stands by the removal of small groups of trees to meet a predetermined goal of size distribution and species composition in remaining stands.

GROWING STOCK LEVEL A relative stand density measure used to guide a management objective such as maximizing timber volume yields or optimizing big game thermal cover.

GUIDELINE

See Standard and Guideline.

H

HABITAT EFFECTIVENESS	The measure of how open roads prevent full utilization of habitat by elk. As road densities increase, habitat effectiveness declines.
HABITAT TYPE	An aggregation of all land areas potentially capable of producing similar plant communities at climax.
HABITAT TYPE GROUP	A logical grouping of habitat types to facilitate resource planning and public presentations.
HIDING COVER	Trees of sufficient size and density to conceal animals from view at 300 feet.

I

IMPACT ANALYSIS AREA	The delineated area subject to significant economic and social impacts from Forest Service activities included in an economic or social impact analysis.
IMPROVEMENT CUTTING	Removing trees of undesirable species, form, or condition from the main canopy in stands past the sapling stage to improve the composition and quality.
INDICATOR SPECIES	Species identified in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish including those that are socially or economically important.
INDIRECT EFFECTS	Secondary effects which occur in locations other than the initial action or significantly later in time.
INDIVIDUAL TREE SELECTION HARVEST	A cutting method to develop and maintain uneven-age stands by the removal of selected trees from specified age classes over the entire stand area in order to meet a predetermined goal of age distribution and species in the remaining stand.
INDUSTRIAL WOOD	All commercial roundwood products except fuelwood.
INSTREAM FLOWS	The minimum water volume (cubic feet per second) in each stream necessary to meet seasonal streamflow requirements for maintaining aquatic ecosystems, visual quality, recreational opportunities and other uses.

IN-MIGRATION The movement of human population into an area.

INTEGRATED PEST MANAGEMENT A process for selecting strategies to regulate forest pests in which all aspects of a pest-host system are studied and weighed. The information considered in selecting appropriate strategy includes the impact of the unregulated pest population on various resource values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative strategies.

Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides. A basic principle in the choice of strategy is that it be ecologically compatible or acceptable.

INTENSIVE GRAZING Grazing management that controls distribution of cattle and duration of use on the range, usually by fences, so parts of the range are rested during the growing season.

INTER-DISCIPLINARY TEAM (ID TEAM) A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem. Through interaction, participants bring different points of view to bear on the problem.

INTERMEDIATE HARVEST Any removal of trees from a stand between the time of its formation and the regeneration cut. Most commonly applied intermediate cuttings are release, thinning, improvement, and salvage.

INTERMITTENT STREAM A stream which flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow.

INTERPRETATIVE SERVICES Visitor information services designed to inform and educate Forest visitors improving their understanding, appreciation and enjoyment of National Forest resources.

INVENTORY DATA Recorded measurements, facts, evidence, or observations on Forest resources such as soil, water, timber, wildlife, range, geology, minerals, and recreation which was used to determine the capability and opportunity of the Forest to be managed for those resources.

ISSUE See Public Issue.

K

"KEY REACHES"
OF WATERSHED
SYSTEM A representative stream segment that can be expected to be sensitive to water resource changes and which adequately reflects the effects of management of the stream channel, the water, and their beneficial uses.

KEY SUMMER
RANGE An area that is potentially capable of supporting big game during the summer use period.

KEY WINTER
RANGE The portion of the yearlong range where big game find food and/or cover during severe winter weather.

L

LAND EXCHANGE The conveyance of non-Federal Land or interests to the United States in exchange for National Forest System land or interests in land.

LANDLINE
LOCATION The legal identification, accurate location, and description of property boundaries.

LANDTYPE An inventory map unit with relatively uniform potential for a defined set of land uses. Properties of soils, landform, natural vegetation and bedrock are commonly components of landtype delineation used to evaluate potentials and limitations for land use.

LANDTYPE
GROUP A logical grouping of landtypes that facilitate resource planning.

LEASABLE
MINERALS See Minerals, Leasable.

LEVEL I FIRE
ANALYSIS General fire management analysis to provide historical information that assists the interdisciplinary team in the analysis of the management situation and formulation of alternatives for the Forest Plan.

LEVEL II FIRE
ANALYSIS An analytical process which guides the implementation of fire management activities of the Forest Plan.

LINEAR
PROGRAMMING A mathematical method used to determine the optimal distribution of limited resources between competing demands when both the objective (e.g., profit or cost) and the restrictions on its attainment are expressible as a system of linear equalities or inequalities (e.g., $y=a+bx$).

LIMITED
SURFACE USE
STIPULATION

A mineral lease clause, which, if attached to a mineral lease, prohibits surface disturbing activities on the lease pending submission of a surface use and operations plan which is satisfactory to the BLM and the surface management agency for protection of special existing or planned uses. This stipulation may, when site-specific operations are proposed and analyzed, be modified if other less stringent mitigation is determined to be sufficient to protect the other resources.

LOCAL DEPENDENT
INDUSTRIES

Local industries relying on National Forest outputs for economic activity.

LOCATABLE
MINERALS

See Minerals locatable.

LOESS

A uniform and unstratified fine sand or silt transported by wind.

LONG-TERM
SUSTAINED YIELD
CAPACITY (LTSY)

The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified intensity of management consistent with multiple use objectives

LVL

Level

M

M

Thousand

MM

Million

MAUM

Thousand Animal Unit Months.

MBF

Thousand Board Feet

MMBF

Million Board feet

MMCF

Million Cubic feet

MANAGEMENT
ACTION

Any activity undertaken as part of the administration of the Forest.

MANAGEMENT AREA

An aggregation of capability areas which have common management direction and may be noncontiguous in the Forest. Consists of a grouping of capability areas selected through evaluation procedures and used to locate decisions and resolve issues and concerns.

MANAGEMENT
CONCERN

-- An issue, problem, or a condition which constrains the range of management practices identified by the Forest Service in the planning process.

MANAGEMENT DIRECTION	A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.
MANAGEMENT EFFECTS	Physical, biological, social and economic responses to management practices.
MANAGEMENT EMPHASIS	A management practice or combination of management practices designed to stress production of a particular type of output or mix of outputs.
MANAGEMENT INTENSITY	A management practice or combination of management practices and associated costs designed to obtain different levels of goods and services.
MANAGEMENT OPPORTUNITY	A statement of general actions, measures, or treatments that address a public issue or management concern.
MANAGEMENT PRACTICE	A specific activity, measure, course of action, or treatment. Proposed management practices are those scheduled in the first decade of Forest Plan implementation. Probable management practices are those scheduled in the second decade of Forest Plan implementation.
MANAGEMENT PRESCRIPTION	Management practices and intensities selected and scheduled for application on a specific area to attain multiple use and other goals and objectives.
MANAGEMENT STANDARDS AND GUIDELINES	See Standard and Guideline.
MARKET VALUE	The unit price of an output normally exchanged in a market after at least one stage of production, expressed in terms of what people are willing to pay as evidenced by market transactions.
MATURE TIMBER	Individual trees or stands of trees that in general are at their maximum rate in terms of the physiological processes expressed as height, diameter, and volume growth.
MAXIMUM RESOURCE POTENTIAL	The maximum possible output of a given resource limited only by its inherent physical and biological characteristics.
MEAN ANNUAL INCREMENT	The total volume increase in a tree or stand of trees up to a given age, divided by that age.
MINERAL ENTRY	The filing of a mining claim on Federal land to obtain the right to mine any locatable minerals it may contain. Also the filing for a mill site on Federal land for the purpose of processing off-site locatable minerals.

MINERAL WITHDRAWAL	A formal designation by the Secretary of Interior which precludes entry or disposal of mineral commodities under the mining and/or mineral leasing laws.
MINERAL EXPLORATION	The search for valuable minerals.
MINERAL PRODUCTION	The extraction of mineral deposits.
MINERALS, COMMON VARIETY	Deposits of sand, stone, gravel, etc. of widespread occurrence and not having distinct or special value. These deposits are used generally for construction and decorative purposes and are disposed of under the Materials Act of 1947.
MINERALS, LEASABLE	Those minerals which are disposed of under authority of the various mineral leasing acts. Minerals include coal, oil, gas, phosphate, sodium, potassium, oil shale, sulfur (in Louisiana and New Mexico), and geothermal steam.
MINERALS, LOCATABLE	Those minerals which are disposed of under the general mining laws. Included are minerals such as gold, silver, lead, zinc and copper which are not classed as leasable or salable.
MINIMUM MANAGEMENT REQUIREMENTS	Standards for resource protection, vegetative manipulation, silviculturist practices, even-aged management, riparian areas, soil and water and diversity, to be met in accomplishing National Forest System goals and objectives (see 36 CFR 219.27).
MINIMUM RESOURCE STANDARDS	Specific conditions of individual resources which must be maintained in order to meet minimum management requirements (36 CFR 219.27) and/or other legal requirements.
MINIMUM VIABLE	See Viable Population.
MINING CLAIMS	A geographic area of the public lands held under the general mining laws in which the right of exclusive possession is vested in the locator of a valuable mineral deposit. Includes lode claims, placer claims, mill sites and tunnel sites.
MITIGATE	To lessen the severity.
MITIGATION	Avoiding or minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact by preservation and maintenance operations during the life of the action.
MODIFICATION (VQO)	-- See Visual Quality Objective (VQO).

NONCOMMODITY OUTPUTS See Output, Nonmarket.

NONCONSUMPTIVE USE Those uses of resources that do not reduce the supply. Nonconsumptive uses of water include hydroelectric power generation, boating, swimming, etc.

NONDECLINING FLOW The principle that the quantity of timber planned for sale or harvest for any future decade must be equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity.

NONEXTRACTIVE USE Use which does not remove a resource from its natural setting.

NONGAME Species of animals which are not managed as a sport hunting resource.

NON-INTERCHANGEABLE COMPONENT Non-Interchangeable Components (NICS) are defined increments of the suitable land base and their contribution to the allowable sale quantity (ASQ) that are established to meet Forest plan objectives. NICS are identified as parcels of land and the type of timber thereon which are differentiated for the purpose of Forest plan implementation. The total ASQ is derived from the sum of the timber volumes from all NICS. The NICS cannot be substituted for each other in the timber sale program. Some conditions which may characterize a particular NIC are: (1) species marketability; (2) dead or live timber; (3) timber size class; and (4) operability.

NONPOINT SOURCE POLLUTION Sources from which the pollutants discharged are: (1) induced by natural processes, including precipitation, seepage, percolation, and runoff; (2) not traceable to any discrete or identifiable facility and (3) better controlled through the utilization of Best Management Practices, including process and planning techniques. This includes natural pollution sources not directly or indirectly caused by man.

NONSTOCKED A stand of trees or aggregation of stands that have a stocking level below the minimum specified for meeting the prescribed management objectives.

NO-SURFACE OCCUPANCY STIPULATION A mineral lease clause which, if attached to a mineral lease, prohibits the lessee from constructing roads, well pads or otherwise occupying the land surface unless, upon site-specific review, it is determined by the authorized officer that the requirements of the stipulation can be modified if other less stringent mitigation is determined to be sufficient to protect the other resources.

0

OBJECTIVE	A concise time-specific statement of measurable planned results that respond to preestablished goals. An objective forms the basis for further planning, to define the precise steps to be taken and the resources to be used in achieving identified goals.
OBJECTIVE FUNCTION	A term used in linear programming describing the criteria to be optimized. Examples of objective functions are: maximize present net value, minimize cost or maximize timber.
OFF-ROAD VEHICLE	Any vehicle capable of being operated off an established road or trail, e.g., motorbikes, four-wheel drives, and snowmobiles.
OLD GROWTH TIMBER	See Overmature Timber.
OPPORTUNITY	An opportunity cost is value foregone. In this analysis it is a cost calculated as the difference between present net value of the alternative and the present net value of the maximum PNV increment.
OPTIMUM	The greatest level of production that is consistent with other resource requirements as constrained by environmental, social and economically sound conditions.
OUTPUT	A good, service, or on-site use that is produced from forest and rangeland resources. Definitions of Forest and rangeland output definitions, codes and units measure are contained in the Management Information Handbook (FSH 1309.11). Examples are: X06-Softwood Sawtimber Production - MBF; X80-Increased Water Yield - Acre Feet; W01-Primitive Recreation Use - RVD's.
OUTPUT, CONTROLLED	The amount of an output which management has the legal and practical ability to control with management activities.
OUTPUT, DIRECT	An output that fulfills specified objectives of the policy, program, or project being evaluated.
OUTPUT, INDUCED	A good, service, or on-site use which is incidental to the objectives of the resource activity. An example is the timber harvest activity which produces a primary output of board feet of timber and an induced output of acres of improved wildlife habitat because of the harvest activity.
OUTPUT, MARKET	A good, service, or on-site use that can be purchased at a price.
OUTPUT, NON-CONTROLLED	The amount of an output which will occur regardless of management activity.

OUTPUT, NONMARKET A good, service, or on-site use not normally exchanged in a market.

OUTPUT, PRIMARY A good, service, or on-site use that results from the completion of an activity, project or program that meets the specific objectives of the resource. Examples are board feet of timber, recreation visitor days, etc.

OVER-THE-COUNTER SALE The selling of Forest products without bidding, as requested by the general public, usually for products such as fuelwood, corral poles, ornamental shrubs, etc.

OVERMATURE TIMBER Individual trees or stands of trees that in general are past their maximum rate in terms of the physiological processes expressed as height, diameter and volume growth.

OVERSTORY That uppermost canopy of the forest when there is more than one level of vegetation.

OVERTHRUST BELT A complex geologic feature, extending from Alaska to Mexico, which resulted from compressional stresses within the earth, and which is characterized by abundant thrust faults. This zone passes through and includes all of western Montana.

P

PARTIAL RETENTION (VQO) See Visual Quality Objective (VQO).

PARTICULATES Small particles suspended in the air and generally considered pollutants.

PATENTED MINING CLAIMS A patent is a document which conveys title to land. When patented, a mining claim becomes private property and is land over which the United States has no property rights, except as may be reserved in the patent. After a mining claim is patented, the owner does not have to comply with requirements of the General Mining Law or implementing regulations.

PERENNIAL STREAMS Streams that flow continuously throughout most years.

PAYMENT IN LIEU OF TAXES -- Payments to local or State governments based on ownership of Federal land and not directly dependent on production of outputs or receipt sharing. Specifically, they include payments made under the Payments in Lieu of Taxes Act of 1976 by the U.S. Department of the Interior.

PERMITTED GRAZING Use of a National Forest range allotment under the terms of a grazing permit.

PERSON YEAR (WORK YEAR)	A person year equals 2,087 hours of work time. A person year may be one person working yearlong or several persons filling seasonal positions.
PLAN OF OPERATIONS	A written plan describing mining and mineral processing activities that will likely cause a significant surface disturbance. The plan is prepared by those engaged in activities, such as prospecting, exploration or mining, in the National Forest. This plan must be approved by a Forest Officer.
PLANNING AREA	The area of the National Forest System covered by a Regional or Forest Plan.
PLANNING CRITERIA	Standards, tests, rules, and guidelines by which the planning process is conducted and upon which judgments and decisions are based.
PLANNING HORIZON	The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions. In the National Forest planning process, this is 150 years.
PLANNING PERIOD	One decade. The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits.
PLANNING RECORDS	Documents and files that contain detailed information and decisions made in developing the Forest Plan. Available at the Forest Supervisor's Office.
PNV	See Present Net Value.
POLETIMBER TREES	Live trees of commercial species at least five inches in diameter at breast height but smaller than sawtimber size, and of good form and vigor.
POLICY	A guiding principle upon which is based a specific decision or set of decisions.
POTENTIALLY (TENTATIVELY) SUITABLE LAND	Forest land (as defined in CFR 219.3) for which technology is available that ensures timber production without irreversible resource damage to soils, productivity, or watershed conditions; for which there is reasonable assurance that such lands can be restocked (CFR 219.14); and which is available for timber management.
PRACTICE	--See Management Practice.
PRECOMMERCIAL THINNING	The selective felling, deadening, or removal of trees in a young stand primarily to accelerate diameter increment on the

RECREATION OPPORTUNITIES

The combination of recreation settings, activities, and experiences provided by the Forest.

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RECREATION OPPORTUNITY GUIDE

A catalogue describing the recreation activities available on a particular Ranger District.

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RECREATION OPPORTUNITY SPECTRUM (ROS)

Provides a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or spectrum divided into six classes:

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- Urban
- Rural
- Roaded Natural Appearing and Roaded Modified
- Semi-Primitive Motorized
- Semi-Primitive Non-Motorized
- Primitive

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URBAN

Urban ROS class settings are characterized by high levels of human activity and by concentrated development, including developments for recreation opportunities. In urban settings, levels of recreation use vary and can be extremely high or dense. There are a preponderance of signs and other indications of regulations on the users' behavior. The landscape is dominated by human structures, and green-space is only sporadically dominant.

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RURAL

In the Rural class settings, the sights and sounds of human activity are readily evident, though less pronounced and less concentrated than in the Urban class. Levels of use vary, but do not reach those concentrations of the Urban class except at specialized and developed sites. While the characteristic landscape is often dominated by human-caused geometric patterns, there is also a dominant sense of open, green-space.

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The principles adopted by the ROS system to assess the visual attractiveness of the Urban and Rural settings dictate the human-caused visual patterns will dominate the landscape in these two settings. However, this should not be interpreted to mean that these areas are visually unattractive. On the contrary, there are many examples of beautiful cities, quaint villages, and the pastoral beauty of farm and ranch lands.

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ROADED NATURAL APPEARING

The Roaded Natural class is characterized by predominately natural-appearing settings, with moderate sights and sounds of human activities and structures. The overall perception is



RECREATION TYPES

Developed Recreation - The type of recreation that occurs where modifications (improvements) enhance recreation opportunities and accommodate intensive recreation activities in a defined area.

Dispersed Recreation - That type of recreation use related to and in conjunction with roads and trails that requires few if any improvements and may occur over a wide area. Activities tend to be day-use oriented and include hunting, fishing, berry picking, off-road vehicle use, hiking, horseback riding, picnicking, camping, viewing scenery, snowmobiling, and many others.

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RECREATION VISITOR DAY (RVD)

One visitor day equals 12 hours (one person for 12 hours, or 12 people for 1 hour, or any combination thereof).

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REDUCED SERVICE MANAGEMENT

The administration, operation and maintenance of developed recreation sites to established standards with the objective to meet minimum health and safety needs of the visitor and keep the site open to public use.

REFORESTATION

The renewal of forest cover by seeding, planting, and natural means.

REGENERATION

The renewal of a tree crop, whether by natural or artificial means. This term may also refer to the crop itself.

REGIONAL FORESTER

The official responsible for administering a single Region of the Forest Service.

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REGIONAL GUIDE

A document developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended, that guides all natural resource management activities and established management standards and guidelines for National Forest System lands of a given Region to the Forests within a given Region. It also disaggregates the RPA objectives assigned to the Region to the Forests within that Region.

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REGULATED

The commercial forest land that is organized for timber production under the principle of sustained yield. The harvest of timber from this land is regulated to achieve multiple long range objectives, such as maintaining setting for recreational activities, rotating forage production areas and wildlife habitat, increasing water production yield, and increasing the growth and utilization of timber for the Nation's supply.

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REGULATIONS

Refers to the Code of Federal Regulations for implementing the National Forest Management Act, 36 CFR, Part 219.

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RENEWABLE RESOURCES Resources that are possible to use indefinitely, when the use rate does not exceed the ability to renew the supply. However, in the RPA program, the term is used to describe those matters within the scope of responsibilities and authorities of the Forest Service as required by the Forest and Rangeland Renewable Resources Planning Act of 1974. Consequently, the renewable resources include: timber, range, minerals, wildlife and fish, water, recreation, and wilderness.

RENEWABLE RESOURCES ASSESSMENT An appraisal of the Nation's renewable resources that recognizes their vital importance and the necessity for long-term planning and associated program development. The Assessment meets the requirements of Section 3 of the Forest and Rangeland Renewable Resources Planning Act and includes analysis of present and anticipated uses, demands, and supplies of the renewable resources; a description of Forest Service programs and responsibilities; and a discussion of policy considerations, laws, and regulations.

RENEWABLE RESOURCES PROGRAM The program for management and administration of the National Forest Service System, for Research, for Cooperative State and Private Forest Service programs, and for conduct of other Forest Service activities in accordance with Section 4 of the Forest and Rangeland Renewable Resources Planning Act.

RESOURCE ALLOCATION MODEL A mathematical model using linear programming which will assign prescriptions to land areas and schedule implementation of those prescriptions simultaneously. The end purpose of the model is to find a schedule and prescription assignment that meets the goals of the Forest and optimizes some objective function such as "maximize PNV".

RESOURCE ELEMENT A collection of activities from the various operating programs required to accomplish the Forest Service mission and which fulfill statutory or Executive requirements. There are seven resource elements: Recreation, Wilderness, Wildlife and Fish, Range, Timber, Water, and Minerals.

RESEARCH NATURAL AREA An area in as near a natural condition as possible, which exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecological community primarily for scientific and educational purposes; commercial and general public use is not allowed.

RESPONSIBLE LINE OFFICER The Forest Service employee who has the authority to select and/or carry out a specific planning action.

RETENTION (VQO) See Visual Quality Objectives (VQO).

RIGHT-OF-WAY Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project facility passing over, upon, under, or through such land.

RIPARIAN AREAS Areas with distinctive resource values and characteristics that are comprised of an aquatic ecosystem and adjacent upland areas that have direct relationships with the aquatic system. This includes floodplains, wetlands, and all areas within a horizontal distance of approximately 100 feet from the normal high water line of a stream channel, or from the shoreline of a standing body of water.

RIPARIAN ECOSYSTEM A transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem. It is identified by soil characteristics and by distinctive vegetative communities that require free or unbounded water.

ROAD CREDITS Credits earned by timber purchasers and which are applied toward the sale price of timber in exchange for building the roads needed for access.

ROAD MAINTENANCE LEVELS Road maintenance levels are as follows:
Level 1: Basic custodial care as required to protect the road investment and to see that damage to adjacent land and resources is held to a minimum. The road is not normally open to traffic.

Level 2: Same basic maintenance as Level 1 plus logging out, brushing out, and restoring the road prism as necessary to provide passage. Route markers and regulation signs are in place and useable. Road is open for limited passage of traffic, which is usually administrative use, permitted use, and/or specialized traffic.

Level 3: Road is maintained for safe and moderately convenient travel suitable for passenger cars. Road is open for public travel, but has low traffic volumes except during short periods of time (e.g. hunting season).

Level 4: At this level, more consideration is given to the comfort of the user. Road is usually surfaced with aggregate or is paved and is open for public travel.

Level 5: Safety and comfort are important considerations for these roads which are open to public traffic and generally receive fairly heavy use (100 Average Daily Traffic or more). Roads have an aggregate surface or are paved.

ROAD MANAGEMENT The combination of both traffic and maintenance management operations. Traffic management is the continuous process of analyzing, controlling and regulating uses to accomplish National Forest objectives. Maintenance management is the perpetuation of the transportation facility to serve intended management objectives.

ROADED NATURAL APPEARING RECREATION SETTING A classification on the recreation opportunity spectrum where timber harvest or other surface use practices are evident. Motorized vehicles are permitted on all or parts of the road system.

ROADLESS AREA A National Forest area which (1) is larger than 5000 acres or, if smaller than 5000 acres, contiguous to a designated wilderness or primitive area; (2) contains no roads and (3) has been inventoried by the Forest Service for possible inclusion in the wilderness preservation system.

ROADLESS AREA REVIEW AND EVALUATION (RARE) II A comprehensive process, instituted in June 1977, to identify roadless and undeveloped land areas in the National Forest System and to develop alternatives for both wilderness and other resource management.

ROTATION The planned number of years between the formation or generation of trees and their harvest at a specified stage of maturity.

ROUNDWOOD The volume of logs or other round products required to produce lumber, plywood, woodpulp, paper, or other similar products.

RPA See Forest and Rangeland Renewable Resources Planning Act of 1974

RURAL RECREATION SETTING A classification on the recreation opportunity spectrum that is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high.

S

SALE SCHEDULE The quantity of timber planned for sale by time period from an area of suitable land covered by a forest plan. The first period, usually a decade, of the selected sale schedule provides the allowable sale quantity. Future periods are shown to establish that long-term sustained yield will be achieved and maintained.

SALVAGE HARVEST The cutting of trees that are dead, dying, or deteriorating (e.g., because they are overmature or materially damaged by fire, wind, insects, fungi, or other injurious agencies) before they lose their commercial value as sawtimber.

SANITATION HARVEST The removal of dead, damaged, or susceptible trees, essentially to prevent the spread of pests or pathogens and so promote forest hygiene.

SEMI-PRIMITIVE RECREATION SETTING A classification on the recreation opportunity spectrum that characterizes a predominately natural or natural appearing environment of a moderate to large size. Concentration of users is low, but there is often evidence of other area users. The area is managed in such a way that minimum onsite controls and restrictions may be present, but are subtle.

SENSITIVE SPECIES Those plant or animal species which are susceptible or vulnerable to activity impacts or habitat alterations.

SEQUENTIAL BOUNDS A set of constraints used in linear program models to establish the relationship of the quantity of an output to preceding and succeeding quantities of that output (e.g. the forage production in one time period cannot increase or decrease over ten percent from the forage production of the previous time period).

SERIAL A biotic community which is developmental; a transitory stage in an ecologic succession.

SHELTERWOOD CUTTING The removal of a stand of trees through a series of cuttings designed to establish a new crop with seed and protection provided by a portion of the stand.

SILVICULTURAL EXAMINATION The process used to gather the detailed in-place field data needed to determine management opportunities and direction for the timber resource within a small subdivision of a forest area such as a stand.

SILVICULTURAL SYSTEMS A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. It includes all cultural management practices performed during the life of the stand such as regeneration cutting, fertilization thinning, improvement cutting, and use of genetically improved tree seeds and seedlings to achieve multiple resource benefits. Systems are classified according to the method of carrying out the fellings that remove the mature crop and provide for regeneration and according to the type of Forest they produce.

SITE PREPARATION A general term for a variety of activities that remove competing vegetation, slash, and other debris that may inhibit the reforestation effort.

SITE PRODUCTIVITY Production capability of specific areas of land.

SLASH The residue left on the ground after felling and other silvicultural operations and/or accumulating there as a result of storm, fire, girdling, or poisoning of trees.

SMALL GAME Birds and small mammals normally hunted or trapped.

PRICED OUTPUTS Resource outputs that have market or assigned dollar values.

PRIMITIVE RECREATION SETTING A classification of the recreation opportunity spectrum that characterizes an essentially unmodified natural environment of a size or remoteness that provide significant opportunity for isolation from the signs and sounds of man and a feeling of vastness of scale. Visitors have opportunity to be part of the natural environment, encounter a high degree of challenge and use a maximum of outdoor skills but have minimum opportunity for social interaction.

PRIMITIVE ROADS Roads that came into existence with little regard for grade or drainage control, or were abandoned facilities from some prior use. They are sometimes created merely by repeated driving over an area. Such roads are rarely, if ever, maintained and then only by users. These roads are single lane, usually with native surfacing, and sometimes passable with four-wheel drive vehicles only, especially in wet weather.

PRIMITIVE SETTING A large area (generally at least 5,000 acres) at least three miles from all roads, railroads or trails with motorized use. The area is essentially a natural environment unmodified by man.

PRODUCTION POTENTIAL The capability of the land or water to produce life-sustaining features (forage, cover, aquatics).

PRODUCTIVITY See Site Productivity.

PROGRAM DEVELOPMENT AND BUDGETING The process by which activities for the Forest are proposed and funded.

PROPOSED ACTION In terms of the National Environmental Policy Act, the project, activity, or action that a Federal agency intends to implement or undertake and which is the subject of an environmental analysis.

PRUNING The removal of live or dead branches from standing trees.

PUBLIC ACCESS Usually refers to a road or trail route over which a public agency claims a right-of-way available for public use.

PUBLIC INVOLVEMENT A Forest Service process designed to broaden the information base upon which agency decisions are made by (1) Informing the public about Forest Service activities, plans, and decisions, and (2) Encouraging public understanding about and participation in the planning processes which lead to final decision making.

PUBLIC ISSUE A subject or question of widespread public interest identified through public participation relating to management of National Forest System lands.

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RANGE ALLOTMENT	A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under a range allotment management plan. It is the basic land unit used to facilitate management of the range resource on National Forest System and associated lands administered by the Forest Service.
RANGE, TRANSITORY	See Transitory Range.
RANGELAND	Land on which the climax vegetation (potential natural plant community) is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing and browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundra, and certain forb and shrub communities. It also includes areas seeded to native or adapted introduced species that are managed like native vegetation.
RANGER DISTRICT	Administrative subdivision of the Forest supervised by a District Ranger.
RARE II	See Roadless Area Review and Evaluation II.
REAL DOLLAR	A monetary value that compensates for inflation.
RECEIPTS	Money collected from timber stumpage, livestock grazing, campgrounds, special use permits, and oil and gas lease rentals and royalties, and returned to the federal treasury.
RECORD OF DECISION	A document separate from but associated with an environmental impact statement that publicly and officially discloses the responsible official's decision on the proposed action.
RECREATION CAPACITY	The number of people that can take advantage of a recreation opportunity at any one time without substantially diminishing the quality of the experience sought after.
RECREATION EXPERIENCE LEVEL	A concept used in recreation management to delineate the range of opportunities for satisfying basic recreation needs of people. A scale of five experience levels ranging from "primitive" to "highly developed" is planned for the National Forest System.
RECREATION INFORMATION MANAGEMENT (RIM)	The Forest Service system for recording recreation facility condition and use.
RECREATION LIVESTOCK USE	The use of an area by animals, such as horses and mules, which are used primarily in conjunction with recreation activities.

RECREATION
OPPORTUNITIES

The combination of recreation settings, activities, and experiences provided by the Forest.

RECREATION
OPPORTUNITY
GUIDE

A catalogue describing the recreation activities available on a particular Ranger District.

RECREATION
OPPORTUNITY
SPECTRUM (ROS)

Provides a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or spectrum divided into six classes:

Urban
Rural
Roaded Natural Appearing and Roaded Modified
Semi-Primitive Motorized
Semi-Primitive Non-Motorized
Primitive

URBAN

Urban ROS class settings are characterized by high levels of human activity and by concentrated development, including developments for recreation opportunities. In urban settings, levels of recreation use vary and can be extremely high or dense. There are a preponderance of signs and other indications of regulations on the users' behavior. The landscape is dominated by human structures, and green-space is only sporadically dominant.

RURAL

In the Rural class settings, the sights and sounds of human activity are readily evident, though less pronounced and less concentrated than in the Urban class. Levels of use vary, but do not reach those concentrations of the Urban class except at specialized and developed sites. While the characteristic landscape is often dominated by human-caused geometric patterns, there is also a dominant sense of open, green-space.

The principles adopted by the ROS system to assess the visual attractiveness of the Urban and Rural settings dictate the human-caused visual patterns will dominate the landscape in these two settings. However, this should not be interpreted to mean that these areas are visually unattractive. On the contrary, there are many examples of beautiful cities, quaint villages, and the pastoral beauty of farm and ranch lands.

-- ROADED NATURAL APPEARING

The Roaded Natural class is characterized by predominately natural-appearing settings, with moderate sights and sounds of human activities and structures. The overall perception is

one of naturalness. Evidence of human activity varies from area to area and includes improved highways, railroads, developed campgrounds, small resorts and ski areas, livestock grazing, timber harvesting operations, watershed restoration activities, and water diversion structures. Roads and motorized equipment and vehicles are common in this setting. Density of use is moderate except at specific developed sites, and regulations on user behaviors are generally less evident than in the Urban or Rural classes.

ROADED MODIFIED

A distinct subclass of setting features exists within the Roaded Natural class. This subclass occurs where human modification is locally dominant or codominant with a natural-appearing landscape, much like the rural setting. However, the recreation opportunities provided are significantly different from the Rural setting. For example, although numerous, highly improved roads might exist in this subclass, there is a sense of remoteness because of the distances from major travelways. In addition, the density of recreation use is often low compared to the Rural class. Also, users have the opportunity for exploration and to use both on-road recreation vehicles and ORVs. Camping is not confined to developed campsites, so users have considerable autonomy in choosing sites and using equipment.

SEMI-PRIMITIVE

Both the Semi-Primitive Motorized and Semi-Primitive Non-Motorized classes are characterized by predominately natural or natural-appearing landscapes. The size of these areas gives a strong feeling of remoteness from the more heavily used and developed areas. Within these settings, there are ample opportunities to practice wildland skills and to achieve feelings of self-reliance.

The most significant difference between the semi-primitive motorized and non-motorized settings is the presence or absence of motorized vehicles.

In the non-motorized settings, the presence of roads is tolerated, provided they are closed to public use, they are used infrequently for resource protection and management, and the road standards and locations are visually appropriate for the physical setting. In many cases, old roads are acceptable as non-motorized travelways so long as they do not reflect miss-use or poor stewardship of the land. These roads would have motorized use in the semi-primitive motorized class, especially by ORVs.

PRIMITIVE

The Primitive settings are characterized by essentially unmodified natural environments and their size and

configuration assure remoteness from the sights and sounds of human activity. The use of motorized vehicles and equipment is not permitted except in extreme emergencies, such as preserving a life or the resource.

In the Primitive class, the user is forced to be self-reliant and expects low levels of user density.

In the semi-primitive and primitive settings, the use of the visual management system plays a critical role in assessing and maintaining conditions which support the naturalness of the area. For example, it may not be enough to forbid

motorized use in the non-motorized ROS classes. The character of any roads or other structures, such as buildings, bridges, or fences, must also be in harmony with the natural landscape.

RECREATION PREFERENCE TYPE (RPT) A term used to indicate the types of recreation experiences sought after by Forest users. They are overlapping portions of the total recreation preferences spectrum that the public may express demands for.

RPT I. Orientations toward using natural, unmodified environment for the appreciation and understanding of natural phenomena; as a source of intellectual and/or physical challenges; for seeking solitude; and for esthetic stimulations.

RPT II. Orientations toward using natural or semi-primitive environment in searching for and extraction of indigenous fish and/or game species, rocks, minerals, edible plants, etc., and for enjoyment of the physical surroundings in which such extractable objects are found.

RPT III. Orientations toward using semiprimitive, lightly developed areas for relaxing in natural surroundings; as a source of tranquility and freedom from tension; and for esthetic stimulation.

RPT IV. Orientation toward using moderately developed areas and surrounding environment for intentional social interaction and group learning experiences.

RPT V. Orientations toward using highly developed areas for social interactions with many other people and for pursuits which allow for the expression of learned physical abilities.

RECREATION RESIDENCE A house or cabin on National Forest land for seasonal recreational use that is not the primary residence of the owner.

RECREATION TYPES Developed Recreation - The type of recreation that occurs where modifications (improvements) enhance recreation opportunities and accommodate intensive recreation activities in a defined area.

Dispersed Recreation - That type of recreation use related to and in conjunction with roads and trails that requires few if any improvements and may occur over a wide area. Activities tend to be day-use oriented and include hunting, fishing, berrypicking, off-road vehicle use, hiking, horseback riding, picnicking, camping, viewing scenery, snowmobiling, and many others.

RECREATION VISITOR DAY (RVD) One visitor day equals 12 hours (one person for 12 hours, or 12 people for 1 hour, or any combination thereof).

REDUCED SERVICE MANAGEMENT The administration, operation and maintenance of developed recreation sites to established standards with the objective to meet minimum health and safety needs of the visitor and keep the site open to public use.

REFORESTATION The renewal of forest cover by seeding, planting, and natural means.

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REGULATED The commercial forest land that is organized for timber production under the principle of sustained yield. The harvest of timber from this land is regulated to achieve multiple long range objectives, such as maintaining setting for recreational activities, rotating forage production areas and wildlife habitat, increasing water production yield, and increasing the growth and utilization of timber for the Nation's supply.

REGULATIONS Refers to the Code of Federal Regulations for implementing the National Forest Management Act, 36 CFR, Part 219.

RENEWABLE
RESOURCES

Resources that are possible to use indefinitely, when the use rate does not exceed the ability to renew the supply. However, in the RPA program, the term is used to describe those matters within the scope of responsibilities and authorities of the Forest Service as required by the Forest and Rangeland Renewable Resources Planning Act of 1974. Consequently, the renewable resources include: timber, range, minerals, wildlife and fish, water, recreation, and wilderness.

RENEWABLE
RESOURCES
ASSESSMENT

An appraisal of the Nation's renewable resources that recognizes their vital importance and the necessity for long-term planning and associated program development. The Assessment meets the requirements of Section 3 of the Forest and Rangeland Renewable Resources Planning Act and includes analysis of present and anticipated uses, demands, and supplies of the renewable resources; a description of Forest Service programs and responsibilities; and a discussion of policy considerations, laws, and regulations.

RENEWABLE
RESOURCES
PROGRAM

The program for management and administration of the National Forest Service System, for Research, for Cooperative State and Private Forest Service programs, and for conduct of other Forest Service activities in accordance with Section 4 of the Forest and Rangeland Renewable Resources Planning Act.

RESOURCE
ALLOCATION
MODEL

A mathematical model using linear programming which will assign prescriptions to land areas and schedule implementation of those prescriptions simultaneously. The end purpose of the model is to find a schedule and prescription assignment that meets the goals of the Forest and optimizes some objective function such as "maximize PNV".

RESOURCE
ELEMENT

A collection of activities from the various operating programs required to accomplish the Forest Service mission and which fulfill statutory or Executive requirements. There are seven resource elements: Recreation, Wilderness, Wildlife and Fish, Range, Timber, Water, and Minerals.

RESEARCH
NATURAL AREA

An area in as near a natural condition as possible, which exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecological community primarily for scientific and educational purposes; commercial and general public use is not allowed.

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RIPARIAN AREAS Areas with distinctive resource values and characteristics that are comprised of an aquatic ecosystem and adjacent upland areas that have direct relationships with the aquatic system. This includes floodplains, wetlands, and all areas within a horizontal distance of approximately 100 feet from the normal high water line of a stream channel, or from the shoreline of a standing body of water.

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ROAD CREDITS Credits earned by timber purchasers and which are applied toward the sale price of timber in exchange for building the roads needed for access.

ROAD MAINTENANCE LEVELS Road maintenance levels are as follows:

Level 1: Basic custodial care as required to protect the road investment and to see that damage to adjacent land and resources is held to a minimum. The road is not normally open to traffic.

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Level 4: At this level, more consideration is given to the comfort of the user. Road is usually surfaced with aggregate or is paved and is open for public travel.

Level 5: Safety and comfort are important considerations for these roads which are open to public traffic and generally receive fairly heavy use (100 Average Daily Traffic or more). Roads have an aggregate surface or are paved.

ROAD MANAGEMENT The combination of both traffic and maintenance management operations. Traffic management is the continuous process of analyzing, controlling and regulating uses to accomplish National Forest objectives. Maintenance management is the perpetuation of the transportation facility to serve intended management objectives.

ROADED NATURAL APPEARING RECREATION SETTING A classification on the recreation opportunity spectrum where timber harvest or other surface use practices are evident. Motorized vehicles are permitted on all or parts of the road system.

ROADLESS AREA A National Forest area which (1) is larger than 5000 acres or, if smaller than 5000 acres, contiguous to a designated wilderness or primitive area; (2) contains no roads and (3) has been inventoried by the Forest Service for possible inclusion in the wilderness preservation system.

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ROTATION The planned number of years between the formation or generation of trees and their harvest at a specified stage of maturity.

ROUNDWOOD The volume of logs or other round products required to produce lumber, plywood, woodpulp, paper, or other similar products.

RPA See Forest and Rangeland Renewable Resources Planning Act of 1974

RURAL RECREATION SETTING A classification on the recreation opportunity spectrum that is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high.

S

SALE SCHEDULE The quantity of timber planned for sale by time period from an area of suitable land covered by a forest plan. The first period, usually a decade, of the selected sale schedule provides the allowable sale quantity. Future periods are shown to establish that long-term sustained yield will be achieved and maintained.

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SANITATION HARVEST The removal of dead, damaged, or susceptible trees, essentially to prevent the spread of pests or pathogens and so promote forest hygiene.

SAWTIMBER

Trees containing at least one 8-foot piece with a 5.6 inch diameter inside bark at the small end and meeting the Regional specifications for freedom from defect. Softwood trees must be at least 8 inches in diameter at breast height for all species except Lodgepole Pine which will be 7 inches at breast height.

SCENIC
EASEMENT

A legal interest in the land of another which allows the easement holder specified uses or rights without actual ownership of the land; in this case, control of the use of land adjacent to public highways, parks, and rivers. It may provide something attractive to look at within the easement area, an open area to look through to see something attractive beyond the easement itself, or a screen to block out an unsightly view beyond the easement area.

SCOPING
PROCESS

An early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to the proposed action. Identifying the significant environmental issues deserving of study and deemphasizing insignificant issues, narrowing the scope of the environmental impact statement accordingly. (Ref. CEQ regulations, 40 CFR 1501.7).

SEDIMENT

Solid material, both mineral and organic, that is in suspension, being transported, or has been moved from its site of origin by air, water, gravity, or ice.

SEED TREE
CUTTING

The removal in one cut of most of the mature trees from an area, leaving only a small number of desirable trees to provide seed for regeneration.

SEEDLING/
SAPLING

A size category for forest stands in which trees less than 5 inches in diameter are the predominant vegetation.

SEISMIC
EXPLORATION

Seismic exploration is used to map underground geological features to obtain information on the earth's subsurface and to locate areas where accumulations of oil and gas might occur.

Seismic waves, generated at or near the surface, penetrate the earth's crust and reflect from subsurface rock layers back to the surface. The geophysicist receives a printed record or seismograph from which is measured the depth to various strata and from which subsurface structures with a potential for oil and gas accumulation can be determined such as faults, anticlines, and folds.

Portable - Where access limitations, topography, or other restraints prevent use of trucks, portable operations can be performed. Two portable techniques exist for collecting data. These are:

- (1) Surface charge programs involve the detonation of a series of as much as 50 to 100 pounds of explosives at shot points located at intervals along the seismic line. Surface charges can be placed directly on the ground, on snow, or on a variety of stakes or platforms. All necessary equipment to conduct the operation is transported by helicopters and then conveyed by foot travel.
- (2) Various kinds of portable drills can be backpacked or delivered by helicopter to the area. A shallow subsurface portable program would involve drilling a pattern of approximately 16 holes about 4 inches in diameter up to 50 feet deep per mile of line. At this depth, a 10 to 40 pound charge of explosive is placed and detonated. Recording cables and geophones are laid out by foot travel.

With both of these portable techniques, shock waves generated by detonation are received and transmitted via geophones and cable to a recording device. Portable methods are generally used on the Forest.

Conventional - The conventional method of collecting seismic data includes the use of truck-mounted drills and vehicle-supported crews and generally involves off-road travel. This technique involves drilling 5 to 18 5-inch diameter holes per mile to a depth of 180 to 200 feet. At this depth, a 10 to 100 pound explosive charge is placed and detonated. Shock waves are received and transmitted via geophones and cable to a truck-mounted recording device. Due to terrain restrictions, this method has limited application on the Forest.

Vibroseis - The vibroseis technique involves using truck-mounted hydraulic pads which generate energy waves through vibration rather than explosives. The vibrator method typically consists of four large trucks each equipped with a vibrator (a steel slab weighing about three tons) mounted between the front and back wheels. The vibrator pads (about 4 feet square) are lowered to the ground and vibrators on all trucks are triggered electronically from the recorder truck. Energy waves are received and transmitted via cable and geophones to a recorder truck. After the information is recorded, the trucks move forward a short distance and the process is repeated. The vibroseis operation is usually limited to roads and gentle terrain.

SELECTION
CUTTING

The annual or periodic removal of trees as part of an uneven-age silvicultural system. Cutting can involve individual trees or small groups of trees to meet a predetermined goal of size and species composition in the remaining stand.

SEMI-PRIMITIVE RECREATION SETTING A classification on the recreation opportunity spectrum that characterizes a predominately natural or natural appearing environment of a moderate to large size. Concentration of users is low, but there is often evidence of other area users. The area is managed in such a way that minimum onsite controls and restrictions may be present, but are subtle.

SENSITIVE SPECIES Those plant or animal species which are susceptible or vulnerable to activity impacts or habitat alterations.

SEQUENTIAL BOUNDS A set of constraints used in linear program models to establish the relationship of the quantity of an output to preceding and succeeding quantities of that output (e.g. the forage production in one time period cannot increase or decrease over ten percent from the forage production of the previous time period).

SERAL A biotic community which is developmental; a transitory stage in an ecologic succession.

SHELTERWOOD CUTTING The removal of a stand of trees through a series of cuttings designed to establish a new crop with seed and protection provided by a portion of the stand.

SILVICULTURAL EXAMINATION The process used to gather the detailed in-place field data needed to determine management opportunities and direction for the timber resource within a small subdivision of a forest area such as a stand.

SILVICULTURAL SYSTEMS A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. It includes all cultural management practices performed during the life of the stand such as regeneration cutting, fertilization thinning, improvement cutting, and use of genetically improved tree seeds and seedlings to achieve multiple resource benefits. Systems are classified according to the method of carrying out the fellings that remove the mature crop and provide for regeneration and according to the type of Forest they produce.

SITE PREPARATION A general term for a variety of activities that remove competing vegetation, slash, and other debris that may inhibit the reforestation effort.

SITE PRODUCTIVITY Production capability of specific areas of land.

SLASH The residue left on the ground after felling and other silvicultural operations and/or accumulating there as a result of storm, fire, girdling, or poisoning of trees.

SMALL GAME Birds and small mammals normally hunted or trapped.

SNAG A standing dead tree usually greater than 5 feet in height and 6 inches in diameter at breast height.

SOCIAL ORGANIZATION The structure of a society described in terms of institutions, community cohesion, and community stability.

SOCIAL VARIABLE A variable that measures the social impact of Forest Service management alternatives. Examples include population statistics, types of institutions, and personal opinion as reflected in attitudes or as demonstrated by behavior.

SOIL PRODUCTIVITY The capacity of a soil to produce a specific crop such as fiber and forage, under defined levels of management. It is generally dependent on available soil moisture and nutrients and length of growing season.

SPECIAL-USE PERMIT A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of National Forest land for some special purpose.

STAGNATION A condition where plant growth is markedly reduced or even arrested through, e.g., competition, state of the soil, or disease.

STAND A community of trees or other vegetative growth occupying a specific area and sufficiently uniform in composition (species), age, spatial arrangement, and conditions as to be distinguishable from the other growth on adjoining lands, so forming a silvicultural or management entity.

STANDARD AND GUIDELINE An indication or outline of policy or conduct.

STIPULATIONS Requirements that are part of the terms of a mineral lease. Some stipulations are standard on all Federal leases. Other stipulations may be applied to the lease at the discretion of the surface management agency to protect valuable surface resources and uses.

STOCKING A measure of timber stand density as it relates to the optimum or desired density to achieve a given management objective.

STREAM ORDER A measure of the position of a stream in the hierarchy of tributaries. (Stream as referenced here refers to perennial streams.)

a. First-order streams are unbranched streams, that is they have no tributaries.

b. Second-order streams are formed by the confluence of two or more first-order streams. They are considered second-order until they join another second-order or larger stream.

	c. Third-order streams are formed by the confluence of two or more second-order streams. They are considered third-order until they join another third-order or larger stream.
SUBDIVISIONS	Areas of previously undeveloped land divided into individual homesites and/or blocks of lots with streets or roads and open spaces.
SUCCESSIONAL STAGE	A phase in the gradual supplanting of one community of plants by another.
SUITABILITY	The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.
SUITABILITY ANALYSIS	Process of identifying National Forest lands to be managed for timber production. Stage I identifies the biologically capable, administratively available, and technically suitable lands. Stage II consists of an economic analysis of costs and benefits of timber management on the lands identified in Stage 1. Stage III provides the final assignment of suitable lands based on Forest objectives and economic efficiency.
SUITABLE FOREST LAND	Forest land (as defined in CFR 219.3) for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions; for which there is reasonable assurance that such lands can be adequately restocked (as provided in CFR 219.14); and for which there is management direction that indicates that timber production is an appropriate use of that area.
SUPPLY	The amount of an output that producers are willing to provide at a specific price, time period, and conditions of sale.
SUPPORT ELEMENT	A collection of major Forest Service activities which complement the resource elements. There are five support elements: Protection, Lands, Soils, Facilities and Rural Community and Human Resources.
SUPPRESSION (FIRE SUPPRESSION)	Any act taken to slow, stop, or extinguish a fire. Examples of suppression activities include fireline construction, backfiring, and application of water or chemical fire retardants.
SUSTAINED-YIELD OF PRODUCTS AND SERVICES	The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forest System without impairment of the productivity of the land.

SYSTEM ROADS See Forest System Road.

T

TARGET A quantifiable output assigned to the Forest.

TEMPORARY ROAD Those roads needed only for the purchaser or permittee's use. The Forest Service and the purchaser or permittee must agree to the location and clearing widths. Temporary roads are used for a single, short-term use, e.g to haul timber from landings to Forest development roads, access to build water developments, etc..

THERMAL COVER Cover used by animals to ameliorate chilling effects of weather; for elk, a stand of coniferous trees 40 feet or taller with an average crown closure of 70 percent or more.

THREATENED AND ENDANGERED SPECIES Any species, plant or animal, which is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. Threatened species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act.

THREE-STEP SHELTERWOOD An even-aged silvicultural system in which the old crop (the shelterwood) is removed in three successive cuttings in order to provide a source of seed and/or protection for regeneration.

TIERING Refers to the elimination of repetitive discussions of the same issue by incorporating by reference the general discussion in an environmental impact statement of broader scope. For example, a project environmental assessment could be tiered to the Forest Plan EIS.

TIMBER A general term for the major woody growth of vegetation in a forest area.

TIMBER BASE The lands within the Forest that are suitable for timber production.

TIMBER PRODUCTION The purposeful growing, tending, harvesting, and regeneration of rotational crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. For purposes of Forest planning, timber production does not include production of fuelwood or harvest from unsuitable lands.

TIMBER STAND IMPROVEMENT -- (TSI) All noncommercial intermediate cuttings and other treatments to improve composition, condition, and volume growth of a timber stand.

TRAILHEAD The parking, signing, and other facilities available at the terminus of a trail.

TRANSITORY RANGE Land that is suitable for grazing use for a period of time. For example, on particular disturbed lands, grass may cover the area for a period of time before being replaced by trees or shrubs not suitable for forage.

TREE OPENING An opening in the Forest cover created by the application of even-aged silvicultural practices. The Northern Regional Guide established size limitations and guidelines to determine when cut areas are no longer considered openings.

TRESPASS The act of going on another's land or property unlawfully.

TWO-STEP SHELTERWOOD An even-aged silvicultural system in which the old crop (shelterwood) is removed in two successive cuttings in order to provide a source of seed and/or protection for regeneration.

U

UNDERSTORY The trees and other woody species which grow under a more or less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.

UNEVEN-AGED MANAGEMENT The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection.

Individual Tree Selection Cutting - The removal of selected trees from specified size and age classes over the entire stand area in order to meet a predetermined goal of size or age distribution and species composition in the remaining stand.

Group Selection Cutting - The removal of small groups of trees to meet a predetermined goal of size distribution and species in the remaining stand.

UNREGULATED HARVEST This harvest is not charged against the allowable sale quantity. It includes occasional volumes removed that were not recognized in calculations of the allowable sale quantity, such as cull or dead material and noncommercial species and products. It also includes all volume removed from unsuitable areas. Harvests from unsuitable areas will be programmed as needed to meet

multiple use objectives other than timber production and for improvement of administrative sites.

UNSUITABLE
TIMBER LAND

Lands not selected for timber production in the suitability analysis during the development of the Forest Plan due to (1) the multiple-use objectives for the alternative preclude timber production, (2) other management objectives for the alternative limit timber production activities to the point where management requirements set forth in 36 CFR 219.27 cannot be met and (3) the lands are not cost-efficient over the planning horizon in meeting forest objectives that include timber production. Land not appropriate for timber production shall be designated as unsuitable in the Forest Plan.

UTILITY
CORRIDOR

See Corridor

UTILIZATION
STANDARDS

Standards guiding the use and removal of timber. They are measured in terms of diameter at breast height (d.b.h.) and top of the tree inside the bark (top d.i.b.) and the percentages of "soundness" of the wood.

V

VALUE, MARKET

The unit price of an output normally exchanged in a market after at least one stage of production, expressed in terms of what people are willing to pay as evidenced by market transactions.

VALUE,
NONMARKET

The unit price of an output not normally exchanged in a market after at least one stage before consumption, and thus must be input from other economic information.

VEGETATION
TREATMENT

Any activities undertaken to modify the existing condition of the vegetation.

VIABLE
POPULATION

A population which has adequate numbers and dispersion of reproductive individuals to ensure the continued existence of the species population in the planning area.

VISITOR
INFORMATION
SERVICE (VIS)
SITE

A site which provides interpretative information, (directional, historical, statistical) located at Forest historical sites, overlook sites, or special interest areas.

VISUAL QUALITY
OBJECTIVE
(VQO)

A desired level of scenic quality and diversity of natural features based on physical and sociological characteristics of an area. Refers to the degree of acceptable alterations of the characteristic landscape.

Preservation: Only ecological changes are allowed to alter the natural landscape.

Retention: Human activities are not evident to the casual Forest visitor.

Partial Retention: Human activities may be evident, but must remain subordinate to the characteristic landscape.

Modification: Human activity may dominate the characteristic landscape but must, at the same time, utilize naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in middle-ground or background.

Maximum Modification: Human activity may dominate the characteristic landscape, but should appear as natural when viewed as background.

Enhancement: A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.

VISUAL
RESOURCE

The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

W

WALLOW

A depression, pool of water, or wet area produced or utilized by elk or moose during the breeding season.

WATER YIELD

The measured output of the Forest's streams.

WATER YIELD
INCREASE

Additional water released to the Forest streams as a result of Forest management activities.

WEEDING

Generally a cultural operation eliminating or suppressing undisturbed vegetation, mainly herbaceous, during the seedling stage of a forest crop, thus reducing competition with the seedling stand.

WET AREAS

Sites, often occurring at the heads of drainages, such as wet sedge meadows, bogs, or seeps. They are often referred to as "moist sites" and are very important components of elk summer range. Sites near water are important because the forage they produce is highly nutritious and heavily utilized by elk.

WETLANDS

Those areas that are inundated by surface or ground water with a frequency sufficient, under normal circumstances, to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands include marshes, bogs, sloughs,

potholes, river overflows, mud flats, wet meadows, seeps, and springs.

WILDERNESS Federal land retaining its primeval character and influence without permanent improvements or human habitation as defined under the 1964 Wilderness Act. It is protected and managed so as to preserve its natural conditions which (1) generally appear to have been affected primarily by forces of nature with the imprint of man's activity substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and confined type of recreation; (3) has at least 5,000 acres or is of sufficient size to make practical its preservation, enjoyment, and use in an unimpaired condition, and (4) may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

WILDERNESS STUDY An analysis to determine an area's appropriateness, cost, and benefits for addition to the National Wilderness Preservation System.

WINTER RANGE The area available to and used by big game during the winter season. Must contain forage or browse to feed the big game. Winter range areas tend to have a low amount of snow cover to enable the animals to reach the forage.

WITHDRAWAL An order removing specific land areas from availability for certain uses.

WORK YEAR EQUIVALENTS This is 2,087 working hours. May be accomplished by one person working yearlong or several people filling seasonal positions.

Y

YARDING The operation of hauling timber from the stump to a collecting point.

Z

ZONE OF INFLUENCE A delineated geographic area within which the present and proposed actions exert an important influence on residents and visitors.



APPENDICES

A. Timber Management	
A.1. Silvicultural Systems.....	A-1
A.2. Land Classification Summary.....	A-15
A.3. Timber Productivity Classification.....	A-16
A.4. Allowable Sale Quantity and LTSY Capacity.....	A-17
A.5. Present and Future Forest Conditions.....	A-18
B. Limits of Acceptable Change.....	B-1
C. Watershed Management.....	C-1
D. Minerals Management.....	D-1
E. Fire Management Direction.....	E-1
F. Wilderness Management Plans	
F.1. Absaroka-Beartooth Management Plan.....	F-1
F.2. Draft Lee Metcalf Management Plan.....	F-19
G. Grizzly Bear Guidelines.....	G-1
H. U.S. Fish And Wildlife Service, Biological Opinion.....	H-1
I. Timber Sale Program.....	I-1
J. Wild and Scenic Rivers Evaluation.....	J-1
K. Projected Budget to Implement the Forest Plan.....	K-1



APPENDIX A: VEGETATIVE MANAGEMENT PRACTICES

APPENDIX A-1: SILVICULTURAL SYSTEMS

The management standards and guidelines for timber displayed in the Northern Regional Guide will be followed.

This appendix presents the means to identify appropriate silvicultural systems for different forest types (Part I) and then to apply present standards to those systems on the ground (Part II). This material is intended to add further explanation and detail to the forestwide standards.

The final decision for the vegetative management practice (silvicultural system) chosen for each vegetative type and circumstance shall be made by a certified silviculturist using guidance in this appendix, a review of applicable technical and scientific literature, and practical experience. Using this knowledge, the silviculturist will evaluate the practices for relevance to the specific vegetation and site conditions.

Part I presents four criteria that can be used to identify the appropriate silviculture for the Gallatin's three forest types: lodgepole pine, Douglas-fir, and subalpine fir/spruce. Guidance is supplied for applying even-aged silvicultural systems primarily, but also uneven-aged systems where appropriate.

Once an appropriate silvicultural system is selected for a particular management area, how should it be applied on the ground? The specifics are presented as standards and guidelines in Part II. Standards are presented for clearcutting, uneven-aged silviculture where appropriate, opening size, and opening duration. Guidelines are presented for management of dead snags and downed woody debris.

I. Criteria For Selecting Preferred Silvicultural System

The appropriate silvicultural system for any management area is identified by applying the four criteria that follow. Each criterion is explained by use of tables and narrative

Criteria #1

The system should develop stand conditions required to meet management area goals over the longest possible time.

Stand conditions required for timber production can be described by stand density, stand structure, tree species composition, and growth rates throughout the life of the stand. Management of wildlife habitats or visual resources often require special stand and forest characteristics not always attainable over long periods of time with any silvicultural system.

The following tables assist in identifying the preferred silvicultural system for the Gallatin's principal forest types: lodgepole pine, Douglas- fir, and subalpine fir/spruce.

a. Lodgepole Pine Type

Shelterwood, group selection, single tree selection, and their modifications can be used in lodgepole pine. From a silvicultural point of view, they are acceptable options in stands where resource management objectives preclude clearcutting, or where regeneration by the clearcut system cannot be assured. However, windthrow, insects, diseases, and stand conditions impose limitations on the application of these systems to individual stands. A careful analysis of the capabilities and limitations of each stand is necessary to determine the appropriateness of silvicultural systems.

Natural regeneration is the preferred method for all silvicultural systems. However, artificial regeneration is required when mechanical scarification is precluded or when natural regeneration will not assure adequate stocking for achieving the management objective.

To achieve a desired character of maximum species diversity in this type would require artificial regeneration.

A desired character of old growth cannot be maintained in this type because lodgepole pine is normally a seral species and succession will convert the stand towards a tolerant climax type.

TABLE A-1. Preferred Silvicultural System - Lodgepole Pine Type

Part 1. Lodgepole Pine Type

DESIRED CHARACTER	PREFERRED SILVICULTURAL SYSTEM	
	EVEN-AGED	UNEVEN-AGED 1/
1. Continuous Site Occupancy with Trees.	Shelterwood	Single Tree Selection
2. Mosaic of Forest and Opening.	Clearcut, Seed Tree, Shelterwood	None
3. Multi-storied Stand (all components less than rotation age).	Clearcut, Seed Tree, Shelterwood	Single Tree and Group Selection
4. Maximum Species Diversity.	Shelterwood	Group Selection
5. Old Growth Character.	Shelterwood	Single Tree and Group Selection
6. Closed Canopy.	Clearcut, Seed Tree, Shelterwood	None

1/ Only applicable for resource management objectives other than timber production.

b. Douglas-Fir Type

Natural regeneration is the preferred method. However, because of spruce budworm and infrequent cone crops, artificial regeneration will be the most common method. Big Timber District is an exception to this; natural regeneration has been more successful here than on the remainder of the Forest.

TABLE A-2. Preferred Silvicultural System - Douglas-fir Type

DESIRED CHARACTER	PREFERRED SILVICULTURAL SYSTEM	
	EVEN-AGED	UNEVEN-AGED 1/
1. Continuous Site Occupancy	Shelterwood	Group and Single Tree Selection
2. Mosaic of Forest and Opening	Clearcut, Seed Tree	None
3. Multi-storied Stand (all components less than rotation age)	Clearcut, Seed Tree, Shelterwood	Single Tree and Group Selection
4. Maximum Species Diversity	Clearcut, Seed Tree, and Shelterwood	Group Selection
5. Old Growth Character	Shelterwood (Extended rotation)	Single Tree and Group Selection
6. Closed canopy	Clearcut Seed Tree, Shelterwood	None

1/ Only applicable for resource management objectives other than timber production.

c. Subalpine-Fir and Spruce Type

Shelterwood, group selection, single tree, and their modification can be used in the subalpine-fir and spruce type. However, windthrow, insects, disease, and stand conditions impose limitations on the application of these systems to individual stands. A careful analysis of the capabilities and limitations of each stand is necessary to determine the appropriateness of silvicultural systems.

TABLE A-5. Preferred Silvicultural Systems for Major Damaging Organisms

Damage Agent	Applicable Cover Types 1/	Highly Susceptible Stand Characteristics	Preferred Silvicultural Systems 2/
<u>Insects</u>			
Western Spruce Budworm	Douglas-fir, Spruce-Subalpine fir	Pure stands of tolerant tree species, overstocked, mature, multi-storied stands	CC, ST, SHEL
Mountain Pine Beetle	Lodgepole Pine (especially at lower elevations)	Lodgepole pine trees greater than 8" dbh and older than 80 years in pure stands	CC, ST, SHEL
	Ponderosa Pine	Pure even-aged ponderosa pine, 50-100 years, 8-12" dbh. Greater than 150 sq. ft., BA per acre slow growing, live crown ratios less than 1/3	CC, ST, SHEL, SEL
Other Bark Beetles	All	Pure or mixed host tree species in old growth and stressed stands	CC, ST, SHEL, SEL
Dwarf Mistletoe	Lodgepole Pine	Host tree species, multi-storied or pure stands, poor vigor	CC
Root Diseases	Douglas Fir	Pure host tree species	CC
White Pine Blister Rust	Whitebark Pine Limber Pine	Pure or mixed host tree species; Ribes undergrowth	CC, ST, SHEL
Commandra Rust	Lodgepole Pine	Pure host types near natural openings	CC

1/ Forest Survey Cover Types

2/ CC= clearcut; ST= seed tree; SHEL= shelterwood; SEL= selection

TABLE A-6. Fuel Treatment Choices for Various Silvicultural Systems

Method of Fuel Treatment	Forest Conditions Necessary for Treatment	Preferred Silvicultural Systems	
		Even-Aged	Uneven-Aged
Underburning	Residual Douglas-fir or ponderosa pine over 20 years old.	Shelter-wood	None
Broadcast Burn	All Stands - All Slopes (Generally slopes >35%)	Seed Tree Clearcut	None
Jackpot Burn	Continuous forest cover with a high proportion of fire resistant species	None	Group and Single Tree Selection
Machine Pile and Burn	Stands on <35% slopes	All	All
Hand Pile and Burn	All stands to meet special management objectives only	All	All
Lopping	All stands on difficult regeneration sites, in light fuels, intermediate harvests or overstory removals.	All	All
Chopping, Trampling	Stands on <35% slopes	All	Group Selection
YUM 1/	All	All	All

1/ Yarding of Unmerchantable Material (e.g., tree tops and limbs)

Criterion #4

The system should be compatible with acceptable logging methods so that future stands produced can be cultured and harvested.

For logging methods to be acceptable they should be able to harvest a stand without excessive damage to the desired residual vegetation or other resources. A compromise should occur between physical constraints, the environmental impacts, and costs of roading. Because of the wide variation of topography and vegetation in the Region combined with various land uses, both logging systems and transportation plans should be designed to meet the cultural constraints of stand tending, the physical spacing of roads, unit shape, topography, and other resource needs. The following table lists logging methods which are compatible with the even-aged and uneven-aged silvicultural system.

TABLE A-7. Compatibility of Logging Systems and Silvicultural Systems on the Gallatin National Forest

Logging Method	Normal Operating Constraints	Preferred Silvicultural System				
		Clear-cut	Seed Tree	Group Selection	Shelter-wood	Single Tree Selec.
<u>GROUNDLEAD #</u>						
Rubber-Tired Skidder	On stable soil, downhill <35%, Uphill <10%, EYD to 1700'	A	A	A	A	A
Tractor	On stable soil downhill <45%, Uphill 15%, EYD to 1000'	A	A	A	A	A
Horse	Downhill only, on slopes <30% EYD to 500'	A	A	A	A	A
Jammer***	On stable soils uphill only, EYD to 600'	A	A	A	N	N
Highlead***	Downhill EYD to 100', Uphill EYD to 950'	A	A	N	N	N
<u>SKYLINE ##</u>						
Live Skyline	Minimum deflection 8%, uphill only, EYD to 750'	A	A	A	A*	A*
Small Standing Skyline	Minimum deflection 8%, downhill EYD to 500', uphill EYD 450' to 1250'	A**	A**	A	A*	A*
Standing Skyline	Minimum deflection 7% downhill EYD to 700', uphill EYD 500' to 1000'	A	A	A	A	A* Group Sel

A-Acceptable - N-Not recommended - EYD-External Yarding Distance

For one half or more of the external yarding distance, turns of logs move parallel to and in contact with the ground.

Except for lateral yarding, turns of logs are brought to the landing with the leading end of the logs free of the ground.

* Only when one third or more of the merchantable trees are harvested from fully stocked stands.

** Only when the harvested stands dbh averages 12" or less.

*** Only when one half or more of the merchantable trees are harvested from fully stocked stands.

Criterion #5

The system must be cost effective.

In general, costs will increase from left to right in Table A-7 as the number of residual trees increases. Costs are also increased as the size of the residual trees decreases because of the added difficulty of protecting the leave stand.

Logging costs per unit volume increase reading down Table A-7. Road construction costs should be added to logging costs with the physical limitation of the logging method controlling road spacing.

1. Only small standing or running skylines can be considered for the Gallatin. These would be yarders which are equipped with working lines less than 3/4 inches in diameter.
2. Large skylines, balloons, and helicopters are not currently economical yarding equipment for Eastern Montana. Small log size, short operating season, high elevation, and low value material contribute to the infeasibility of using these systems on the Gallatin.

II. Standards for Silvicultural Activities

The following standards and guidelines are valuable to apply the silvicultural systems identified in the first part of this appendix. Standards follow for clearcutting, uneven-aged silviculture, opening size, and opening duration. Additionally, guidelines are included for management of standing snags and downed woody debris.

A. Standards for Clearcutting

The standards that follow will help identify suitability and methods for clearcutting:

1. Clearcutting should be used only where it is the optimum system. Optimum is considered to be the best system available to meet the objectives and requirements of the management area.
2. In areas which contain natural openings, clearcuts may border or include the natural openings if other resource values are protected and if pocket gophers can be effectively controlled.
3. Clearcut location, size, and shape will utilize the principles of landscape design as described in the Visual Management System and the principles of wildlife habitat for protection/enhancement of cover, edge effect, travel corridors, and concentrated use areas.
4. Follow the standards in the Regional Guide.

B. Standards for Uneven-Aged Silviculture

Standards for uneven-aged silviculture are as follows:

1. Where timber production and harvesting are to be scheduled on suitable lands, uneven-aged silviculture can be practiced provided it satisfies the following conditions:
 - (a) The following factors should be specified and implemented: optimal sustainable diameter distribution, cutting cycle length, optimal species mix, conversion strategy, conversion period length, and scheduling of treatments and entry dates for the total area of Forest involved (Hann and Bare, 1979).
 - (b) Stands to be managed should generally be at least 5 acres or more in size.
 - (c) Each treatment should be capable of producing usable products through time.
 - (d) The affected ecosystem should be able to withstand frequent harvest activities. The following will be considered: fuel loadings in the stand to be managed in conjunction with fuels in the surrounding area; impacts to wildlife; soil compaction and erosion potential of the site; susceptibility of feature tree species to frequent logging damage and resulting stem decay.
 - (e) Tree species indigenous to the area should be compatible with stand structures that will occur in uneven-aged stands.
2. Where timber production and harvesting are not an objective of management, uneven-aged silviculture may be practiced on unsuitable lands to meet other resource management objectives provided it satisfies conditions.

C. Uneven-Aged Methods: Further Discussion

By definition (Smith), uneven-aged stands will contain at least three age classes.

In the selection method, mature timber is removed either as single scattered trees or in small groups of short intervals. The cuttings are repeated indefinitely with the objective of creating or maintaining an uneven-aged stand. This process depends on the establishment of reproduction at intervals and making it free to grow that continuing recruitment of new age classes is achieved. Thus at any entry, you will have any or all of the following operations occurring: harvest, regeneration (either natural or artificial), precommercial thinnings, and commercial thinnings.

To have a reasonable chance for success using an uneven-age system of management, several conditions (identified in the forestwide standards and guidelines) must be met. In addition to those, other conditions must be considered, such as the impacts of insects and disease, the applicability of

available logging systems, our ability to treat the fuel loading that is created, natural factors such as windthrow, and our economic ability to perform the necessary operations.

Finally, we must consider the impact of this system on other resources: the large proportion of area that is removed from timber production by the transportation system (roads and skid trails or cable corridors), soil compaction and disturbance by repeated entries, impact on water quality through repeated soil disturbance (erosion), and impact on wildlife by the amount of roads and frequent repeated entries that are necessary. All of these things must be considered to determine whether an uneven-aged system of management is feasible and whether that system best meets our management objectives.

D. Standards for Opening Size

Standards for size of openings created by timber harvest follow:

Size of tree openings created by even-aged silviculture will normally be 40 acres or less. Creation of larger openings will require 60-day public review and Regional Forester approval, with the following exceptions:

- a. Where natural catastrophic events such as fire, windstorms, or insect and disease attacks have occurred, 40 acres may be exceeded without 60-day public review and Regional Forester approval, provided that the public is notified and the environmental analysis supports the decision.
- b. Where any one of the following conditions exist, the size of the opening may reach up to 60 acres without 60-day public review and Regional Forester approval, provided that the public is notified and the environmental analysis supports the decision:
 - (1) When larger created openings will reduce the disturbance to soil, water, fish or riparian resources, and residual vegetation by: (1) allowing economically feasible logging systems that reduce landing and road construction; (2) locating roads away from unstable soils; or (3) reducing soil and vegetation disturbance from dragging logs.
 - (2) Where groups of trees infested by dwarf mistletoe or root rot disease need to be incorporated into the created opening to avoid infection of susceptible conifer reproduction and their inclusion cannot be achieved by centering the created opening over the area of infection.
 - (3) Where visual quality objectives require shaping and blending of openings to fit landform.
 - (4) Where larger units are needed to achieve silviculture objectives in existing areas or regeneration cutting by the shelter-wood method and where destruction of the newly created stand of reproduction would occur as a result of delayed removal of shelter trees.

E. Standards for Duration of Opening

The following standards enable openings to be defined, and allow regeneration of the openings to be estimated:

1. A harvested area will no longer be considered an opening when tree regeneration meets the objective of the management area. Specific guidelines follow:

- a. Within management area #8 a harvested area on suitable forest land will no longer be considered a nonstocked opening when stocking surveys carried out in accordance with Regional instructions indicate prescribed forest tree stocking at or above 2 feet in height. Prescribed forest tree stocking is defined as a minimum number of trees per acre over 90 percent of the area following initial stocking control.

In addition, as a long-term objective, adjacent stands will be represented by at least four size/age classes. These classes will be defined based on the following size classes and average stand diameter (Forest Service, 1980; FSM2409.14).

Approximate Age

Nonstocked--seedling (0" to 0.9" diameter)	0-20 years
Sapling (1" to 4.9" diameter)	21-40 years
Pole (5.0" to 8.9" diameter)	41-60 years
Sawtimber (9.0" or larger)	61+ years

- b. Within management areas 11 and 13 or where wildlife habitat manipulation is a goal, openings created are considered to be openings until:
 - (1) Regrowth in the opening serving as hiding cover is able to hide 90 percent of an elk at a 200-foot distance. Hiding cover typically takes 15 to 25 years to occur in lodgepole pine clearcuts in this area.
 - (2) In some locations where wildlife forage cover ratios are favorable for cover but not for forage, it may be desirable not to regenerate the opening with trees but instead produce wildlife forage for a period of time.
- c. Where water yield is an issue, concern, or goal, the Northern Region's Equivalent Clearcut Area (ECA) procedure will be used to assist in scheduling timber harvest activities in space and time within a watershed. The ECA procedure has been adapted to Gallatin National Forest conditions and, as such, is suitable for determining duration of openings in a hydrologic sense.
- d. Within sensitive or critical vicinity areas, a site specific watershed plan will be prepared prior to, or in conjunction with timber harvest planning. The adopted Visual Quality objectives (VQO's) will provide basic direction for this plan.

F. Standards for Snag Management

The snag management standards which follow are an important means of accommodating the needs of wildlife--specifically, cavity-nesting birds--to the timber harvest program.

1. Emphasize snag retention in riparian areas, ridgetops, and natural and man-made openings.
2. Maintain approximately 1.4 snags per acre for local primary cavity nesters in riparian areas and 1 snag per acre in other forested areas on a drainage basis. (Thomas, 1979)
3. Snag recruitment should emphasize the needs of primary cavity nesters with regard to:
 - a. Specific species of trees,
 - b. specific characteristic requirements (broken topped, mistletoe, etc.),
 - c. dispersal of snags (groups of snags or single snags).
4. Live trees should be selected for recruitment when dead standing snags are not available.

G. Standards for Dead and Down Woody Debris

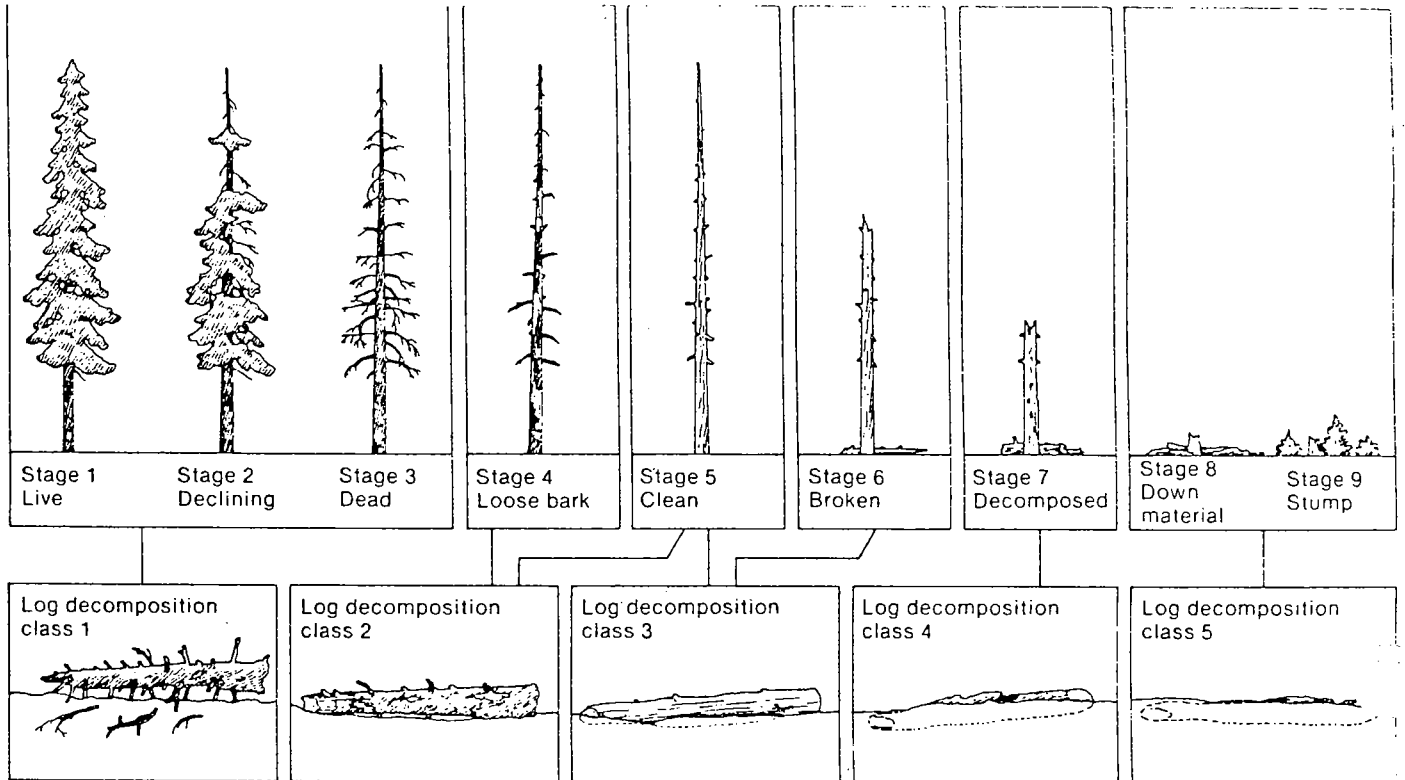
The following standards on dead and down woody debris benefit nongame species of wildlife:

1. Maintaining the following levels of plus three-inch diameter dead and down woody debris for dependent wildlife habitat where piling occurs.

<u>Log Class</u>	<u>Amount</u>
1, 2	2 per acre (10-inch diameter x 20 feet long)
3, 4	All where feasible
5	All

2. Maintain approximately ten percent of harvest areas in zero to three-inch debris for dependent wildlife habitat.
3. Emphasize piling over windrowing of dead and down woody debris where machine disposal is specified.
4. Maintain a minimum of fifteen tons per acre of plus three-inch debris after site preparation and/or hazard reduction.

Figure VII-1: Log Class



APPENDIX A-2: LAND CLASSIFICATION SUMMARY

<u>Classification</u>	<u>Acres</u>
1. Non Forest land (includes Water)	400,634
2. Forest land	1,334,778
3. Forest land withdrawn from timber production	156,300
3a. Administrative Sites and Developed Recreation sites	5,500
4. Forest land not capable of producing crops of industrial wood	732,978
5. Forest land physically unsuitable:	0
Irreversible damage likely to occur	0
Not restockable within 5 years	0
6. Forest land - inadequate information <u>1/</u>	0
7. Tentatively suitable forest land (Item 2 minus Items 3, 4, 5, and 6)	440,000
8. Forest land not appropriate for timber production <u>2/</u>	135,000
Dispersed Recreation/Wildlife	95,000
Dispersed Recreation	25,000
Minimum Level	15,000
9. Unsuitable forest land (Items 3, 4, 5, 6, and 8)	1,037,378
10. Total suitable forest land (Item 2 minus Item 9)	305,000
11. Total National Forest land (Items 1 and 2)	1,735,412

1/ Lands for which current information is inadequate to project responses to timber management.

2/ Lands identified as not appropriate for timber production due to: assignment to other resource uses to meet Forest plan objectives; (b) management requirements; and (c) not being cost efficient in meeting Forest Plan objectives over the planning horizon.

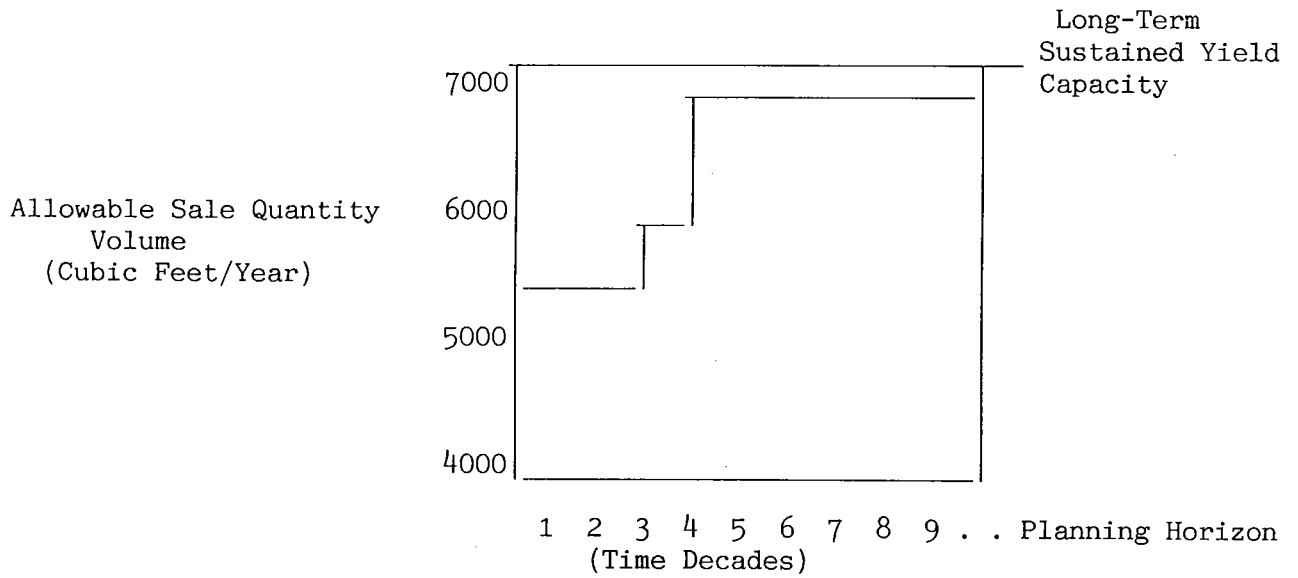
APPENDIX A-3: TIMBER PRODUCTIVITY CLASSIFICATION

<u>Potential Growth (cubic feet/acre/year)</u>	<u>Suitable Lands <u>1/</u> (acres)</u>	<u>Unsuitable Lands <u>2/</u> (acres)</u>
Less than 20	---	265,820
20 - 49	134,500	513,530
50 - 84	160,560	235,930
85 -119	9,940	14,500
120-164	---	---
165-224	---	---
225+	---	---

1/ Based on the potential biological growth of natural stands, with no consideration given to stocking control or other intensive management practices.

2/ Estimated productivity for lands, such as wilderness, where data are not available.

APPENDIX A-4: ALLOWABLE SALE QUANTITY AND LONG TERM SUSTAINED YIELD CAPACITY



APPENDIX A-5: PRESENT AND FUTURE FOREST CONDITIONS

	<u>Unit of Measure</u>	<u>Suitable Land</u>	<u>Unsuitable Land</u>
Present Forest:	MMCF	492	2030
Growing Stock	MMBF	1,995	5,529
Live Cull	MMCF	86	280
	MMBF	362	1,177
Salable dead	MMCF	65	211
	MMBF	253	822
Annual net growth	MMCF	-4	-13
	MMBF	-16	-51
Annual mortality	MMCF	10	33
	MMBF	41	132
Future forest:			
Growing stock	MMCF	356	
Annual net growth	MMCF	4	
Rotation age	Years	90 <u>1/</u> to 120	
Age class distribution acres (suitable lands)	<u>Age Class</u>	<u>Present Forest</u>	<u>Future Forest</u>
	0-39	48,900	75,900
	40-89	6,100	84,500
	90-119	25,200	-0-
	120-149	182,900	18,700
	150-199	34,300	90,300
	200+	-0-	28,000

1/ Average rotation for regenerated stands on lands with timber emphasis by major forest types.

APPENDIX B: DETERMINATION OF LIMITS OF ACCEPTABLE CHANGE

Although the Gallatin National Forest has an overall capacity for dispersed recreation use in excess of anticipated demand, there are specific areas both inside and outside of wilderness areas where the wilderness or other resource values are being eroded.

The National Forest Management Act regulations (36 CFR 219.12 [Forest Planning Actions]) require the Forest Plan to provide direction for limiting and distributing visitor use of specific portions of wilderness and primitive areas, evaluating levels of use that allow natural processes to operate freely and that do not impair the values for which wilderness areas were created.

Specific areas outside wilderness will also be evaluated if problems are identified that indicate these areas are reaching their limits of acceptable change.

1. Limits of Acceptable Change

The limits of acceptable change of an area reflects: 1.) The biophysical resource capabilities, 2.) the values and perceptions of recreation users (social capabilities), and 3.) the management objectives for the area. Limits of acceptable change can help determine carrying capacity by setting the amount of human-caused change to the biophysical and social components which can be tolerated. There are no universal standards of acceptable change. They can vary from place to place. Management sets the standards for acceptable change, thereby limiting impacts.

There are indications that several locations within wilderness and dispersed recreation areas on the Forest have reached, or are reaching, their limits. Identified areas for evaluation are:

Gardiner District
Russell Lake Trail
Knox Lake
Charlie White Lake
Hellroaring Creek
Slough Creek
Buffalo Forks Creek

Big Timber District
Rainbow Lakes
Blacktail Lake

Hebgen District
North Fork Hilgard Basin
a. Crag Lake
b. Expedition Lake
c. Ha Hand Lake
Black Sand Springs
West Fork Beaver Creek Basin
a. Blue Danube Lake
b. Avalanche Lake
Coffin Lakes

Livingston District
Thompson Lake
Pine Creek Lake - Trail
Elbow Lake
Campfire Lake

Bozeman District
Lava Lake
Spanish Lakes
Lake Solitude
Jerome Rock Lakes
Hyalite Lake
Heather Lake
Fairy Lake
Emerald Lakes

2. Evaluation

Limits of acceptable change indicators are identified for each problem area. Some examples of biophysical indicators are: vegetation, soil, water, fish, and wildlife. Examples of social indicators are: visitor use, number and kind of encounters, campsites, or trails. Any combination of these indicators could be selected for an area to be evaluated, depending on the particular type of problem.

The manager specifies the standards, or measures to be applied to the indicators to determine if the magnitude of change measured by the indicators is within acceptable limits.

Next, the collection of information on the selected indicators to determine how close the existing conditions are to the standards that have been set. If the acceptable standards have been exceeded, management must make a decision on the type of action necessary to alleviate the problem.

3. Action

In Wilderness, and particularly where conditions are clearly degraded, the following strategies will be used, listed in descending order of preference:

FIRST ACTION:

Efforts will be directed towards information/education programs and correction of visible resource damage. Emphasis will be placed on (1) employment of seasonal field personnel to accomplish physical restoration of campsites and make visitor contacts, and (2) visitor information to encourage practices that do no damage to the wilderness.

*Don't promote areas that are already heavily used.

*Adjust administrative and informational signing.

*Remove or reduce any facilities contributing to concentration of use beyond capacity.

*If fishing is attracting excessive use to an area, coordinate with Montana Department of Fish, Wildlife and Parks to determine if adjustments in the fish management program could facilitate reductions in use. A memorandum

of understanding should be used to document agreement between the federal agencies and the state.

*Revegetate damaged and impacted areas.

*Provide the public with information outside the wilderness, at trailheads, and through contacts by wilderness rangers. A forest-level education program for public schools, outdoor clubs, and others will continue.

SECOND ACTION:

If the first action is unsuccessful, restrict activities by regulation. These regulations will apply to all visitors, not in specific groups. Possible actions are:

*Limit or ban campfires.

*Designate campsites.

*Require minimum spacing between campsites.

*Impose a distance setback of campsites from water.

*Limit length of stay.

*Close and revegetate campsites.

*Restrict number of recreation permittees.

*Restrict group size.

THIRD ACTION:

If the first and second actions fail, restrict number of visitors to capacity level. Possible actions, in addition to previous efforts, are:

*Restrict number of campers.

*Allow only day use.

*Restrict time of entries.

*Restrict numbers of entries per trailhead.

This will require a permit system for implementation.



APPENDIX D: MINERALS MANAGEMENT

Appendix D consists of two sections:

1. An introduction to minerals and oil/gas. This section provides information on locatable minerals, common variety minerals, leasable minerals, and oil/gas leasing procedures.

2. The second section is the summary list of lands currently withdrawn from mineral status and those withdrawn, but with a recommendation to revoke the withdrawal.

I. Types of Resources

Development of minerals or oil/gas resources on the Gallatin National Forest will depend on the discovery of commercial quantities of the resource which are economically feasible to recover. The Gallatin has potential for hardrock minerals, geothermal and oil/gas, but there is no present production of any of these commodities. Seismic activity and leasing for oil and gas continues on the Forest, with about 30 percent of the Forest currently either leased for petroleum or under lease application. Also, an underground gold mine has been proposed for the Jardine area and a platinum mine in the East Boulder River drainage.

A. Locatable Minerals

Hardrock mining is regulated by the 1872 Mining Law and State and federal regulations. Reasonable access to valid mining claims is guaranteed under the mining laws. However, the claimant/operator must be able to reasonably justify his need for a particular type of access. The type of access approved under 36 CFR 228 will be consistent with the next logical step in the development of the property involved. The operator will be required to demonstrate to the Forest minerals specialist that the access proposed is the next logical step in the exploration or development process.

Otherwise, the claimant or operator is required to develop a responsible plan of operation according to State and federal standards. Through this operating plan, controls can be placed on surface disturbance and an adequate reclamation effort can be required. Construction standards can be imposed on any

access roads required so as to minimize erosion. Activity at the site is monitored to ensure that the agreed-upon operating plan is being followed.

B. Common Variety Minerals

Common variety minerals (e.g., building stone, sand and gravel) may be sold from Gallatin Forest lands where the sale of these minerals is compatible with the management goals of the particular area. Generally, it is the policy of the Forest to sell sand and gravel only when commercial sources are not available in that area. At present, there are several sales of sand and gravel taking place on the Forest.

C. Leasable Minerals

Environmental assessments have been written for oil and gas leasing on all areas except existing wilderness, wilderness study areas, and proposed wilderness. These environmental assessments set up resource protection guidelines and stipulation requirements that are applied to each lease application.

D. Oil/Gas Leasing Procedures

Processing of oil/gas lease applications begins with the district ranger evaluating the information supplied by the lessee on the lease application form. The district ranger compares the wishes of the applicant with his own knowledge of the site in order to identify any particular hazards to the environment. For instance, if the area under application includes sensitive soils, wetlands, campgrounds, or other features subject to high impact, special stipulations would be imposed on the lease to restrict the lessee's activities. A listing of the stipulations that can be imposed to protect the environment, along with the conditions under which they would be imposed, are found in the planning files (Oil and Gas Leasing on the Gallatin National Forest, 1981).

After the lease application has been evaluated, the district ranger decides whether or not to recommend the granting of a lease. If yes, he then identifies any stipulations needed to protect environmental values. His decision is forwarded to the Forest Supervisor, who either concurs or requests a revision. Finally, the Forest Supervisor forwards his recommendations to the Regional Forester.

The Regional Forester makes final recommendations to the Bureau of Land Management (BLM), the agency that holds the authority to lease federal lands for minerals. The BLM then either grants or refuses the lease, based heavily on what the Forest Service recommends. If the decision is to lease, the BLM sets any stipulations appropriate to the particular lease.

The procedures sketched out here are treated in considerably more detail in the environmental assessment, "Oil and Gas Leasing on the Gallatin National Forest" (1981), available at the Supervisor's Office, Bozeman, Montana.

II. Minerals Withdrawal

On the Gallatin National Forest certain specific areas have been withdrawn from mineral entry. These areas may be current administrative sites, land for expansion of current administrative sites, ski areas, campgrounds, picnic areas, lookouts, ranger stations, and some specific recreation areas such as a mineral springs. For the purpose of this appendix, lands are placed in three categories based on an initial review.

1. Continual Withdrawal - Those lands already withdrawn from mineral entry which are recommended to be kept in that status.
2. Revoke/Note in Public Records - Those lands which have been withdrawn and are occupied by improvements such as campgrounds and Forest Service cabins. Such use appropriates the land and provides protection from mining claims. Revocations will be processed concurrently with requests to the Bureau of Land Management for record notation (FSM 2761.03).
3. Revoked - Those lands the Forest feels should no longer be withdrawn from mineral entry. These may be old administrative sites that are no longer in use. Some sites may date to the last century. In most cases the buildings are gone or are no longer serviceable. Other areas to be revoked are areas set aside for development at an earlier date here, since no funds were available, no development occurred.

The following criteria will be used in evaluating future withdrawals:

1. Evaluation Criteria

a. Existing Withdrawals

- (1) Is the land still being used for the purpose for which it was withdrawn?
 - (a) If yes, is the area withdrawn too small or too extensive?
 - (b) Have conditions changed so that the lands are more valuable for other uses? If no, then:
- (2) Are there other ways available to protect the resource values (for instances, existing statutes and regulations, rights-of-way, cooperative agreements)? If no, then:
- (3) Are the values at risk of such a nature that a significant financial, social, or cultural loss could occur?
 - (a) What is the monetary value of the physical improvements at risk?
 - (b) What is the current and projected use demand?

(c) If the withdrawal is for a proposed development, have funds been allocated for this project?

(d) Is the resource unique and/or irreplaceable? If yes, then:

(4) Does the withdrawal area have a high mineral potential or are there nearby mining claims or mining activities? If yes, then:

(5) Continuation of withdrawal action recommended.

b. Proposed Withdrawals

(1) Follow steps 2 through 4.

(2) Initiation of withdrawal action recommended.

2. Processing Program and Review

a. Determination of need based on criteria section.

b. Process using requirements outlines in statutes and regulations.

(1) Section 204 of FLPMA (P.L. 94-579).

(2) 43 CFR 2310

c. . A review of existing and future withdrawals will again occur with the programmed revisions of the Gallatin Forest Plan.

Table D-1: MINERALS WITHDRAWALS

Number	Withdrawal	Acres	Recommendation	Legal Description	District
M40635	Big Timber Ranger Station	83.50	Revoke	T3N, R12E	D-1
M41574	Main Boulder Four Mile Administrative Site	32.00	Revoke/ note in Public Records	T6S,R12E	D-1
M41574	Main Boulder River Administrative Site	160.00	Revoke/note in Public Records	T3S,R12E	D-1
M41574	West Boulder #27 Administrative Site	230.00	Revoke/note in Public Records	T3S,R11E	D-1
M41574	West Bridger Creek Station	65.00	Revoke	T2S,R15E	D-1
M41574	Deep Creek Administrative Site	79.3	Revoke	T4S,R10E	D-2
M41264	Trail Creek Ranger Station	90.00	Revoke/note in Public Records	T3S,R7E	D-2
M41503	Trail Creek Ranger Station	46.68	Revoke	T3S,R7E	D-2
M41495	Big Creek Administrative Site	160.00	Revoke	T6S,R6E	D-2
M41495	Porcupine Administrative Site	40.00	Revoke/note in Public Records	T4N,R10E	D-2
M036030	Montanapolis Public Service Site	30.00	Revoke	T6S,R10E	D-2
M036030	Montanapolis Mineral Springs Recreation Area	10.00	Revoke/note in Public Records	T6S,R10E	D-2
M036030	Chief Joseph Campground	9.40	Revoke/note in Public Records	T9S,R15E	D-3

Table D-1: MINERAL WITHDRAWALS

M036030	Clarks Fork Camp-Picnic Campground	19.43	Revoke/note in Public Records	T9S,R15E	D-3
M036030	Cooke Administrative Site	10.00	Revoke/note in Public Records	T9S,R15E	D-3
M41616	Cooke Ranger Station	160.00	Revoke/note in Public Records	T9S,R15E	D-3
M036030	Roadside Camp -Picnic Area	40.00	Revoke/note in Public Records	T9S,R15E	D-3
M036030	Soda Butte Campground	18.92	Continue as is	T9S,R15E	D-3
M036030	Yankee Jim Camp -Picnic Area	10.00	Revoke/note in Public Records	T7S,R7E	D-3
M40625	Mill Ranger Station	100.00	Revoke	T8S,R7E	D-3
M41506	Cedar Ranger Station	40.00	Revoke	T8S,R7E	D-3
M41496	Miner Administrative Site	160.00	Revoke	T8S,R6E	D-3
M41574	Buffalo Fork Administrative Site	96.50	Revoke	T8S,R12E	D-3
M41574	Hellroaring Creek Administrative Site	120.00	Revoke	T9S,R10E	D-3
M41574	Slough Creek Administrative Site	103.10	Revoke	T9S,R13E	D-3
M41615	Red Lodge/ Cooke City	128.57	Revoke	T9S,R14E	D-3
M41615	Red Lodge/ Cooke City	201.43	Revoke	T9S,R14E	D-3

Table D-1: MINERAL WITHDRAWALS

M031502	Mystic Lake Reservoir	50.00	Revoke	T3S,R7E	D-6
M031502	Mystic Lake Reservoir	183.79	Revoke	T3S,R6E	D-6
M41493	Langohr Administrative Site	50.00	Revoke	T3S,R6E	D-6
M45177	Ross Peak Administrative Site	60.00	Revoke	T1N,R7E	D-6
M17093	Bear Trap Recreation Site	501.55	Revoke if BLM Concurrs	T4S,R1E	D-6
M41264	Squaw Creek Administrative Site	80.00	Revoke/note in Public Records	T4S,R4E	D-6
M45171	Bald Mountain Administrative Site	23.50	Revoke	T5S,R4E	D-6
M41499	Shoefelt Administrative Site	20.00	Revoke	T3S,R7E	D-6
M40607	South Fork Administrative Site	40.00	Revoke	T9S,R4E	D-7
M037720	Cabin Creek/Hebgen/Beaver Creek Camp	3644.88	Continue as is	T11S,R3E	D-7
M037720	West Fork Beaver Creek Campground	160.00	Revoke/note in Public Records	T11S,R3E	D-7
M037720	Landslide Area	578.56	Continue as is	T11S,R2E	D-7
M037720	Landslide Area	322.00	Continue as is	T12S,R2E	D-7
M037720	Potomageton Park Campground	40.00	Revoke/note in Public Records	T10S,R3E	D-7

Table D-1: MINERAL WITHDRAWALS

M037720	Red Canyon Campground Fault Area	640.00	Continue as is	T11S,R4E	D-7
M41270	Basin Ranger Station	80.00	Revoke/note in Public Records	T13S,R4E	D-7
M41484	Marl Administrative Site	30.00	Revoke	T12S,R5E	D-7
M41488	Yellowstone Administrative Site	1.03	Revoke/note in Public Records	T13S,R5E	D-7
M41264	Cinnamon Creek Administrative Site	80.00	Revoke/note in Public Records	T8S,R4E	D-7

APPENDIX E: FIRE MANAGEMENT ANALYSIS

This appendix will address the standards for fire that are part of the management area prescriptions in this Plan. Secondly, the appendix will supply some background on the analysis that provides a basis for these standards and guidelines.

The fire analysis relates to the management prescriptions assigned in the Forest Plan by indicating an appropriate level of suppression response for each management area. The analysis also provides a basis for incorporating standards for prescribed fire, fuels management, and prevention where they are appropriate. These practices are assigned based on resource values in the particular management area, fire control costs, and what would constitute desirable management for the particular area. For example, in some specific areas wildfire might actually result in net benefit (e.g., wilderness) whereas in other areas the cost of fire could be very high (high investment timber areas).

I. Management Standards and Guidelines

The management area prescriptions present standards for several fire-related management practices. Of these, suppression and prescribed fire will be discussed here. Others, such as fuels management or fire prevention, are discussed adequately in the forestwide standards and guidelines.

A. Wildfire Suppression Response

Three categories currently recognized in FSM 5130 define an appropriate suppression response as control, contain, and confine. The level of protection assigned is a -20 percent, 0, or +20 percent change in investment from the current fire program on the Forest. This level of protection is commensurate with the resource values assigned by management prescription. The wildfire suppression response is the intensity of suppression, (e.g., control, contain, or confine) and is assigned by management prescription. For example, high commodity prescriptions, (e.g., timber) are assigned an intensive level of protection (+20 percent) and will emphasize control as the appropriate suppression response. Conversely, a low commodity prescription (e.g., minimum level) is assigned a low level of protection (-20 percent) and emphasizes containment or confinement as the appropriate suppression response. The assignment of the appropriate suppression response is based strictly on economics--values at risk, suppression costs, etc.

The analysis for the "no change" level was based on a fire management organization for FY 1980. All costs, positions, equipment, etc., provided a base for comparison. The plus and minus twenty levels are plus and minus twenty percent of the "no change" level. For example, we took 120 percent of the FY 1980 budget to attain the +20 level and 80 percent of the FY 1980 budget to attain the -20 level. Personnel, training, equipment, supplies, etc., were cut or added to build the new organization (+20 or -20).

c. Fire Management Analysis - Level III

This analysis pertains to plan implementation and involves the drafting of annual budget and operating plans for fire management. This analysis will be completed in the course of implementing the Forest Plan.

APPENDIX F1: ABSAROKA-BEARTOOTH WILDERNESS MANAGEMENT DIRECTION

Introduction

This appendix is intended to highlight the specific management direction developed in the Absaroka-Beartooth Wilderness Management Plan, a document prepared jointly by the Gallatin and Custer National Forests. Copies of this document are available at the Supervisor's Office of the Gallatin National Forest, Bozeman, MT.

This appendix is useful as a quick reference to much of the specific direction in the A-B Management Plan but cannot substitute for the full plan in many respects. Readers are encouraged to consult the full A-B Management Plan to understand the issues being addressed, the management context, the rationale for specific management decisions, and the objectives of the specific management approaches.

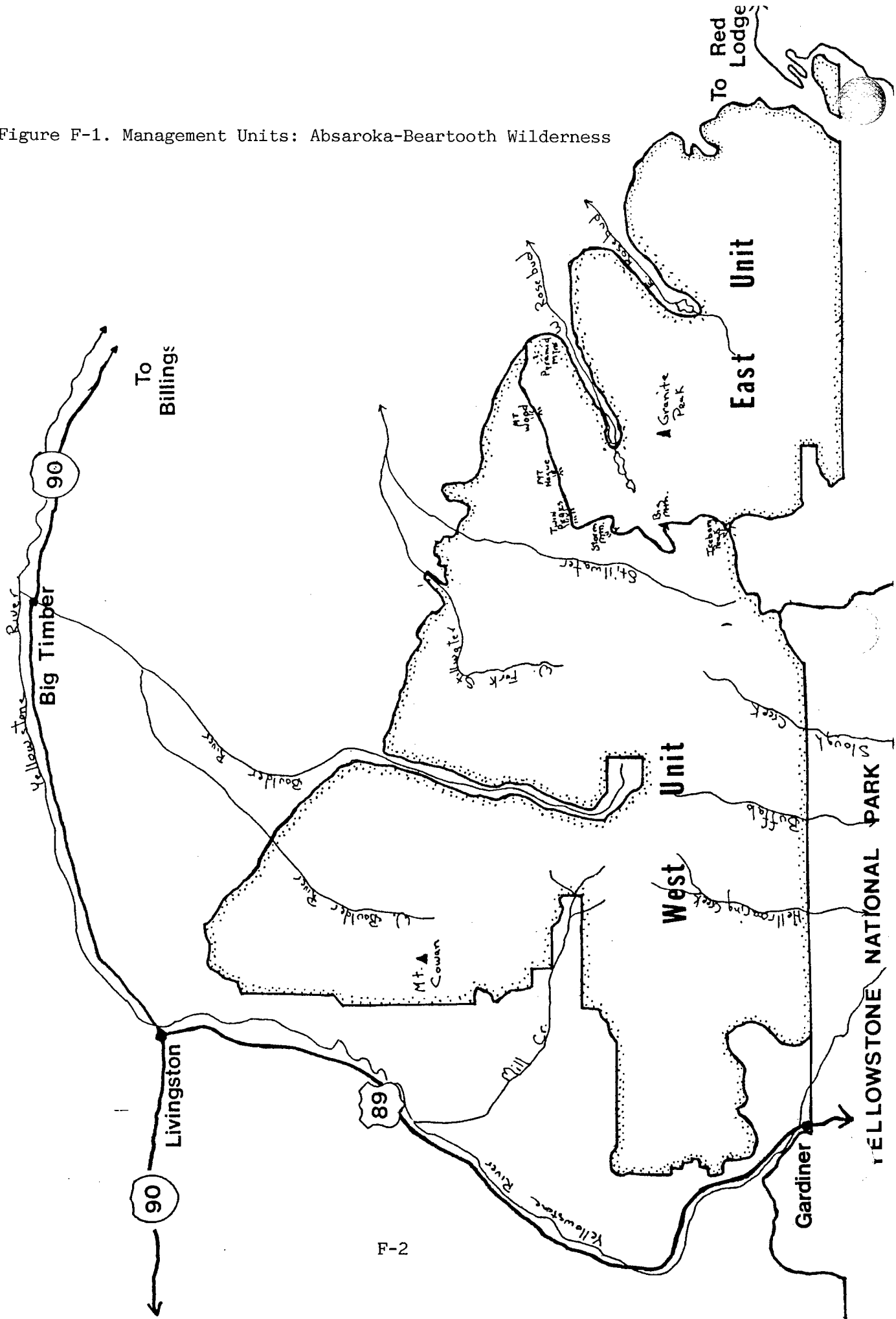
The Absaroka and Beartooth Mountains that characterize the A-B Wilderness are two distinct mountain ranges with differing characteristics. For one example, the Absaroka Range is less rugged, and contains more grass and trees on lower, gentle slopes. The Beartooth Range is more high, rocky, and often barren. To adequately address the different problems associated with the two ranges, two separate management units have been identified.

An Interim A-B Plan was first put into effect in April of 1981. Since then and as a result of the forest planning effort, the management direction in this original document was revised with an addendum dated November, 1982. With these changes, the Interim A-B Plan was retitled the "A-B Wilderness Management Plan" (Planning Records) and became the official management plan for the wilderness.

Also included is management direction on livestock grazing in wilderness areas. The last item in this appendix is the House of Representative Report 96-1126 of June 24, 1981. This is the most recent direction available, and is reprinted as it appeared in Forest Service Manual 2323.2, including the Manual's introduction.

References are made throughout the A-B Management Plan to the East and West Units. These are shown on the map, Figure F-1.

Figure F-1. Management Units: Absaroka-Beartooth Wilderness



MANAGEMENT DIRECTION FROM "ABSAROKA-BEARTOOTH WILDERNESS MANAGEMENT PLAN" (NOVEMBER 1982)

1. Water, Air, and Soils

Water, air, and soil quality will be monitored. Corrective action will be taken where degradation from other than natural causes occurs.

The effects of air pollution on the Wilderness caused by potential forest activities outside will be addressed in the environmental analysis process.

2. Fish and Wildlife

Management of fish and wildlife will be guided by FSM 2611.1-17, 4/79, R-1 Supp. 47, Memorandum of Understanding between the Montana Department of Fish, Wildlife and Parks and the Forest Service.

Fish stocking will be allowed to continue in lakes stocked prior to wilderness designation.

Barren lakes, not previously stocked, may be considered for stocking after it has been mutually (Forest Service - Montana Department of Fish, Wildlife and Parks) agreed and an environmental analysis conducted to identify the effect on scientific value and effects on the wilderness resource.

The collection of fish spawn from Lightning Lake, when needed by the Montana Department of Fish, Wildlife and Parks, will be allowed in accordance with the Memorandum of Understanding.

The Beartooth High Lakes Fisheries Analysis will be used as guidance in developing a fisheries program for the Wilderness.

Grizzly bears will be managed in accordance with the "Guidelines for Grizzly Bear Management in the Greater Yellowstone Area" and Forest guidelines or policy as they are developed.

Bighorn sheep populations will be monitored. Through the environmental analysis process, other land uses that could negatively impact the bighorn sheep population (i.e. location of grazing, trails, camps for management of livestock, and recreation uses) will be coordinated.

The North Yellowstone migratory elk herd uses approximately 2,900 acres of the Absaroka-Beartooth Wilderness for winter range. This area can probably winter 670 elk based on an estimated production of 500 lb., of forage per acre. The herd will continue to be monitored to confirm or refine these figures. Monitoring will be under the Tri-Agency Cooperative Agreement for Elk Herd Management.

If elk herd numbers cannot be maintained, the potential to increase the forage yield in the Wilderness through habitat improvement will be assessed.

3. Vegetation

Develop a fire management plan to restore natural fire to the Wilderness.

All feed that is packed into the Wilderness will be either certified weed free or processed feed (i.e. pelletized).

Visitors will be encouraged to remove burs and weed seeds from stock prior to entering the Wilderness. This will be accomplished through brochures and at trailhead information centers.

Develop a program of noxious weed control. Only the Chief of the Forest Service may approve such programs.

Maintenance of wilderness values will be a top priority in forage use.

4. Cultural Resources

Complete cultural resource reconnaissance survey.

Nominate significant sites to the National Register of Historic Places as appropriate (FSM 2360). However, designated sites will not be publicized.

Historical structures will be maintained as necessary to comply with Executive Order 11593 and National Historic Preservation Act of 1966 as amended.

5. Recreation

a. East Unit

To increase solitude, group size will be limited to 15 people. Pack and saddle stock will be limited to three head per person to a maximum of 15 head of stock per trip.

In areas with limited forage, it will be encouraged that horses be grazed at least 200 feet from lakes and 100 feet from live streams.

Camps, campfires and held pack and saddle stock will be located 200 feet from lake shores and 100 feet from live streams in the Rosebud and Rock Creek drainages.

No open grazing of pack and saddle stock is permitted in the Rosebud and Rock Creek drainages.

Pack and saddle stock are not permitted on West Rosebud and Basin Lakes trails until fall deer and elk rifle season.

b. West Unit

Group size will be limited to 15 people or less. Pack and saddle stock will be limited to three head per person to a maximum of 25 head of stock per trip. District Rangers may approve greater numbers on a case-by-case basis.

From the Woodbine trailhead to the south end of Sioux Charley Lake, camps, campfires and held pack and saddle stock will be located at least 200 feet from lakes and 100 feet from streams.

c. Both Units

To indirectly distribute use:

- Users will be advised of high, moderate, and low use trailheads through a map/brochure on the A-B Wilderness.
- Additional trailhead access will be acquired. Such access will avoid key wildlife areas.

For pack and saddle stock handling refer to section on Outfitters and Guides, Livestock Handling, (i) through (v).

All campsite improvements must be temporary in nature and will be removed after each public use.

Areas receiving continual use will be identified and a record will be maintained of such sites on code-a-site cards. Before such sites reach a deteriorated condition, they will be signed as closed or rehabilitated.

Revegetation of damaged sites will be with native plant species.

The maximum length of occupancy at one campsite is 15 days.

Grizzly bear occurrence and recreational use will be monitored to determine potential conflict areas on a seasonal case-by-case basis. Persons encountering bears will be encouraged to report to the Gardiner District Ranger the following:

Sightings of grizzly bears, location of sightings, activities, and description of bears.

Human encounter incidents.

Confrontations with bears requiring evasive action to avoid contact.

Any known deaths of bears, cause, and location.

To minimize the potential for bear/human conflicts users will be encouraged to follow direction established in "Greater Yellowstone Grizzly Bear Guidelines" and Forest guidelines or policy as they are developed. All pets will be under the physical or voice control of their owners while in the A-B Wilderness. Forage will be maintained to protect wilderness values.

In some areas, grass is limited making it necessary to pack feed for stock. Those users preferring to pack feed are required to use processed feed or weed free hay only.

People will be encouraged (via brochures, trailhead information stations and contacts) to camp 200 feet from lake shores, 100 feet from live streams, and 15 feet from intermittent stream channels.

6. Outfitters and Guides

a. East Unit

All campsite improvements will be temporary in nature. All improvements will be dismantled at the end of the permitted use period and the native materials will be stacked horizontally out of view. Non-native materials will be removed from the National Forest.

No live trees may be cut for construction of improvements. No standing dead or green tree will be notched to facilitate the erection of an improvement.

No nails or wire will be used to fasten improvements to standing live or dead trees.

Equipment and supplies may not be cached during times other than the permitted period of occupancy except as noted in camp management plan.

Corral size will be limited to that necessary to meet actual need but in no case will the size exceed 1/3 acre. Only dead or down timber may be used to construct corrals. If standing materials are used, poles should be cut in such a manner that the absence from the stand is not conspicuous. Rope corrals are acceptable. Corrals will be located using the same criteria specified for camp locations. Sites should be well-drained and have hard ground where damage to trees, roots, and other vegetation will be minimized. Corrals will be allowed when authorized in conjunction with an approved "Outfitter Operations Management Plan."

Hitchracks and hitchropes should be located using the same criteria outlined for locating corrals. Construction should prevent lateral slipping of halter ropes which allows the livestock to damage live trees.

Maximum size of parties including the outfitter and employees will be 15. Saddle and pack stock will be limited to three head per member of the party subject to a maximum of 15 head of stock per trip. Parties of less than five may utilize four head of stock per party member to a maximum of 15 head per trip. District Rangers may approve larger size parties on a case-by-case basis.

Handling of stock will be accomplished through operation management plan and special permits.

b. West Unit

Most camp facilities will be temporary and shall be dismantled and stored out of sight at the end of the permitted use period. These include such things as tent frames, toilets, and nonfeed storage facilities. Non-native equipment and materials transported into the Wilderness will be taken out at the end of the season. Permanent horse handling facilities may be specified in the outfitter operation management plan if needed to reduce the impact on the wilderness resource. These facilities will normally be limited to a corral, hitch rack, and feed storage cache.

Live trees may be cut for use in the construction of improvements and for clearing purposes at the site of the improvements. Advanced approval of the District Ranger is required and trees will be marked by a forest officer. No standing dead or live trees will be notched to facilitate the erection of an improvement.

No nails or wire will be used to fasten improvements to standing live or dead trees.

Equipment and supplies may not be cached during times other than the permitted period of occupancy. The exception to this direction is that the large cook stoves (Monarch and Majestic) now in use may be permitted to remain in use and cached in the A-B Wilderness until the end of the 1990 authorized use season. Other stove caches will be permitted through the 1983 season. All other unauthorized cached materials must be removed by the end of the 1983 use season. One permanent horse feed cache will be allowed at each outfitter's base camp. It will consist of one 55 gallon barrel or similar container buried flush with the ground, the top of which may protrude no greater than 4 inches above the ground. Benches and table tops built of native materials may be stored along with the poles in a place authorized by the District Ranger.

Corral size will be limited to that necessary to meet actual need but in no case will the size exceed 1/3 acre. Rope corrals may be used but will be removed at the end of each use season. Semi-permanent pole corrals may be allowed if they are authorized in conjunction with an approved "Outfitter Operations Management Plan." Standing, downed, live, or dead trees may be used to construct the corrals. A forest officer will mark trees for cutting. If standing materials are used, poles should be cut in such a manner that the absence from the stand is inconspicuous. Corrals will generally meet guidelines for construction in operation management plan.

Corrals will be located using the same criteria specified for camp locations. Sites should be well-drained where damage to trees, roots, and other vegetation will be minimized.

Hitchracks and hitchropes should be located using the same criteria outlined for locating corrals. Construction should prevent lateral slipping of halter ropes which allows the livestock to damage live trees.

Maximum size of parties including the outfitter and employees will be 15. Saddle and pack stock will be limited to three head per member of the party subject to a maximum of 25 head of stock per trip. Parties of less

than five may utilize four head per party member. District rangers may approve larger size parties and a greater number of horses on a case-by-case basis.

Loose herding of stock is the desired method of grazing livestock provided the forage is available and the use can be confined to designated forage use areas. See Domestic Livestock Grazing, Section B.4, d. 1 for assignment of grazing.

Stock restrained on pickets or stakes will be moved frequently to prevent overuse of the forage and trampling of the site. As a rule of thumb, stock should be moved when the forage use is apparent. Pickets or stakes driven into the ground will be removed promptly.

c. Both Units

The A-B Outfitters and Forest Service representatives will meet annually to resolve problems and insure consistent administration.

Outfitter camps will be located a minimum of 200 feet from system trails and out of the foreground view if topographic or vegetative screening is available.

Outfitter camps will be located a minimum of 200 feet from lakeshore, 100 feet from live streams and 15 feet from intermittent stream channels.

Garbage and refuse will be completely burned. All unburnable material will be packed out of the wilderness.

Toilet pits will be intermittently covered with a layer of loose soil and will be covered with 12 inches of packed earth when use is terminated. The layer of packed soil will not extend above the surrounding ground level.

Loose trailing of pack stock or unriden saddle stock will not be permitted except at times and locations where it would be hazardous to have the livestock tied in a string.

Pack and saddle stock may be tied to trees for short periods provided rope and rub damage to the bark and trampling damage to the roots is not likely to occur. Hitchracks or hitchropes will be utilized if stock is to remain tied for longer periods. No stock will be tied to live trees in camp.

Pack and saddle stock may not be held within 200 feet of lakeshores, 100 feet of live streams, and 15 feet of intermittent stream channels.

Outfitters and public will be encouraged to remove burs and other noxious weed seeds from stock prior to entering the Wilderness.

Planned livestock use will be shown on the Outfitter-Guide Permit.

Permittees required to provide supplemental or full feed in lieu of grazing will use processed feed or certified weed free hay.

Outfitter operating management plans will be prepared for all outfitter campsites. These plans as a minimum will specify type of authorized improvements, location of improvements, period of use and livestock handling practices.

Outfitters will utilize practices which minimize the possibility of grizzly bear/human encounters. Within areas delineated as Management Situation #1 habitat conflicts between the wilderness user and grizzly bears will be resolved in favor of the bears. Conflicts outside Management Situation #1 will be resolved in accordance with Forest policy on grizzly bear management.

The Greater Yellowstone Outfitters' Plan (GYOP) will reflect new direction or changes in direction established in this plan.

New permits will be at the discretion of the District Ranger after coordinating with adjacent Districts (even if proposed use is only in one district).

Range inventories will be completed and grazing will be prescribed as described in the section, Domestic Livestock Grazing.

Existing outfitter-guide camps not meeting the criteria outlined in this section will be corrected to make their use compatible with the A-B Wilderness. Corrections will be completed by September 30, 1985.

Outfitter-guide spike camps (see definition, GYOP) in the A-B Wilderness must be approved by the District Ranger. They will be unreserved and must be available for use on a "first-come, first-serve" basis.

In cases where an outfitter's operation is impacted by natural fire, an effort will be made to relocate the base camp.

For situations and definitions not covered in this direction, refer to the GYOP and FSM 2721.53, Outfitters and Guides.

7. Other Special Uses

The recreation residences will be removed within one year of approval of the Custer Forest Plan.

The existing dam and reservoir at Glacier Lake and that portion of Mystic Reservoir existing in the Wilderness are consistent with the Wilderness Act direction and will be retained.

Motorized equipment to/on unpatented mining claims may be allowed if the need for that form of access is valid.

An environmental assessment (EA) or environmental impact statement (EIS) will be filed on all proposed access that will require alteration of the wilderness landscape. This EA or EIS will specify mitigation measures necessary to minimize the impact of such use.

8. Livestock Grazing

Inventory the range resource and assign available forage and space by the following priority:

Plant reserves as well as for soil and watershed protection.

Wildlife needs.

Domestic livestock grazing on established grazing allotments.

Forest Service administrative pack and saddlestock.

Outfitter-guide and public pack and saddlestock.

Institute a system to control grazing of pack stock when necessary.

When forage is no longer available for recreation stock, the area will be signed as closed to grazing.

Domestic sheep and cattle grazing will be managed under allotment management plans in accordance with FSM 2323 which gives direction for livestock grazing in wilderness.

Allotment management plans will specifically identify:

The use of motor vehicles, motorized equipment, or other forms of mechanical equipment.

Range improvement structures and installations to be maintained, constructed, or reconstructed in achieving range management objectives, including maintenance standards.

The means to handle emergencies.

The grazing system to be followed.

The "Guidelines for Grizzly Bear Management in Greater Yellowstone Area" and Forest grizzly bear guidelines will be the basis for resolutions of any conflicts between domestic livestock and grizzly bears.

Grazing of recreation pack and saddle stock is addressed in the section on "Recreation." Grazing of outfitter-guide pack and saddle stock is addressed in the section on "Outfitters and Guides."

9. Prospecting, Mining

Prospecting and mining activities which may cause surface disturbance in the wilderness require an operating plan, including the following: Exploration where significant surface disturbance will occur, use of motorized equipment, motorized access, aircraft drop, or proposed aircraft landing. This plan will specify who is doing the work, where and when it will be done, why motorized

equipment is needed, and what measures will be taken to protect other resources. The Forest Service will then prepare an environmental assessment on the proposed operating plan.

A performance bond and reclamation of disturbed land will be required.

All prospecting and mining applications, proposals, and operating plans will be evaluated to determine the effect of the proposed activity on the grizzly bear. Actions will be coordinated with the "Guidelines for Grizzly Bear Management in the Greater Yellowstone Area" within management situation No. 1. A biological review will be conducted of all proposed activities.

10. Private Land Within Wilderness

Private land within the wilderness will be purchased or exchanged as it becomes available.

States or persons and their successors in interest, who own land completely surrounded by the Wilderness shall be given such rights as may be necessary to ensure adequate access to that land (FSM 2320.3--6).

11. Fire

A fire plan for the A-B Wilderness has been developed and has been implemented

12. Transportation System

An environmental analysis and transportation analysis will be completed assessing the need for public access within each of the following drainages. All the resources and impacts will be considered. Public involvement as well as coordination with the Department of Fish, Wildlife, and Parks will be included. If the analysis supports a need for access, it will be limited to that necessary to meet the public need. The policy will be to acquire easements in lieu of fee. Access will be considered in the following drainages:

Hawley Creek	Red Lodge Creek
Mission Creek	Pine Creek
Emigrant Creek	Little Rocky Creek
Sixmile Creek	Palmer Creek

One access will be considered between Pine Creek and the East Fork of Mill Creek.

A transportation plan for the A-B Wilderness has been developed and identifies the existing and proposed trail system, access points, trailheads, and parking areas.

A system will be established to monitor use of trails (i.e. a series of electric-eye counters).

The level of trail maintenance will vary with the amount, kind, and type of desired use (See Trails Handbook, FSH 7709.12, for the trail cleaning standards).

Available trailhead parking will be limited to the carrying capacity of the area served by the parking facility.

Trail systems accessing areas of essential grizzly habitat will be monitored to evaluate probability of bear/human encounters to determine need for warning signs, closures (temporary or permanent) to human "use" or relocation of trails to reduce threat to life and property and loss of grizzlies. (Refer to "Recreation" section for monitoring system.)

Regularly used nonsystem trails will be inventoried and evaluated for addition to the transportation system.

Bridges may be constructed when any of the following conditions exist:

No other reasonable route is available.

When crossing during the primary season of public use:

-Cannot be safely negotiated on foot.

-Cannot be safely forded by horses.

-Where less formal devices are frequently destroyed or damaged by flood waters.

Where necessary, movement of permitted livestock within or to designated grazing allotments will be facilitated with bridges.

13. Signing

As funding permits, information boards will be installed at all major trailheads. Primary wilderness trailheads will have the high visitor intensity information boards. Less used trailheads will have low visitor intensity information boards.

Trailhead information board will contain information such as:

Rules and regulations.

Minimum impact camping information.

Trail information.

Pack and saddle stock information.

Spot for special information:

- Closures for site rehabilitation.
- Closure or warning about increased grizzly bear activity.
- Closure or warning about a natural fire burning.
- Hunting season opening and closing dates.

Nonconforming signs will be removed or replaced as funds permit.

Trail markers will be used where trail location is confusing. Blazes will mark the trail route below timberline and will not be painted. Above timberline, rock cairns will be used.

An A-B Wilderness Sign Plan specifies the wording and location of all signs used in conjunction with the A-B Wilderness.

Trailhead signs will contain the trail name and may contain mileages to destination points along the trail.

Signs within the wilderness will be located at system trail junctions. Each will contain the trail name and an arrow pointing the direction of the trail named.

Wilderness boundary signs will be readily visible.

14. Information and Education

Wilderness rangers will be trained in no trace camping techniques and the good host concept.

Slide-tape and other visual aid programs and displays will be developed on the A-B Wilderness to aid in information and education programs.

A map/brochure will be developed that:

- displays the wilderness boundary.
- identifies high, moderate, and low use trails.
- explains the rules, regulations, and use restrictions and reference minimum impact camping information.
- explains ways to avoid bear/human confrontations.
- contains a statement to read "Domestic livestock grazing occurs in wilderness. For information on location and season of use, contact the local Forest Service district office."

The A-B Wilderness rules and regulations and public service announcements will be publicized in local newspapers and over radio stations.

Wilderness educational programs will be presented to schools, organizations, and others interested.

Local sporting goods stores will receive brochures and information about the rules and regulations in the A-B Wilderness.

15. Administration

Each winter, wilderness managers for the four districts and the Clarks Fork District of the Shoshone National Forest will meet to coordinate implementation of the A-B Wilderness direction, resolve management problems, and set up visitor information programs. The Gardiner District will set up the meetings.

The visitor carrying capacity of the Wilderness will be determined on an area priority basis.

Wilderness rangers will continue to be hired to aid in administration of the wilderness subject to budget levels.

Subject to approval of the proposed revision to 36 CFR 261.50E(6) the Forest Supervisors will issue special orders for the A-B Wilderness to implement the management direction.

The administrative improvements known as the Hellroaring, Slough Creek, Buffalo Fork, and Big Park Stations will be retained and maintained for administrative use unless historic or administrative analysis dictates otherwise.

The following structures or improvement will be removed from the Wilderness:

The fire lookout tower on the Gardiner District.

Breakneck park game enclosure.

Each District will be responsible for coordinating with local Search and Rescue agencies to enable search and rescue procedures to be expedited in a timely manner, and to provide for meeting of the wilderness regulations.

Yellowstone National Park and the Clarks Fork District of the Shoshone National Forest will be informed of management decisions so they can inform that portion of the public that enter the A-B Wilderness through portals under their administration.

A joint field communications system will be developed between the three National Forests and Yellowstone National Park utilizing the existing radio network.

16.-- Research

A research needs list inviting reputable research programs will be developed by priority of need. This list will be submitted to the Regional Research coordinator in Missoula.

All research conducted in the A-B Wilderness will be handled under a special use permit or agreement. A formal plan will describe the purpose, method location, and duration of the proposed research and the anticipated publication of results.

A list of studies being conducted or completed will be maintained at the Gallatin and Custer National Forest Supervisor' offices.

B. U.S. HOUSE OF REPRESENTATIVES REPORT NO. 96-1126 (JUNE 24, 1981) AS REPRINTED IN FOREST SERVICE MANUAL 2323.2

2323.2 - Range. Section (4)(d)(4)(2) of the Wilderness Act provides for continued livestock grazing where established prior to the designation of wilderness. The objective of livestock management in wilderness is to:

Utilize the forage resource in conformity with established wilderness objectives for each area, 36, DFR 293.7, and through practical, reasonable, and uniform application of the committee guidelines and policy.

Further insight on the subject is in the Conference Report to S. 2009 (H.R. No. 96-1126), Exhibit 1. Under "Grazing in National Forest Wilderness Areas," committee guidelines and policy are to be considered in the overall context of the purposes and direction of the Wilderness Act and shall be applied nationwide.

Grazing in National Forest Wilderness Areas

Section 4(d)(4)(2) of the Wilderness Act states: "the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture."

The legislative history of this language is very clear in its intent that livestock grazing, and activities and the necessary facilities to support a livestock grazing program, will be permitted to continue in National Forest wilderness areas, when such grazing was established prior to classification of an area as wilderness.

Including those areas established in the Wilderness Act of 1964, Congress has designated some 188 areas, covering lands administered by the Forest Service, Fish and Wildlife Service, National Park Service and Bureau of Land Management as components of the National Wilderness Preservation System. A number of these areas contain active grazing programs, which are conducted pursuant to existing authorities. In all such cases, when enacting legislation classifying an area as wilderness, it has been the intent of the Congress, based on solid evidence developed by testimony at public hearings, that the practical language of the Wilderness Act would apply to grazing within wilderness areas administered by all Federal agencies, not just the Forest Service. In fact, special language appears in all wilderness legislation, the intent of which is to assure that the applicable provisions of the Wilderness Act, including Section 4(d)(4)(2), will apply to all wilderness areas, regardless of agency jurisdiction.

Further, during the 95th Congress, Congressional committees became increasingly disturbed that, despite the language of section 4(d)(4)(2) of the Wilderness Act and despite a history of nearly 15 years in addressing and providing guidance to the wilderness management agencies for development of wilderness management policies, National Forest administrative regulations and policies were acting to discourage grazing in wilderness, or unduly restricting on-the-ground activities necessary for proper grazing management. To address this problem, two House Committee on Interior and Insular Affairs Reports (95-620 and 95-1321) specifically provided guidance as to how section 4(d)(4)(2) of the Wilderness Act should be interpreted. This guidance appeared in these reports as follows:

Section 4(d)(4)(2) of the Wilderness Act states that grazing in wilderness areas, if established prior to designation of the area as wilderness, "shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture". To clarify any lingering doubts, the committee wishes to stress that this language means that there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. As stated in the Forest Service regulations (36 CFR 293.7), grazing in wilderness areas ordinarily will be controlled under the general regulations governing grazing of livestock on National Forests * * *. This includes the establishment of normal range allotments and allotment management plans. Furthermore, wilderness designation should not prevent the maintenance of existing fences or other live-

EXHIBIT 1 CONT.

stock management improvements, nor the construction and maintenance of new fences or improvements which are consistent with allotment management plans and/or which are necessary for the protection of the range.

Despite the language of these two reports, RARE II hearings and field inspection trips in the 96th Congress have revealed that National Forest administrative policies on grazing in wilderness are subject to varying interpretations in the field, and are fraught with pronouncements that simply are not in accordance with section 4(d)(4)(2) of the Wilderness Act. This had led to demands on the part of grazing permittees that section 4(d)(4)(2) of the Wilderness Act be amended to clarify the intentions of Congress. However, because of the great diversity of conditions under which grazing uses (including different classes of livestock) are managed on the public lands, the Conferees feel that the original broad language of the Wilderness Act is best left unchanged. Any attempts to draft specific statutory language covering grazing in the entire wilderness system (presently administered by four separate agencies in two different Departments) might prove to be unduly rigid in a specific area, and deprive the land management agencies of flexible opportunities to manage grazing in a creative and realistic site specific fashion.

Therefore, the conferees declined to amend section 4(d)(4)(2) of the Wilderness Act, agreeing instead to reaffirm the existing language and to include the following nationwide guidelines and specific statements of legislative policy. It is the intention of the conferees that the guidelines and policies be considered in the overall context of the purposes and direction of the Wilderness Act of 1964 and this Act, and that they be promptly, fully, and diligently implemented and made available to Forest Service personnel at all levels and to all holders of permits for grazing in National Forest Wilderness areas:

1. There shall be no curtailments of grazing in wilderness areas simply because an area is, or has been designated as wilderness, nor should wilderness designations be used as an excuse by administrators to slowly "phase out" grazing. Any adjustments in the numbers of livestock permitted to graze in wilderness areas should be made as a result of revisions in the normal grazing and land management planning and policy setting process, giving consideration to legal mandates, range condition, and the protection of the range resource from deterioration.

It is anticipated that the numbers of livestock permitted to graze in wilderness would remain at the approximate levels existing at the time an area enters the wilderness system. If land management plans reveal conclusively that increased livestock numbers or animal unit months (AUMs) could be made available with no adverse impact on wilderness values such as plant communities, primitive recreation, and wildlife populations or habitat, some increases in AUMs may be permissible. This is not to imply, however, that wilderness lends itself to AUM or livestock increases and construction of substantial new facilities that might be appropriate for intensive grazing management in non-wilderness areas.

--2. The maintenance of supporting facilities existing in an area prior to its classification as wilderness (including fences, line cabins, water

EXHIBIT 1 CONT.

wells and lines, stock tanks, etc.), is permissible in wilderness. Where practical alternatives do not exist, maintenance or other activities may be accomplished through the occasional use of motorized equipment. This may include, for example, the use of backhoes to maintain stock ponds, pickup trucks for major fence repairs, or specialized equipment to repair stock watering facilities. Such occasional use of motorized equipment should be expressly authorized in the grazing permits for the area involved. The use of motorized equipment should be based on a rule of practical necessity and reasonableness. For example, motorized equipment need not be allowed for the placement of small quantities of salt or other activities where such activities can reasonably and practically be accomplished on horseback or foot. On the other hand, it may be appropriate to permit the occasional use of motorized equipment to haul large quantities of salt to distribution points. Moreover, under the rule of reasonableness, occasional use of motorized equipment should be permitted where practical alternatives are not available and such use would not have a significant adverse impact on the natural environment. Such motorized equipment uses will normally only be permitted to those portions of a wilderness area where they had occurred prior to the area's designation as wilderness or are established by prior agreement.

3. The replacement or reconstruction of deteriorated facilities or improvements should not be required to be accomplished using "natural materials", unless the material and labor costs of using natural materials are such that their use would not impose unreasonable additional costs on grazing permittees.

4. The construction of new improvements or replacement of deteriorated facilities in wilderness is permissible if in accordance with those guidelines and management plans governing the area involved. However, the construction of new improvements should be primarily for the purpose of resource protection and the more effective management of these resources rather than to accommodate increased numbers of livestock.

5. The use of motorized equipment for emergency purposes such as rescuing sick animals or the placement of feed in emergency situations is also permissible. This privilege is to be exercised only in true emergencies, and should not be abused by permittees.

In summary, subject to the conditions and policies outlined above, the general rule of thumb on grazing management in wilderness should be that activities or facilities established prior to the date of an area's designation as wilderness should be allowed to remain in place and may be replaced when necessary for the permittee to properly administer the grazing program. Thus, if livestock grazing activities and facilities were established in an area at the time Congress determined that the area was suitable for wilderness and placed the specific area in the wilderness system, they should be allowed to continue. With respect to areas designated as wilderness prior to the date of this Act, these guidelines shall not be considered as a direction to re-establish uses where such uses have been discontinued.

APPENDIX F-2: LEE METCALF WILDERNESS MANAGEMENT PLAN

INTRODUCTION

The draft of the Lee Metcalf Wilderness Management Plan has undergone public review during review of the Draft Forest Plan. The Gallatin National Forest has taken the lead in producing this plan. The management direction established is displayed in this appendix of the Final Forest Plan. Also, based upon the final direction, wilderness activity schedules will be developed for each unit of the Lee Metcalf Wilderness; the Spanish Peaks Unit, the Taylor-Hilgard Unit, and the Monument Mountain Unit. Specific direction for the Bear Trap Unit has been developed by the BLM whose Butte District Office administers this portion.

This appendix is useful as a quick reference to much of the specific direction in the Lee Metcalf Management Plan but cannot substitute for the full plan in many respects. Readers are encouraged to consult the full Management Plan to understand the issues being addressed, the management context, the rationale for specific management decisions, and the objectives of the specific management approaches.

1. Location. The Lee Metcalf Wilderness is located in the Madison Range of southwest Montana, in Gallatin and Madison Counties. The Wilderness contains four separate units on the Beaverhead and Gallatin National Forests, and the BLM's Butte District Office. The units of the wilderness are listed below:

Bear Trap Canyon	6,000	acres	BLM	- Dillon Resource Area
Spanish Peaks	76,000	acres	USFS	- Bozeman, Madison Ranger Districts
Taylor-Hilgard	141,000	acres	USFS	- Madison, Hebgen Lake
Monument Mountain	33,000	acres	USFS	- Hebgen Lake

*Acreages are approximate. Final acreage will be calculated after completion of a legal boundary description.

2. Establishment History. Some parts of the Madison Range have long been managed as primitive areas. The 6,000 acre Bear Trap Canyon has been administered by the BLM as a Primitive Area since 1972. Forty-eight thousand acres in the Spanish Peaks were established as a Primitive Area by the Forest Service in 1932.

Since the passage of the 1964 Wilderness Act, several proposals for wilderness classification in the Madison Range have been made. The Lee Metcalf Wilderness was formally established in November 1983. Two hundred fifty-nine thousand acres were added to the National Wilderness Preservation System, including the first wilderness to be administered by the BLM.

3. Characteristics of the wilderness. The Lee Metcalf Wilderness includes a variety of physical and biological systems, ranging from the low-elevation canyon of the Madison River (about 4500 feet) to the alpine environment of

ridges and peaks above 11,000 feet. The Bear Trap Canyon includes rugged, arid slopes which support grass-cactus vegetation, steep cliffs, and mixed forest. Coniferous forest dominates the moister, higher-elevation areas of the wilderness. Treeline is generally around 9000-10,000 feet. Between treeline and the high peaks, alpine and subalpine vegetation is dominant.

There are no active glaciers in the Lee Metcalf Wilderness, although there are numerous permanent snow fields and lakes in cirque basins, and much evidence of Pleistocene glaciation. The Madison River is the largest stream in the wilderness; other major drainages include South Fork Spanish Creek, Hellroaring, Indian, and Sage Creeks. The wilderness receives variable precipitation, from an average of 11.3 inches in the Bear Trap Canyon to over 60 inches in the Madison Range.

4. Analysis of the Present Situation. Because of the geographic features and discontinuity of the Lee Metcalf Wilderness, concerns and opportunities exist that may be unique to one unit of the wilderness. Among the concerns throughout the wilderness are the following:

- Special management requirements for areas within occupied grizzly bear habitat.
- Degradation of certain areas that receive heavy recreation use; some areas show severe impacts.
- Access to wilderness portals.
- Structures and non-conforming uses.
- Day use by commercial and private parties.
- Regulation of floating on the Madison River.
- Sanitation in heavy-use areas.
- Trail location, condition, signing and maintenance.
- Law enforcement.
- Fisheries management in high mountain lakes.
- Impact of increased population at nearby resort areas and communities.

Despite some problems occurring due to recreation use, the Lee Metcalf Wilderness is still largely pristine, there are excellent opportunities for solitude, and user pressure is not as serious as in wilderness areas closer to large population centers. Managers have an opportunity here to maintain primitive conditions, rather than to restore them. There is the opportunity to preserve, and restore where necessary, conditions through public education instead of restrictions. Non-conforming uses are minor in extent, and so far have not caused conflicts with recreation or resource protection.

WILDERNESS MANAGEMENT OBJECTIVES

The overall goal for managing the Lee Metcalf Wilderness is to minimize the impact of human use and technology on the wilderness resource, and to ensure that the opportunity for solitude is maintained. Management will seek to minimize the imprint of use, while preserving its spontaneity and freedom. To the extent that the wilderness resource is not impaired, management will provide opportunities for: primitive recreation featuring solitude, challenge, and freedom; experience of an essentially unmodified natural ecosystem; a place to visit without mechanized aids. Restrictions on use will be imposed only where the physical and biotic environment is being unacceptably modified by human use, and where education has proven inadequate. Where human uses conflict with preservation of the wilderness resource, conflicts will be resolved in favor of the wilderness resource.

1. Objectives.

Congress clearly set forth management objectives for the wilderness resource on those lands included in the National Wilderness Preservation System. The system is to be managed in such a manner as to leave it unimpaired for future use and enjoyment as wilderness. The management agency is to administer wilderness for such other purposes for which it may have been established and also to preserve its wilderness character. It is to be devoted to the public for the purpose of recreational, scenic, scientific, educational, conservation, and historical use.

This management plan is based on the following laws and administrative directives: the 1964 Wilderness Act, the 1976 National Forest Management Act, the Forest Service Manual, section 2320, and other sections where cited, and Federal Lands Planning and Management Act, and applicable Codes of Federal Regulations. The following objectives for the Lee Metcalf Wilderness management plan are derived from the Wilderness Act (P.L. 88-577), FLPMA (Section 603), and wilderness management policy pertaining to the Forest Service and BLM:

1. Maintain an enduring system of high-quality wilderness.
2. Perpetuate and, where necessary, restore a wilderness environment.
3. Provide, to the extent consistent with items 1 and 2, opportunities for public use, enjoyment, and understanding of wildernesses, and the unique experiences dependent upon a wilderness setting.
4. Maintain plants and animals indigenous to the area.
5. Accommodate and administer nonconforming but allowed uses in such a manner as to minimize their impact on wilderness environments and values and so that the end result will provide optimum total benefits to the American people.
6. Maintain stable watersheds.
7. Consider protection needs for populations of threatened or endangered species and their habitats in management of wilderness.

2. Management Strategy.

Management will seek to preserve spontaneity of use and as much freedom from regulation as possible, by relying on visitor education as a management tool. Within the Lee Metcalf Wilderness, the primary management strategy goal is to use the minimum of tools, equipment, or structures needed to accomplish objectives. The method used to implement management objectives will be that which least degrades wilderness values.

The tool to be used for managing recreation use is the process of determining the limits of acceptable change (Appendix B). This process will be used to identify areas of potential resource damage and indicate the need for management action. Rather than attempting to estimate the number of visitors, the LAC process will measure impacts of use and help managers determine standards that are acceptable in wilderness. Within occupied grizzly bear habitat, tolerable levels of recreation use will be determined by biological evaluation using a cumulative effects analysis. After the analysis is completed, strategies for minimum grizzly bear displacement by recreation will be developed.

The goal of the management strategy for the Lee Metcalf Wilderness is to prevent the spread of human-caused impact as well as its degree of severity. Throughout the Lee Metcalf Wilderness, and particularly where conditions are clearly degraded, the following strategies will be used, listed in descending order of preference:

FIRST ACTION:

Efforts will be directed towards information/education programs and correction of visible resource damage. Emphasis will be placed on employment of seasonal field personnel to accomplish physical restoration of campsites and make visitor contacts. Possible actions are:

Don't promote areas that are already heavily used.

Adjust administrative and informational signing.

Remove or reduce any facilities contributing to concentration of use beyond capacity.

If fishing is attracting excessive use to an area, coordinate with Montana Department of Fish, Wildlife and Parks to determine if adjustments in the fish management program could facilitate reductions in use. A memorandum of understanding should be used to document agreements between the federal agencies and the state.

Revegetate damaged and impacted areas.

SECOND ACTION:

If the first action is unsuccessful, restrict activities by regulation. Possible actions are:

Limit or ban campfires.

Designate campsites.

Require minimum spacing between campsites.

Impose a distance setback of campsites from water.

Restrict types of use in the area or on trails leading to it.

Limit length of stay.

Close and revegetate campsites.

Restrict number of recreation permittees.

Restrict group size.

THIRD ACTION:

If the first and second actions fail, restrict numbers of visitors to capacity level. Possible actions, in addition to previous efforts, are:

Restrict number of campers.

Allow only day use.

Restrict time of entries.

Restrict numbers of entries per trailhead.

FOURTH ACTION:

If first, second, and third actions are not successful, a zone can be closed to all recreation use until the area is rehabilitated and restored to natural conditions.

RESOURCES AND MANAGEMENT SUPPORT AREAS

1. Education and Information

a. Information and education contacts will deemphasize particular wilderness areas or attractions that are receiving use that threatens their wilderness value. Efforts will encourage distribution of use by informing visitors of alternative areas outside the wilderness that would satisfy their needs. Educational programs will be designed to seek the support of users and emphasize individual responsibility for preserving a pristine setting and finding solitude.

b. All administrative units will contribute to annual wilderness education/information workplans and help carry out those plans. At a minimum, current programs will continue.

c. Train field-going personnel (including range, wildlife, recreation technicians, smokejumpers, trail crew) in agency wilderness management goals and policy. Emphasize "setting a good example" for the public.

d. All agency personnel having contact with the public regarding the Lee Metcalf Wilderness (including receptionists, clerks, information specialists) will be trained to be able to provide information to prospective users on agency wilderness management. They will be able to explain goals and objectives in a positive manner, encourage appropriate behavior by users, and increase public understanding and appreciation of wilderness.

e. Managers/owners of nearby private recreation resorts and other commercial facilities and outfitters will be contacted to help convey agency wilderness management goals to their clients.

f. Bulletin boards at trailheads will be used to maximize effectiveness of educational messages. Personal notes from wilderness rangers or other Forest employees will be used to advise visitors about current trail conditions, other pertinent information, and no-trace camping messages.

g. Information and education, seeking visitor self-compliance with behavior restrictions, will be a primary method for controlling the impact of use on the wilderness environment. A Lee Metcalf Wilderness brochure and map will be produced within 2 years, and will contain information pursuing the above stated goals. The brochure, map, and other information will be periodically revised to keep them up-to-date with wilderness management strategies and existing conditions.

h. Meetings for the public, especially user groups interested in the Lee Metcalf Wilderness, will be held annually for discussion of management of the wilderness and possible revision of this plan.

2. Recreation.

a. Specific guidelines, standards, and action plans will be developed for managing the wilderness complex based on determination of the limits of acceptable change. These studies will establish a limit on the kinds and amount

of impact from recreation use that can be tolerated, as well as standards and guidelines for management. These limits of tolerance are established to maintain long-term opportunities for wilderness-dependent experiences. Studies will be based on two components:

1. The ability of the biophysical environment to withstand recreation use.
2. The amount and type of use that is consistent with some measure of quality wilderness experience.

The key to determining the limits of acceptable change for wilderness is the establishment of clear management objectives for specific areas within the wilderness. A description of the desired future conditions (objectives for managing an area) and standards used to monitor these conditions must be developed.

The process of determining limits of acceptable change for the wilderness will conform to the requirements of the National Environmental Policy Act of 1969 and the National Forest Management Act of 1976 (NFMA). Public participation is a key part of the decision making process.

Prior to the completion of a study to determine the limits of acceptable change, which may take several years, the following direction for limiting use impacts will apply:

Managers will concentrate on improving conditions at degraded campsites, since these constitute easily observed evidence of overuse. A "degraded campsite" is a relatively flat piece of ground sizeable enough to accommodate one to several tents, and having several of the following characteristics:

- Significant loss of vegetation from campsite area; over half the ground cover reduced or removed.
- Loss of seedlings and saplings, and reduction or absence of understory shrubs.
- Exposed tree roots.
- Mutilated or felled trees in campsite area.
- Replacement of native plants with introduced non-native species.
- Lack of firewood (in below-treeline areas where firewood is normally available).
- Presence of structures: rock fire rings, log or constructed seats, meatracks, etc.
- Obvious litter and sanitation problems, including concentrations of stock manure.
- Radiating or parallel trails, to system trails, latrine areas, water source.
- Areas of exposed, compacted soil.

Managers will use one of the following methods of handling degraded campsites, listed in order of descending desirability:

Public information (public service media messages, portal notices, personal contact) geared to informing the public what to look for in a campsite and

the characteristics of sites they want to avoid. Emphasize no-trace camping; deemphasize feature attractions of the wilderness.

Physical site alteration. Make selected sites less appealing or less accessible through trail rerouting. At some sites, where restoration to natural conditions is probable, evidence of human presence will be removed. At some well-established, heavy use sites where restoration to natural conditions seems unlikely, structures such as rock firerings will be allowed to remain, but impacts will be limited to a small camp core.

Post a site restoration message at portals and a sign at the overused site. Suggest alternative camping locations (by characteristic, not specific location) on the portal notice. Convey in a very positive way the need and rationale for the public to avoid degraded campsites.

For specific sites, set additional limits on party size, length of stay, and equipment requirements (e.g., stoves rather than campfires). Requires that the public be informed of areas to which limitations and requirements apply; requires follow-up administration to check for compliance.

Site specific closures involve informing the public, posting notices on portals and at administrative sites, and signing sites as closed to all camping until further notice. This method also requires administrative follow-up.

b. At campsites near treeline, where there is an evident shortage of firewood, districts may restrict the use of campfires. Fire closures will be done on a case-by-case basis, and will be accompanied by efforts to inform users of the ecological need for the closures. Visitors will be encouraged to use campstoves, and employees will advise users on areas where fuelwood is not available.

c. Where the wilderness resource or its values are jeopardized, recreation use will be restricted. Acceptable levels of resource impact will be established by managers and interested user groups, as part of the process of determining limits of acceptable change.

d. In establishing priority for wilderness visitation, highest priority will be given to uses which least alter the wilderness.

e. Any improvements related to recreation use must be necessary for the protection of the wilderness resource and not for the convenience of users. Authorized improvements will be constructed of materials that harmonize with the environment. Permanent structures and caches will not be permitted.

f. Wilderness managers and field personnel will be familiar with special problems and needs of user groups, including horsemen, backpackers, hikers, hunters, fishermen, rafters (where applicable), and winter users.

g. All camp facilities, such as tents, temporary latrines, etc., will be located to protect streams and lakeshores, and to minimize impact on soils, vegetation, and the visual experience of others. Managers will emphasize campsite characteristics as a guide to users. Throughout the Lee Metcalf Wilderness, users will be encouraged to camp at least 100 feet from streams.

Camping and campfires will be restricted to at least 200 feet from all lakeshores.

- h. Maximum number of stock to accompany a private party is listed below:
- Taylor-Hilgard Unit: 20 stock, 15 people maximum
 - Monument Mtn. Unit: 20 stock, 15 people maximum
 - Spanish Peaks Unit: 15 stock, 15 people maximum
 - Bear Trap Canyon: 20 stock, 15 people maximum

More restrictive limits may apply where needed. Managers and the public will discuss the need for greater restrictions as this plan is revised in the future. In occupied grizzly bear habitat, a minimum party size of 4 will be recommended.

i. Length of stay at one camp will be determined by administrative units responsible for each area of the wilderness. The current length-of-stay restrictions that apply to all public lands (in or out of the wilderness) will be used.

1. In that part of the wilderness administered by the Beaverhead Forest, 14 days is the maximum allowable stay for general backcountry camping.
2. The Gallatin Forest allows 15 days per campsite.
3. In the Bear Trap Canyon; 3 days is the maximum stay, applicable to the inner canyon only. In the rest of the Bear Trap Unit, 14 days is the maximum stay.

It may be necessary in some areas to reduce the number of days spent at one campsite. Specific action plans for each unit of the wilderness will include the maximum length of stay.

j. Proper stock use will be emphasized to reduce the need for further exclusion of stock from certain areas. Low-impact equipment and techniques will be shown to users. In order to comply with regulations for restricting the spread of noxious weeds, all units administering the Lee Metcalf Wilderness will require use of certified weed-free feed by 1988. The Forest Service will increase its efforts to cooperate with the counties in order to make weed-free feeds more obtainable.

k. Within occupied grizzly bear habitat, approved standards and guidelines for backcountry recreation use will apply.

3. Transportation.

a. Trails will not be established or relocated merely for the convenience or comfort of visitors. They will be constructed, relocated, and maintained for the following purposes:

- visitor safety
- prevention of resource damage
- use distribution (where determined desirable)
- as required for administrative or permitted resource purposes.

- to reduce potential for human/grizzly bear contact.

b. Where trails are needed, they will be designed, constructed, relocated, and maintained to the minimum standard needed to achieve resource goals.

c. The adequacy of each trail system within the Wilderness will be assessed to determine its effectiveness in meeting Wilderness objectives. Corrective action will be implemented when any impact is intolerable or beyond that necessary to accomplish the purpose of the trail system. This assessment will be completed for all trail systems within 10 years.

d. The trail system will only be expanded into untrailed areas with the approval of the responsible agency officials and agreement among all districts involved in administration of the area of proposed trail expansion. The goal will be to keep remote and pristine areas as they are.

e. Trails in grizzly bear habitat will be evaluated to determine if their present location attracts recreationists into critical areas.

f. Within wilderness trail standards, a range of opportunities for horse and hiker will be provided to meet the expected character of use. Parallel horse/hiker trails will not be constructed.

g. Native, local materials will be used wherever practical in trail construction/maintenance, including bridges and drainage structures.

h. Bridges, culverts, etc., will not be constructed for user convenience, but may be installed to protect resources or provide for visitor safety. Bridges will be constructed only to the standard necessary to provide a safe crossing.

i. On trails appropriate for stock use, brushing will be kept to the minimum necessary to provide safe passage. Wide swaths will not be brushed for user convenience.

j. Trailside snags will not be felled unless they present a safety hazard.

k. Blazes will be notched without paint, and kept to the minimum necessary for following. Cairns and blaze posts will not be painted.

4. Administration.

a. Annual coordination meetings for administrators of the Lee Metcalf Wilderness will be held to insure consistent management, resolve issues shared by agencies involved, and plan each year's management activities. In addition, a meeting with interested users of the Lee Metcalf Wilderness will be held for discussion of management direction and revision of this plan.

b. Plum Creek Timber, Inc. and the Forest Service will cooperate to assure public access--to the wilderness from Jack Creek, in compliance with enabling legislation and a subsequent memorandum of understanding.

c. Cooperate with owners of adjacent private lands to minimize trespassing into the wilderness by recreation vehicles and livestock.

e. Motorized equipment will not be used in the wilderness for search and rescue except in emergencies. The responsible line officer must approve the use of mechanized equipment for rescue and evacuation in the wilderness.

f. Wilderness administrators will work cooperatively with counties to assure that a reliable system of emergency action exists.

g. No new administrative structures or electronic installations will be allowed in the wilderness. Structures such as toilets, bridges and others used for public safety and sanitation are allowed.

h. Environmental impacts will be assessed and reported for all projects that may affect the wilderness resource, unless such projects are implementing the intent of this plan.

i. Personal risks associated with adverse weather conditions, isolation, physical hazards, and lack of rapid communication and travel are inherent in wilderness, and it is neither practical nor desirable to eliminate such risks.

j. Annual reports from field workers (wilderness rangers, trail crews) will be filed at the end of each field season, with information pertaining to trail and campsite condition, visitors contacted, and management actions needed to maintain or restore wilderness values.

k. Monitor and enforce food storage and game meat restrictions in occupied grizzly bear habitat.

l. Federal and county agencies will increase their cooperation to prevent the spread of noxious weeds into the wilderness.

5. Commercial Outfitting.

a. Maintain level of outfitter-guides at current levels, unless it can be shown that reduction or increase in number of permits is necessary or desirable.

b. The Greater Yellowstone Outfitter Policy will provide a framework for outfitter regulations within the Lee Metcalf Wilderness. The Lee Metcalf Wilderness Management Plan and subsequent plans may impose greater restrictions if necessary.

c. Special training schools, such as for outdoor and survival skills, will be encouraged to conduct their activities outside the wilderness, unless they require a wilderness setting.

d. Increase efforts to inform outfitters of methods for reducing human/grizzly conflicts.

e. Continue current field administration of outfitters and guides, with at least two inspections per use season. Increase field administration and management, as feasible.

f. Encourage outfitters and guides to develop and use minimum impact use techniques, and to educate their clientele to these techniques. Emphasize the

role of these techniques and their use in protecting the wilderness resource and the continued recognition of outfitter operations as a means for the public to enjoy this resource.

g. The Forest Service and BLM will develop uniform standards for outfitter operations. The standards should delineate acceptable developments in camps, including:

- a. camp locations relative to trails, streams, lakes, and features
- b. permanent and temporary improvements authorized
- c. camp layout

h. Outfitters with pack and saddle stock will be required to use certified weed-free feed by 1988.

i. The maximum number of stock to accompany an outfitted party will correspond to that imposed on private parties:

Taylor-Hilgard Unit: 20 stock, 15 people
Monument Mtn. Unit: 20 stock, 15 people
Spanish Peaks Unit: 15 stock, 15 people

Exceptions to the above limits are possible, and will be granted on a case-by-case basis by the district rangers.

In the Bear Trap unit, outfitted floating parties are limited to 16 persons, including the guide.

6. Occupancy and Structures.

a. No more permits for facilities or structures will be issued, except as authorized by the Wilderness Act.

b. Existing structures under special use permit will be allowed to remain as long as they are needed for the purposes of the permit. Means of access and maintenance methods and materials should be revised to those most compatible with Wilderness objectives while still allowing practical management of permitted uses. Specific management direction for each unit within the Wilderness should specify the existing special uses which will be allowed to continue.

c. Unauthorized structures will be eliminated, except any that appear to have historical significance. Those structures will be evaluated to determine historical value, and if none is determined, they will be removed.

d. The SCS facilities within the wilderness will be replaced by a new site in the Beaver Creek drainage. If the new site proves to be suitable for taking the necessary measurements, as determined during the 1984-85 winter, the facilities at Sentinel Creek and Taylor Peaks will be removed.

e. Authorization for use of mechanized equipment to remove the existing snow measurement equipment must be approved by the Regional Forester. Removal of the existing equipment will be studied to determine methods most compatible with the wilderness resource.

7. Vegetation.

a. Natural agents of ecological change will be allowed to operate freely in the wilderness.

b. Non-native plants, especially those which may significantly alter natural plant succession, will be controlled as needed, by means that have the least impact on the wilderness resource. Chemical weed control projects will not commence before a plan for weed control is reviewed by the public. Any use of chemicals must be approved by the appropriate agency officer.

c. Private and commercial visitors will be contacted for education efforts to reduce the destruction of vegetation. Area closures may be necessary.

d. Active efforts to revegetate denuded campsites will continue.

e. Rehabilitation efforts will be monitored and evaluated to determine their success and future needs.

f. Continue as needed the on-going campsite inventory (begun in the Spanish Peaks in 1983), using vegetation conditions and trends as indicators of impact.

g. Further inventory and study is needed to determine the existence of threatened and endangered plants. Management will take into account their possible existence when relocating trails, campsites, etc.

8. Range

a. Grazing in the Lee Metcalf Wilderness will be administered in compliance with FSM 2323.

b. Commercial livestock grazing will be permitted in those portions of the wilderness where grazing has been established prior to the area's wilderness designation. Range allotment plans will specify requirements and actions needed to meet wilderness management objectives. Permittees will be required to install and replace range improvement and range management facilities by utilizing native material when practical. However, it is the clear intent of Wilderness Act and subsequent legislation and Congressional direction that established grazing use be allowed to continue. Continued grazing should not be made impractical through unduly restrictive or costly management constraints.

c. Grazing by recreation saddle and pack stock will be closely monitored and controlled to prevent resource damage. Use of certified weed-free feed will be required by 1988. In the interim, the Forest Service will cooperate with counties to make certified weed-free hay readily available. Visitors with recreation stock will be encouraged to hold their stock away from travel routes and water, and will be required to hold stock at least 200 feet from lakeshores. Recreation range allotments will be established and allotment plans developed as necessary for management of recreation livestock.

d. Unauthorized corrals, fences, and other range facilities will generally be dismantled. A determination for each structure may be made on a case-by-case basis.

9. Wildlife and Fisheries

a. Jurisdiction and responsibilities of the State with respect to the protection and management of fish and wildlife are not changed by wilderness classification. The Forest Service and BLM will continue to work closely with state wildlife authorities in all aspects of wildlife management. Agency recommendations will be predicated on a demonstrable need for protection and maintenance of the wilderness resource, in every case. Hunting, fishing, and trapping will be permitted in accordance with State law. The Fish and Wildlife Service will be consulted before any activities which may effect threatened or endangered species are considered.

b. Native animal and plant species will be maintained, with special emphasis on the preservation of threatened or endangered species and their habitats.

c. Visitor actions which tend to alter the natural behavior of wildlife, such as the practice of leaving food or garbage available to be eaten by bears, will not be allowed. Visitor education will be emphasized as a tool to gain compliance.

d. Native wildlife may be reestablished if eliminated by human influence.

e. Where fish stocking is a compatible part of wilderness management, it will be done by primitive transport wherever feasible. Stocking procedures will be in accordance with FSM 2611.

f. The agency will not approve stocking of barren waters until reaching joint acceptance with the state Department of Fish, Wildlife, and Parks, as directed an existing Supplemental Memorandum of Understanding.

g. Stocking of streams and lakes will favor Federally listed threatened or endangered, or indigenous species. Stocking policy is outlined in FSM 2323.34c.

h. Research or cooperative studies will be encouraged on changes in animal behavior and distribution relative to wilderness visitor activities and movement.

i. No wildlife population increase will be encouraged at the disadvantage of another species. Threatened and endangered species will receive special protection.

j. Predators will be able to co-exist with other wildlife species indigenous to the Wilderness, free from the unregulated interference of man.

k. Visitors will be encouraged to leave pets at home, particularly in areas of occupied grizzly bear habitat.

10. Water.

a. All wilderness management activities will provide for watershed protection and maintenance of natural or existing water quality.

b. Watersheds will not be specifically altered or managed to provide increased water quantity, unnatural water quality, or change the timing and duration of spring runoff. No dams or diversions will be authorized that will effect the wilderness without presidential approval.

c. Water quality measurements, including physical, chemical, and biological parameters, will be made by portable, nonpermanent equipment. Transportation of this equipment will be made by primitive travel means.

d. Natural or existing water quality levels (physical, chemical, and biological) identified during the monitoring program will be maintained.

e. The equilibrium between physical, chemical, and biological levels of the aquatic resources occurring naturally in the Wilderness will be maintained.

f. Weather modification will not be approved for the purpose of unnaturally increasing, decreasing, or changing the timing of water yield from the wilderness.

g. No new streamcourse diversions will be permitted. Existing stream diversions within the area will not be expanded and will be maintained by primitive means.

h. Emphasis will be placed on visitor education to reduce water pollution due to improper waste disposal, use of soap, etc.

i. Installation of primitive sanitary facilities may be considered where necessary to protect water quality in areas of concentrated use. Structures should be unobtrusive and made from native, local materials wherever possible.

11. Soil and Air.

a. Natural erosion and deposition processes will be allowed to continue at natural rates, without acceleration or suppression due to human activity.

b. Campsite monitoring will continue to determine trends in soil compaction and loss. Campsite rehabilitation will be implemented by: user education and dispersal, moving or closure of campsites where necessary, and active revegetation.

c. Areas where accelerated soil erosion is occurring due to human activity will be rehabilitated wherever possible using native species for revegetation.

d. Surface runoff that collects on trails or campsites will be controlled so as to not cause accelerated erosion.

e. Trails and campsites where erosion and soil compaction are severe will be prioritized for rehabilitation.

f. The affects of air pollution caused by agency activities outside the wilderness (such as slash burning) will be addressed through environmental analysis.

g. Trails should be relocated where possible to avoid perennially wet areas or highly erosive soils.

12. Minerals.

Due to language in the enabling legislation, the Lee Metcalf Wilderness is closed to mineral entry and oil and gas leasing. There is one known mineral claim in the Taylor-Hilgard unit of the wilderness.

13. Cultural Resource.

a. Cultural sites will not be publicized or identified to visitors.

b. Significant cultural resource sites will be identified, evaluated, and recommended for inclusion in the National Register of Historic Places.

c. Cultural sites will be protected from destruction and vandalism, and allowed to deteriorate with time.

d. Scientific study of cultural resources is permissible within the intent and concept of wilderness. Study or management will not normally include any excavation, restoration, or interpretation activities.

14. Land Ownership.

Three sections in the Taylor-Hilgard area are administered by the State of Montana as part of the Bear Creek Game Range. Six thousand acres of the wilderness is administered by BLM (Bear Trap Canyon); the remainder of the wilderness is administered by the Forest Service.

There are no private inholdings in the wilderness. Enabling legislation authorized a land exchange which consolidated ownership within the wilderness boundary.

15. Fire, Insects, and Disease.

a. Wildfire will be considered an inherent part of all or portions of the general wilderness ecosystem. Wildfires that do not threaten life, developments, or values outside the wilderness may be allowed to burn under prescription if the existing and predicted weather conditions are compatible with objectives for the fire management area.

b. Fire management plans will be written for each unit of the Lee Metcalf Wilderness. The plans will specify actions for allowing lightning-caused fires to burn under prescription.

c. Under approved unit fire management plans, lightning-caused fires will be allowed to burn under prescription, provided public safety and outside property or resources are not endangered.

d. Appropriate suppression actions will be taken on all wildfires in order to meet wilderness management objectives. Actions may include confinement, containment, or control, depending on fire location and burning conditions. Use of natural barriers and low impact suppression methods will be emphasized. Some

forms of mechanized equipment (portable pumps, power saws, aircraft, etc.) can be used if they will reduce long-term impacts on the physical and biological resources of the wilderness.

e. If suppression actions impair the wilderness resources, all practical actions will be taken to restore the area to a natural condition after the fire is out.

f. The possible use of scheduled ignition will be evaluated to determine if it is needed to create conditions that will allow lightning fires to burn without threatening outside resources or property. Use of scheduled ignition, under an approved fire management plan, will be in accordance with current FSM policy.

g. Forest insects and disease will not be controlled, except where there is a clear and imminent danger to values outside the wilderness. Such control measures will consist of those which are least damaging to the wilderness resource.

h. An information/education plan will be developed to gain public acceptance of fire and insect management policy.

16. Signing.

a. Signs will not be provided solely for user orientation, convenience, or interpretation. The need for signs will be minimized by developing accurate maps and brochures which will include up-to-date descriptions of management expectations for appropriate visitor behavior and activity.

b. Signing at wilderness portals will be limited to trail direction signs, wilderness boundary signs, and such official information display as fire prevention, regulations governing use of the wilderness, and suggested wilderness behavior.

c. Signing needed for management and regulation of use will be installed so as to minimize both the physical impact of the signing system upon the wilderness resource, and the psychological impact to the wilderness visitor.

d. Existing signs will be evaluated on a case-by-case basis to determine if they meet the operational objective.

e. Mountain summit registers will not be maintained by the Forest Service, nor new ones installed in the wilderness. Existing registers will be allowed to remain, and local mountaineering groups encouraged to maintain them.

f. Signs may be placed at the following locations:

- a. system trail junctions
- b. wilderness restoration sites
- c. area and/or trail closures

g. Signs will not be placed in the following locations:

- a. In trailless areas
- b. on non-system trails
- c. to identify natural features

- d. to provide for on-site interpretation
- h. Wilderness boundary signs will be posted at all known entry points.
- i. Obsolete or inappropriate signs will be removed.

17. Research.

a. Scientific studies, research, and educational programs conducted within the wilderness must not cause degradation of wilderness values or the wilderness experience of visitors.

b. Only those studies, research projects, and programs that require a wilderness environment or some aspect associated with wilderness will be allowed.

c. Research that will help resolve wilderness management problems will be given encouragement and cooperative aid as administrative time and funding permit.

d. Data collected for management purposes, such as use figures and ecological data, will be made available to scientists for research purposes.

18. Monitoring.

The following parameters will be monitored throughout the wilderness. Methodology and sampling sites will be determined through the wilderness unit plans.

- a. Visitor use impacts, using the process outlined below:
 - 1. Campsite inventories
 - 2. Opportunity class definition/criteria
 - 3. Standards by opportunity class
 - 4. Management prescriptions by opportunity class or special area.
- b. Water quality in selected areas.
- c. Cumulative effects in occupied grizzly bear habitat.
- d. Vegetation condition (including range where applicable).

APPENDIX G: GRIZZLY BEAR STANDARDS AND GUIDELINES

TABLE OF CONTENTS

I	Introduction.....	2
II	Grizzly Bear Recovery Objectives.....	5
III	Standards and Guidelines.....	8
	Wildlife Management.....	8
	Timber/Fire Management.....	10
	Range Management.....	14
	Recreation Management.....	17
	Minerals, Energy, Watershed, and Special Uses Management.....	21
	Land Adjustment.....	23
IV	Grizzly Bear Control and Relocation Guidelines.....	24
	A. Introduction.....	24
	B. Nuisance Status Determination Guidelines.....	24
	C. Guidelines for Control Action.....	26
	D. Relocation Sites.....	27
V	Monitoring and Statistics.....	27
	A. Bear Observations.....	27
	B. Management Action Compliance Patrols.....	29
VI	Action Procedure--Grizzly/Human Conflict.....	29
VII	Research.....	30
VIII	Grizzly Bear Clauses.....	30
IX	Glossary.....	36
X	Bibliography.....	38

I. INTRODUCTION

This document was developed to provide direction for grizzly bear management in the Gallatin National Forest Management Plan. These incorporate guidelines specific to the Gallatin National Forest within the framework and intent of the Interagency Grizzly Bear Guidelines, 1986, and the "Grizzly Bear Recovery Plan" (1982), and will be the document to use for resolving management issues involving the grizzly bear on the Forest. These are intended to provide the manager with a reference of specific standards and guidelines for coordinating forest management to achieve recovery of the grizzly bear.

These standards and guidelines are also a consensus of numerous discussions and reviews with research and management personnel of the State, National Park Service, Forest Service, U. S. Fish and Wildlife Service, and personnel of the National Audubon Society and other citizen groups. (refer to Appendix F)

The grizzly bear was identified as a "threatened" species in 1975 under provisions of the Endangered Species Act. As such, the species and its habitat receive a special protective status in all Federal programs and activities. There are two major grizzly bear population centers and four other areas containing self-perpetuating or remnant populations in the lower 48 states. The two major areas are known as the Yellowstone Ecosystem population and the Northern Continental Divide population in Northwestern Montana. The best potential for survival and recovery of this species in the lower 48 appears to be within the Yellowstone and Northern Continental Divide Ecosystems.

Yellowstone grizzly bears have been the object of an intensive research effort entitled the Interagency Grizzly Bear Study. Agencies involved are the National Park Service; Forest Service; Fish and Wildlife Service; and States of Wyoming, Montana, and Idaho. Other private research has been conducted in recent times, most notably that of the Craighead brothers. Grizzly bear research outside the Yellowstone Ecosystem also furnishes considerable information valuable to management of the Yellowstone grizzly bears. In addition to research activity, the same agencies have adopted grizzly bear guidelines and have assisted the U.S. Fish and Wildlife in development of the Grizzly Bear Recovery Plan.

There are approximately 5.7 million acres of occupied grizzly bear habitat in the Yellowstone Ecosystem with varied population estimates of 130 to 300 1/ bears. Forty-three percent of the occupied habitat is National Park. Fifty-six percent of the occupied habitat is National Forest occurring on five administrative units; namely, Bridger-Teton, Custer, Gallatin (approximately 14 percent), Shoshone,

1/ Interagency Grizzly Bear Research Steering Committee established a firm minimum population of 130 grizzlies (Servheen, personal communication, 1983).

and Targhee National Forests. The occupied habitat is found in the States of Idaho, Wyoming, and Montana. The remainder of the habitat is on private and BLM lands.

In this document, habitat for the grizzly is divided into five Management Situation categories based on grizzly habitat value and population distribution. If changes in grizzly population and distribution occur, restratification of these categories may become necessary. Habitat suitability combined with consistent grizzly distribution trends would be the basis for restratification. Population and habitat conditions for each Management Situation are described (Interagency Grizzly Bear Guidelines, 1986) below:

Management Situation 1 - The area contains grizzly population centers (areas key to the survival of grizzlies where seasonal or yearlong grizzly activity, under natural, free-ranging conditions is common) and habitat components needed for the survival and recovery of the species or a segment of its population. The probability is very great that major Federal activities or programs may affect (have direct or indirect relationships to the conservation and recovery of) the species.

Management Situation 2 - The area lacks distinct grizzly population centers; highly suitable habitat does not generally occur, although some grizzly habitat components exist and grizzlies may be present occasionally. Habitat resources in Management Situation 2 either are unnecessary for survival and recovery of the species, or the need has not yet been determined but habitat resources may be necessary. The effects of major Federal activities or programs on the conservation and recovery of the species are not generally predictable.

Management Situation 3 - Grizzly presence is possible but infrequent. Developments, such as campgrounds, resorts or other high human use associated facilities, and human presence result in conditions which make grizzly presence untenable for humans and/or grizzlies. There is a high probability that major Federal activities or programs may affect the species' conservation and recovery.

Management Situation 4 - Grizzlies do not occur in the area but habitat and human conditions make the area potentially suitable for grizzly occupancy, and the area is needed for the survival and recovery of the species. The probability is very great that major Federal activities and programs may affect the species' conservation and recovery.

Management Situation 5 - Grizzlies do not occur or occur but rarely in the area. Habitat may be unsuitable, unavailable, or suitable and available but unoccupied. The area lacks survival and recovery values for the species or said values are unknown. Major Federal activities and programs probably will not affect species conservation and recovery.

The Yellowstone grizzly is a highly mobile animal. Although the grizzly's habitat has been stratified by management situations, it is the intent to coordinate the management of all management situations in the ecosystem for the recovery of the grizzly bear.

According to the Interagency Study Team, habitats within the Yellowstone Ecosystem are influenced by annual fluctuations in availability of grizzly bear foods. This condition differs from the relatively stable, abundant, and unnatural food supply that existed in Yellowstone Park before the garbage dumps were closed.

Now that the dumps are closed, the grizzly bear must depend on natural food sources. They now expend more energy locating these natural food sources. Because of this dependency on natural foods, maintaining high habitat quantity and quality is of great importance to the recovery of the grizzly bear. Management of grizzly bear habitat must emphasize providing a sufficient amount of available (not displaced by human activity) natural foods to support a grizzly bear population of the size necessary to achieve recovery. If these food sources cannot be maintained in sufficient quantity, annual variation in natality and survival can be expected within the population.

Administrative Unit	Current Occupied Habitat, Acres				
	Mgmt. Sit. 1	Mgmt. Sit. 2	Mgmt. Sit. 3	Unstrat	Total
National Park Service	2,313,998	2,985	2,518	--	2,319,501
(Yellowstone National Park)	(2,218,625)	(2,985)	(163)	--	(2,221,773)
(Grand Teton & Parkway)	(95,373)	--	(2,355)	--	(97,728)
Bureau of Land Mgmt.	--	2,800	--	--	2,800
Private	--	--	--	54,845	54,845
Forest Service	1,747,538	1,527,131	26,500	--	3,301,169
(Gallatin NF)	(493,357)	(324,010)	(1,100)	--	(818,467)
(Custer NF)	(5,500)	(105,000)	--	--	(110,500)
(Shoshone NF)	(412,000)	(819,600)	(17,400)	(9,000)	(1,249,000)
(Bridger-Teton NF)	(665,500)	(61,500)	(7,100)	--	(734,100)
(Targhee NF)	(171,390)	(217,000)	(1,000)	--	(389,390)
TOTAL	4,061,536	1,532,961	29,018	63,845	5,687,315

Natural food sources should be available in sufficient quantity to sustain at least a recovered population, regardless of the annual environmental fluctuations.

The precise carrying capacity of the Yellowstone Ecosystem to support grizzly bears is not known at this time. The highest known densities in the continental United States occur in the Northern Continental Divide population with one bear per 8 square miles in Glacier National Ecosystem. Research has provided grizzly-habitat relationship data to allow grizzly habitat component mapping of the GYE. Habitat component mapping by Bear Units (Glossary) will provide probabilities of grizzly use to compare with population estimates of each Bear Unit. These estimates compared with the recovered population characteristics defined in the Recovery Plan (1982) will eventually provide the means for determining the recovery status of the species. For now, research concludes that the Yellowstone Ecosystem could at least sustain a density of one grizzly bear per 28 square miles. This equates to a recovered population of about 300 bears.

Craighead et al (1974) estimated that grizzly population in the Yellowstone Ecosystem was 222 in 1959. This equals a density of one bear to 38 square miles of occupied habitat. Craighead et al., (1976) documented a population increase from 1959 to 1967 from 222 to 245, and then a decline from 1967 to 1974 from 245 to 136. The most recent estimate (Knight, et al., 1982) is 197, but there is now concern that this estimate may be too high.

Age structure of the known population indicates a highly exploited population. Some initial calculations by L. L. Eberhardt (personal communication to Richard Knight, Leader, Interagency Grizzly Bear Team) indicates that a 96 percent survival of females in prime breeding ages will result in a slow increase in population but that a 90 percent survival rate results in a steady decrease. Using only known man-caused mortalities for 1981, the survival rate was estimated at 87 percent.

Thus, data to date supports the "threatened" status of the grizzly bear in the Yellowstone Ecosystem and, in fact, indicates the possibility of a further deteriorating situation--nearly all of which can be related to man-caused losses, due to direct mortality and indirectly by habitat displacement, of the female segment of the population.

II. GRIZZLY BEAR RECOVERY OBJECTIVES

The Grizzly Bear Recovery Plan indicates that a recovered population in the Yellowstone Ecosystem should approximate about 300 bears sustained over a 6-year period and contain 25 females with cubs-of-the-year (see Glossary) with a reproductive rate of 2.2 cubs/female.

The Interagency Study Team reports a 6-year norm for the period ending in FY 1986 of 14.5 females with cubs. The census efficiency is unknown. There is strong indication that the numbers of females with cubs are at least stable and may be increasing.

The Gallatin National Forest's objectives for meeting the Yellowstone ecosystem recovery goal are as follows:

A. In partnership with cooperating agencies, strive for zero preventable bear losses on Gallatin National Forest lands per year to expedite species recovery.

Reaching the recovery goal for the Yellowstone Ecosystem will be expedited if all man-caused losses do not exceed those currently recommended by the Recovery Plan (1982). Yellowstone grizzly bear losses will be calculated as a 6-year running average. (U. S. Fish and Wildlife Service, Grizzly Bear Recovery Plan, 1982.)

B. To manage all "Situation 1" acreage on the Gallatin with grizzly bear as the primary emphasis. Management Direction outlined in page 3 of the Interagency Grizzly Bear Guidelines (1986) will be followed.

C. To manage Situations 2 and 3 areas in occupied grizzly habitat in a manner that multiple-use activities are designed and coordinated to primarily minimize the potential for grizzly/human conflict that could result in mortality or relocation (out of ecosystem) of the grizzly. Management Direction for MS-2 & 3 will be guided as indicated on page 3 of the Interagency Grizzly Bear Guidelines (1986).

D. There is no MS-4 & 5 area in currently occupied habitat designated in the Recovery Plan (1982). For grizzlies outside of occupied habitat, MS-5 Management Direction indicated on page 4 of the Interagency Grizzly Bear Guidelines (1986) will be applied.

III. STANDARDS AND GUIDELINES

To assist land managers in meeting established objectives for the grizzly bear in the Yellowstone Ecosystem, the attached standards and guidelines have been developed. These standards and guidelines provide for more detailed application of the broad "Interagency Grizzly Bear Guidelines" in the categories of maintaining and improving habitat and in minimizing grizzly-human conflict potential.

Standards provide specific direction in management areas. Forest Supervisor approval is mandatory for deviation from standards.

Guidelines, on the other hand, provide broad direction that should be strived for in all management activities. Guidelines are not binding but must be considered in all cases.

In addition to the standards and guidelines, each Ranger District of the Gallatin National Forest will be required annually, prior to March 30, to prepare a "Grizzly Bear Operating Plan." The plan will address applicable standards and guidelines and state whether or not they will be met and/or to what degree it will be met.

The annual operating plan will be reviewed with the U. S. Fish and Wildlife Service bear recovery coordinator; the Montana Department of Fish, Wildlife, and Parks; and Yellowstone National Park. The operating plan will provide rationale for stated levels of implementation of these standards and guidelines.

To comply with Section 7 of the Endangered Species Act (1973), the Forest will conduct biological reviews consistent with these guidelines by biologists for projects authorized or funded by the Forest to determine the affect of the proposed action on federally listed species. The biological review will determine the potential for the proposed action to jeopardize federally listed species and provide recommended mitigation measures. Informal consultation with the U. S. Fish and Wildlife Service will be provided for and documented in all biological review documents.

Grizzly Mgt.
Situation

STANDARDS AND GUIDELINES

WILDLIFE MANAGEMENT

	1/ S	1/ G	I	II	III
1. Maintain close contact with research organizations to ensure that current research data are being used in resource planning and administration affecting grizzlies.	X		X	X	X
At least once per year district rangers and biologists meet with the grizzly bear study team to review current research findings and discuss their application in resource management. Also, to address research needs in terms of Forest management activities and communicate these needs to the Interagency Grizzly Bear Committee(IGBC).					
2. Initiate consultation procedures with the U. S. Fish and Wildlife Service, as necessary. Informal consultation with the Service is mandatory during preparation of and documented in all biological reviews.	X		X	X	X
3. Complete a biological review (see Glossary) for all projects in occupied habitat. Based on recommendations and findings in the biological review, design and implement project modifications which will provide compatibility (see Glossary) between grizzly bears and other resource management activities without jeopardizing the grizzly population. If a project cannot be made compatible, and it will jeopardize the grizzly populations, it will be necessary to eliminate the project if in MS-1 and/or modify the project if in MS-2, primarily to reduce the potential for bear/man conflict. Adverse population effects are population reductions and/or habituation. Adverse habitat effects are long term reductions in habitat quantity and/or quality that would ultimately jeopardize the grizzly population. Informally consult with U. S. Fish and Wildlife Service as part of the biological review. Documentation of informal consultation with the Service will be included in the Biological review. Initiate formal consultation procedures with the Service, as necessary, if the biological review results in a "May Effect" determination.	X		X	X	X
4. Based on recommendations in the biological review, specify measures to be taken within the different resource management activities which will protect, maintain, and improve grizzly bear habitat and populations.	X		X	X	
5. Based on recommendations in the biological review, specify measures to be taken independent of other resource management activities, to improve grizzly bear management.		X	X	X	

1/ S= Standard

G= Guidelines

Grizzly Mgt.
Situation

S	G	I	II	III
	X	X	X	X
X		X	X	X
X		X	X	X
X		not applicable		
X		X	X	
	X	X		
X		X	X	X
	X	X		
	X	not applicable		
X		X	X	X

WILDLIFE MANAGEMENT

6. Establish an active public information and education program discussing grizzly bear management, stressing goals, objectives, and steps required to recover the population.
7. Monitor the application of these standards and guidelines to assure they are properly and effectively used. Recommend improvements of these Standards and Guidelines may be made via Forest Supervisor approval.
8. Carcasses of big game, livestock, or other attractants along highways, Forest roads, and trails will be removed as far as practical from the travelway. Removal should occur within 24 hours. Assist State Highway Department and Montana Department of Fish, Wildlife, and Parks in removal along State and county roads.
9. Refer to the Montana Department of Fish, Wildlife and Parks regarding carcass removal from State and county highways and roads.
10. The riparian zone is a basic component of suitable grizzly habitat. Its management will follow policy established within the Forest plan.
11. Elk winter range management plans will address grizzly needs in terms of an available spring carrion supply. Work with Yellowstone Park and Montana Department of Fish, Wildlife, and Parks to provide additional carrion during abnormally mild winters.
12. Active grizzly bear trapping sites that are not tended will be closed to other human use. These sites will be approved by the Forest Supervisor and warning signs posted prior to installation of the trap.
13. Support introduction of grizzly bear from outside the Yellowstone Ecosystem.
14. Work with research groups in development of grizzly deterrents (i.e., Taser Gun).
15. Update grizzly habitat compartment maps and correlate grizzly use and behavior with the availability of suitable habitat. Refine management situation stratification based on current grizzly habitat suitability, population, and distribution trends. All biological reviews will assess the current status of management situation stratifications for accuracy and provide recommendations for updating.

Grizzly Mgt.
Situation

S | G | I | II | III

TIMBER/FIRE MANAGEMENT

- B. Sale Area Improvement - Timber sale receipts, collected for post-sale area improvement (Knudsen-Vandenberg Act funds) should be used, when practical, to enhance the grizzly habitat quality of a logged area. Reforestation could be used to establish cover patches in cut blocks and supplemental cover screens for wet meadows, marshes, bogs, ponds, and other riparian areas. Revegetation with native grasses, forbs, and shrubs could be used to establish natural grizzly foods on appropriate, denuded sites. Improvements that enhance or restore the water table and could be a consideration in riparian areas. Existing open road use may be managed with structures provided by KV funds.
- C. Prescribed Burning - Some grizzlies appear to derive much of their energy from the fruits of shrubs, including huckleberry and buffalo-berry. Burns resulting from wildfires in this century are important producers of fruiting shrubs which provide grizzly food energy. Natural fire frequency appears necessary to maintain or expand burn components. Prescribed burning in habitat types which are not managed for timber production could help to approximate a natural fire frequency. Forest components known to have the greatest potential for improvement include the subalpine fir-whitebark pine/grouse whortleberry ABLA-PIAL/VASC H.T. (Pfister, et al., 1979) and subalpine fir/huckleberry (ABLA/VAGL) habitat types. Noncommercial vegetative types such as aspen (Potr) and willow (Salix) could be regenerated through prescribed burning. Prescribed fire should be considered in both wilderness and nonwilderness areas.
- D. Follow "Dead and Down Woody Materials Guidelines" for the Gallatin National Forest.
5. Silvicultural treatments will be designed to maintain or favor a mature, cone producing stand of whitebark pine where it exists within a sale. Generally, whitebark pine should not be marked for cutting unless it is expected to die before the next cutting entry.
6. Existing and proposed roads for construction or reconstruction will be evaluated by the biological review process to determine potential for affecting the grizzly in each resource analysis area. When warranted, existing roads will be closed. The transportation plan for each analysis area should consider the following guidelines.

	S	G	I	II	III
B. Sale Area Improvement		X	X	X	
C. Prescribed Burning		X	X	X	
D. Follow "Dead and Down Woody Materials Guidelines"		X	X	X	
5. Silvicultural treatments		X	X	X	
6. Existing and proposed roads	X		X	X	

Grizzly Mgt.
Situation

RANGE MANAGEMENT

	S	G	I	II	III
1. Complete a biological review (see Glossary) for all range allotments in occupied habitat. Based on recommendations and findings in the biological review, design and implement project modifications which will provide compatibility (see Glossary) between grizzly bears and other resource management activities without jeopardizing the grizzly population. If a range allotment cannot be made compatible, and it will jeopardize the grizzly bear populations, it will be necessary to eliminate the allotment if in MS-1 and/or modify the allotment if in MS-2, primarily to reduce the potential for bear/man conflict. Adverse population effects are population reductions and/or habituation. Adverse habitat effects are long term reductions in habitat quantity and/or quality that would ultimately jeopardize the grizzly population. Informally consult with U. S. Fish and Wildlife Service as part of the biological review. Documentation of informal consultation with the Service will be included in the biological review. Initiate formal consultation procedures with the Service, as necessary, if the biological review results in a "may effect" determination.	X		X	X	X
2. The allotment management plan will incorporate Greater Yellowstone ecosystem grizzly management goals and objectives and specify measures to meet them. Permittee Plans will include specific measures to protect, maintain and/or improve grizzly habitat and meet grizzly management goals and objectives. Permittee Plans will include a clause providing for immediate temporary modification, or if needed, the suspension or cancellation of any or all permitted activities when such action is necessary in order to prevent confrontation or conflict between humans and the grizzly bear. The Permittee's full cooperation in meeting grizzly management goals and objectives will be a condition to their receiving and holding permits and will be attained with applicable requirements in the Grizzly Management and Protection Plan of the annual Permittee Plan. See Section VIII for examples of grizzly bear clauses for outline of GMP.	X		X	X	
3. The allotment management plan will specify applicable measures to protect in time and space, food production areas vitally important to grizzlies (i.e., wet alpine and subalpine meadows, stream bottoms, aspen groves, and other riparian areas) from use by domestic livestock. These measures will be reflected in annual permittee plans. Habitat management could range from partial to full protection as indicated by units either temporarily or permanently (Management Situation 1 only), exclusion fencing, changing on and off dates, and setting livestock utilization rates at levels compatible with grizzly needs. Range condition objectives will be good to excellent (unless not attainable) in order to achieve range conditions favorable to grizzlies.	X		X		
		X		X	

Grizzly Mgt.
Situation

RANGE MANAGEMENT

	S	G	I	II	III
4. On sheep allotments where livestock losses due to the grizzly have been authenticated, management changes will be made for the primary purpose of grizzly bear conservation. Currently the following options are among those available in areas occupied by the grizzly.	X		X	X	
A. Change the season of use, bedding practices, or grazing areas, to avoid known problem areas or other habitat important to grizzlies in time and space.			X	X	
B. Change the class of livestock from sheep to cattle if the range is suitable for cattle.			X	X	
C. Relocate sheep from allotments in Situation 1.			X		
D. Implement monitoring systems to reduce the probability of grizzly mortality. Monitoring intensity will be recommended in allotment management plans.			X	X	
5. New and/or vacant sheep allotments will be evaluated utilizing the biological review process prior to stocking.	X		X	X	
6. The District Ranger will specify in the annual permittee plan (GMP) of use appropriate measures for removal or destruction of livestock carcasses to avoid habituation of grizzlies to livestock carrion as food. The intent is to reduce the availability of unnatural food, reduce the likelihood of food association with domestic herds, reduce opportunities for depredation, and reduce the possibility of man/grizzly conflict. See Section VIII, Grizzly Bear Clauses.	X		X	X	
Allotment plans will require that human and prepared livestock and pet foods and human refuse associated with livestock operations be made unavailable to grizzlies through proper storage handling, and disposal. Edibles and/or garbage should not be allowed to accumulate; sight and/or smell of edibles and/or garbage should not be dominant (ie., food should be canned or in other sealed containers); and edibles and/or garbage should be made unavailable (hung out of reach, secured in a solid-sided bear-proof structure, burned, or packed out).					
7. In the event that livestock are preyed upon by grizzly bears, the following procedures will be used.					
A. Continue grazing, but immediately move livestock to another area of the allotment.	X		X	X	

Grizzly Mgt.
Situation

S	G	I	II	III
X		X	X	
X		X		
	X			X
		X	X	X
X			X	X
		X	X	X
		X	X	X
X			X	X

RECREATION MANAGEMENT

12. Trails, roads, and areas with histories of grizzly/human encounters or areas where grizzly use increases grizzly encounter potential may be closed to human use either temporarily in Situation 1 and 2 or permanently in Situation 1 to reduce conflict potential.
13. When backcountry recreational use is determined to exceed grizzly tolerance levels, some means of restriction or reduction of human use should be implemented (i.e., permit system or re-evaluation of commercial use) to avoid displacement of grizzlies from suitable habitat.
14. Backcountry travel may be restricted to large (four people or more) parties on horseback, motorized vehicles, or hiking in areas of high grizzly use. Grizzlies will generally avoid larger groups of people.
15. Reduce grizzly mortality illegally occurring during big game hunting seasons by:
 - A. Assisting Montana Department of Fish, Wildlife, and Parks in making information available to all hunters to assist them in distinguishing between black and grizzly bear.
 - B. Assisting Montana Department of Fish, Wildlife, and Parks in issuing special warnings to hunters using areas frequented by grizzly bear.
 - C. Recommending that black bear hunting regulations be modified as appropriate to reduce or avoid areas or time periods of significant conflicts.
16. Outfitters will be encouraged to limit the quantity of horsefeed and human food to that necessary for each individual trip.
17. All food attractants will be made unavailable to bears whenever camps are left unoccupied between sunset and sunrise.

Grizzly mgt.
Situation

MINERALS, ENERGY, WATERSHED, AND SPECIAL USES MANAGEMENT

	S	G	I	II	III
1. Guidelines/stipulations for oil and gas leasing are indicated in the following environmental assessments: Oil and Gas Leasing on the Gallatin National Forest - March 4, 1981 Proposed Oil and Gas Leasing, Hebgen Lake Ranger District - March 2, 1981.	X		X	X	X
2. Operating Plans and Special Use Permits will include specific measures to protect, maintain and/or improve grizzly habitat and meet grizzly management goals and objectives. Operating Plans and Special Use Permits will include a clause providing for immediate temporary modification, or if needed, the suspension or cancellation of any or all permitted activities when such action is necessary in order to prevent confrontation or conflict between humans and the grizzly bear. The permittee's full cooperation in meeting grizzly management goals and objectives will be attained in the Grizzly Management and Protection Plan of the Operating Plans and Special Use Permit. See Section VIII for grizzly bear clauses and Grizzly Management and Protection Plan examples for special use, energy and mineral permits.	X		X	X	X
3. Complete a biological review (see Glossary) for all projects in occupied habitat. Based on recommendations and findings in the biological review, design and implement project modifications which will provide compatibility (see Glossary) between grizzly bears and mineral, energy and other special uses without jeopardizing the grizzly population. If a project cannot be made compatible, and it will jeopardize the grizzly populations, it will be necessary to eliminate the project if in MS-1 and/or modify the project if in MS-2, primarily to reduce the potential for bear/man conflict. Adverse population effects are population reductions and/or habituation. Adverse habitat effects are long term reductions in habitat quantity and/or quality, such as a) land surface disturbance, b) water table alteration, c) reservoirs, d) rights-of-way, roads, pipelines, canals, transmission lines, or other structures, d) increased human foods, and e) reduced availability of natural foods, that would ultimately jeopardize the grizzly population. Informally consult with U. S. Fish and Wildlife Service as part of the biological review. Documentation of informal consultation with the Service will be included in the biological review. Initiate formal consultation procedures with the Service, as necessary, if the biological review results in a "may effect" determination.	X		X	X	X
4. Where appropriate, operating plans and special use permits will specify food storage, handling, and garbage disposal standards.	X		X	X	X

Grizzly Mgt.
Situation

MINERALS, ENERGY, WATERSHED, AND SPECIAL USES MANAGEMENT

	S	G	I	II	III
5. Scheduling of mineral exploration and other development activities will be established so as to provide security areas immediately adjacent to other project analysis areas. Timber, fire and other resource management activities will be coordinated to prevent adverse cumulative effects on grizzly bear populations via implementation of the Cumulative Effects Analysis (1984) Process.	X		X	X	
6. Temporary living facilities for exploration and/or development personnel may be on-site but with restrictions as necessary. Off-site camps will be encouraged and designated by the District Ranger.	X	X	X	X	
7. Roads constructed for mineral exploration and/or development will be single purpose roads only and will be closed to public use not associated with mineral activities. Exception to this could be seasonal closure if data shows grizzly use of the area or habitat to be seasonal. In this case The following are guidelines for road management.	X		X	X	
A. Open road density equivalent to greater than 80 percent habitat effectiveness (Elk-Logging Study, 1982) will be the goal for Situation 1 areas and greater than 60 percent for Situation 2 areas. See Glossary for elk habitat effectiveness (open roads).		X	X	X	
B. Exceptions to permanent road closures could be:		X	X	X	
(1) Seasonal closures if data shows grizzly use of the area to be seasonal and the road facilitates other important resource use that would not be possible without the road.					
(2) Roads could be open for short periods such as for wood gathering if human use is of short duration.					
8. Solid waste disposal transfer stations will be evaluated and made compatible with the grizzly bear. See Section VIII for grizzly bear clauses with outline for appropriate grizzly bear management and protection plan.	X		X	X	X
9. Mineral exploration and/or development activities will occur at a time or season when the area will have the least cumulative effect on the grizzly.	X		X		

Grizzly Mgt.
Situation

LAND ADJUSTMENT (Purchases, Exchanges)

1. Complete a biological review (see Glossary) for all projects in occupied habitat. Based on recommendations and findings in the biological review, design and implement project modifications which will provide compatibility (see Glossary) between grizzly bears and other resource management activities without jeopardizing the grizzly population. If a project cannot be made compatible, and it will jeopardize the grizzly populations, it will be necessary to eliminate the project if in MS-1 and/or modify the project if in MS-2, primarily to reduce the potential for bear/man conflict. Adverse population effects are population reductions and/or habituation. Adverse habitat effects are long term reductions in habitat quantity and/or quality that would ultimately jeopardize the grizzly population. Informally consult with U. S. Fish and Wildlife Service as part of the biological review. Documentation of informal consultation with the Service will be included in the biological review. Initiate formal consultation procedures with the Service, as necessary, if the biological review results in a "may effect" determination.

As a result of the biological review (see Glossary, Appendix A), initiate land adjustment proposals which will be compatible (see Glossary) with grizzly bear management and protection. Interim direction (Hilman, 3/28/79) for determining need for formal consultation is as follows:

- A. Formal consultation with the U. S. Fish and Wildlife Service will be mandatory when occupied habitat is proposed to pass from Federal ownership (Hilman, 3/28/79).
- B. Formal consultation with the U. S. Fish and Wildlife Service will be mandatory when both the proposed offered and selected tracts are within occupied habitat; regardless, if selected habitat is of better quality or quantity (Hilman, 3/28/79).

	S	G	I	II	III
1. Complete a biological review (see Glossary) for all projects in occupied habitat. Based on recommendations and findings in the biological review, design and implement project modifications which will provide compatibility (see Glossary) between grizzly bears and other resource management activities without jeopardizing the grizzly population. If a project cannot be made compatible, and it will jeopardize the grizzly populations, it will be necessary to eliminate the project if in MS-1 and/or modify the project if in MS-2, primarily to reduce the potential for bear/man conflict. Adverse population effects are population reductions and/or habituation. Adverse habitat effects are long term reductions in habitat quantity and/or quality that would ultimately jeopardize the grizzly population. Informally consult with U. S. Fish and Wildlife Service as part of the biological review. Documentation of informal consultation with the Service will be included in the biological review. Initiate formal consultation procedures with the Service, as necessary, if the biological review results in a "may effect" determination.	X		X	X	
As a result of the biological review (see Glossary, Appendix A), initiate land adjustment proposals which will be compatible (see Glossary) with grizzly bear management and protection. Interim direction (Hilman, 3/28/79) for determining need for formal consultation is as follows:	X		X	X	X
A. Formal consultation with the U. S. Fish and Wildlife Service will be mandatory when occupied habitat is proposed to pass from Federal ownership (Hilman, 3/28/79).	X		X	X	
B. Formal consultation with the U. S. Fish and Wildlife Service will be mandatory when both the proposed offered and selected tracts are within occupied habitat; regardless, if selected habitat is of better quality or quantity (Hilman, 3/28/79).	X		X	X	

IV. GRIZZLY BEAR CONTROL AND RELOCATION GUIDELINES

A. Introduction

Grizzly bear control and relocation is the primary responsibility of the Montana Department of Fish, Wildlife, and Parks, and the U. S. Fish and Wildlife Service. Forest responsibilities lie in assisting the above agencies in determining need for control and in on-the-ground assistance in relocation efforts when necessary.

B. Nuisance Status Determination Guidelines

These guidelines apply to the Management Situation Areas defined in this document. In Management Situation Areas 1, 2, and 5 grizzlies must be determined to be a nuisance by specific criteria before they will be controlled. In Situation Area 3, any grizzly involved in a grizzly/human conflict situation is considered a nuisance and will be controlled. Control must be compatible with Recovery Plan objectives for limiting man-caused grizzly mortality.

Management Situation 1 - A grizzly bear will be determined to be a nuisance if either or both of the following conditions apply:

Condition A. The bear uses unnatural food materials (human and livestock foods, garbage, livestock carrion, and game meat in the possession of man) which have been reasonably secured from the bear.

The following are considerations in determining grizzly nuisance status under Condition A:

1. Unnatural foods were reasonably secure from grizzlies. Reasonably secure means all steps were taken to comply with standards and guidelines listed under Management Situation 1. The following are examples of reasonably secure conditions:

a) Edibles and/or garbage was not allowed to accumulate; sight and/or smell of edibles and/or garbage was not dominant (i.e., food was canned or in other sealed containers) and edibles and/or garbage was made unavailable (hung out of reach or secured in a solid-sided bear-proof structure).

b) Livestock and wildlife carcasses were destroyed or treated so that the material would not reasonably be expected to attract grizzlies.

c) Game meat was stored at least 100 yards from sleeping area and made unavailable as possible to grizzlies.

d) No baits were placed for purposes of sport hunting black bears.

e) No artificial feeding of grizzlies occurred.

2. Livestock use did not occur in habitat components yearlong or seasonally important to grizzlies.

Condition B. The bear exhibits or has a history of aggressive (not defensive) behavior toward man which constitutes a demonstrable immediate or potential threat to human safety.

The following are considerations in determining grizzly nuisance status under Condition B:

The bear exhibits or has a history of aggression toward man. Sound evidence must be available to establish that the problem bear acted aggressively without provocation (not defensively), and that such behavior constituted a threat to human safety, or that injury or death were the direct result of a grizzly attack.

If information is insufficient to clearly establish nuisance status under Condition A, the problem grizzly probably should not be determined a nuisance under that condition. If information is insufficient to clearly establish nuisance status under Condition B, the problem grizzly probably should not be determined a nuisance under that condition.

Management Situation 2 - A grizzly bear will be determined to be a nuisance if either or both of the following conditions apply:

Condition A. The bear uses unnatural food materials (human and livestock foods, garbage, livestock carrion, and game meat) which have been reasonably and feasibly secured from the bear, resulting in habituation of the bear.

The following are considerations in determining grizzly nuisance status under Condition A:

1. Unnatural foods were reasonably secure from grizzlies. Reasonably secure means: all feasible steps were taken to comply with standards and guidelines listed under Management Situation 2.
2. The grizzly exhibits a behavior pattern of following sheep after the band had been relocated to another area in the allotment resulting in two or more depredation attacks on the same band.

Condition B. The bear exhibits or has a history of aggressive (not defensive) behavior toward man which constitutes a demonstrable immediate or potential threat to human safety.

The following are considerations in determining grizzly nuisance status under Condition B:

The bear exhibits or has a history of aggression toward man. Sound evidence must be available to establish that the problem bear acted aggressively without provocation (not defensively), and that such behavior constituted a threat to human safety, or that injury or death was the direct result of a grizzly attack.

If information is insufficient to clearly establish nuisance status, under Condition A and B, the problem grizzly probably should not be determined a nuisance. If information is insufficient to clearly establish nuisance status, under Condition B, the problem grizzly probably should not be determined a nuisance under that condition.

Management Situation 3 - Grizzly bears in Management Situation Area 3 will be considered a nuisance and control actions undertaken when any of the following occur:

1. Any unnatural food item reasonably secured is obtained by the grizzly.
2. Whenever continued daytime presence (other than just passing through) is observed.
3. Two consecutive nights presence, depending on the suspected reason for bear occurrence. Bears will not be held in a snare but will be immobilized, marked, and placed in an appropriate holding facility.
4. The bear exhibits or has demonstrated a history of aggressive (not defensive) behavior toward man.

Management Situation Area 3 next to high quality bear habitat would be treated differently than areas adjacent to poor quality habitat. Human contacts and control frequency should be established for each management situation area in the annual operating plan.

C. Guidelines for Control Action.

The criteria in the following table (Table 1) will be used to guide control actions in all five management situations. These guidelines refer only to grizzly bears determined to be condition A or B nuisance bears. Aggressive, nondefensive actions of grizzly bear which result in human death will be handled on a case-by-case basis. The decision as to removal or relocation will be made by the interagency investigative team handling the incident.

The procedures displayed in Table 1 for those listed in Appendix F need to consider the following:

1. The quality of previous relocation site and condition of the individual grizzly bear.
2. If a grizzly bear is not determined to be a nuisance after application of previous criteria, no control action will be initiated.
3. Nuisance bears taken during a control action will not be held alive for more than 36 hours, more than one night, or as necessary to expedite a quick relocation. For example, a bear discovered and taken on the morning of the first day may be held overnight and relocated the next day if relocation is not possible the first day. The bear will not be held the second night. Bears will not be held in a snare but will be immobilized, marked, and placed in an appropriate holding facility.

4. On-site release may be accomplished if the bear taken is (a) determined not to be the nuisance bear or, (b) on a first offense when the bear cannot be relocated because of terrain, weather, or inaccessibility to transportation. Females with cubs, where relocation is identified in Table 1, will be released on-site if relocation is not feasible for previously stated reasons or if the cubs cannot also be caught and relocated with the female. On-site release will not be conducted in Management Situation area 3. On-site release will be accomplished after approval of the land management agency if the release is monitored in such a way to determine its success or failure with respect to bear survival and conflict resolution.

D. Relocation Sites

All areas within grizzly Management Situation Area 1 are available for relocation of grizzlies. All bears are to be accepted except those with a history of aggression toward man. Aggressive bears will be evaluated on a case-by-case basis for relocation.

Candidate locations will be established annually with the primary criteria being that the area be biologically acceptable to the bear. Choice of specific sites within the Gallatin will depend upon conditions of each case including the nature of the nuisance bear, the season of the year, and other resource uses occurring in the area.

V. MONITORING AND STATISTICS

A. Bear Observations

The following information should be made available to field personnel and reported to the responsible District Ranger.

Reporting Card for Grizzly Observations
Grizzly Bear Sign Data
Interagency Nuisance Grizzly Bear Report Form
Report of Grizzly Bear Mortality

All reports (shown in Appendix C) will be filled out at time of observation or incident or soon after and reported to the District Ranger who will (1) judge credibility of each report by using criteria in the guide (also in Appendix C), and (2) send the report as soon as possible after verification of credibility to:

Bear Monitoring Office
Yellowstone National Park
P. O. Box 168
Mammoth, WY 82190

TABLE 1. GUIDELINES FOR CONTROL ACTION OF NUISANCE GRIZZLY BEAR

TYPE OF GRIZZLY	TYPE OF PROBLEM					
	OFFENSES	Condition A			Condition B	
		1st	2nd	3rd	1st	2nd
Females--						
Cub***	REL*	REL	REL 1/	REL	REM**	
Yearling***	REL	REL	REL 1/	REL	REM	
Adolescent***	REL	REL	REL 1/	REL	REM	
Prime Adult	REL	REL	REL 1/	REL	REM	
Prime Adult with Young***	REL	REL	REL 1/	REL	REM	
Old Adult***	REL	REL	REM 1/	REL	REM	
Old Adult with Young	REL	REL	REL 1/	REL	REM	
Males--						
Cub	REL	REL	REM	REL	REM	
Yearling	REL	REM	REM	REL	REM	
Adolescent	REL	REM	REM	REL	REM	
Prime Adult	REL	REM	REM	REL	REM	
Old Adult	REL	REM	REM	REM		

Orphaned Cubs - Will be relocated in an area occupied by a sow with cubs.

*REL - relocate in MS-1 of ecosystem

**REM - remove from ecosystem (destroy or transplant out of ecosystem)

Problem grizzlies that are senile (weak in mind or body as a result of old age) or sick or injured beyond a point where natural recovery is likely, will be removed.

***Cub - young of the year (less than 12 months old)

***Yearling - 12 to 24 months old

***Adolescent - 24-48 months old or breeding age or condition

***Young - cub, yearling, or adolescent accompanying mother

***Old - indicates advanced age and deteriorated physical state, indicators are tooth wear and physical appearance

1/ The decision to remove rather than relocate a female on the third offense will be at the discretion of the managers based upon the bear's behavior, nature of the offense, and current management situation.

B. Management Action Compliance Patrols

All authorized, leased, contracted, permitted, and other activities and uses in occupied grizzly bear habitat will be monitored in accordance with each annual ranger district grizzly bear action plan. The monitoring patrols and inspections will be reported on the Yellowstone Interagency Grizzly Bear Patrol form and Camp Inspection form found in Appendix D and E, respectively. These forms are to be sent as they are completed to the Greater Yellowstone Ecosystem Monitoring Office.

VI. ACTION PROCEDURE--GRIZZLY/HUMAN CONFLICT

All incidents of grizzly/human conflict will be investigated immediately and a factual and detailed report submitted to the Forest Supervisor. Such investigations will be made by an interagency team called together at the request of the agency managing the area where the incident occurred.

1. In the event of injury or serious property damage:
 - a. Follow procedural instructions for possible tort claims. Obtain photographs, interviews with victims and witnesses, statements by all involved USDA Forest Service personnel.
 - b. Document all "pre-incident" procedures such as previous bear sightings, garbage collection schedules, verbal warnings to victims, etc.
 - c. County sheriffs will have the primary responsibility for backcountry rescue.
 - d. Depending on the site and the type of incident, immediate closure of the site to human use should be considered.
 - e. News releases involving grizzly/human conflict incidents will be coordinated with other involved agencies.
2. In the case of human death, notify the county sheriff; county coroner; U. S. Fish and Wildlife Service; Montana Department of Fish, Wildlife, and Parks; Interagency Grizzly Bear Study Team; Yellowstone National Park; and the Forest Supervisor.
 - a. An interagency team with members from the county forensic and law enforcement agency; Montana Dept. of Fish, Wildlife, and Parks; USDA Forest Service; Yellowstone National Park; U. S. Fish and Wildlife Service; and the Interagency Grizzly Bear Study Team will be formed to investigate all incidents of grizzly-inflicted human death. They should meet within 12 hours of the death. A public information officer should be assigned to this team to assure timely dissemination of news releases to the public.

b. State wildlife agencies and/or the U.S. Fish and Wildlife Service will handle problem grizzlies.

c. Depending on site and type of incident, immediate closure of the site to human use should be considered.

d. News releases involving grizzly/human conflict incidents will be coordinated with other agencies involved.

3. In the case of grizzly death, notify U.S. Fish and Wildlife Service; Montana Department of Fish, Wildlife, and Parks; Interagency Grizzly Bear Study Team; Yellowstone National Park; and the Forest Supervisor.

VII. RESEARCH

Research is considered to be an integral part of grizzly management on the Gallatin National Forest. Support will be given to the Interagency Grizzly Bear Study Team and outside researchers when working on the National Forest.

At a minimum of once annually, the Gallatin will meet with members of the Interagency Grizzly Bear Study Team to discuss recent findings and possible management applications. National Forest research needs will be discussed at this time. Viable research proposals will be submitted to the Yellowstone Grizzly Bear Subcommittee, who review all research proposals and provide annual research recommendations for the GYE to the Interagency Grizzly Bear Committee.

VIII. GRIZZLY BEAR CLAUSES

As part of an increased effort to facilitate recovery of the grizzly, the following clauses/provisions have been developed in coordination with Regions 1, 2, 4, and 6 in matters concerning contracts, authorizations, permits, special orders, and other administrative actions.

1. Special-use authorizations will include grizzly bear protection provisions as per Enclosure (1).

2. Use existing Endangered and Threatened (E-T) Clause C6.25 for timber sales as per enclosure (2).

3. All leases will continue to include Enclosure 3 as an E-T clause.

4. Provisions specifically addressing grizzly bear protection will be included in all operating plans (leasable and locatable minerals) and grazing permittee's Annual Permittee Plans. See Enclosure I and V.

5. All persons issued permits, contracts, leases or other forms of authorization to conduct activities in occupied grizzly bear habitat are to receive an appropriately addressed and signed copy of Enclosure 5.

6. For management of public use, issue 90-day regulation by major areas under 36 CFR 261.70, as needed, to prevent confrontation and conflict between public use and grizzly bears. Prohibitions should be developed from Enclosure 4 and coordinated between adjacent Forests.

Enclosure 1

Grizzly Bear Protection Provisions--Special Use Authorizations

A Regional Supplement (FSM 2783.12--6, dated 11/85, #107) has been issued and will be followed.

Special use management involving National Forest System lands within Grizzly Bear Management Situations 1, 2, and 3 will include appropriate provisions to enhance grizzly bear management and reduce potential for human/grizzly bear conflict. Management Situations 1, 2, and 3 are described in the Greater Yellowstone Area Grizzly Bear Management Guidelines, December 1979, page 3.

Applications for new or reissued special use authorizations in Management Situations 1, 2, and 3 will fully consider the effect of the use and related human activity on grizzly bear. Where these effects can be properly mitigated, the application may be approved and an appropriately conditioned special use authorization issued. If the decision is to grant the authorization, the required grizzly bear and human protection measures should be developed in consultation with the applicant. In cases where the effects cannot be appropriately mitigated, the application will not be approved.

During pre-application contacts, prospective applicants will be alerted to the grizzly bear management situation and probable permit provisions and management requirements will be discussed. In a general sense, it should be recognized that it is the human activity associated with a special use authorization which presents the opportunity for conflict and hazard to the grizzly bear rather than the presence of physical structures. A recreation-oriented use may present significant opportunities for conflict.

A special use authorization located within Management Situations 1, 2, and 3 will contain the following clause.

This special use authorization is for the use of land which is part of the habitat of the grizzly bear. Therefore, in compliance with Forest Service responsibilities under the Endangered Species Act of 1973, 16 U.S.C. 1531, the following conditions apply to this special use authorization:

A. The authorized officer may order an immediate temporary suspension of all human activities permitted by this authorization, and if needed, revoke or terminate the special use authorization when, in his/her judgment, such action is necessary in order to prevent confrontation or conflict between humans and grizzly bears. The holder shall immediately comply with such order. The United States shall not be liable for any consequences from such a suspension, revocation or termination. Such suspension, revocation, or termination may be appealed to the next higher level as provided in 36 CFR 211.18. 1/

B. The holder, his/her agents, employees, contractors, and subcontractors will comply with the requirements of the attached GMPP dated in the conduct of any and all activities authorized. The authorized officer may review and revise the plan as needed.

C. The holder assumes full responsibility and shall hold the United States harmless from any and all claims by him/her or by third parties for any damages to life or property arising from the activities authorized by this special use authorization and encounters with grizzly bears, or from suspension, revocation, or termination of activities authorized by this special use authorization.

D. Intentional or negligent acts by the holder, his/her agents, employees, contractors, and subcontractors that result in injury or death of a grizzly bear will be cause for revocation or termination of this authorization in whole or in part.

E. Failure to comply with provisions A, B, or C, may result in suspension, revocation, or termination of this authorization in whole or in part, and may cause criminal action to be taken against the holder under provisions of the Endangered Species Act of 1973, as amended, or other applicable authority.

The GMPP provided for in Section B of the clause will be in the general format of an operating plan, signed by the holder and authorized officer and attached as part of the authorization. The plan should be tailored to include provisions and requirements specific to the grizzly bear situation and the nature of the special use. As applicable, all plans will as a minimum address:

1. Camp locations and period of time each location is to be used,
2. Areas to avoid or enter, by type of activities, schedule,
3. Seasonal or other human activity limitations,

1/ For easements under Title V FLPMA, 43 U.S.C. 1761-1771, change authority to 7 CFR 1.130-1.151.

4. Livestock and pets,
 - a) By location
 - b) Numbers
 - c) Types (horses, dogs, etc.)
 - d) Treatment of carcasses
5. Food Storage
 - a) Livestock and pet
 - b) Human
6. Food preparation and cleanup
7. Garbage and refuse disposal
 - a) Livestock and pet
 - b) Human
8. Storage of game meat, if applicable
9. Suggestions for minimizing direct conflict
10. Human safety
11. Provisions for amendment or modification

Interim action is necessary to provide for grizzly bear protection on grazing allotments. Incorporate provisions for the protection of the grizzly bear into their permittee operation plans.

Following is a list of pertinent items that should be considered

1. Camp location and period of time each is to be used
2. Areas to be avoided by livestock
3. Treatment of livestock carcasses
4. Food storage (human, herder's dogs)
5. Food preparation and cleanup
6. Garbage and refuse disposal
7. Suggestions for minimizing direct conflict
8. Procedure to follow should a conflict occur (i.e., immediate movement of livestock, reporting, etc.).

Each operating plan involving grizzly bear habitat should also include the following statements.

1. As provided for in Clause 3, Part I of the grazing permit, failure to comply with the foregoing provisions for grizzly bear protection, or intentional or negligent acts that result in injury or death of a grizzly bear may cause administrative and/or criminal action to be taken against the holder of this permit.

2. The Endangered Species Act of 1973 (P.L. 93-205), as amended states, "Any person who knowingly violates any provisions of this act shall, upon conviction, be fined not more than \$20,000 or imprisoned for not more than one year, or both."

Enclosure 2 - Clause for Timber Sale

C6.25#-Protection of Habitat of Endangered Species. (6/78) Location of areas needing special measures for protection of plants or animals listed as threatened or endangered under the Endangered Species Act of 1973 are shown on Sale Area Map and identified on the ground. Measures needed to protect such areas have been included elsewhere in this contract or are as follows:

(List special protection measures needed.)

If protection measures prove inadequate, if other such areas are discovered, or if new species are listed on the Endangered Species List, Forest Service may either cancel under C8.2 or unilaterally modify this contract to provide additional protection regardless of when such facts become known. Discovery of such areas by either party shall be promptly reported to the other party.

In the event of contract modification under this Subsection, Purchaser shall be reimbursed for any additional protection required by the modification, provided that any work or extra protection required shall be subject to prior approval by Forest Service. Amount of reimbursement shall be determined by Forest Service using standard Forest Service rate redetermination methods in effect at time of agreed change and shall be in the form of a reduction in Current Contract Rates unless agreed otherwise in writing. However, in no event may Current Contract Rates be reduced below Base Rates.

INSTRUCTIONS: Include all new contracts and existing contracts at time of extension. For use with 7/70 and 9/73 contract revisions.

Enclosure 3 - Clauses for Leases

ENDANGERED OR THREATENED SPECIES - The Forest Supervisor is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species listed or proposed for listing as endangered or threatened or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the Forest Supervisor that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resource specialist approved by the Forest Supervisor. An

acceptable report must be provided to the Forest Supervisor identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

In order to minimize impacts on endangered or threatened species or their habitat, special conditions, such as unitization prior to approval of operations, and/or other limitations to spread surface disturbing activities over time and space may be required prior to approval and commencement of any operations on the lease.

Enclosure 4 - Public Use Grizzly Clause

Proposed clauses to be used in 36 CFR 261.70 for 1983.

- A. Human sleeping areas will be separated from all food items, cooking areas, garbage or refuse, and livestock feed.
- B. Food items, whether for humans, or prepared foods for livestock or pets, will be kept in bear-proof sealed containers or will be made unavailable to grizzly bears.

Enclosure 5 - Letter to Forest Users

Dear (Permittee, Contractor, Lessee, etc):

The area encompassed in your (permit/contract/lease) is within occupied grizzly bear habitat. The grizzly bear is classified as threatened under the Endangered Species Act. Human/bear conflicts have been, and continue to be, the major factor preventing recovery of grizzly bear populations. Therefore, activities authorized by your (permit/contract/lease) must be conducted in a manner which will prevent or minimize the opportunity for conflicts with the grizzly bear. Violations of (permit/contract/lease) clauses dealing with prevention of human/bear conflicts, intentional or negligent acts which result in the injury or death of a grizzly bear, or other violations of the Endangered Species Act can result in the termination of your (permit/contract/lease).

The Forest Service, as a Federal Agency, is mandated to conduct its management activities in a manner to promote recovery of all endangered and threatened species. We ask for your help in bringing about the recovery of the grizzly bear. Should you have any questions or concerns regarding grizzly bear management and your activities, please contact (District Ranger).

Forest Supervisor/District Ranger

X. BIBLIOGRAPHY

- Anonymous. 1982. Grizzly Bear Recovery Plan, USDI, Fish and Wildlife Service. 195 pp.
- Anonymous. 1979. Guidelines for Management Involving Grizzly Bears in the Greater Yellowstone Area. USDA, Forest Service. 136 pp.
- Craighead, J. J., J. R. Varney, and F. C. Craighead. 1974. A Population Analysis of the Yellowstone Grizzly Bears. Montana Forest and Conservation Experiment Station Bulletin 40, University of Montana, Missoula. 20 pp.
- Knight, R. J. 1981. Status and Suggestions for Management of the Yellowstone Grizzly Bear. Draft Report. 8 pp. (processed)
- Knight, R. J., B. Blanchard, K. Kendall. 1982. Yellowstone Bear Investigation. Annual Report of the Interagency Study Team, 1981. USDI. National Park Service. 55 pp.



APPENDIX H: U.S. FISH AND WILDLIFE SERVICE, BIOLOGICAL OPINION



UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
Endangered Species, Field Office
Federal Bldg., U.S. Courthouse
301 South Park
P.O. Box 10023
Helena, Montana 59626

2095



IN REPLY REFER TO:

M.19 Gallatin National Forest Plan
6-1-86-F-005

October 8, 1986

Mr. Robert E. Breazeale
Forest Supervisor
Gallatin National Forest
P. O. Box 130
Bozeman, MT 59771

Dear Mr. Breazeale:

We have reviewed the information in your September 26, 1986 letter concerning the changes you have incorporated into the Final Gallatin National Forest Plan and Environmental Impact Statement. In view of these changes and our February 14, 1986 biological opinion which still stands, we do not see a need to reinitiate formal consultation.

We appreciate your efforts to conserve listed species and meet our joint responsibilities under the Endangered Species Act.

Sincerely,

Dale R. Harms
Acting Field Supervisor
Endangered Species

cc: Reg. Forester, Missoula, MT
ARD (FA/SE)

RMH/lal

USDA Forest Service BOZEMAN, MT 59715	
OCT 09 1986	
SUPP _____	FIBER _____
SYSM _____	TMBR _____
LAW _____	SL/HY _____
CONT _____	FIRE _____
BF/PUR _____	RES _____
PERS _____	ADM _____
REC/L _____	FZEE _____
PLAN ✓ _____	ENG _____
IO _____	FIN _____
EXEC _____	AG. CA _____
RANGE _____	ED _____
SAWM _____	_____



**UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE**

Fish and Wildlife Enhancement
Federal Bldg., U.S. Courthouse
301 South Park
P.O. Box 10023

Helena, Montana 59626

IN REPLY REFER TO:

M.19 Gallatin National
Forest Plan

July 1, 1987

Mr. Robert Breazeale
Forest Supervisor
Gallatin National Forest
P.O. Box 130
Bozeman, Montana 59771

Dear Mr. Breazeale:

We have reviewed the information in your June 18, 1987 letter concerning the changes you have incorporated into the Final Gallatin National Forest Plan and Environmental Impact Statement. In view of these changes, your September 26, 1987 correspondence and our February 14, 1986 biological opinion, which still stands, we do not see a need to reinitiate formal consultation.

We appreciate your efforts to conserve listed species and their habitat.

Sincerely,

Dale R. Harms
Acting State Supervisor
Fish and Wildlife Enhancement

RMH/clh

USDA Forest Service BOZEMAN, MT 59715	
JUL 2 1987	
SUPP _____	FIBER _____
SYSM _____	TMBR _____
LAW _____	SL/HY _____
CONT _____	FIRE _____
BF/PUR _____	RES _____
PERS _____	ADM _____
REC/L _____	EZEE _____
PLAN <u>1</u> _____	ENG _____
IO _____	FISH _____
EXEC <u>1</u> _____	AR/LA _____

"Take Pride in America"



UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
Endangered Species, Field Office
Federal Bldg., U.S. Courthouse
301 South Park
P.O. Box 10023
Helena, Montana 59626

2095

IN REPLY REFER TO:

M.19 Gallatin NF Plan

February 14, 1986

Mr. James Overbay, Regional Forester
United States Forest Service
Region 1, Federal Building
P.O. Box 7669
Missoula, MT 59807

Dear Mr. Overbay:

This is the Fish and Wildlife Service (FWS) biological opinion prepared in response to your December 3, 1985 request for reinstitution of formal consultation on the Gallatin National Forest Plan. The species considered in this consultation are the threatened grizzly bear (Ursus arctos horribilis), bald eagle (Haliaeetus leucocephalus), American peregrine falcon (Falco peregrinus anatum) and the gray wolf (Canis lupus). The FWS has examined the proposed activity in accordance with the Section 7 Interagency Cooperation Regulations (50 CFR 402, 43 FR 870) and the Endangered Species Act of 1973 (ESA), as amended. This biological opinion refers only to the potential effects on threatened and endangered (T/E) species and not the overall environmental acceptability of the proposed action.

Biological Opinion

It is the FWS biological opinion that implementation of the proposed Gallatin National Forest Plan (Plan), with inclusion of all changes and or modifications described in the December 3, 1985 biological assessment, is not likely to jeopardize the continued existence of any of the four wildlife species mentioned above. In addition, we believe the proposed Plan will promote the conservation of the American peregrine falcon and bald eagle. Background and biological information pertinent to this determination follow. Further informal and formal consultation will be needed on project specific actions as the Forest implements the Plan.

Project Description

The proposed Plan guides all natural resource management activities and establishes management standards for lands administered by the Gallatin National Forest. It describes resource management practices, levels of resource production and management, and the availability of lands for resource management. The proposed

Plan is based on the proposed action (Alternative 7), described in the Gallatin National Forest Plan Draft Environmental Impact Statement (DEIS). The proposed Plan sets forth specific forest-wide goals, objectives, standards, schedule of management practices, and monitoring and evaluation requirements for the next 10 years and proposed management direction for the next 50 years.

Basis of Opinion

Due to the general nature of Forest Plans and the broad spectrum of activities such Plans cover, it is impossible to identify site specific and cumulative impacts of all programs and/or activities to T/E species. Therefore, it is impossible through one consultation to render a biological opinion on all programs and activities identified in the Plan. Thus, additional consultation will be required on each program, activity or project that the Gallatin National Forest determines may affect T/E species, at the time it is designed and implemented. In this consultation, the FWS reviewed the Gallatin Forest Plan to determine:

1. If the proposed land resource allocations and management prescriptions would preclude the survival and recovery of listed species.
2. Whether the Forest policies, management standards, guidelines and prescriptions are compatible with the intended purpose of the ESA.
3. If leasing of oil and gas and ensuing activities will preclude the survival and recovery of any threatened or endangered species.

Following our review of the proposed Forest Plan and DEIS, your biological assessment, and conversation with your staff, we conclude the Gallatin National Forest Plan preferred alternative provides proper assurances that the proposed action would not preclude survival and recovery of listed species. Overall, the Plan provides the following:

1. Both the Plan and DEIS reiterate as a matter of policy and direction that no action will be taken that will adversely affect a threatened and endangered species, and that all proposed or existing activities funded or authorized by the Forest will be reviewed to determine potential affect for listed threatened and endangered species.
2. The proposed Forest output/activities (Average Annual First Decade) are evaluated via the Plan's DEIS and biological assessment and correlated with the conservation of listed species.

3. The Plan's output objectives will be updated every 10 years with each update meeting consultation (Section 7 ESA 1973) requirements.
4. A stated goal of the Plan is to provide habitat necessary to contribute to recovery of T/E species and stated overall objectives are to emphasize recovery of listed species.
5. With inclusion of the recommendations and modifications identified in the biological assessment, the Forest-wide standards identified in MA-1 through MA-26 adequately address T/E species.
6. The proposed Plan states that to facilitate recovery, proposed programs, projects or activities for authorization or funding by the Federal agency will be evaluated for affect on listed species in consultation with the State and the Fish and Wildlife Service.
7. Adequate commitments to T/E species, relative to oil and gas leasing, have been addressed in the Grizzly Bear Standards and Guidelines (Appendix G) and in the Resource Protection Guidelines and Stipulation Requirements (Appendix D) of the Plan.

Grizzly Bear

To assure the viability of the Yellowstone grizzly bear population and its habitats, Forest activities must be at a level and conducted in a manner to assure that (1) bears are not adversely impacted directly, indirectly, or cumulatively; (2) important habitat components are not adversely modified or destroyed; and (3) that sufficient area is left undisturbed from detrimental human activities to meet the biological requirements of grizzly bears. These objectives can be met in the Forest planning process by: (1) allocating sufficient space to accommodate grizzly recovery in which grizzly management is the primary use or grizzly bear supportive allocations are made; and (2) prescribing in areas of occupied grizzly habitat that have non-supportive allocations, sufficient grizzly prescriptions to assure that the activities are made compatible with the biological requirements of the bear.

The lands allocated to grizzly bear habitat management (Management Areas 13, 14, and 15), stratification of occupied grizzly bear habitat into Management Situations 1, 2, and 3, and implementation of their attendant guidelines provide a process to assure that the above objectives are met. We believe that if the occupied habitat is managed in accordance with the direction for MS 1, 2 and 3, and that human/bear conflicts are minimized so as to prevent human-induced mortalities, the grizzly population will

respond by expressing the parameters identified for recovery in the Grizzly Bear Recovery Plan. Thus, this opinion is contingent upon the guidelines for MS 1, 2, and 3 being fully implemented.

Other Management Areas (MA-1, 2, 4, 5, 7, 19, 19A, 20, 24, 25 and 26) in occupied habitat emphasize no man-caused mortalities and maintaining habitat security through application of the Forest Grizzly Bear Guidelines. The Yellowstone Grizzly Bear Guidelines in Appendix G of the Plan are intended to be an extension of the Forest-wide Standards, and are intended to be applied in all management areas in occupied habitat, whether referred to or not in the management standards. This was an important consideration in this consultation. In addition, our no jeopardy conclusion is contingent upon inclusion into the Plan of the following recommendations which were outlined in the biological assessment:

Page II-22, add the following standard: "5. When the Greater Yellowstone Area Grizzly Bear Cumulative Effects Analysis Process becomes operational, it will be used as one of many tools to quantify habitat effectiveness and mortality risk forecasting for current and future foreseeable land use activities in designated bear management units on the forest."

Page III-23, MA-7 - Under "Wildlife and Fish" add: "Grizzly Bear"; with the following standard: "In occupied habitat, utilize the guidelines (Appendix G) for maintenance and enhancement of natural food sources and security cover in this riparian habitat component for the grizzly bear."

Page III-45, MA-13 - Add in "Timber, Timber Management" the following: "The cumulative effects analysis process (when operational) and Grizzly Bear Guidelines (Appendix G) will provide the basis for managing timber sales in this management area. All timber sales that are within this management area will consider: 1) maintaining or enhancing habitat security for the grizzly (i.e., road management); 2) enhancing forest habitat components by silvicultural methods (i.e., fire or timber harvest) for the grizzly bear where security will not be jeopardized and where there is a demonstrated need, for example, to a) provide openings in forest cover to increase production of browse species for ungulate prey species; and b) improve white-bark pine nut availability; and 3) enhancing cover where regeneration timber harvests would provide the quickest results for the grizzly and its prey. A biological evaluation will be prepared for all developmental activities within this management area."

In addition to the cumulative effects analysis process, the following criteria will be used for scheduling timber sales in respect to 1) duration of activities, 2) timing of re-entry, and 3) definition for security areas. These criteria will apply to all timber sales in Management Area 13 (occupied habitat), and are not specifically designed to enhance habitat conditions for the grizzly bear.

1) Duration of Activity

a) In MS 1 -- restrict sale activities to no longer than three (3) consecutive years.

b) In MS 2 -- restrict sale activities to no longer than five (5) consecutive years.

2) Re-entry

a) In MS 1 -- one entry per decade.

b) In MS 2 -- a minimum of two (2) years inactivity following 1-3 years of consecutive activity - or - a minimum of five (5) years following 4-5 years of consecutive activity.

c) For both MS 1 and 2, re-entry should not occur unless 40 percent or more of the drainage can be maintained in cover (20% hiding, 10% thermal, +10% in either hiding or thermal cover) distributed evenly throughout the area. Refer to the glossary in the "proposed Forest Plan" for the definition of the "thermal" and "hiding" cover.

3) Security Areas

In both MS 1 and 2, provide security areas immediately adjacent to the influence zone of the project area on a site by site basis. Security areas typically should be 5,000 acres or larger, contain a similar compliment of vegetative habitat components that existed in the influence zone, and be in areas that are roadless or where the open road density is one mile per square mile or less. Roaded areas may be managed to meet this objective by imposing road closure restrictions.

An area of particular concern in this consultation was the 10 Year Timber Sale Plan (Appendix H) which reflects the frequency, duration and amount of timber harvest activity in occupied grizzly bear habitat. Through informal consultation, this portion of the Plan was found to be incompatible with grizzly bear management objectives and to be inconsistent with the timber sale scheduling criteria. In the December 3, 1985 biological assessment, the Forest Service provided a revised 10 Year Sale Plan (enclosure 1) which has been modified to be consistent with the scheduling criteria and grizzly bear management objectives.

Gray Wolf

Two major factors in managing for wolf recovery include: 1) the maintenance of a year round prey base (primarily deer, elk, moose and beaver); and 2) avoidance of wolf/human conflicts/encounters that would result in wolf mortalities. Three goals of the Forest Plan are 1) provide for a slight increase in big game populations by providing habitat to support them; 2) maintain populations of all wildlife species and provide habitat diversity with increased emphasis on nongame and small game species; and 3) manage roads to in part provide for resource protection and wildlife security. The management direction and guidelines developed for grizzly bears on the Gallatin National Forest should also have positive effects on the wolf. This direction, plus the Forest-wide guidelines for elk and riparian habitat, and the winter range management areas will help insure that a year round prey base for wolves is maintained and security cover is provided.

Bald Eagle

The final Pacific States Bald Eagle Recovery Plan (PSRP) is scheduled to be completed in fiscal year 1986. The primary objective of the recovery process is to provide secure habitat for bald eagles within the recovery area and to increase population levels in specific geographic areas to the extent that the species can be delisted. Implementation of the proposed Plan as it relates to bald eagles will insure adequate consideration to the species through implementation of the management guidelines described in "A Bald Eagle Management Plan for the Greater Yellowstone Ecosystem" and the "Montana Bald Eagle Management Guidelines". These plans are designed to implement the PSRP on a local level.

The bald eagle population goal for Montana is 99 breeding pairs. This population goal is the Pacific States Recovery Team's recommendation for delisting the bald eagle in Montana. The habitat goal is the number of bald eagle territories needed, based on a 71% occupancy rate, to achieve the population objective. Montana's habitat goal is 140 nesting territories. It is important to recognize that in order to achieve the management goal it is necessary to meet both the population and habitat objectives of the Pacific States Bald Eagle Recovery Plan. The Gallatin National Forest has developed nest site management plans for all occupied bald eagle nest territories. These plans are currently being updated and will be reviewed by the Greater Yellowstone Bald Eagle Working Group and the U.S. Fish and Wildlife Service. In the biological evaluation, the Forest recommended the following additions to the Forest Plan regarding bald eagles:

Page III-17, add "Bald Eagle" as resource element with following standards: "Inventory, maintain and enhance (i.e. fish and waterfowl habitat) integrity of immature bald eagle gathering areas and existing/potential nesting and feeding territories for mature bald eagles in the Quake/Hebgen Lake Complex."

Page III-23, MA-7, under the resource element for Wildlife and Fish, add the following standard: "Manage and enhance, if necessary, traditional bald eagle feeding areas, such as, ice-free bodies of water where waterfowl congregate and cold water fish are prevalent, for the bald eagle's continued use."

Inclusion of the above recommendations, commitments to comply with the bald eagle management plans and employment of habitat enhancement techniques to occupied and potential habitat will provide the necessary recognition to contribute to recovery of the bald eagle at a beneficial level.

Peregrine Falcon

The primary objective of the American Peregrine Falcon Recovery Plan for the Rocky Mountain Southwest population is to increase populations to a minimum of 183 breeding pairs sustaining a long-term average production of 1.25 young per annum by 1995. Montana's contribution to the recovery goal is the reestablishment of 20 active pairs. Although not specifically mentioned in the Plan, peregrine falcon re-introduction on the Forest has been underway since 1984. Peregrine falcon re-introduction on the Forest is being carried out in cooperation with the U.S. Fish and Wildlife Service, the Montana Department of Fish, Wildlife and Parks and the Peregrine Fund, Inc. Management areas that included historical and suitable nesting habitat for the peregrine are MA-5, 6, 12, 14 and 19. Suitable nesting territories in these MA's will be managed for security and welfare of the re-introduced peregrine. The Forest has made a commitment to inventory to identify, maintain and protect existing and potential peregrine habitat for population continuance and expansion while emphasizing re-introduction on the Forest lands. The Forest Plan and current activities will provide the necessary recognition to contribute to the recovery of the peregrine falcon at a beneficial level.

Conservation Recommendations

Section 7(2)(1) of the ESA provides two mandates for Federal agencies which should be viewed with equal importance: (1) to insure that none of their activities jeopardize the existence of listed species or destroy or modify critical habitat; and (2) to utilize their authorities in furtherance of the purposes of the Act by carrying out programs for the conservation of listed species. Both the Gallatin Forest Plan and DEIS reiterate as a matter of policy and direction that no action will be taken that will adversely affect a T/E species. We believe the following conservation recommendations should be considered for inclusion into the Plan. These recommendations, if included in the Plan, would assist in the conservation of listed species.

remaining stems, maintain a specific stocking or stand density range, and improve the vigor and quality of the trees that remain.

PREDATOR One that preys, destroys, or devours - usually an animal that lives by preying on other animals.

PREPARATORY CUT Removal of trees near the end of a rotation so as to permanently open the canopy and enlarge the crowns of seed bearers, with a view to improving conditions for seed production and natural generation, as typically in shelterwood systems.

PRESCRIBED BURNING The intentional application of fire to wildland fuels in either their natural or modified state under such conditions as allow the fire to be confined to a predetermined area and at the same time to produce the intensity of heat and rate of spread required to further certain planned objectives (i.e., silviculture, wildlife management, etc.).

PRESCRIBED FIRE A fire burning under specified conditions which will accomplish planned objectives in strict compliance with an approved plan and the conditions under which the burning takes place and the expected results are specific, predictable, and measurable.

PRESCRIPTION See Management Prescription.

PRESENT NET VALUE (PNV) The difference between the discounted value (benefits) of all outputs to which monetary value or established market prices are assigned and the total discounted costs of managing the planning area.

PRESENT NET WORTH The discounted value of price times quantity less cost.

PRESERVATION (VQO) See Visual Quality Objectives (VQO).

PRESUPPRESSION Activities required in advance of fire occurrence to ensure effective suppression action. Includes (1) recruiting and training fire forces; (2) planning and organizing attack methods; (3) procuring and maintaining fire equipment; and (4) maintaining structural improvements necessary for the fire program.

PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY (PSD) A classification established to preserve, protect, and enhance the air quality in National Wilderness Preservation System areas in existence prior to August 1977 and other areas of National significance, while ensuring economic growth can occur in a manner consistent with the preservation of existing clean air resources. Specific emission limitations and other measures, by class, are detailed in the Clean Air Act (42 U.S.C. 1875 et 15q.).